



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

Annual Report
October 2005 – September 2006

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I. Summary of Activity Status and Progress

a. Introduction/Summary:

The Greater Madidi Landscape is documented as one of the most species-rich regions of the world. This bi-national area of approximately 70,000km² includes a sweeping altitudinal range on the eastern flanks of the Andes. Spectacled bears, white-lipped peccaries, jaguars, and Andean condors and their habitats are partially protected by five protected areas: the Madidi National Park and Natural Area of Integrated Management (PNANMI Madidi), the Apolobamba Natural Area of Integrated Management (ANMI Apolobamba), and the Pílon Lajas Biosphere Reserve and Indigenous Communal Land (RB&TCO Pílon Lajas) in Bolivia, and the Bahuaja-Sonene National Park and the Tambopata Reserve in Peru. Yet these protected areas alone cannot adequately conserve such wide ranging, resource-demanding species, nor is the current capacity of government 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 and road development and exacerbated by a legal/regulatory framework that is fraught with internal conflicts.

The Greater Madidi Biodiversity Conservation at the Landscape Scale (BCLS) Program aims to ensure conservation of the wild lands and wildlife of the greater Madidi area through a landscape conservation approach, working with other conservation and sustainable development projects active in the region. The landscape approach is designed to determine the needs of key wildlife species, assess human activities across the same landscape, and use the intersection of these to focus efforts on those areas and actions that emerge as key conservation conflicts or opportunities. The landscape species conservation hypothesis assumes that by meeting the needs of a suite of spatially and ecologically complementary landscape species, biodiversity in general will be conserved.

Overall, the Greater Madidi Landscape Program remains on track. To accomplish the long-term goal of biodiversity conservation at the Greater Madidi Landscape Conservation Area, we focus on five interrelated objectives: establish baselines and monitor landscape species and the landscape context in which they are found; facilitate community-based natural resource management across the landscape; strengthen institutional capacity in natural resource conservation and management; promote the development of national policies that support the landscape conservation approach; and elaborate a participative, integrated landscape conservation action plan.

Major Accomplishments:

Five of the indigenous territories in the Bolivian landscape are now either established or well on the way to gaining legal recognition, many of them with accompanying management strategies. All three Bolivian protected areas have developed management plans. Our research has raised the profile of the region and we are using the results to reiterate the landscape species analysis including adjacent areas in southern Peru. Many of the community natural resource projects are beginning to move into commercialization phases and their success is being recognized by local funding sources. This has required strengthening processes in management and particularly administration, which we are successfully implementing with a series of local partners who were initially reticent. This period has also seen concrete collaborations with some municipal and local government officials, most notably with the creation of a 22,000-hectare Municipal Tourism Reserve in one of the most outstanding locations of this landscape, at the Alto Madidi jaguar census location.

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.

In terms of research, we remain at the forefront of conceptualizing the landscape conservation approach and developing useful landscape species tools that can be applied globally to landscape conservation initiatives. In particular, we have now developed multiple population target levels for conserving landscape species, given the general paucity of information regarding landscape species' densities and current scientific debate over how many animals are required for a minimum viable population. The initial results of these population viability analyses indicate the importance of the neighboring protected areas in Peru for effective spectacled bear, condor and jaguar conservation. This highlights the need to consider expanding our conservation efforts to southern Peru, as well as to northeastern La Paz Department in Bolivia for species such as maned wolf, marsh deer and giant otter. Our pioneering efforts to document Andean bear and Andean condor populations, both notoriously short of data, have proved successful and our ongoing efforts with jaguar, white-lipped peccaries and a series of special elements are now well-known in the international scientific and local conservation practitioners' community. Apart from being used in local conservation planning and environmental education efforts, the results from these studies are also highlighting the need for landscape scale planning for these regionally threatened species.

b. Highlights:

- WCS provided the main technical and logistical support for the establishment of the Association of TCOs (Tierras Comunitarias de Origen or Indigenous Territories) of Northern La Paz, with two of the objectives of creation being to promote the conservation and sustainable management of natural resources as well as the defense of protected areas and indigenous territories.
- Legal support to CIPTA (Consejo Indigena del Pueblo Tacana) supported initiation of the land titling process for the Tacana TCO II in the Madre de Dios area of northern La Paz Department.
- First draft of Sustainable Natural Resource Management Strategy for the Tacana TCO II completed, representing the territorial vision of CIPTA and the four Tacana communities in Madre de Dios region.
- Over 100 km of the potentially conflictive boundaries of the titled sections of the Tacana TCO I successfully delimited, with appropriate signs and with significant community support.

- Twelve sustainable community forestry management initiatives underway in the Tacana TCO I and at differing stages in terms of approved management. Already the Tacana TCO I represents one of the community spaces with the most land under approved forestry management in the country.
- Technical, administrative and financial support lent to significant non-timber forest product management in the Tacana TCO I, including handicrafts and wild chocolate production.
- Final draft of an official government-recognized Territorial Plan for the Tacana TCO I representing the culmination of the participative zoning and micro-zoning process of the communities completed and ready for submission.
- Over 40% of the Tacana TCO I zoned as either Reserve or Exclusive Tourism Area, and over 80% zoned for different forms of sustainable natural resource management and/or Reserve, indicating the Tacana's commitment to conservation.
- Administrative capacity installed within CIPTA and actively being passed on to a series of productive associations including the community forestry initiatives. This administrative capacity is critical to securing a number of direct grants for CIPTA from either local funding agencies or international agencies that have been informed by the advances in the Tacana TCO I.
- Support to the development and initial implementation of the Environmental Management Strategy of the Leco Indigenous People, leading to the development of three priority proposals. Legal technical support leading to the conclusion of the land titling process of polygon 1 (62,780.7625 hectares), which is currently awaiting the signature of the President of Bolivia, and polygon 2 (23,944.3958 hectares), which is currently awaiting the final land titling resolution approval by the Director of the land titling agency (INRA).
- Incorporated processes for strategic conflict management in the SERNAP central office, through the institutionalization of the Environmental Conflict Management Strategy and database and the Environmental Conflict Management and Prevention System.
- Developed GIS capacity and, in coordination with CSF, conducted technical analysis on key issues related to conflicts in Madidi protected area (such as the road from Apolo to Ixiamas and local economic benefits generated by the protected area).
- Through sharing technical information on the important biological characteristics of the Alto Madidi region, promoted the creation of a 22,618-hectare Municipal Tourism Reserve by the Municipality of Ixiamas.
- Through additional funding from MacArthur Foundation, provided a lawyer for Madidi protected area, technical support to the tourism program and a coordinator for the Apolo park office, strengthening the capacity for legal enforcement of park legislation overall, developing and implementing specific tourism regulations for the protected area whilst also strengthening outreach activities in the Apolo region.
- Through a subgrant to Conservation International and using the solid information base developed by WCS over the past seven years, developed the PMOT (Municipal Territorial Plan) of Apolo Municipality.

c. Table of Activity Status:

Greater Madidi Landscape Conservation Area

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II. Detailed Description of Site Progress

a. Key short and long-term program objectives for the site for the reporting period

As we move into our eighth year in the landscape, our attentions have been increasingly focused on developing the capacity of a series of local actors – protected area administrations, indigenous organizations, natural resource management associations, and local communities – to receive and administer funding directly and diversify their management capacities accordingly. Another major challenge remains the integration of management activities between differing planning units particularly in the face of proposed and ongoing infrastructure projects in the landscape and immediately surrounding region.

b. Activity Description

Key Management Issues:

- Due to CIPTA time constraints, we have been unable to advance as much as we would have liked with the intended CIPTA engagement of Forestry Concessions that lie immediately adjacent to the Tacana TCO I. Nevertheless, over the next six months we hope to make significant advances on this theme.
- The process of developing the San Buenaventura Environmental Management Strategy was halted in 2005 after the change in municipal authorities.
- Engaging the La Paz prefecture was impossible until recently because of their negative position with regard to the Madidi protected area - generated by the Apolo-San Jose road proposal and the political use that was made of this issue by Departmental Councillor candidates.
- Production of didactic materials on the Madidi Management Plan was not possible because conflicts in the region in May 2005 led SERNAP to reopen negotiations of an already approved plan.
- Changes of staff at the Central SERNAP office have led to increasing disorganization and lack of leadership at a critical time for establishing strategic medium-term plans.

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

Activity 1.1. Describe the Ecological Context of the Landscape

Patterns of land cover change in and around Madidi National Park started with analysis by Jessica Forrest (2003), GIS analyst within the WCS Living Landscapes Program. New analyses are currently being carried out on the amount of change in land cover according to managed area type in the landscape, updating the earlier analysis with the new boundaries of the titled TCO Tacana and forestry concessions, to be included in an upcoming article by Forrest et al. (in press, *Biotropica*). We are also trying to separate out human land cover change vs. natural and error, which is proving interesting because natural change is much greater than human change. By the end of this reporting period we will also have updated the vegetation map for the Landscape including southern Peru, and begun updated land cover change analyses for priority areas identified within the original Forrest et al. analysis. These analyses will be used to demonstrate the management capacity within the Madidi and Pilon Lajas protected areas and the Tacana TCO's and also to establish baselines for analysis over the coming years in the face of forthcoming infrastructure projects in the

region, for example, the bi-oceanic road proposal, the 'northern corridor' road project in Bolivia, and proposed hydrocarbon exploration and exploitation in Madidi.

