Biodiversity Conservation at the Landscape Scale

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

Greater Madidi Landscape Conservation Area

Implementation Plan
October 2006 – September 2007

Living Landscapes Program- Bolivia/Madidi
Wildlife Conservation Society
30 September 2006

USAID EGAT/NRM/Biodiversity
Leader with Associates Cooperative Agreement Award LAG-A-00-99-00047-00

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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 either directly or indirectly by human resource use activities.

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

The Living Landscape Program promotes conservation of landscapes by focusing efforts on key animal species that require large areas for their conservation, are particularly at risk because they cross land use and jurisdictional borders, and 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 BCLS Program 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 currently:

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

Greater Madidi Landscape Conservation Area Project Strategy
This bi-national area of approximately 70,000km^2 includes a sweeping altitudinal range on the eastern flanks of the Andes, documented as one of the most species-rich regions of the world. Spectacled bears, white-lipped peccaries, jaguars, giant otters, maned wolves and Andean condors and their habitats are partially protected by five protected areas: three in Bolivia (the Madidi National Park and Natural Area of Integrated Management, the Apolobamba Natural Area of Integrated Management (ANMI), and the Pilón Lajas Biosphere Reserve and Indigenous Communal Land), and two in Peru (Bahuaja-Sonene National Park and Tambopata National Reserve). Yet these protected areas alone cannot adequately conserve such wide ranging, resource-demanding species, nor is the current capacity of the protected areas services (SERNAP & INRENA) sufficient to protect the reserves. The unique biological richness of the region is threatened by unregulated land-

use and resource extraction (e.g., livestock grazing, hunting) related to colonization, road development and hydrocarbon exploration and potential exploitation, is exacerbated by a legal/regulatory framework that is fraught with internal conflicts, and is challenged by the difficulties inherent in transboundary coordination.

The principal project goal for the Greater Madidi Landscape Conservation Area is to conserve biodiversity through application of the landscape conservation approach. The landscape conservation approach is based on the development of spatially explicit models that represent: (a) the threats to biodiversity across the landscape, and (b) the biological needs of a suite of landscape species. Due to their extensive and heterogeneous spatial needs, landscape species often represent an extreme challenge for long-term conservation purposes. Their ecological importance also implies that their removal from a landscape will have deleterious, cascading impacts on ecosystems. WCS wishes to conserve ecologically functional landscapes and therefore we are tailoring many of our efforts to respond to the spatial needs of landscape species. A working hypothesis is that by ensuring the needs of area-demanding landscape species, much of the rest of biodiversity will also be conserved.

Although selected landscape species (jaguar, white-lipped peccary, spectacled bear, Andean condor, and vicuña) are famed for their extensive habitat requirements, there is a relative dearth of information regarding their basic biology as well as the magnitude of their spatial requirements. BCLS aims to ensure their conservation and the conservation of the biodiversity they represent. In the Greater Madidi Landscape Conservation Area, we are determining the spatial needs of ecologically functional populations of these landscape species, developing management strategies that include both protected areas and non-protected areas critical to their needs, and including the full participation of local people and other stakeholders in management decisions.

The integration of the biological and threat landscape models has allowed us to formally prioritize specific areas within the landscape for conservation intervention: for example, the conservation landscape helps us to identify potential corridors between large tracts of unthreatened and biologically important white-lipped peccary and jaguar habitat, and identify specific communities whose natural resource use areas overlap with critical areas for spectacled bear conservation. The threat landscape models represent an extension of the original threats analysis, and in combination with the biological models, allow us to develop a spatially explicit threats-based approach to designing and developing conservation interventions. Thus, in addition to formally identifying a given community as a spatial element of the landscape, an examination of the specific community activities also allows us to tailor interventions accordingly. In addition, we can assess the global importance of the landscape for the conservation of these wide-ranging species, as well as identify neighboring areas that may be necessary for consideration for the long-term viability of landscape species populations.

The BCLS project has been working closely with the Tacana people to win legal recognition of their traditional territory, the Tacana Indigenous Communal Land (or Tacana TCO), which borders a large portion of Madidi protected area. By working with the Tacana, using the landscape species conservation approach, we will ensure that significant tracts of natural and semi-natural habitat will retain a high conservation value for the focal landscape species and biodiversity as a whole. Because most wide-ranging species move throughout the lowlands, sound management in the TCO will also help to maintain the integrity of Madidi National Park. At the same time, the landscape approach provides the local population with incentives to improve land-use practices and policies through the development and support of community-based natural resource management projects. Our project has also provided key technical support in the development of the first Management Plan for the Madidi protected area. Efforts will now shift towards implementation of the Madidi plan, as well as the development of a similar plan for the Pilón Lajas protected area and indigenous reserve. Appropriate integration of the Madidi and Pilón Lajas management plans is critical because of the montane forest corridor shared by these protected areas and the need to coordinate protection activities and standardize tourism regulations which involve many of the same actors.

Finally, we have taken various steps toward building integrated and participatory planning processes across several jurisdictional and land use types. This helps to ensure that the visions of local people within the larger landscape are considered in concert with conservation goals. This process is building momentum with the increasing inclusion of local government bodies in environmental management and land-use planning, as well as the development of indigenous territory management plans and territorial planning initiatives.

At a larger scale, our project staff collaborates with WWF, CI, TNC, SERNAP and the Dirección General de Biodiversidad (DGB) as they consider efforts to augment the ecological corridor running from Madidi to Amboró National Park. We share our experiences in the landscape to develop methodologies and lessons that may be applied in a more extensive corridor. Indeed, our efforts have expanded into including conservation planning and intervention design and monitoring efforts in southern Peru and the Bahuaja-Sonene and Tambopata protected areas with INRENA and a Peruvian NGO, Fundacion Cayetano Heredia.

To ensure conservation of the Greater Madidi biological diversity, the BCLS program focuses on five interrelated objectives, and a sixth objective which is the mandate of the WCS/NY Coordination Unit:

1) Measure baselines and monitor landscape species and the landscape context in which they are found;
2) Facilitate community-based natural resource management across the landscape;
3) Strengthen institutional capacity in natural resource conservation and management;
4) Promote the development of national policies that support the landscape conservation approach;
5) Elaborate a participatory, integrated landscape conservation action plan; and
6) Guide the design and testing of wildlife-focused planning.

Total Anticipated Level of Effort in FY 2007
Greater Madidi Landscape Area: $855,950 (USAID/EGAT: $145,000; Moore Foundation: $352,500; MacArthur: Foundation $107,200; Blue Moon Foundation $111,100; WCS: $140,150)

IMPLEMENTATION PLAN: FY07

OBJECTIVE 1: Measure baselines and monitor landscape species and the landscape context in which they are found

Level of Effort (Total Objective 1): $118,250 (Moore Foundation: $50,000; WCS: $68,250)

Activity 1.1 Describe the Ecological Context of the Landscape
Our team will continue to describe mammalian diversity, distribution, relative abundance, and population densities across new sites in the landscape. Camera trapping efforts, line transect surveys and other distributional inventories will provide information regarding mammalian communities, with particular emphasis on ungulates, cavimorph rodents and primates, critical for the development of sustainable hunting models for lowland indigenous groups.

In the first quarter the BCLS team (Siles, Villanueva, Wallace) will also update the vegetation map for the Greater Madidi Landscape by expanding the area under evaluation to include the Peruvian protected areas and buffer zones and the information therein. This analysis will form the basis of the second phase bi-national landscape species analysis being performed jointly by the BCLS team and the Fundacion Cayetano Heredia in Peru. Similarly, the BCLS team will produce updated forest cover loss and vegetation change analyses for targeted areas in the landscape. These areas will be selected based on previous analyses performed on data between 1995 and 2001, as well as requests from our partners. For example, CIPTA and the Tacana are keen to demonstrate that the areas titled to them are not experiencing significant forest loss compared to lands of other actors in the landscape.

Level of Effort: $30,000 (Moore Foundation: $15,000; WCS: $15,000)

Activity 1.2 Research and Monitoring

By the end of FY2007 a second complete iteration of the landscape species conservation planning methodology will have been conducted formally including the neighboring Peruvian protected areas of Bahuaja-Sonene and Tambopata in a bi-national process conducted with INRENA, SERNAP and Peruvian colleagues. To date, significant steps have been made in selecting bi-national landscape species (jaguar, giant otter, Andean condor, spectacled bear, maned wolf and military

macaw), developing biological models for these species and assessing the compatibility of human landscapes data for Bolivia and Peru.

Wallace (the BCLS Director) will launch a National Condor Distribution and Conservation Assessment, with the Direccion General de Biodiversidad y Area Protegidas, through a questionnaire and a subsequent workshop with a number of experts. This will help us to assess the importance of the Apolobamba population in national and international terms and will also allow us to highlight the need to have national and international level conservation strategies for this extremely wide ranging species. Habitat suitability indices will be produced for spectacled bears in the area immediately south of the Greater Madidi Landscape in order to assess possible increased connectivity for this population.

For white-lipped peccaries, radio-tracking efforts using a system of tree towers will be completed at the long-term study site in Rio Hondo (Wallace & Ayala). Efforts to estimate jaguar population sizes across differing vegetation and human influence zones will shift with analysis of camera trapping and line transect surveys within the Tacana TCO conducted between August and October 2006, and efforts in Tambopata River in Peru in June-September 2007. Line-transect surveys in these areas and the Rio Hondo for white-lipped peccaries and other hunted mammals will supplement our population estimates and refine habitat sustainability models for these species (Wallace & Ayala).

Level of Effort: $60,000 (Moore Foundation: $25,000; WCS: $35,000)

Activity 1.3 Ecological Studies of Special Elements

Wallace and Martinez will broaden investigations into the distribution of the two Bolivian primate endemics, *Callicebus modestus* and *Callicebus olallae* in the area of Santa Rosa de Yacuma in the Beni grassland-forest. This work will expand to include research on abundance of both species in a series of targeted forest patches by a Bolivian undergraduate thesis student, Heidy Lopez, and a detailed genetic analysis of fecal samples led by Jesus Martinez and Julia Barreta at the Institute of Molecular Biology and Biotechnology. Wallace will also assist Paola de la Torre in the analysis phase of her undergraduate thesis on the behavioral ecology of the recently discovered species of titi monkey, *Callicebus aureipalatii*. This WCS-funded fieldwork will continue with a second undergraduate thesis, Lesly Lopez, who will collect dry season data on the same two habituated groups at Rio Hondo. Given continuing media interest in the new species, this information is extremely useful for promoting the protected area and its increasing status as a major tourism attraction for Bolivia.

Wallace and Ayala will assist Cynthya Jurado, a Bolivian undergraduate thesis student conducting surveys on the relative abundance and population size of the giant otter along the Tequeje, Undumo and Enapurera rivers of the Tacana TCO, to complete a preliminary picture of giant otter abundance in the landscape. We will continue to disseminate our findings in technical papers reporting population status, habitat use and important resources for these complementary and threatened non-landscape species. In addition, during the first half of FY2007 we will complete a first attempt to estimate Andean fox relative abundance in the Apolobamba protected area through support to the WCS-funded Masters Thesis student Andrea Morales. This study will help us better understand human-animal conflicts regarding Andean fox predation on alpaca herds in the same study area (see Activity 2.2). Similarly, in the second half of FY07 we will also be estimating marsh deer density and habitat preferences, as well as an assessment of conservation opportunities for marsh deer in the entire northern La Paz Department, through support to the WCS Masters Thesis student Boris Rios-Uzeda. It is important to note that both Masters students are former employees of the BCLS Greater Madidi Landscape Program.

Level of Effort: $28,250 (Moore Foundation: $10,000; WCS: $18,250)

Threats Addressed by Objective 1:
Biodiversity surveys provide critical information on species richness and abundance in largely undocumented regions, thereby contributing to biodiversity databases for the landscape, as well as providing on-the-ground information about threats and related species' status. Assessing biodiversity in areas threatened by oil exploration, road construction and colonization will enable us to identify particularly fragile habitats and species and suggest mitigation measures. For example, the range restricted primate endemics of the Santa Rosa de Yacuma are threatened by the planned paving of the 'Northern Corridor'. Our research is being provided to relevant decisions makers and the environmental mitigation team, and these titi monkeys may well become the flagship for municipal efforts to establish a municipal wildlife reserve around

the Yacuma River, the most important eco-tourism destination in the region at the moment. The biodiversity assessments will also represent the baseline for monitoring the success of any subsequent intervention designed to address specific threats. Preliminary assessments of tree, avifaunal and mammal communities have provided management information to protected area administrators, including baseline data for future monitoring programs. This information will be critical for monitoring the effect of imminent hydrocarbon exploration and potential exploitation. Assessments have also been critical for zoning purposes in the new management plans for these protected areas. For example, our research efforts provided the starting point for discussions with otherwise reticent municipal authorities regarding the establishment of a 23,000 hectare municipal reserve to protect the non-protected side of the Madidi River at this site. This municipality has declared this Reserve and now we will work with authorities to produce a management plan for the Reserve. In addition, support to thesis projects increases local technical capacity.

Increasing our monitoring and collection of ecological data for our landscape species will allow us to continually improve the biological, threats and conservation landscapes which form the core of the landscape conservation approach, reducing the number of assumptions currently used to design these landscapes. In addition, information regarding landscape species' abundance and home ranging requirements will assist us in establishing reasonable landscape population estimates and thereby assess the global importance of the landscape for the conservation of these species. Baseline ecological studies will reveal if we need to expand activities into adjacent wild areas to protect a minimum viable population, as has been the case with condors. In turn, we will be better equipped to identify and mitigate current threats to the health and survival of landscape species and the biodiversity they represent, including habitat degradation or loss, hunting and fishing. Further, we will be better able to predict and prevent future conflicts between landscape species and increasing human activities, which include livestock predation and crop damage in the highlands.

Distribution maps of landscape species combined with spatial analyses of existing and potential threats to the landscape have enabled us to identify critical areas for conservation action. These maps will also provide a distributional baseline for managers of the three Bolivian protected areas and neighboring indigenous communal lands. By incorporating park guards into this activity, we are also providing a series of training and motivational opportunities for protected area staff. Similarly, training of Tacana community representatives is building interest and capacity for further Tacana participation in conservation efforts.

Species in addition to landscape species: Andean cat, Andean deer, Yungas brocket deer, Bolivian swallow-tailed cotinga, Yungas woolly monkey, short-eared dog, bush dog, giant otter, maned wolf, marsh deer, and various endemic titi monkeys are all either globally threatened or have an unknown taxonomic status. Additionally, all have very narrow habitat requirements and are, therefore, particularly susceptible to habitat degradation and loss. Information on the conservation status of these species will indicate the health of those species and habitats we consider special elements of the landscape. Our research has already established that Madidi should be considered a regional stronghold for white-lipped peccaries, jaguars, spectacled bears, giant otter, Andean condors, and marsh deer. Given this regional importance, special management considerations are required for these species.