Furthermore, this year we have produced final versions of the Bolivian Line Transect Data Base, the WCS Northern La Paz Camera Trapping Data Base, and the WCS Northern La Paz Mammal Record Data Base. As part of this process we have also prepared over 200 specimens (scats and hair) for genetic processing in Canada. We have also begun major efforts to produce the Bolivian Data Base for Medium and Large Mammals using published and grey literature from our library and from the Bolivian Fauna Collection (CBF). We used local reports, researchers' data, management plans, student thesis, and others. So far, we were able to collect the following information: 3208 point records, 2332 with geo-referenced coordinates and by the end of this reporting period we will also have included information from Santa Cruz, Cochabamba and Pando. Both of these efforts will facilitate detailed biodiversity monitoring programs gradually being implemented with our local partners in the region, for example, the Madidi and Pilon Lajas protected area administrations and indigenous organizations such as CIPTA and PILCOL. These databases are also allowing us to produce an analysis of wildlife densities across the different major vegetation types of the landscape and the region. These analyses will enable us to further assess the status of Bolivian wildlife species, and better interpret subsistence hunting in the Bolivian lowlands.

Activity 1.2. Research and Monitoring

Although the five 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. In the Greater Madidi Landscape Conservation Area, we are determining the spatial needs of ecologically functional populations of these landscape species and others, 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.

Between July and September 2005, we conducted the first survey of Andean condors in Bolivia in the Apolobamba mountain range of the Greater Madidi Landscape and during this reporting period analyzed the results. Carcass feeding stations at six points across Apolobamba provided data on the population structure at the site, and 'digi-scoping' based photography and filming of all visiting individuals allowed the individual identification of adult male Andean condors (because of marking on the crest and face). This technique indicated a minimum of 23 adult males and based on observed age/sex class proportions approximately 78 condors total in Apolobamba; however, capture-recapture techniques suggested as many as 41 adult males and as such 139 condors total. Support for the sampling design and data analysis was provided by Dr. Samantha Strindberg, the Living Landscapes Program's biomonitoring specialist. Finally, we completed the design of questionnaires for the forthcoming National Workshop for Andean Condors. These numbers indicate the importance of conservation planning at a scale that comprises a significantly larger landscape (into Peru).

The camera trapping surveys in the Heath River were designed to estimate jaguar abundance for this region of the Madidi protected area. Importantly, this effort was a bi-national effort with the Fundación Cayetano Heredia from Lima participating in the surveys that included areas of Madidi and Bahuaja-Sonene. The density estimate for this area was intermediate for the sites surveyed so far in northern La Paz (4.2 individuals per 100km²). Finally, we tested a number of perfumes on jaguars at the La Paz zoo and Chanel was the most effective although not uniformly across all individual cats included in the study.

A further 12 months of radio-telemetry data have established clear ranging patterns for nine white-lipped peccaries representing at least four different social groups. Several of the telemetry-based concentrations of peccary localities have been field verified: they mainly represent salt licks and palm concentrations. Two GPS collars were recovered and whilst both were still functioning, neither had managed to acquire more than five or six locations in a year.

Activity 1.3. Ecological Studies of Special Elements

This year we attended the Andean Cat Groups meeting in La Paz. As a result and through a specific agreement with BIOTA, we provided 40 camera traps and our technical experience in the design and implementation of camera trapping surveys to Giovanna Gallardo in her efforts to document Andean cat abundance in Sajama National Park. Results demonstrated that certain camera trap models (DEERCAM) did not function well at high altitudes, probably because of cold temperatures and prolonged exposure to the strong and direct sunlight. Three photographs of small cats have been preliminarily identified as pampas cats and puma; viscacha and Andean fox were also photographed.

Surveys to describe the distribution of the *Callicebus* endemics continued with 2 new points for *Callicebus olallae* and 10 new points for *Callicebus modestus*. More importantly, we defined the south-eastern distributional limits for these range restricted species. An institutional agreement was signed with the Institute of Molecular Biology at the Universidad Mayor San Andres, and together we are working to describe the genetics of the two endemics, initially with samples from similar species. Efforts are currently concentrated on gathering scat samples from wild groups of both species and the newly described *Callicebus aureipalatii*. So far 39 samples for *C. olallae* have been collected and by the end of this reporting period we should have similar sample numbers for the other two species. Finally, we have developed an experimental design for an undergraduate thesis study on the abundance of the two species in the forest patches of the Beni using their calling behavior.

Between October and December 2005, Paola de la Torre (a Bolivian undergraduate thesis student) habituated two groups of Madidi titi monkeys to her presence. Over the last six months, she has taken quantitative data on titi monkey behavior and ecology using scan samples and all-day follows on both groups of titi monkeys. In addition, a second thesis student, Lesly Lopez, will continue efforts from August onwards to complete a full year of behavioral ecology studies on this flagship species for Madidi National Park.

This year we also continued phenology efforts for palm species and increased our sample size in terms of area for the quantitative analysis of the vegetation structure of the different forest types at the study site.

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

Activity 2.1 Community-based Natural Resource Management

Fisheries: We assisted the MNHN (Museo Nacional de Historia Natural) & CBF (Coleccion Boliviana de Fauna) in the construction and equipping of fisheries collection centers in four communities (Cachichira, Esperanza del Enapurera, San Antonio del Tequeje y Carmen del Emero) of the Tacana TCO. This included equipping six boats with freezers for fish transportation, in which

the Altamarani and San Miguel communities benefited as well. In San Miguel, we supported the equipping of an interpretation center (to be inaugurated) about the Beni River's fish fauna. In the communities of Carmen del Emero, San Antonio del Tequeje, Esperanza del Enapurera, Cachichira, Altamarani y San Miguel, we reinitiated the fishing auto-monitoring for commercial species, which was delayed due to coordination problems between the communities and the MNHN. By the end of this reporting period we plan to meet with the Tacana Fishermen Association, CIPTA and MNHN to discuss the fisheries regulations and to define how to provide continuity to the collection centers and the fishing registry.

Ornamental fish: We have completed the diagnostics fieldwork to evaluate the potential for ornamental fish harvesting in the TCO Tacana I (5 field visits, collecting samples on 23 water bodies in two TCO Tacana areas). We have identified 206 fish species belonging to 29 families. Among these, we identified 108 species as having commercial ornamental potential. In addition, we are investigating the reproductive, feeding and population ecology of the species, aiming to use these criteria in the selection process for species with commercial potential, and for establishing, together with the marketing information, a species focal group to initiate an experimental harvesting process.

We carried out a workshop for professionals linked to ornamental fish production where we discussed the environmental, social and economic sustainability criteria. In addition, we initiated a process and an exchange of experiences with the Sustainable Development Institute of Mamirauá; this Institute has a specialist group currently working on the same subject. We visited a few aquaria in Iquitos and Lima (one of the main ornamental fish commercialization centers in South America) to learn more about the commercialization process issues in order to include them in the development of our experimental harvesting plan. We are supporting the development of a thesis that will broaden our knowledge of one of the ornamental species with exploitation potential. By the end of the reporting period we will also have developed a proposal on experimental harvesting of ornamental fish in the TCO Tacana for formal submission to the Bolivian authorities.

Honey: With WCS financial and technical support, CIPTA participated in the 6th School of Projects of the PUMA Foundation and obtained the approval for the project entitled "Native Bee Honey (Meliponidae) Production and Commercialization Considering Local Capacity Development". After meeting all the requirements requested by PUMA Foundation, the project is currently in its final revision phase, waiting to be signed by PUMA, CIPTA and the Huasha Ena Association. After the signature, the funds will be awarded for the implementation of the project that will assist the organization of the Native Bee Association, provide funds to augment the production by including additional communities, and conduct a marketing study for the product.

Due to the change in administration of the National Program of Sustainable Biocommerce (PNBS), currently being developed by the Friends of Nature Foundation (FAN), we assisted CIPTA in the reformulation of the "Native Bee (Meliponidae) Honey Production and Commercialization Considering Local Capacity Development" project, in order to include activities that were not being financed by PUMA such as additional support for communities, and the development of a local technology center for native bee management. This project has also been approved. Overall, the native bee program includes 5 Tacana communities: San Pedro and Santa Fe started with an experimental honey production project since 2001, Tres Hermanos began in 02/2005 and the communities of Santa Rosa de Maravilla and Tumupasa initiated activities in 06/2006.

In terms of the community work on native bee management, during the past year the number of hive boxes has increased 22% and honey production has increased 4% (23kg) in the San Pedro and Santa

Fe communities. Production will increase accordingly in the second year due to new hives being better established. We finalized printing an educational brochure aimed to provide information about the project. In addition, we are finishing the development of a manual on native bee biology, management and exploitation.

Hunting: We continued supporting the hunting self-monitoring process in the TCO Tacana (hunting records per community and faunal counts in transects), working with 5 adjacent communities along the Beni River that together allow for management of a continuous spatial area. We are also working on subsistence hunting management in a Mositén-Tsimane community, Asunción del Quiquibey, inside the Pilón Lajas Biosphere Reserve and TCO. The hunting database for the TCO Tacana, that contains self-monitoring hunting records from 2001 until today, was integrated into a spatially explicit GIS using a one km² grid to map hunting events. Hunters in the communities are now successfully using the one km² grid for mapping each hunting location following appropriate training efforts in the field. By the end of the reporting period we will be finishing three scientific papers on the hunting results in the TCO Tacana. These results will form the basis of the TCO Tacana Wildlife Conservation, Management and Monitoring Strategy to be developed over the next fiscal year.

With the experience gathered to date, we developed a TCO Tacana Wildlife Management Workshop, aiming to begin development of a specific strategy for the management and conservation of fauna within the TCO Tacana. Apart from our efforts to manage subsistence hunting, we have continued our support to the San Pedro community's initiative of establishing a "Community Fauna Reserve" through the training of community members in wildlife count methods such as transects, using an educational manual developed for this purpose, as well as the results of a field training exercise. This will be a wildlife protection reserve as San Pedro aim to increase the certification possibilities for the neighboring managed forestry area. We are also supporting the development of two graduate theses related to subsistence hunting management and by the end of the reporting period we will begin analyses on information collected related to ungulate population density and structure in Carmen del Emero.

Caiman: After collecting the necessary information regarding the population status of spectacled caiman during the period of 2001 to 2004, in 2005 we discussed with the Tacana communities of the Beni River (Cachichira, San Antonio del Tequeje and Carmen del Emero) about the criteria needed to establish an annual quota for the sustainable exploitation of *Caiman yacare*. This information helped us in finalizing the Management Plan Proposal for "Sustainable Exploitation of Caiman (*Caiman yacare*) in the TCO Tacana". This proposal was discussed and agreed with CIPTA between October and December 2005. The proposal was sent by CIPTA to the corresponding authorities (Dirección General de Biodiversidad, Dirección de Medio Ambiente de la Prefectura de La Paz, Museo Noel Kempff Mercado – Autoridad Científica CITES) in April 2006. During June 2006, the authorities requested that the proposal be sent in digital format, and now it has been provisionally approved by the authorities, with harvesting to commence in the 2007 dry season. By the end of the reporting period we will have conducted a workshop for making public the diagnostic results for the exploitation of caiman in the TCO Tacana. There are two scientific articles being produced regarding our research that will be sent for peer review and publication by the end of the reporting period.

Cocoa: Within the management and commercialization of the native cocoa project in the Carmen del Emero, Tumupasha and Macahua communities, financed by FTDH, CARE and WCS, we were able to implement the certification of 124ha in the Carmen del Emero community. In addition, we assisted the community with direct commercialization with the La Paz-based CONDOR company.

We also provided technical support for the production of 25,000 cocoa seedlings and 8,000 hybrid cocoa seedlings in Macahua and Santa Fe. We also finalized the implementation of the agro-forestry plot management project in the Tumupasha community, with fourteen 5ha plots implemented under agro-forestry systems of cocoa, cedar trees and citric fruits.

Crafts: With the support of LIL Indígena and counterpart funds from WCS, the handicraft project was implemented by CIMTA (Tacana Womens Council), successfully remodeling the Tacana Cultural Center. This activity fueled the reactivation of the handicraft commercialization and the consequent display of the Tacana culture. Parallel to this, the CIPTA-WCS implemented the Tacana textiles salvaging project, financed by the Indigenous Fund (Belgium cooperation), in which 25 Tacana women worked on salvaging designs and shapes in cotton textiles, currently being sold at the Tacana Cultural Center.

Forestry: The CIPTA-WCS partnership has been instrumental in promoting, assisting, technically reviewing and accompanying a number of community forestry initiatives across the TCO. To date this amounts to 13 different initiatives that have committed to formal management plans, ten of which have at least an annual harvest plan approved. In total this amounts to almost 60,000 hectares under formally approved management. This represents one of the most impressive figures across the indigenous territories of Bolivia. We carried out visits to encourage communities of the importance of having forestry management plans, and were successful in convincing a few target communities (where illegal timber exploitation was previously a problem) that management plans are required. Finally, we participated in the public account forums from the local forestry community associations of APIAT, Agrofort, San Pedro, Maravilla and El Carmen.

Tourism: We technically supervised the development of the Tourism Strategy for the TCO Tacana and provided some punctual assistance in some preliminary implementation. This strategy was approved by CIPTA and the Tacana communities at the General Assembly and will be implemented in three phases. Firstly, the focus will fall on the existing tourism initiative in the Tacana TCO: San Miguel del Bala Ecotourism Lodge and as such our support has been to assist the lodge with administrative capacities and analysis. Second phase projects will focus on the Laguna Moa site along the Beni River and a trekking route from the Tuichi River and Tumupasha community. We are currently assisting CIPTA in identifying funding sources for the gradual implementation of the strategy.

Vicuña: Once again, we provided prompt support for the annual vicuña census in Apolobamba, where vicuña wool is a significant, potentially sustainable resource. The population is stable at just over 10,000 individuals. We also secured funding to develop the vicuña parasitological research program in the ANMIN Apolobamba. By the end of the reporting period we will also have conducted two training modules for park guards and community members regarding animal health in relation to vicuña management, as well as have lead vicuña health sampling during the 2006 captures.

Domestic livestock: We provided training to 40 TCO Tacana community members in a structured course on Domestic Animal Health and Management. We also trained locals in collection, conservation and shipping of samples for disease diagnosis. We developed a pilot proposal on domestic animal management in the TCO Tacana with emphasis on chickens, ducks, pigs and cattle.

We carried out the first diagnosis for management and animal health conditions in three TCO Tacana communities and collected baseline information about the domestic and wildlife animal

health status inside the TCO Tacana. The team has also assisted the Tacana communities in the recovery and use of medicinal plants to prevent parasitosis in domestic animals, including organizing a Local Researchers' Groups to experiment with medicinal plants for veterinary use.

We provided technical support to the San Pedro community by diagnosing the paramixovirus (Newcastle disease), and applied prevention measures to avoid a potential epidemic outbreak. We also diagnosed pig Pseudorabies in the Esperanza de Enapurera community, and we are supporting the implementation of disease control measures. By the end of this reporting period we will have developed a management profile for the sustainable production of domestic pigs in the Sarajuv community from the Apolo region.

Incense: In this period, we have developed a participative management plan for sustainable harvest of incense together with the Virgen del Rosario community based on field data about density, size and location of natural incense groves. In addition, draft management plans will be finalized for Pata and Santa Cruz del Valle Ameno. Regarding the inter-institutional coordination between WCS-Bolivia, the CARE-UNDP project, the Apolo municipality, and the PNANMI Madidi, we supported the formation of the Madidi-Apolo Incense Collector Association (ARIMA), in which 8 communities are participating. We have coordinated ARIMA's participation in the PUMA Foundation's project school, which has been successful in its first two phases, only missing the financial agreement's signature. We have also supported community experiments on agroforestry and cuttings treatments of degraded incense plantations, with plants as well as with stakes. After 3 months, there is a 93% of regeneration. This is a strategy to recover the productive use of degraded incense plantations, avoiding their transformation to grasslands.

Activity 2.2 Community Mitigation of Human-Animal Conflicts

The WCS Field Veterinary program developed a project entitled "Evaluation and Mitigation of Livestock Predation by Wildlife Fauna", that included the zoning and travel route establishment of Chakus -a predator scare-away technique for reducing human-animal conflicts. We focused on quantifying and characterizing predation events affecting cattle ranchers, and then applying and evaluating different non-lethal interventions to diminish conflicts between humans and wildlife. The team digitized the community produced "Talking Maps" to geo-reference the predation events that have been registered by local livestock framers. Subsequently, the project's field team and the Apolobamba communities involved in this project have been able to use this information for identifying areas more vulnerable to livestock predation by Andean foxes, pumas and Andean condors. The communities involved in this project are Cañuhuma, Medallane, Caalaya, Curva and Lagunillas and this constitutes part of our support to the Apolobamba protected area.

We also developed a base line regarding the health status of alpacas and sheep in five communities and carried out parasitological and hematological diagnosis, since disease causes greater mortality than wildlife predation. We trained 11 community members on biological sample collection and conservation, and several ranchers participated in this process indirectly by holding animals and learning the techniques applied. Similarly we carried out one training workshop for park guards related to disease monitoring and epidemics surveillance, and 5 community-based informational workshops (in quechua and aymara languages) showing the project's preliminary results, and including themes such as ecological trophic chains, integrated ecosystem health, conflicts and climate change.