Building this information into conservation plans and management for Madidi, Pilón Lajas, Apolobamba, Bahuaja-Sonene, and Tambopata protected areas will help to address weaknesses in both the capacity to conduct research and the administration of these conservation and management units.

OBJECTIVE 2: Facilitate community-based natural resource management across the landscape

Level of Effort (Total Objective 2): $394,500 (USAID/EGAT: $115,000; Moore Foundation: $100,000; MacArthur Foundation: $80,000; Blue Moon Foundation: $75,000; WCS: $24,500)

Activity 2.1 Community-based Natural Resource Management

Many of the community projects have assumed a supra-communal nature, as projects have expanded to additional communities. This result in itself is a reflection of the power of these community-based projects and for most initiatives this multi-community involvement is critical in terms of market development and sustained long-term production capacity. Our

second-phase support concentrates on strengthening participatory mechanisms and informed decision-making about the management of natural resources and distribution of obtained benefits, as well as the development of 'scale-up proposals' for direct funding to local, established initiatives from national and international sources. First phase 'start-up' support for interested communities has typically included introductory workshops on wildlife management, as well as participatory meetings to design a community-based appraisal of their natural resource management needs and interests.

The native bee honey production initiative will take new steps toward sustainability, with the project team (Perez, Tejada, Llobet, Lara, Wallace) providing technical support. Operational costs have largely shifted to BioCommerce (Programa Nacional de Biocommercio Sostenible) and PUMA (Fundación para la Protección y Uso Sostenible del Medio Ambiente) grants to be received directly by CIPTA (Consejo Indígena del Pueblo Tacana) and the Native Honey Bee Production Association, created with technical support from the BCLS. Delays in the formal approval of these projects have affected the timeline of the native bee honey commercialization, however. Initial production and commercialization is therefore targeted this coming year for the Rurrenabaque, San Buenaventura and Ixiamas tourism markets. Support from the two programs will engage three more communities: Tres Hermanos, a recent recipient of a BCLS competitive community grant, Santa Rosa de Maravilla, and Tumupasha. In this way we will be supporting an increase to 500 producing boxes in order to achieve 245 Kg/year, equivalent to 3100 US$ by 2007 (a year later than originally planned). This would be spread across the 34 members and will represent 28% of their annual income, after payment of 8.5% of profits to the community and association fund.

We will continue giving technical support to community assessments of subsistence hunting by seven communities (Carmen del Emero, San Antonio del Tequeje, Cachichira, Ascuncion del Quiquibey, Esperanza de Enapurera, Villa Fatima, and San Pedro). In FY07, we will be building on the initial workshop with all Tacana communities from the Tacana TCO I to produce a Wildlife Management, Conservation and Monitoring Strategy for the TCO. This will be based on wildlife information generated to date in the TCO, as well as four meetings with zonal subsets of communities in the first quarter of FY2007 , and will culminate in an overall workshop to flesh out the strategy in the second quarter of FY2007 . The strategy itself will consider actual wildlife use, potential management options, threatened species conservation, interactions with other land uses in the TCO, and will develop an explicit monitoring strategy for implementation in the communities. Meanwhile, results from subsistence hunting harvest models will continue to be verified and triangulated with data on three other variables: for both peccary species - age-sex structure analyses derived from collected skulls; for all species - catch per unit effort analyses; and for all species - variations of mean and modal distances from the community of hunted animals. In the third quarter of FY2007 the project team (Gismondi, Llobet, Lara and Wallace) will assist communities in the implementation of control mechanisms for wildlife management decisions, such as restrictions on hunting quotas for known locally threatened species. Monitoring of these control mechanisms will permit the assessment of the effectiveness of community decisions regarding shifts of hunting pressure to less threatened prey species as opposed to over-hunted species such as tapir, spider monkeys, howler monkeys and marsh deer. Finally, in the second half of FY2007 we will explore further means of legal recognition for the Wildlife Reserves within the Tacana TCO, and begin assessing the feasibility of quantifying the environmental services for these Reserves areas. These reserves amount to over 100,000 hectares of the Tacana TCO, with much of this area affording significant watershed protection. The experience of the San Pedro Wildlife Reserve will be at the forefront of these efforts and our assistance to the local communities to document wildlife densities within the Reserve.

Our team (Lara, Llobet, Wallace) will work with CIPTA and the communities of the lower Rio Beni (Cachichira, Esperanza, Tequeje, Carmen del Emero) in the implementation of the finalized management plan for the sustainable harvest of the spectacled caiman in the Tacana TCO. Although this management plan was completed last year, political decisions within the DGB precluded a first, approved harvest quota for the Department of La Paz in 2005 and 2006. The plan is now in the final stages of approval in the Prefecture, and will be submitted for approval by the Direccion General de Biodiversidad y Areas Protegidas before the end of 2006. The DGBAP has already indicated that, as a result, in 2007 there will be an approved harvest quota for La Paz Department. CIPTA considers the management of caimans within the TCO as another potential model for testing their internal control and regulation mechanisms surrounding natural resource management. The CIPTA management plan will also be one of the first complete local management plans for spectacled caiman in the country. The BCLS team will work with CIPTA and the participating communities in the interim period to develop a Caiman Harvest Association, specific regulations for the Association, and begin training in administration. In the second quarter of FY2007 CIPTA will also have to begin negotiations with established Tanning Houses for the best prices

for caiman skins.

Ornamental fish represent a potential high-value natural resource in the region, and to date Bolivia remains one of the few Amazonian countries that do not have a flourishing business. WCS and the Tacana have been approached by a potential Bolivia-based supplier of ornamental fish, targeting the North American and European markets. This potential supplier is negotiating export permits for ornamental tropical fish, but first the Bolivian government requires there to be an approved management plan by an association of tropical fish producers. After an initial meeting with the DGB (Dirección Nacional de Biodiversidad), and determining that the Beni watershed contains many potentially marketable species, CIPTA is interested in establishing the sustainability of this activity. Hence as a first step to address this opportunity, we will work with CIPTA to develop a management plan for the most promising ornamental fish species.

The BCLS team (Miranda, Llobet, Wallace) will produce an experimental harvesting plan for ornamental fish production and management in several Tacana communities, in coordination with the Natural Resources office of CIPTA. This will include formal submission of the plan to the Direccion General de Biodiversidad y Areas Protegidas for approval, which will be complex as it is likely to be one of the first such plans submitted for consideration. In FY07, our efforts will include our ongoing efforts for the identification of species and color forms of ornamental fish present in the River Beni and its northern La Paz tributaries. Our surveys to date have documented over 200 species of fish, of which around 100 species have ornamental potential. Consultation with literature and parallel efforts in Mamiraua, Brazil, and Iquitos and Lima, Peru, has helped us narrow this list down to around 50 target species. These include several interesting color forms and possible new species, including an apparently abundant cichlid species, as well as several scarcer yet striking catfish species. Depending on the harvesting plan process, the team may also need to assist CIPTA in the identification of a strategic marketing and commercialization partner and in the implementation of the first experimental harvests in the second half of FY2007.

Due to the recent withdrawal of a Bolivian institution during this fiscal year, the BCLS team (Miranda, Lara, Llobet, Wallace) will resume commercial fishing management activities with CIPTA, the Tacana Fishermens Association, and at least six Tacana communities along the Beni River in the first quarter of FY2007. Our support will include start-up funds for organized harvests for the commercialization of fresh fish in the Rurrenabaque local market, administrative assistance for the Tacana Fishermens Association in their commercial harvesting efforts, the development of comprehensive and efficient monitoring efforts tied to the commercial harvest centers. This will also include, critically, CIPTA efforts to help the Tacana Fishermens Organization develop specific regulations for fishing activities and the operations manual for the commercial harvest centers. In the medium term the BCLS will also assist the Tacana in identifying potential urban markets in La Paz, a process we anticipate beginning by the end of FY2007.