By the end of this reporting period we will be communicating the parasitological analysis results from the alpaca and sheep sampling field trip in the communities of Curva, Lagunillas, Caalaya,

Cañuma and Medallani. We will also have developed reports on annual predation event occurrence, and the application completion rate and perception of the efficiency of mitigation measures taken by communities. Finally, we will be pursuing an agreement with the Antaquilla TCO to work in themes related to animal health and reduction of human-wildlife conflicts.

Together with the II Mastozoology Congress, we organized a course entitled “Managing Human-Wildlife Conflicts, given by Dr. Adrian Treves. We also organized the 2nd National Workshop on Human-Wildlife Conflict Management.

Activity 2.3 Land Tenure and Territorial Planning

This year we focused on strengthening, control, surveillance and consolidation of land titling, in which land compensation for the Tacana TCO-I moved further, with Polygon 11 under land registry review (corresponding to 30% of the prioritized areas) and Polygon 12’s resolution for land registry review is under development. The demarcation of 19 km of the Tacana TCO-I was carried out in the Tumupasha and Maravilla communities, placing signs on stones or in trees every 100 m. The project team assisted CIPTA in the location of family plots in the Tumupasha community for internal land distribution. We developed the draft of the official document “Plan de Ordenamiento Predial” (Land Organization Plan) for the TCO Tacana-I and we anticipate the approval of this plan by CIPTA by the end of this reporting period. This was developed by working with each community in a ‘micro-zoning’ process that also recognized areas for control and vigilance responsibilities for each community.

The legal team helped develop an agreement with INRA for geo-referencing within the TCO Tacana-II (second territorial demand). So far, the Las Mercedes and Puerto Perez communities are advancing in this activity, with 40% of their territory boundary now with official boundary markings. By the end of the reporting period we expect the geo-referencing and marking process to be complete. However, this has not happened yet in the Toromonas and El Tigre communities due to the changes in INRA’s personnel. In addition, we organized 4 workshops in the TCO Tacana-II, aiming to replicate the sustainable development strategy of the TCO Tacana-I. This activity has allowed us to incorporate new techniques into the methodology already developed for the TCO Tacana I. We applied the following instruments to the 4 communities: communal census, documentation census, economic surveys, animal health surveys, wildlife species distribution surveys, forestry census sampling, housing location plans, natural resource distribution plans, location plans for Brazil nut management. By the end of the reporting period we anticipate the validation of the TCO Tacana II Workshop proceedings by CIPTA, in which the TCO Tacana II Territorial Administration Strategy was developed.

During this year, we concluded the updated version of the Pilón Lajas Management Plan, incorporating representatives from CRTM into the Promoting Committee, who presented the proposal to the Community Representative Assembly. The plan was approved with minor corrections by the Assembly in March, and passed as both their Plan de Vida (Life Plan) and their RBTCO Management Plan. Before August, we will present the Plan to the Administration Committee for its final approval.

Updating of the Communal Use zoning maps was carried out as part of the development of the Management Plan for the RB&TCO Pilón Lajas. We organized community workshops, and revised communal use zoning maps in each community by means of “Mapas Parlantes” (“Talking Maps” – maps where people identify and draw the uses). This information assisted us in redefining proposed zoning of the RB&TCO Pilón Lajas. Information was updated for the communities of Asunción,

Chocolatal, Núcleo 34, Puente Yucumo, Real Beni, San Luis Chico, San Luis Grande and Tacuaral Bajo. The field team together with community members defined the following uses: agricultural, agricultural by settlers, community future agricultural expansion, current forestry exploitation, future forestry exploitation, hunting area, future hunting area, conflict areas, non-timber forest, jatatal (palm trees), cattle ranching, cattle ranching by settlers, historical/cultural, lagoons and flooded areas, fishing, salitral (salt deposits), siringa (rubber trees), third parties (not locals or settlers), and tourism.

This year we finalized the Leco Indigenous Community Environmental Management Strategy and presented it to potential partners. This strategy was developed by PILCOL with WCS support and through consultation with the Lecos communities, and we provided training and logistical support to youth groups organized into environmental brigades who could accompany and further promote this process. To date, PILCOL's objectives supported by WCS have advanced on two main fronts: first, the land titling process of TCO polygons 1 and 2 has been enhanced thanks to the assistance of a legal consultant. Polygon 1, with 62,780.7 hectares, is only waiting for the final titling resolution by the government, and polygon 2 with 23,944.4 hectares, is currently waiting to be signed by INRA before presentation to the government. Studies for Polygon 6 are just beginning.

Activity 2.4 Environmental Education

The Apolo team engaged in extension work regarding the protected area's objectives, characteristics and administration through visits to high schools and education units, at both the urban and the rural levels. In addition, videos and environmental fairs focused on raising consciousness of the urban population and promoting projects for sustainable natural resource management.

This year we participated in multiple international events:

- Madidi Week Ten Year Anniversary support: Invited lecture on the Biodiversity of Madidi; production of nine posters regarding investigation and natural resource management for presentation in the city center.
- Second International Park Guard Course: Three major presentations on Biodiversity and Conservation Planning, Monitoring Techniques for Biodiversity, and Environmental Conflict Management and Monitoring
- Boris Rios was at the Conservation Biology meeting in Brasil and presented results of our spectacled bear work
- Guido Miranda attended the First Bolivian Ecology Seminar and presented work on the ornamental fish studies.

We have recently developed an institutional agreement with Editorial NICOBIS to co-produce a number of television and printed products regarding the conservation of Bolivian protected areas and wildlife. We also produced a number of posters and pamphlets regarding our research efforts this year: *Callicebus aureipalatii*, *Phibalura boliviensis*, Conservemos la Palkachupa, Fauna de Apolobamba, Conozcamos y Conservemos la Fauna de Bolivia, Mamíferos del Tuichi, and La Subasta del Nombre Científico del Mono Lucachi.

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

Activity 3.1. SERNAP Institutional Strengthening

We supported SERNAP with strategic planning instruments linked to conflict management. Based on the case study concluded in 2004, we developed a Conflict Management Strategy with participation of SERNAP central office and the Protected Areas Directorate, which was useful in the design of the Conflict Management System.

We supported SERNAP with the development of the Environmental Conflict Management System for the SNAP, which includes the institutional framework and actions needed to strengthen analytical capacity, prediction and management of conflicts by the central office (or the decentralized management districts) and the protected areas' directorate, therefore strengthening the Administration Committee's role in the prevention and management of conflicts. The system includes a logical framework for the development of activities in the first three years. In addition, we provided a database to SERNAP, to be implemented by the protected area and centralized by the conflicts' unit at the central office, as the main conflict recording and systematization instrument.

Similarly, we supported SERNAP with the design of an Environmental Education and Communication Strategy, which includes a general analysis of the situation and the needs for training, environmental education and communication in SNAP. This strategic framework defines the mission, objectives, concepts, focus, and relevant indicators, concluding in a 10-year action plan and in a logical framework for the execution of the activities in the first 3 years.

Activity 3.2. Protected Area Support and Staff Training

We equipped the Parque Nacional y Area Natural de Manejo Integrado (PNANMI) Madidi's Administration Apolo satellite office with computers and Geographic Information Systems technology. We also provided technical administrative personnel: Mr. Jorge Peláez as the technical link coordinator; Mr. Tomás Silicuana as the incense technician; Juan Carlos Poma as the administrative assistant; Mr. Ramiro Cuevas and Mr. Rolando Cuevas as natural resource management field assistants. We also provided logistical support for the Apolo office operation with fuel, vehicle maintenance and repairing, and office supplies.

This support has allowed us to strengthen the protected area's capacity to be able to coordinate actions with the different civic, municipal and military institutions and organizations in Apolo. For example, the Apolo Regional Administration Committee was reinforced through institutionalized monthly coordination meetings with the participation of Apolo's Municipal Government, Franz Tamayo's Sub-Prefect, the Civic Committee, CIPLA, Franz Tamayo Peasant's Federation, Central Aten, Central Los Altos, Central Mohima, and Pelechuco's Municipal Government. These meetings promote responsibility for the Administration Committee in administrative and conflict management regarding the protected area: for example, members have accompanied Madidi's personnel to promote dialogue in Sipia in order to solve problems of illegal timber extraction, to further promote the Management Plan, and to evaluate community project proposals.

Inter-institutional coordination with the mayor, sub-prefect, civic committee, army regiment and CIPLA is geared towards informing the position of the protected area in relation to the Azariamas-Tumupasa's road. The protected area does not openly oppose the road, but it does insist that before construction can be considered the environmental, economic and social justification and appropriate

mitigation studies need to be in place, and subsequently road construction must be supervised and must include measures to ensure that environmental impacts of the road are minimized and subsequent colonization avoided. A few of these meetings involved coordination with the army regiment for the security and surveillance of the Machua's posts and the San Fermín border camp, coordination with the mayor's office to promote natural resource production, and talks with CIPLA to support its internal strengthening.

We also helped to organize and carry out the informational workshop for PUMA Foundation's project school, where 5 Apolo based projects were presented and 2 of them were selected for significant funding from PUMA (Incense Management and Majo Management).

During the March-June 2006 trimester, we developed a call for proposals, with application format and selection criteria for small community natural resource management project requests. In June 2006 we evaluated the projects together with representatives from the Regional Administration Committee, selecting the following projects: agroforestry management for doubling the incense plantations in Santa Cruz del Valle Ameno; management and commercialization of orchids in Virgen del Rosario; management, transformation and commercialization of jatata in Santo Domingo; swine ranching in Sarayoj.

The administrative capacity of the Madidi protected area has been strengthened by legalization of tourist activities inside the park, with the design of a legal code specifically for Madidi. This code allows the development of transparent proposals from tourist companies requesting basic operation conditions and regulations. We collaborated with SwissContact and IDEPRO with general information, design and didactic initiatives, for the construction of the Madidi Interpretation Center aiming to promote the biological and cultural diversity present in the park. Together with the OGD-La Paz Beni and the San Buenaventura Municipality, we obtained a total of US\$186,905.95 from the IDB for the construction and equipping of a Visitor Interpretation Center. Training and construction will be initiated in the next fiscal year.

We also supervised the transition of the local tourism initiatives from mobile nylon roof to fixed jatata thatch roof tourism camps along the whole Tuichi valley. In addition, we provided technical advice for the protected area administration's request for support of the PETPAA project (Pelechuco-Apolo-Asariamas Tourism Project) financed by SERNAP (Servicio Nacional de Areas Protegidas) and the KFW BIAP (German Aid) to develop the infrastructure, training and initial marketing of the project.

During this year we have tested a questionnaire to monitor the tourist quality in the Tuichi valley, by polling 300-500 tourists in the Bala's control post. This poll will be improved and repeated this year. Finally, we supported the training of 30 tourist guides from the communities and tourist operators of the Iturralde region. The training was done in coordination with the Prefect's office, the Tourism Viceministry and the San Buenaventura Municipality, and included the following themes: first aid, guidance ethic, guiding, nature interpretation and river rescue.

We collaborated in the logistics, design, and implementation of the first "visita al paso" path ("quick visit" nature path) at the park's Bala control post, with the objective of providing recreation options for those visitors not actually entering the park. Together with the Madidi administration, we assisted the Guanay Municipality in evaluation of the tourism potential for the area around the Huajra Orko hills. We also assisted students of the San Buenaventura Tourism School with training in environmental interpretation and nature path design.

We helped with data collection for developing environmental permits for viewpoints and bridges on the Las Parabas Nature Path, associated with the Mapajo tourism project. We also provided technical assistance in the economic feasibility study for “cultural tourism” on the trail leading to the Matatujuri in Tumupasha.

The Information Management System developed for WCS’s office has been installed in the San Buenaventura office of the Madidi PNANMI, and we have provided one assistant for the secretary. This system is currently being implemented in the Madidi and Pilon Lajas parks. CIPTA has started to use the system, although it still needs some fine-tuning regarding administration procedures. In the Madidi Park office, approximately 3,000 records of old correspondence were organized and properly archived. The system facilitates the recording of correspondence sent and received by the secretary, and helps in follow up, search and archiving of documents.

We have provided technical support to the protected area’s administration through a La Paz procurement person in charge of facilitating communication among different zones of the protected area: Apolo, San Buenaventura and Chive, and between the protected area and SERNAP’s central office. Through a sub-donation agreement, a lawyer has been following processes related to infringements against the protected area and has also supported the development of regulations related to natural resource management such as the draft incense management and research and investigation regulations.

During this year, we focused on supporting the Conservation Strategy Fund (CSF) in developing two studies: one focused on valuing economic benefits derived from the protected area to the region, and another one valuing the economic feasibility of the proposed road Azariamas-Tumupasa. These two documents have been circulated inside SERNAP, in the Madidi Protection body, and the Viceministry’s Environment Board, who included this information in a presentation to the Senate Chamber. In addition, we developed materials for tourist awareness and a brochure about the main characteristics and objectives of the protected area.

We also assisted with another indigenous grass-roots organization successful participation in the PUMA project school related to the PILCOL (Pueblo Indigena Leco y Comunidades de Origen Larecaja) Leco Madidi Ecotourism project. They are currently waiting for the signature in the donation agreement, which amounts to approximately US\$90,000.

This fiscal year we developed two training events for park guards, community based leaders and municipal technicians regarding leadership, negotiation, environmental law, public speaking, communication, and project development. Park guards from Madidi, Pilon Lajas, Apolobamba and EBB participated in these events and training content was discussed for updating the formal training program in regards to the new park guard profile which has shifted from strict protection to include community outreach and support to community natural resource management initiatives.

Draft research regulations have been developed and will be presented to SERNAP authorities once we have established a new working agreement. The monitoring program established for the protected area permits the overlap of conservation status maps for a series of target species including those with long term research programs.

Activity 3.3. Wildlife Management Program (Institute of Ecology)

Our agreement with the Institute of Ecology continues, with eight undergraduate theses (Diego Romero - White-lipped peccary abundance, Paola de la Torre - *Callicebus aureipalatii* behavior, Heidy Lopez - *Callicebus olallae* and *C. modestus* abundance, Cynthia Jurado - Giant River Otter abundance, Lesly Lopez - *Callicebus aureipalatii* behavior, Nohelia Mercado - Primate distribution and conservation priorities for Bolivia, Tania Carafa - Hunting management in the Pilón Lajas Biosphere Reserve, Madeleine Villa - Peccary population structure in the Tacana TCO), and seven volunteer research projects for undergraduate interns supported last year (Andean bear *Tremarctos ornatus* diet through scat analysis - Oswaldo Palabral & Oscar Alvarez; Puma (*Puma concolor*) diet through scat analysis - María Viscarra; small felid dietary analysis using scats - Omar Torrico; Jaguar (*Panthera onca*) diet through scat analysis - Mariana Da Silva; Andean fox (*Lycalopex culpaeus*) diet through scat analysis - Zulia Porcel & Beatriz Zapata; species identification of two high Andean deer (*Odocoileus virginianus* & *Hippocamelus antisensis*) through scat measurements - Bertha Ayma & Sandra Rivera; Taruka (*Hippocamelus antisensis*) diet through scat analysis - Isabel Loza & Maritza Cornejo). We are also supporting two Masters Theses: Boris Rios-Uzeda (Marsh deer abundance and conservation) and Andrea Morales (Andean fox abundance).

We helped in organizing the “Journal Club” (a requirement on the new Biology Course class curriculum of the Universidad de San Andrés), where several WCS technical staff assist in instruction of new students with eight sessions to date: Radio-telemetry, Line Transects & DISTANCE, Camera Trapping, Ecosystem Health, Human-Animal Conflict, Community-based Wildlife Management, GIS and Conservation Planning, and Adaptive Management. We are also supporting the Biology Course by providing them with theme ideas for thesis dissertations and a series of classes at differing academic levels within the University: Line Transect & DISTANCE and Capture-Recapture & CAPTURE courses for the Masters Course at UMSA and invited lectures for the Masters Course at UMSA: Crocodylian Management; Conservation Planning using Focal Species, as well as invited lectures for Undergraduate Course at UMSA: Conservation Planning using Focal Species; and Community Wildlife Management.

As assistance for building professional capacity in Bolivia, the WCS La Paz team organized the Second Bolivian Mammal Congress in La Paz in May 2006, and WCS provided financial support. Guido Ayala (WCS La Paz) was the President of the Organizing Committee, Rodolfo Nallar (WCS FVP) the Vice President, Linda Rosas (WCS La Paz) the Treasurer and Heidy Lopez (WCS La Paz Thesis Student) the Secretary. Four of the ‘vocales’ for the Congress were students from the local La Paz University that are currently supported by WCS La Paz. The Congress was attended by 273 people and was a great success. Many of our team, students and previous grant recipients presented work at the Congress:

- Alandia, E. & R. Nallar. Manejo de Animales Domésticos y Salud de Fauna en el Territorio Indígena Tacana (TCO) Tacana.
- Ayala, G., H. Gomez & R.B. Wallace. Áreas de Acción y Preferencia de Hábitat de Troperos *Tayassu pecari* en Bosque Subandino.
- Gismondi, P., H. Gómez & A. Llobet. Sostenibilidad en la Cacería de Subsistencia en Cinco Comunidades de la TCO Tacana.
- Llobet, A., H. Gómez & P. Gismondi. Análisis Temporal de la Cacería de Subsistencia en Dos Comunidades de la TCO Tacana.
- Nuñez, A.M. Uso de Hábitat por dos Especies de Ciervos de Alto Porte (*Hippocamelus antisensis* y *Odocoileus virginianus*) y una de Pequeño Porte (*Mazama bricenii*) en el Área Natural de Manejo Integrado Nacional Apolobamba.