Following the completion of a tourism strategy for the Tacana TCO approved in December 2005, the BCLS team (Lara, Caballero, Painter, Wallace) will continue to work with CIPTA to identify potential funding sources for the gradual implementation of this strategy. The strategy is based around community eco-and ethno-tourism in the region, initially prioritizing: the San Miguel del Bala eco-lodge, Laguna Moa tourism camp, Tuichi River tourism camp, and Tumupasha's cultural and scenic qualities. The BCLS already includes administrative support to the San Miguel del Bala eco-lodge through our partnership with CIPTA in order to maintain transparency in accounting procedures and this will continue throughout FY2007.

The BCLS will continue to provide technical support the sustainable forestry initiatives within the Tacana TCO. There are now 14 initiatives, ten of which have approved management plans totaling ca. 60,000 hectares. Over the course of this year, and through CIPTA and the incipient Technical Branch (see Activity 3.5), we will assist CIPTA in its aim to have at least 50% of the areas zoned for forestry activities under approved management. It is important to emphasize that remaining areas, while not under management, are largely in more remote areas and are not all subject to illegal harvesting from third parties, although this is a problem in some areas. In this light, CIPTA will continue to develop its pioneering relationship with the Forestry Superintendancy and conduct joint patrolling activities in the TCO region.

Similarly, during FY2007 the BCLS will assist the Tacana communities and CIPTA in the establishment of a chocolate producers' Association. The BCLS may also be providing scaling-up funds to the eventual Association within the framework of the third competitive call for proposals by CIPTA described below. However, clearly this will depend on the

Association submitting a proposal and it being approved in the evaluation committee. Should it be necessary, the BCLS team will assist the Association in the development of further proposals and will also focus on installing administrative capacity in the Association. The longer term goal of the Tacana is to access specialized organic chocolate markets where fair trade and certification may increase the value of the chocolates.

Throughout FY2007 the BCLS will also assist CIPTA in the monitoring and supervision of projects from BOLFOR II and IBIF to support handicrafts and chonta and motacu palms used in the handicraft trade in the TCO. In the same manner, we will assist the supervision of AOS-funded livestock management efforts in Carmen del Emero in the TCO. In this light, the BCLS team (Alandia, Nallar) will continue to provide veterinary advice and training modules regarding livestock management within Tacana communities. This technical support aims to increase incomes of domestic households, and ensure that livestock are managed adequately in terms of disease prevention and timely responses to reported episodes -- thereby reduce hunting pressures. This year the support will be offered to additional communities, and a monitoring system established with the four participating communities to date: Carmen del Emero, San Pedro, Cachichira, San Antonio de Tequeje, and Esperanza de Enapurera.

With support from the MacArthur Foundation, we (Silicuana, Peláez, Painter, Wallace) are working with three communities in the montane forests of Madidi (Virgen del Rosario, Pata, and Santa Cruz de Valle Ameno) to implement a sustainable harvest program for incense collectors. We are mapping incense stands used by these communities, estimating their density and potential production, and have already produced draft management plans for two of the communities, with a third plan scheduled for completion by the end of FY06. These experiences have been shared with the nascent incense user association (ARIMA), and over the next year we will be working with the communities and the association to increase the number of communities interested in producing sustainably harvested incense, as well as promoting management planning in other communities of the association. Together with CARE we provided assistance to ARIMA to develop a proposal to PUMA that has been approved. Once we conclude the final community management plan with Santa Cruz del Valle Ameno, by October 2006, we will focus on strengthening ARIMA as a productive organization and use the three community plans to develop incense harvest regulations for ARIMA.

Our project staff (Gismondi, Lara, Llobet, Miranda, Perez, Tejada, Wallace) will provide logistical, financial and technical support for community natural resource management projects selected in an imminent third competitive round of assistance grants scheduled for October 2006, based on CIPTA's sustainability criteria. Implementation of these projects represents significant steps in the process of community capacity building for natural resource management initiatives. Funds for these projects will be disbursed according to the approved budget and log frame detailing project activities. Critically, in this third competitive round, CIPTA will distinguish between two types of project: small grants for relatively new natural resource management initiatives, and medium sized grants for existing initiatives requiring funds for scaling up to include commercialization activities. This represents one of the key strategic functions of the CIPTA Technical Branch whose implementation will be discussed in Activity 3.5 below.

During the third quarter of FY2007 the BCLS team will also organize and conduct the III Encounter for Community Natural Resource Management Initiatives in Northern La Paz, to build on the previous two Encounters and develop an action plan for community initiatives and relevant authorities as well as begin the organization of Natural Resource Fair in late 2008. In this context the recent proposal for the creation of legislation that responds to Community Business Enterprises will be revised with the various Natural Resource Associations mentioned above.

Level of Effort: $270,000 (USAID/EGAT: $60,000; Moore Foundation: $60,000; MacArthur Foundation: $80,000; Blue Moon Foundation: $70,000)

Activity 2.2 Community Mitigation of Human-Animal Conflicts

The project team (Zapata, Ticona, Nallar, Wallace) will continue work with five communities (Cañuhuma, Medallani, Caalaya, Lagunillas, and Curva) in Apolobamba to monitor family-level corrals for nocturnal livestock protection. This represents a community-based solution to human-animal conflicts. In each of these communities, the WCS team is working with community members to document the number of livestock owned by each family and to monitor losses throughout the year. This year, the community grants to improve corrals will be withdrawn and the team will work on monitoring losses

and training communities in basic animal husbandry techniques, given that to date livestock disease is responsible for far more losses than wildlife predation. This year we will be expanding our work into the Antaquilla TCO in Apolobamba, represented by four additional communities. Although we are only beginning discussions with Antaquilla, they have agreed to monitor losses for one year before receiving community grants to improve corrals and animal husbandry techniques. This will allow us to assess and quantify losses before and after our interventions, and will be a powerful tool for the protected area administration in the future when dealing with human-animal conflict issue. Critically, this support will be provided in conjunction with the protected area, through park guard participation, and the activity will also be linked to educational information on wildlife conservation and the importance of the protected area. A WCS Field Vet Program grant to Fabian Beltran will also allow use to further examine the health status of domestic (alpaca and llama) and wild (vicuna) camelid populations in Apolobamba. Initial results from last year indicate very high levels of endo and ectoparasites in the domestic camelids.

Level of Effort: $50,000 (USAID/EGAT: $35,000; Moore Foundation: $10,000; WCS $5000)

Activity 2.3 Land Tenure and Territorial Planning

The land-titling process for the Tacana TCO is drawing to a close, with 372,000 hectares titled to the Tacana management organization (CIPTA) to date. With financial and administrative support, our Tacana legal team (Revollo) will continue the process to secure the final ca. 34,000 ha of lands with conflicting ownership that are still formally owed to the Tacana. The change of government and changes in the INRA offices have slowed down progress over the last 9 months, but we hope that things will speed up as the INRA offices stabilize.