- Rivadeneira, C.C. Dispersión de Semillas por el Oso Andino (*Tremarctos ornatus*) y Elementos de su Dieta en la Región de Apolobamba –Bolivia.
- Wallace, R.B. Identificando Baluartes de Conservación para los Mamíferos de Bolivia: Rangos de Hogar, Abundancia, Poblaciones Viabiles y Contexto Regional como Herramientas Críticas
- Wallace, R.B. La Influencia de una Diversidad Local de Hábitat en la Ecología y Comportamiento del Marimono, *Ateles chamek*.
- Zapata, J., H. Gómez, R. Nallar, R.B. Wallace & H. Ticona. Disminuyendo Conflictos entre Humanos y Vida Silvestre en Apolobamba.

Both workshops at the Congress were also organized by WCS:

- Wallace R.B, D. Rumiz, T. Siles, N. Mercado, C. Jurado, H. Lopez-Strauss & C. Cortez. Evaluando el Estado de Conservación de los Mamíferos de Bolivia.
- Kempff L. & M. Uhart. Tráfico de Animales Silvestres en Bolivia y Problemas Sanitarios Asociados

WCS La Paz was also responsible for the following posters:

- Martinez, J. Reportes de meso y macro mamíferos y sus usos en localidades con actividad ganadera en el Departamento del Beni
- Nallar, R., L. Villalba & F. Betrán. Captura e inmovilización de un gato de pajonal (*Oncifelis pajeros*) en la región de Khastor, Potosí, Bolivia
- Romero, D. & B. Rios. Identificación de felinos medianos del Río Tuichi por medio de fotografías
- Villca-Sanjínez, M. Evaluación de la dieta del zorro andino *Lycalopex (Pseudolopex) culpaeus* mediante el análisis de excretas.

Activity 3.4. Monitoring Strategy Implementation

In terms of monitoring, we created conceptual models and monitoring frameworks for all program work, and we have applied them at the overall Greater Madidi Landscape Program level. However, due to the overall complexity, we produced five ‘broad’ Conceptual Models to represent the Program, one for each major Management Unit or Local Partner and one that covers our institutional strengthening activities with national institutions. These models respond to the same Conservation Goal and Conservation Objectives, and many of the Direct and Indirect Threats are also similar. Interventions vary most across the models. These models are most useful for ‘broad brush’ planning and as a communication tool to national and international partners and to donors.

As a second step we have produced around 40 conceptual models at the level of major ‘activities’ or ‘interventions’ across the overall components of the program, for example *biological investigation regarding spectacled bears* or *community based hunting management*, or *legal consolidation of indigenous territories*, etc. This process has allowed us to get into more detail regarding the strategy of different components of the overall program, has provided a training exercise for our technical staff (two technical meetings have been organized to work on conceptual models and monitoring frameworks), has encouraged technical staff to think more strategically and critically regarding ongoing interventions, is providing more relevant communication tools for individual local partners, and critically, has facilitated the process of formalizing monitoring indicators for the program. We will next evaluate more specifically how the *activity* or *intervention* conceptual models map on to the 5 broader conceptual models.

Derived from this modeling work, the priorities for monitoring the Greater Madidi Landscape Program that have resulted are: Monitoring for Individual Management Units and Local Partners

within the Landscape (Madidi and Pilon Lajas already, and CIPTA in the Future); Support in the Design and Initial Implementation of the Monitoring System for the Bolivian Protected Area System (SERNAP); Monitoring of the Landscape; and Monitoring of the Landscape Project.

Stress has been placed on identifying ‘*multiple*’ and ‘*realistic*’ indicators such that we can triangulate trends. If an indicator is too expensive, we are not including it in the Monitoring Framework at the moment. This will get much tougher as we get to the *Direct Threat* and *Conservation Objective* portions of the models. We participated in the “Conceptual Models and Monitoring Frameworks Regional Workshop” in Río de Janeiro, Brazil (3-7 July), organized by WCS. In the next six months, a team will retroactively compile information over the seven-year history of the Program for indicators for which this is possible, as identified by the technical team.

During 2005, we finalized the “Monitoring Guide” for the Madidi National Park and Integrated Management Area.

Activity 3.5. CIPTA Institutional Strengthening

The project provided administrative strengthening to CIPTA by training 5 community administrators (3 community project administrators and 2 CIPTA support administration assistants) responsible for dealing with the community forestry groups. Assistance to the Huasha Ena Association for acquiring recognition of their legal status was also afforded, as well as the organization of CIPTA’s documentation that will help in better management of activities and monitoring. The legal team participated in a situation of conflict resolution in the Santa Rosa de Maravilla community, where information is being gathered at the moment that will be presented to the Caranavi prosecutor in order to avoid further conflicts with a private individual who violently opposed eviction from the Tacana TCO when found illegally extracting timber. We supported the commission that visited Tumupasha for the documentation process in which approximately 150 people received their identity cards, and we coordinated with BOLFOR II for documenting the Ixiamas sector communities.

The technical team also worked with CIPTA and AOS (Ayuda Obrera Suiza) to define new plans for the Tacana community radio, intended to encourage the participation of elders to promote the language and customs of the Tacana. We also developed a series of proposals for CIPTA including PUMA, Biocommerce, UNDP, Flanders and Canadian Aid proposals.

After promoting an exchange for CIPTA to visit operations of CABI (an indigenous organization managing the Kaa Iya reserve) regarding the subject of protected area co-management, we have supported the creation of an Association for TCOs neighboring Madidi, including CIPTA, San José de Uchupiamonas, CIPLA, PILCOL and CRTM. This Association was created to protect both the TCOs and the protected areas of the region. We have also been planning and discussing the possibility of the TCO Community co-administering the Madidi park. We are developing a draft brochure regarding CIPTA’s territorial administration, as well as the proceedings of the La Paz Parliament Brigade Board meeting.

During the Tacana I micro-zoning process, CIPTA decided that forestry activities require more control. Hence, the Organización Regional Forestal Tacana Iturrealde (ORFITI) was elected to represent the community forestry groups for a period of 2 years. CIPTA and WCS proposed forestry control and surveillance activities inside the Tacana TCO together with the Forestry Super Intendancy, and were able to coordinate the confiscation of illegally felled timber, chainsaws, guns,

machetes, and other equipment. Currently, these confiscations continue, as well as the associated legal processes.

By the end of the reporting period we will also have assisted CIPTA and CIMTA (Consejo Indigena de Mujeres Tacana) in the re-inauguration of the Tacana Cultural Center, inaugurated the CIPTA Ixiamas Sub-central Office that WCS financed, and assisted in follow up inspections of illegal timber exploitation together with the Superintendencia Forestal (Forest Management Regulation Office).

Activity 3.6. Local Government Environmental Planning and Management Support

Through a sub-contract agreement with Conservation International, and with information generated with the development of the Madidi Management Plan, we developed the Apolo Municipality's Territorial Legalization and Management Plan (PMOT). This document includes the identification of productive potential of spatial units in accordance with soil type and topography. It also analyzes the protected area's human population structure in order to promote a better distribution of the health services, education and product commercialization.

During this year, we negotiated an agreement with the Ixiamas Municipality for the promotion of tourism, with the construction of an ecolodge in the area of the tourist municipal reserve of Ixiamas. This tourist reserve of approximately 22,000 hectares has been established within the area identified in the Madidi Management Plan and defined as a priority for conservation actions, due to the need for protecting both sides of the Madidi River. Afterwards, an ecotourism project (Alto Madidi Ecolodge) was developed, including architectural plans, and discussed with the Municipality.

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

Activity 4.1. Policy Support

With the objective of supporting the development of wildlife regulations, and the development of technical criteria that facilitate Bolivia's wildlife sustainable management, WCS prepared a formal cooperative and collaborative agreement with the DGB. However, due to causes out of our control this agreement was never signed. As of today, we have reinitiated a relationship with the new authorities to reactivate such an agreement. Even though the agreement was not completed, we supported the government authority on biodiversity, the scientific authority for CITES with redesigning policies on caiman exploitation in Bolivia, organization of the course-workshop "Crocodilian Management in Bolivia", discussion of a "Wildlife General Regulations" proposal, review of technical proposals for wildlife management in Bolivia, policy documents related to ecosystems (wetlands), and participation in the workshop "Bolivia-Brazil Technical and Scientific Exchange in Wildlife Management". By the end of this reporting period we expect to have defined the scope of institutional support with the MNKM (Museo de Historia Natural Noel Kempff Mercado).

A draft natural resource regulation for Madidi has been developed and will be presented to SERNAP authorities once a new working agreement has been established. We have participated in the regular inter-institutional committees and more particularly we participate in the Madidi protected area technical committee through the monitoring and research programs, tourism program and regional integration program.

Activity 4.2. Financing Mechanisms

Over this period efforts have concentrated on strengthening a series of local partners (CIPTA, PILCOL, and the San Buenaventura and Ixiamas municipalities) such that they can access a series of local and international funding sources (see details embedded in various activities above). This support has included the strengthening of proposal development capabilities and critically the installation of administrative capacity, particularly within the indigenous organizations. We have also further developed our strategic relationships with local sources of finance for community natural resource management efforts, particularly PUMA but also the OGD and Biocommerce. This ranges from promoting funding possibilities with community natural resource management initiatives and assisting them in applications, to informing local funding possibilities of the realities and challenges that community natural resource management groups are facing in the region.

Activity 4.3. Threats Assessment Working Group

We supported the National Roads Service and the consulting firm DHV with the review of the analyses and proposals included in the Corredor del Norte (Northern Corridor) Road's Strategic Environmental Evaluation. In addition, we developed several project ideas to be included in the local protected areas program of the Mitigation Strategy of the Northern Corridor Road Proposal: one related to strengthening the administrative capacity of the Cotapata, Pílon Lajas, Madidi and Manuripi Heath protected areas; one related to the management of the Pílon Lajas buffer area, with emphasis on basin management; another one on the promotion of conservation actions for two endemic species of monkey (*Callicebus modestus* and *Callicebus olallae*) and an endemic species of macaw (*Ara glaucogularis*); and finally, one to promote the identification and implementation of municipal and departmental protected areas.

In coordination with Conservation Strategy Fund, we concluded two publications regarding the economic evaluation of regional benefits arising from the presence of Madidi protected area, and economic evaluation of cost benefits of different road developments in the Madidi protected area (see attached files). These have been presented to the Environment Office of the Vice-Ministry of Biodiversity, Forest Resources and Environment, the legal advisor to the President, and SERNAP.

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

Activity 5.1. Integrated Landscape Conservation Action Plan and Stakeholder Workshops

This year we worked with INRENA and SERNAP in the development of a bi-national second iteration of the landscape species analysis that involved a preliminary workshop in Puerto Maldonado and coordination with members of the Fundación Cayetano Heredia in Lima, Peru. This process will continue in FY07 and we anticipate a finalized version of the analysis by the end of the coming fiscal year.

We are finalizing the editing work regarding the memoirs of the "First Meeting of Natural Resources Management by Local Communities of Northern La Paz". This document is currently on its last phase of printing. In addition, we are currently working on the proposal and methodology for the Second Meeting to be carried out this August.

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, also known as the Living Landscapes Program: LLP) of the program 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 in landscapes that encompass a diverse array of ecological features, land-uses, resource-use issues, and jurisdictional arrangements. To develop new approaches, facilitate and harmonize testing and implementation among these core sites, and to capture the synergistic benefits of diverse experiences, the central coordination unit is charged with designing and managing the program. 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 FY06, the Coordination Unit continued working with field sites to further develop their conservation landscapes, and provided assistance to the process of building monitoring frameworks from conceptual models. We have now refined and simplified the process for selecting landscape species, including revisions of landscape species selection software as a decision-support tool for analysis, and have drafted an accessible ‘how to’ quick reference guide that will complement the more comprehensive online help system that accompanies the selection software. We have also formally compared the Landscape Species Approach with landscape planning approaches of other international conservation organizations, with support from the Learning component of the USAID/GCP LWA. In addition, with complementary support, we assessed our field staff’s strategies for identifying and promoting effective local actors in conservation.

Activity 6.1 Provide technical assistance to site-based conservation

Members of NY Coordination Unit worked closely with field sites to provide targeted technical input (punctual advice and informal and formal training in conservation planning, monitoring, geographic and quantitative analysis, and specific conservation issues) throughout the year. In a number of cases this involved trips to sites as reported in the previous sections of this and the other three site-specific reports: Madidi (Bolivia), Maya (Guatemala), Glovers (Belize), and Eastern Steppe (Mongolia).

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

Activity 6.2.1 Living Landscapes Program technical manuals

Based on field work to date, the Living Landscapes Program (LLP) continued to generate brief how-to guides, called Technical Manuals, after field testing and fine-tuning the methods at several WCS field sites. In FY06, we finalized and disseminated three technical manuals: *Measuring our Effectiveness- A Framework for Monitoring*; *Household Surveys- a Tool for Conservation Design, Action and Monitoring*; and *Building Biological and Threats Landscapes from Ecological First Principles, a Step-by-Step Approach* (see Appendices B1-B3) We also produced a further technical manual on selecting landscape species that is currently in review (see Appendix B4). These

manuals are designed to provide to field practitioners clear and practical instructions on implementing 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.

In FY06 we also produced a WCS Working Paper based on a field staff “writers’ workshop” that was conceived and organized by LLP and supported, in part, by a grant from the Tinker Foundation. The working paper is titled *Casting for Conservation Actors: People, Partnerships and Wildlife* and characterizes a framework developed through adaptive management by our field staff to identify the most appropriate mix of actions and institutions needed to effect conservation within any landscape or seascape (currently in production, for draft see Appendix B5). Lastly, in FY06 we produced two new LLP bulletins stimulated by the field work of our GCP portfolio: 1) *Setting Population Target Levels for Wildlife Conservation: How Many Animals Should We Save?* (Appendix B6), and 2) *Sharing Valued Landscapes: Conservation Through the Eyes of Wildlife* (Appendix B7).

Activity 6.2.2 Landscape Species Approach progress

6.2.2.1 Building Conservation Landscapes

LLP staff working at several sites in our portfolio continued to refine methods for setting geographic conservation priorities within a landscape, a process known as designing conservation landscapes. Design elements that were completed this year included: (1) using existing decision-support software such as Marxan, Sites, and C-plan to facilitate priority setting; (2) including the impact of potential future threats on conservation planning; (3) building potential activity costs into conservation landscape design, thereby leading to realistic and efficient strategies for conservation; and (4) developing a logic for setting wildlife population targets (i.e., how many animals do we want to conserve?) and incorporating these targets into geographic priority setting to assure that landscapes are large enough to conserve population targets. For this latter design element, we have developed a 4-tier system for setting population targets (for more on this approach, see Appendix B6).

We have reached the end of the design stage for building conservation landscapes, and are now pushing for sites to implement the procedures and produce products. Overall lessons learned from pilot tests at the GCP sites are being compiled into a technical manual that will be published early in FY07.

6.2.2.2 Review of the Landscape Species Approach

A preliminary review of the utility of the Landscape Species Approach (LSA) for conservation priority-setting was completed (for an excerpt from the conclusions of the review, see Appendix B8). Findings are being used to better adapt our program and LSA tools for the practice of site-based planning and implementation.

Activity 6.2.3 Develop monitoring frameworks at sites

Creation of monitoring frameworks from project conceptual models continues to expand within LLP test sites and more broadly across WCS. A relational database that integrates conceptual modeling, monitoring, workplan, budgets, and reporting has been drafted by LLP and will be tested in FY07.

Activity 6.2.4. Develop rules of thumb for intervention planning

Based on further input from LLP field sites, the LLP coordination unit reassessed the need for an intervention prioritization tool. Field staff felt that the challenge was not so much in choosing among intervention options; rather, it was in identifying interventions that had a high probability of success in a given context. Field staff asked LLP central staff to explore how to make available a catalog of best-practice conservation interventions cross-referenced with indirect and direct threats and ecological and socio-political systems. To move this activity forward, LLP staff worked with the Conservation Measures Partnership to finalize a typology of conservation actions and to explore with The Nature Conservancy how using a standard approach to describe conservation projects might help create a distributed database that could be used as a catalog of cross-referenced actions and threats. This work will continue to evolve in FY07.

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

Activity 6.3.1 CMP: leadership, design, writing and audits

LLP/CU staff continued to play a leadership role in the identification, design, and implementation of Conservation Measures Partnership (CMP) activities. This was particularly important this year as there were several changes in organizations' representatives to the CMP. We continued to work closely with Foundations of Success to identify best-practice tools to use as models for development of eAdaptive-Management modules. We also continued to provide technical input for specifying measurable Global Indicators of Biodiversity status both within CMP and more broadly in support of CBD through collaboration with the Zoological Society of London and the Cambridge Conservation Forum. In FY06 we completed a brief analysis of WCS experience with activity-based accounting (see Appendix B9). Drs. David Wilkie and Craig Groves participated in the first CMP meeting (in Gland) that included IUCN as a member. This meeting provided a valuable opportunity to share CMP lessons learned with a large number of conservation practitioners. Drs. Wilkie and Groves also participated in a ½ day presentation of CMP products to WWF International staff.