In FY07, the project team (Lara, Moscoso, Wallace) will assist CIPTA in responding to possible requests for additional information for the approval of the recently submitted formal 'Territorial Plan' to the Agriculture Vice Ministry, as another necessary step in the formal consolidation of the Tacana TCO. This plan and the accompanying maps are products of the micro-zoning of the Tacana TCO carried out in FY2005. By the end of FY07, the natural resource access and use regulation will be under implementation in at least 12 of the Tacana communities (currently in use in 6 communities), and we will have printed the final approved natural resource use and access regulation on banners for display in each community. Revollo will also ensure that each individual community's legal registration is recognized by the relevant authorities.

In addition, the legal team will continue to support CIPTA in the legal consolidation of a second territorial demand from the Tacana TCO in the northern portions of the Greater Madidi Landscape. CIPTA presented this second TCO demand to address the territorial needs of four communities settled on the Madre de Dios River. These communities represent key allies for the Madidi protected area in this isolated region. Their territorial demand includes Brazil nut-rich forests and natural savannas, which are a complement to the Pampas del Heath savannas found within Madidi. The Natural Resource Management Strategy for this second TCO developed by CIPTA and the BCLS will be published during FY07, including results from Participatory Rural Appraisals, censuses, and participatory zoning maps.

Level of Effort: $54,500 (USAID/EGAT: $15,000; Moore Foundation: $25,000; WCS: $14,500)

Activity 2.4 Environmental Education

Over the next year we will be producing a series of manuscripts describing the lessons learned to date in our landscape. To facilitate this effort, the local BCLS team will retreat for a Writing Workshop in the Bolivian Yungas for ten days in mid-January, with each participant charged with producing at least one draft manuscript as a contribution to documenting concrete management experiences. The project will also continue in the production of a series of posters, booklets and brochures for local distribution to urban centers such as San Buenaventura and Rurrenabaque and rural communities, highlighting the importance of the Greater Madidi Landscape and its wildlife.

Level of Effort: $20,000 (USAID/EGAT: $5000; Moore Foundation: $5000; Blue Moon Foundation $5000; WCS: $5000)

Threats Addressed by Objective 2:
Community-based natural resource management projects are critical for the long-term conservation of biodiversity within the landscape, as they promote the concept of natural resource conflict mediation at a local scale, improve the capacity of local people to design and execute natural resource management projects and, most critically, promote community-based decision-making processes, with internal regulations and controls for natural resource management - including wildlife.

In the highland portion of the landscape, human-animal conflicts frequently prevent communities from recognizing the benefits of forests and biodiversity. Instead, their perceptions center on the problems they see originating from the forest. This creates the need to document, measure and develop solutions to key human-animal conflicts. An evaluation of the extent and distribution of crop damage and livestock loss, as well as of its perception by local people, is the basis from which possible solutions to this problem can be proposed. Demonstrating an interest in these conflicts and working toward sustainable solutions will improve local peoples' perception of wild places and protected areas, reducing direct pressures on identified problem wildlife species, as well as habitat destruction and corresponding declines in wildlife populations and biodiversity in general. The information gathered will also contribute to a better understanding of human-environment interactions in the region, while building national and local capacity to conduct applied conservation research and natural resource management programs.

In the lowland portion of the landscape, a natural resource management strategy will promote productive economic options that are compatible with long-term sustainable management of the Tacana territory, thereby stabilizing the eastern forest boundary of Madidi protected area. The Tacana land-use plan enables zoning and enforcement to prevent both colonization and inappropriate land-uses. Approved internal control and regulation mechanisms will strengthen CIPTA and help ensure sustainable resource management. Discussions of benefit and profit distribution will further encourage the notion of long-term financial planning and equity within the natural resource user groups as well as CIPTA. In addition, these steps will help stress the collective nature of the TCO land title and the need to consider the long-term sustainability of activities beyond the needs of a single community.

Legal tenure within protected areas, as well as for indigenous communal lands, is a necessary first step toward sound natural resource management. One of the largest obstacles for appropriate management outside protected areas is the lack of clarity regarding limits and responsibilities over the management of a given area. The planning and zoning processes realized in the framework of the Tacana TCO Strategy and the Madidi protected area management plan consider the needs of the local population as well as those of biodiversity.

The zoning process includes actual and predicted areas of use by communities. However, there is still a lack of clarity regarding land tenure in the Apolo region of Madidi and in the Apolobamba protected area, because the legal titling process halted following political unrest and a conflict regarding political limits of Apolobamba.

Our project staff will also work to change attitudes toward destructive land-uses and the sometimes negative perception of protected areas, by strengthening the ability of teachers to convey critical information regarding the costs and benefits of unplanned natural resource use to their pupils. For the Bolivian population in general, posters and informative radio shows will also transmit the value and purpose of the Madidi protected area and the Tacana TCO, along with information regarding local natural resource management.

OBJECTIVE 3: Strengthen institutional capacity in natural resource conservation and management.

Level of Effort (Total Objective 3): $280,700 (USAID/EGAT: $10,000; Moore Foundation; $160,000; MacArthur Foundation: $27,200; Blue Moon Foundation: $36,100; WCS: $47,400)

Activity 3.1 SERNAP Institutional Strengthening

At present we are establishing a framework of coordination with the new protected area administration. Initially we will only develop an agreement with SERNAP to enable them to contract a lawyer for Madidi Protected Area to assist the

control and vigilance activities of the park guards. Nevertheless, we hope to be able to provide technical support to the new administration to reestablish: the capacity for monitoring conservation status and threats on the basis of our experience in Madidi and Pilon Lajas; implementation of the conflict management strategy; development of new models of participation with indigenous people in Madidi and Pilon Lajas and assessment of large infrastructure projects and their impacts on protected areas. Nevertheless, at present these discussions are very difficult because of governmental preoccupation with political aspects and lack of technical counterparts in SERNAP.

Level of Effort: $55,000 (USAID/EGAT: $5,000; Moore Foundation: $50,000)

Activity 3.2 Protected Area Support and Staff Training

The Pilon Lajas management plan has been approved by the CRTM and the Beni Prefecture Department offices-- as both a management plan for the protected area and a life plan for the TCO. This year we will focus on developing a monitoring plan matched to the management plan, and a final estimation of the financial resources required for implementation of the management plan. We will also conclude the research priorities portfolio for Madidi and Pilon Lajas protected areas, based on the recommendations contained in their respective management plans. The draft research regulations will be presented to SERNAP for their consideration by the end of 2006. We will also provide technical assistance in developing the content and nature of the co-management structure to be established for Pilon Lajas protected area with the CRTM.

Level of Effort: $57,200 (USAID/EGAT: $5,000; Moore Foundation: $35,000; MacArthur Foundation: $17,200)

Activity 3.3 Wildlife Management Program (Institute of Ecology)

We will continue developing and co-organizing the now-institutionalized Journal Club, support student theses, and provide work experience projects with the Institute of Ecology and in coordination with the Biology Department Faculty of the UMSA University. The journal club aims to promote critical thinking among Biology students, as well as Department and Institute staff. This forum also fosters discussion of current themes in conservation biology, ecology and behavior. This fiscal year we will be supporting at least seven undergraduate thesis students and at least five undergraduate research projects (a precursor to thesis phase research). This contact with the local university is also a way for us to identify potential thesis students or young professionals to join our and our local partners' conservation efforts.

Level of Effort: $15,000 (Moore Foundation: $15,000)

Activity 3.4 Monitoring Strategy Implementation

Last fiscal year the project team (Painter, Ayala, Siles) finalized a realistic monitoring strategy for the Madidi protected area, centered on surveillance activities by protected area staff. This strategy is currently under implementation. We hope to establish a new agreement with SERNAP to continue providing assistance in data entry linked to a GIS system, incorporating conflict monitoring, and analyzing the results gathered. Furthermore, additional funds from the MacArthur Foundation will also permit us (Siles, Wallace) to continue to collaborate in monitoring and sharing the methodologies between Madidi and the neighboring Peruvian areas of Tambopata and Bahuaha Sonene. This effort is being led by the BCLS team, with collaboration from the Fundacion Cayetano Heredia in Peru as well as INRENA and SERNAP protected area authorities in Peru and Bolivia respectively.

On the basis of conceptual models developed for each activity, identification of key indicators, and our newly structured internal information management system, we will monitor our interventions and link them to our activity-based accounting. We are currently back-tracking our financial investments for the last 7 years in order to quantify investments and link them to conservation results. Similarly, we are now back-tracking our technical output in order to complete information for identified monitoring indicators where information is available but not systemized in a monitoring database. Both of these processes will be complete by the end of FY07.

We will continue monitoring threats to the landscape through interpretation of satellite imagery, particularly the advance of the agricultural frontier, identifying factors associated with higher rates of habitat loss such as roads and population size

(see Activity 1.1). By developing this internal capacity, we will later be able to promote a similar initiative within Madidi and the Tacana TCO initially. This is necessary to improve their capacity to link interventions to results and avoid conflicts due to misinformation.

Level of Effort: $20,000 (Moore Foundation: $10,000; MacArthur Foundation: $10,000)

Activity 3.5 CIPTA Institutional Strengthening

A crucial element of the Natural Resource Use and Conservation Strategy for the Tacana TCO is to develop a governance plan and build the capacity of CIPTA to respond to the technical and administrative challenges of managing the TCO. Our project team (Wallace, Lara) will continue to assist CIPTA in implementing the institutional processes developed during the previous fiscal years, such as activity planning, budget development, and communication and general meetings. In addition, we (Lara, Berrios, Rosas) will continue to conduct short administration courses in administration for CIPTA staff, community representatives, and, critically, for members of the different user groups that are forming across the TCO in order to manage finances and a diversity of natural resources (see Activity 2.1). These courses are accompanied by ongoing administrative support to natural resource groups as required. This year we will be installing a state of the art accounting system in the CIPTA offices to assist tracking several direct sources of funding to CIPTA, as well as WCS funds which, from January 2007, will be managed on the basis of quarterly disbursements to CIPTA as a further step to strengthen administrative capacity and build a track record. An efficient and transparent administrative and accounting system will assist CIPTA and the natural resource user groups in attracting direct financing for management activities from local and international donors, as well as safeguard the communities, CIPTA and the TCO from financial mismanagement.

Over the last six years CIPTA has made significant progress in its organizational and administrative capacity, and is witnessing the emergence of a number of natural resource management user groups or associations (ten forestry associations, cacao, association, handicraft association, San Miguel tourism association, caiman association, fishermen's association, ornamental fish association, native bee honey association, etc.) perhaps as many as 20 to 30, all of which are being established under the CIPTA banner. In this light, CIPTA and our technical team have identified communication and organizational capacity as a major priority. The CIPTA directorate is aware of the need for developing capacity across the institution, and in the context of the emerging organized user groups this need will be even greater. This year the BCLS team (Lara, Wallace) will assist CIPTA in the development of a Technical Branch that will be charged with assisting natural resource management initiatives and generating additional financial resources for Tacana communities. This will strengthen in-house technical ability and capacity-building processes and ensure technical continuity through distancing technical positions from the political elected positions of the CIPTA directorate. It will also allow the Branch to think about steps to develop a Foundation to manage potential longer-term sources of finance, and provide the administrative and technical transparency necessary to access major sources of donor support. The BCLS and CIPTA will develop this Technical Branch using the experience of another indigenous organization that WCS is supporting - CABI (Capitania de Alto y Bajo Izozog) in the Bolivian Chaco. In the first half of FY2007 CIPTA and the team will develop the structure and statutes, based on the specified objectives of the Technical Branch. This will lead to a discussion of the positions required within the Branch, and roles and responsibilities of each position. These discussions will form the basis for a formal proposal that will then be submitted for approval at the forum for decision making within CIPTA: the General Assembly held once every four years and currently scheduled for mid-2007.

In addition, WCS (Lara, Revollo, Wallace) will work with CIPTA to provide legal training and technical counsel to natural resource initiatives and associated user groups within the TCO through programmed planning and review, quarterly meetings, and additional specific workshops. This will be particularly relevant for the USAID-funded forestry and native bee honey production initiatives in the Tumupasa and Ixiamas areas. It will also apply to wild chocolate management, spectacled caiman management, commercial fishing activities, ecotourism, and handicraft initiatives that span the TCO, as well as potential new initiatives such as ornamental fish harvesting and vanilla production. This is particularly important as more natural resource groups begin to formally develop small business ventures in the TCO.

This year we will continue to work with CIPTA in the identification of young indigenous leaders. This will be particularly important given the establishment of 'Subcentral' offices in Ixiamas and the Tacana TCO II, both of which will require work on defining their roles and functions during FY07.

Level of Effort: $96,100 (Moore Foundation: $30,000; Blue Moon Foundation: $36,100; WCS: $30,000)

Activity 3.6 Local Government Environmental Planning and Management Support

This year we will provide assistance to the La Paz Prefecture in developing a proposal for a Departmental System of Protected Areas. This will include an identification of the priority biodiversity areas in the department through a GIS analysis, an analysis of land tenure over these areas and therefore of key stakeholders to be engaged, gathering of experiences in the region and in other Bolivian departments (especially Tarija and Santa Cruz), and a legal diagnostic of the opportunities for departmental initiatives for conservation based on the prefecture's legal mandate. We will work closely with NATIVA and technical staff in the prefecture of Tarija, as well as with FUNDESNAP, in order to capitalize on their initiatives for similar systems and financial mechanisms to support them. We have approached Conservation International about participating through an agreement between WCS/CIPTA/CI in the development of the San Buenaventura and Ixiamas Territorial Plans so that these may take into account and be compatible with both the Madidi Management Plan and the Tacana TCO territorial plan. We hope to reach an agreement that is acceptable to all parties. Ixiamas Municipality has also requested support to develop a Tourism Strategy, which we will develop together with a proposal on the main opportunities to engage FESPAI in tourism activities around Madidi Protected Area.

We will support the Municipal Tourism Reserve recently created around Alto Madidi in the Ixiamas municipality showcasing the importance of the area for conservation and its potential as a tourism attraction, on the basis of the impressive wildlife encounter data we have gathered. We are currently awaiting the environmental permits for the construction of a tourism eco-lodge infrastructure at Alto Madidi in partnership with the Ixiamas municipality and the Madidi protected area. Meanwhile we will continue to conduct tourism training and information workshops dealing with guiding, cuisine and administration with local stakeholders in Ixiamas. During FY07 we will begin steps to assist the municipality in the management of this reserve for tourism and the development of a management plan, a process which will begin by the end of FY2007.

Level of Effort: $37,400 (Moore Foundation: $20,000; WCS: $17,400)

Threats Addressed by Objective 3:
By strengthening the ability of municipalities to participate in landscape conservation planning, we will promote appropriate land-use, and avoid conflicts with municipal development plans on such conservation initiatives as road building and colonization. Analyzing and addressing conflicts in the northern La Paz region will enrich our 'threats and opportunities' analysis and will also provide insights into the management of these and future conflicts. A better trained park guard corps will also provide an early warning system and monitoring tool for other more direct threats such as mining, hunting, disease, fire and unregulated tourism that can result in habitat loss or declines in wildlife populations.

A monitoring strategy is a vital ingredient of adaptive management. Increasing the capacity of SERNAP, DGB, CIPTA, PILCOL, CPILAP and the Institute of Ecology to design and implement monitoring strategies will improve protected area administration and natural resource management. Performance monitoring will allow management agencies to strategically modify the design and location of their interventions. It will also hone in-country technical capacity to evaluate, support, propose and implement wildlife management.

Successful management of the TCO is dependent on CIPTA continuing to adopt a democratic and participatory natural resource strategy. A critical aspect of this challenge is the development of legally, technically and administratively-sound natural resource user groups and formal associations as a means of ensuring sustainable economic activities for communities and local people. Such a strategy will allow CIPTA to engage support of its local constituency and relevant national institutions, therefore increasing its capacity to implement management actions, integrate its land-use vision into a landscape context, and promote the conservation of biodiversity. An efficient and transparent administrative system will guarantee the standing of CIPTA with donors and constituent communities alike, and help to ensure a future of sound natural resource management.

OBJECTIVE 4: **Promote the development of national policies that support the landscape conservation approach.**

Level of Effort (Total Objective 4): $55,000 (USAID/EGAT: $15,000; Moore Foundation: $40,000)

Activity 4.1 Technical and Policy Support

During FY2007, the BCLS team will continue giving technical advice and support for developing regulations regarding management of natural resources within protected areas. More specifically, we expect to assist in the completion of regulations for sustainable natural resource use in Madidi, in particular through our pilot activities with incense. Having concluded the regulations for the tourism program, we hope to develop outreach materials once we have established a work plan with the new SERNAP administration.

We also plan to build on the support we have provided the Association of TCOs around Madidi in developing a proposal for co-management of the protected area, and provide them with guidelines to develop clear benchmarks to describe processes of increasing their responsibility with regards to different aspects of protected area management. As a priority in the first quarter of FY2007 we will also focus on providing assistance to the association of TCOs in analyzing the threats and opportunities possible from hydrocarbon exploration and exploitation within Madidi. We will also provide Apolo Municipality with similar information.

At the request of the DGBAP, WCS (Llobet, Painter, Wallace) will continue to review the final drafts of a series of regulations relating to biodiversity conservation and natural resource management. More specifically, in FY07 this support will extend to the Scientific Authority (Noel Kempff Mercado Natural History Museum) in the design of sustainability criteria, evaluation criteria, and guidelines for the management of wildlife in Bolivia. Additionally we will continue to assist the Environment office of the Vice Ministry in reviewing impacts related to road infrastructure in Madidi, in close coordination with Conservation Strategy Fund.

Level of Effort: $25,000 (USAID/EGAT: $5000; Moore Foundation: $20,000)

Activity 4.2. Financing Mechanisms

In FY07 we will continue to assist CIPTA and the Tacana TCO in the development of proposals to finance their Natural Resource Management Strategy. Last year CIPTA was able to secure funds from Programa Nacional de Biocommercio Sostenible and PUMA Foundation to strengthen the native bee honey producer's association, Canadian Aid to assist handicraft and forestry initiatives, and Dutch AID to assist formal education in the Santa Fe community. This is a critical element of our institutional strengthening plan for CIPTA. We are also exploring long-term financing mechanisms, including assisting them in the development of relationships with other institutions and international donors. For example, the development of administrative capacity is fundamental in order for CIPTA to receive funds directly from donors.

In the second quarter of FY2007, funds will become available from the Madidi Trust fund managed by FUNDESNAP. The BCLS team will be involved in discussions of how to execute these annual funds with FUNDESNAP, although the responsibility falls to FUNDESNAP and SERNAP for the execution and management of the funds. During FY2007 we will continue to work with FUNDESNAP to explore additional sources of finance for the Madidi trust fund.

Level of Effort: $15,000 (USAID/EGAT: $5000; Moore Foundation: $10,000)

Activity 4.3. Threats Assessment Working Group

In general, we discuss and analyze threats to the area in three forums: the inter-institutional committees of Apolobamba, Pilón Lajas and Madidi; the Coordination Committee for the Amboró – Madidi Corridor (CCCAM); and in the Management Committees of the Madidi and Pilon Lajas protected areas. This year we will work with the Conservation Strategy Fund in a scenario analysis of the Northern Corridor road proposal and associated potential mechanized soya agriculture. We will also

look at the imminent construction of the final stage of the Interoceanic Highway, from Acre into Peru's Madre de Dios Region, where it will run near the Bolivian border to Puerto Maldonado. Finally we will provide support to CPILAP in developing a position regarding the proposed hydrocarbon exploration in the Madidi region. Already we have provided CIDOB with technical assistance to respond to the proposed law to declare the exploration and exploitation of hydrocarbons within Madidi protected area a national priority, by pressing for a Strategic Evaluation and the use of best practices as established by the Energy and Biodiversity Initiative.

Level of Effort: $15,000 (USAID/EGAT: $5000; Moore Foundation: $10,000)

Threats Addressed by Objective 4:
Long-term financial stability is required for central government, municipalities and local organizations to implement landscape conservation activities. Strengthening these stakeholders' financial stability is a necessary component of building their capacity to manage the area. Financial considerations are also a critical component to a long-term vision of sustainable development for the region.

Wildlife and non-timber forest product use regulations are necessary both at the protected area level and the national level in order to improve management of existing harvesting activities and also in order to promote new productive activities which are compatible with biodiversity conservation; thus, they respond to direct threats of over harvesting as well as to habitat loss which results from the lack of alternatives to destructive and unprofitable slash and burn agriculture.

The proposed roads will open previously inaccessible areas to settlement, gold mining, and other productive activities, promote speculation in lands being used by indigenous people and Brazil nut collectors, and will fundamentally change the regional economy and associated patterns of land use. New soybean varieties that appear to do well in areas characterized by marginal soils and a susceptibility to flooding mean that the two highways will encourage agro-industrial development in areas that were previously thought to be unsuitable for intensive crop production. In the medium term, hydrocarbon concessions that cover an important part of the region, and significantly overlap with national protected areas and indigenous lands, will further infringe on existing land rights and impose limitations on options promoting sustainable development and conserving biological diversity.

OBJECTIVE 5: Elaborate a participative, integrated landscape conservation action plan.

Level of Effort (Total Objective 5): $7500 (USAID/EGAT: $5000; Moore Foundation: $2500)

Activity 5.1. Integrated Landscape Conservation Action Plan and associated Stakeholder Workshops
The second edition of the Integrated Landscape Conservation Action Plan is once again delayed due to the changing political situation in Bolivia, and specifically the restructuring of government offices concerned with development and environment sectors. However we anticipate publishing this by the end of FY2007. This document will include more detailed environmental planning experiences, thereby creating a 'living' library of relevant landscape conservation planning documents. The document will review mechanisms to integrate multiple, spatially distinct land-use planning initiatives into an overall landscape conservation strategy: for example, community and inter-community zoning, TCO land-use plans, protected area management plans, local government development proposals, and multiple-municipality planning.

Level of Effort: $7500 (USAID/EGAT: $5000; Moore Foundation: $2500)

Threats Addressed in Objective 5:
Conflicts between local development plans and conservation plans will be identified, and appropriate stakeholders and actions necessary to address them outlined. Engagement of local stakeholders will promote biodiversity conservation outside protected area boundaries. Our inter-institutional coordination efforts will also assist in the monitoring of direct threats and the development of a long-term, coordinated vision of conservation and sustainable development on a regional scale. By identifying key gaps in activities and funding, we will help to make sure that all threats to the landscape will be

properly addressed. This holistic view will increase integration and coherence in conservation and development planning documents and processes across the landscape, thereby improving likelihood of long-term success in both.

OBJECTIVE 6: 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, facilitate and harmonize testing and implementation among these core sites, and capture the synergistic benefits of diverse experiences. This unit guides 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 FY07, 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. We have now refined and simplified the process for selecting landscape species, including development of software as a decision-support tool for analysis, and during this year, we will finalize and disseminate a 'how to' manual to accompany the selection software. 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 6): $106,326 (USAID/EGAT: $48,792; WCS: $57,534)

Activity 6.1 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 report, some of which will involve consultation at sites, as previously noted.

Results/Outputs:
Focused and timely technical assistance and collaboration provided to field sites based on needs, leading to conservation landscape strategies, target monitoring of effectiveness, and processes in place to increase participation of stakeholders.

Level of Effort: $17,640 (USAID/EGAT: $10,045; WCS: $7,595)

Activity 6.2 Design, implementation, and testing of decision support tools

Activity 6.2.1 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 FY07, we will finalize and disseminate four technical manuals that are currently in preparation: *Selecting Landscape Species*, *Range-wide Priority Setting*, *Creating Conservation Landscapes*, *Building Relational Databases for Conservation Information Management*. The manuals are designed to provide clear and practical instructions to field practitioners on using a number of conservation tools. The manuals will also be translated into Spanish and French and disseminated to WCS projects, partners (government, NGO and local), and other conservation colleagues.

Activity 6.2.2 Landscape Species Approach progress
6.2.2.1 Building Conservation Landscapes
In FY07, LLP staff in New York will finalize methods for building conservation landscapes, based on implementation experience at our GCP and LLP field sites. By January 2007, we will have drafted a Technical Manual on combining biological and threats landscapes into conservation landscapes that provide field practitioners with guidance as to where and what actions would have the greatest positive impact on wildlife conservation and natural resources management. We will then work with additional field sites to pilot the use of the draft manual as a decision-support tool. Feedback from these pilot sites will help refine and revise the manual before it is published and broadly disseminated in hard copy and as a PDF on our website.

Activity 6.2.3 Integrating strategic planning and project management
Almost all of the WCS/GCP demonstration sites have developed and fine-tuned their conceptual models and used them to specify their frameworks for monitoring project effectiveness. Though these are important components in an effective project cycle (c.f., The CMP Open Standards for the Practice of Conservation), their utility is greatest when they are integrated into annual financial management (i.e., work plans, budgets and reports). By linking project strategic planning with annual financial management, we will ensure that activities to measure effectiveness are incorporated into the budget process, and that monitoring results (i.e., observed progress towards stated objectives) are presented in annual reports and used to guide subsequent workplans. This will be an important step in institutionalizing adaptive management in the projects. Integrating strategic planning with annual financial management is a challenge because both systems have different (though complementary) purposes. For example, the latter has primarily been concerned with budgeting, recording expenditures, and maintaining an audit trial, rather than tracking project progress and adapting actions to changing conditions. Moreover, given the high management burden already associated with designing, implementing and evaluating conservation projects at a landscape scale, attempts to integrate the two systems must do so without increasing staff time commitments. We envision that this integration process will continue beyond FY07.

Results/Outputs:
Technical manuals designed, tested in the field and distributed in hard copy as well as on CDs and on-line for wider distribution. A process for integrating project strategic planning with annual financial management will be developed and the draft approach piloted at 1 or 2 sites.

Level of Effort: $22,839 (USAID/EGAT: $13,724; WCS: $9,114)

Activity 6.3 Catalyze cross-site and cross-organizational learning, and communication

Activity 6.3.1 Annual meeting of WCS/LLP staff
We will organize and host an annual meeting to bring together WCS/GCP and LLP field site staff to share and capture lessons learned in the implementation of threats-based approaches to biodiversity conservation at landscape scales. These meetings have, in the past, been enormously fruitful for our field staff, as they provide a forum for serious, practical discussions around the challenges to effecting conservation in large, complex landscapes. The final agenda for the meeting, which will be held in the spring of 2007, will be decided after iterative consultation with GCP/LLP project directors and staff. Options include, for example: conducting a series of working groups to identify tried or promising solutions to common challenges faced by our conservation staff, or conduct a writers' workshop to generate a WCS working paper that synthesizes field experience using the Landscape Species Approach for conservation of wildlife and wildlands. During FY06, producing the "Casting for Conservation Actors" report demonstrated that a writers' workshop is one of the few ways to quickly and efficiently generate valuable synthetic information from multiple, geographically-dispersed field projects.

Activity 6.3.2 CMP: leadership, design, writing and audits
CU 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 eAdaptive-Management 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 development of eAM (software development for project design and tracking). Lastly, we will continue to provide technical input into measurable Global Indicators of Biodiversity status.

Activity 6.3.3 Local engagement in conservation survey
In FY06, we completed an analysis of WCS field experience to identify the most appropriate mix of actors and institutions to effect conservation under different ecological, political and economic contexts. This synthesis of field-based practice was published as a WCS working paper: "Casting for Conservation Actors: People, Partnerships and Wildlife." In FY07 we will extend the reach of this ground-breaking analysis by publishing a summary of the findings in a peer reviewed journal and as a Living Landscapes Program Bulletin. These documents will be made available as PDFs on our website.

Activity 6.3.4 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 1,000 households with traditional claims to natural resources within 4 national parks in Gabon, and an additional 1,000 control households living outside the influence of the 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. Results of the baseline survey will be analyzed during FY07 and 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:
Summary of "Casting for Conservation Actors: people, partnerships and wildlife" published in a peer review journal and as a LLP Bulletin. Initial findings from the Gabon Parks and People will be published in a peer review journal.

Level of Effort: $50,567 (USAID/EGAT: $20,000; WCS: $30,567)

Activity 6.4 Application of Living Landscapes Program tools beyond core sites

Activity 6.4.1 Training workshops and technical assistance in the use of LLP tools
A number of workshops and other opportunities to train field practitioners in the use of conservation tools will be organized and implemented throughout the year. Specifically, the LLP staff will conduct a workshop on landscape scale strategic planning for WCS and local and national staff working in the transboundary region of Tibet and Xinjiang China, and will continue to work with staff of the national park authorities in Tanzania and Lao PDR on the use of Landscape Species for landscape-scale wildlife conservation planning. LLP staff will also continue to provide assistance to WCS and reserve staff of the Amazon Andes Conservation Program in Brazil, Peru, Ecuador, and Bolivia. Finally, LLP staff will assist WCS and national staff in Central Africa in the use LLP tools to develop a regional strategy for forest elephant conservation.

Activity 6.4.2 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, practice, 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: $5,700 (USAID/EGAT: $0; WCS: $5,700)

Activity 6.5 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 use of the strategies and tools.

Throughout the year, the Coordination Unit will assist field staff in completing annual Implementation Plans, reporting on Performance Monitoring forms, and submitting Annual Reports. The program coordinator 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. Timely preparation and submission of USAID reports.

Level of Effort: $9,579 (USAID/EGAT: $5,022; WCS: $4,557)

FY07 Travel Details:

Name	Destination	Reason
Robert Wallace & Lilian Painter	Guatemala	WCS Latin American and Caribbean Regional Meeting (Nov 2006)
Amy Vedder	USA-Madidi	Project oversight and learning (2007)
1-2 Staff People	To Be Determined	LLP Annual Meeting

Appendix

1. Madidi USAID Branding Strategy/Marking Plan