LLP also participated in another USAID GCP supported learning project to compare the landscape planning approaches of 5 conservation NGO's. We participated in 2 workshops, which compared how the conservation target selection procedures of the organization worked in a case-study landscape. We played a central role in producing and editing the report from the workshop, and are now working closely with a smaller group to produce a publishable manuscript.

Activity 6.3.2 Local engagement in conservation survey

LLP conceived and organized a 5-day writers' retreat for several senior WCS field staff. The retreat was designed to capture experience integrating local people into the successful practice of landscape scale conservation. This retreat followed up a more widely distributed questionnaire that was used to frame the theoretical and practical issues associated with effectively integrating local people into the practice of conservation. The report generated during the writers' retreat is being published as a WCS International Program Working Paper and will soon be available both as a PDF on our website and as a hard-copy document (see Appendix B5).

Activity 6.3.3 Preliminary assessment of the human welfare impacts of establishing national parks

LLP staff, in collaboration with the WCS Gabon program, the Gabon National Parks Authority, and Boston College, conducted the baseline household welfare survey. This was supported by the John and Catherine T. MacArthur Foundation and the National Science Foundation. LLP staff surveyed 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 planned over the next 5 years to assess the impacts of establishing protected areas on local families' income, health, consumption, natural resource use, and family function.. An extensive cross-sectional survey of over 2,000 households was completed in FY06, as was the first of two intensive surveys of household consumption. The 2nd household consumption survey will be completed in the first half of FY07 and will be analyzed soon thereafter. A manuscript from the project was published (Wilkie, D. S., Morelli, G. A., Demmer, J., Starkey, M., Telfer, P. & Steil, M. (2006) *Parks and People: assessing the human welfare effects of establishing protected areas for biodiversity conservation*. **Conservation Biology**, 20, 247-249, see Appendix B10). Detailed methods with a blank database and data dictionary were made available to the public (see Appendix B11). A second article on the topic of human welfare impacts of establishing protected areas is in press (Wilkie, D. S., Redford, K. H. & McShane, T. O. (2006) *Taking of rights for natural resource conservation: a discussion about compensation*. **Journal of Sustainable Forestry**, in press, see Appendix B12). With the leadership of our LLP staff, the Wildlife Conservation Society is in the process of drafting a "Code of ethics for the practice and science of conservation" and a policy statement on physical and economic displacement associated with conservation actions.

Activity 6.4 Application of Living Landscapes Program tools beyond core sites

Activity 6.4.1 Training workshops in the use of LLP tools

With WCS and other non-USAID support, a number of workshops were undertaken throughout the year to train field practitioners in the use of conservation tools that have been developed by WCS/GCP field sites and LLP/CU staff. We feel that GCP should be proud of increasing adoption of these tools across the globe.

- The LLP associate director held a 3-day workshop to train Zoological Society of London program staff in the use of LLP conservation planning tools.
- In January of 2006, we helped local and international partners in the Samburu-Laikipia Landscape in north-central Kenya to use LLP Landscape Species planning tools to come to a common vision for wildlife conservation in this complex dry savanna landscape.
- In December 2005, the LLP program director organized and facilitated a workshop for reserve staff, government authorities, and university experts on conservation planning for Huai Kha Khaeng/Thung Yai Biosphere Reserve in Thailand. A conceptual model was designed by the group, based on landscape species targets, and a monitoring framework design initiated. The work was completed and recently presented by Thai staff to a large wildlife conference, at which the Director of Thai Wildlife Services indicated an interest that all his departmental programs use the techniques.
- In March 2006, an LLP staff member traveled to Lao PDR to facilitate a successful Landscape Species selection workshop using the custom landscape species selection software. The process was completed during a three day Biodiversity Conservation Strategy meeting in Paksan, the capital of Bolikhamxay Province, in collaboration with provincial counterparts. The goal of the subsequent visit of another LLP staff member in May was to continue the implementation of LSA tools by training WCS Lao staff in concepts and methodology of building biological and human landscapes and initiating their development

for the selected species. Preliminary results of the landscape analysis were received with great enthusiasm during the meeting with provincial stakeholders. Landscapes will be finalized in Fall 2006 and will guide a new management plan for the Nam Kading National Protected Area in Bolikhamxay Province. The government of Lao counterparts expressed an interest in using LSA tools to guide their conservation planning at other sites. This activity therefore demonstrates both local and national interest in adopting LLP tools derived with support from GCP.

- Four LLP staff conducted a 5-day training workshop in Brazil to support adoption of conceptual models and monitoring frameworks by landscape scale projects in Brazil (Mamiraua, and Piagacu Purus), Peru (Yavari Mari), Ecuador (Yasuni), and Bolivia (Gran Chaco). These projects are supported by funds from The Gordon and Betty Moore Foundation.
- In July 2005, the LLP program director held a training workshop for conservation projects as part of the WCS Marine Regional Program Meeting. These projects are adopting conceptual models as the basis for their strategic planning.

Activity 6.4.2. Technical Manuals

We 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 (see 4.2.1 above).

Activity 6.5 Ensure coordination and communication services for the program

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

Throughout FY06, the LLP Coordination Unit assisted field staff in completing annual Implementation Plans, reporting on Performance Monitoring forms, and submitting Annual Reports. The program coordinator attended quarterly USAID/EGAT meetings in Washington DC and ensured regular reporting and updates to USAID. The program coordinator and associate director attended the GCP annual meeting organized by WCS at Cool Font, West Virginia. During the meeting, LLP staff gave presentations on: proposed learning topics for FY07, progress with FY06 learning activities, and Evaluations and Conservation Audits.

Branding and Marking

WCS followed USAID's most recent guidance on new branding requirements for documents and materials funded in all or in part with USAID assistance (see Technical Manuals, Bulletins, and Working Paper, in Appendices B1-B7 as examples). WCS also ensured that all LLP staff and sites gave proper recognition to USAID for its critical support to all LLP-related workshops.

III. Success Stories and Other Appendices

a. Success Stories

Indigenous Peoples United to Defend Land Rights, Natural Resources and Biodiversity in Madidi, Bolivia

Six indigenous territories are found around the most biologically diverse protected areas on earth. Madidi National Park's altitudinal gradient, from Andean peaks of almost 20,000 ft to vast expanses of lowland tropical forest at just 500 ft in an area similar in size to New Jersey, and situated within the 'megadiverse' Tropical Andes, means the jewel in Bolivia's crown of outstanding protected areas is currently vying for world records in bird, plant and mammal diversity with significant scientific discoveries still being made.

Amazonian indigenous people depend directly on natural resources for a significant portion of their livelihoods, and as such have a common interest in supporting conservation and sustainable natural resource use. However, they are also among the poorest inhabitants of their respective countries, have been historically marginalized, and as a result have some of the highest rates of illiteracy and lowest access to health care. Supporting indigenous people to address basic production and quality-of-life issues, whilst conserving biodiversity, is one of the major challenges for the Amazon region.

In the Greater Madidi Landscape USAID has supported the Wildlife Conservation Society to empower the Tacana and Lecos Larecaja indigenous organizations to make informed land use and production decisions, and to work with protected areas as assets that increase their livelihood options. This technical support has been accompanied by financial and legal assistance allowing indigenous leaders to accompany formal land-titling processes and ensure appropriate tenure for the indigenous communities in the forma of indigenous territories or TCO's (Tierras Comunitarias de Origen).

The establishment of clear land tenure accompanied with sustainable management visions for land management units based on new economic opportunities for local partners is gradually developing a stronger local constituency for Madidi. Over the course of this project, this local conservation constituency has actively defended the park in the face of efforts to undermine it by local political interests associated with illegal logging, gold mining and using the park as a political platform. For example, this defense has involved the eviction of armed illegal interests that had seized the protected area offices in San Buenaventura, participation in removing some illegal wood extractors from the protected area itself, as well publicly voicing support for the park administration and concern over the interests of those threatening the protected area.

As a result of this common vision and active defense, the Tacana and Lecos indigenous peoples have promoted an alliance with San Jose de Uchupiamonas (Tacana-Quechua), Tsimane and Mosenen indigenous peoples to present a co-management proposal to support the administration of Madidi National Park. An exchange with CABI, the Izoceno indigenous organization of the Chaco region of Bolivia, supported by WCS and previously funded by USAID, helped inspire and cement the northern La Paz indigenous alliances vision - particularly CABI's experience of co-administration of the Kaa-Iya National Park. This alliance has now developed a strategic document setting out clear objectives of defending and publicizing the importance of indigenous territories and protected areas in the Greater Madidi Landscape while promoting the sustainability of natural resource management and real local democracy.

Tacana Commit to Sustainable Management of Indigenous Territory

Celin Quenevo is a man with a vision. The President of the Indigenous Council for the Tacana People (CIPTA) dreamed of a sustainably managed indigenous territory based on the use of renewable natural resources for 20 Tacana communities in an Amazonian area immediately adjacent to Madidi National Park, the most biologically diverse protected area on earth, located in northern La Paz Department, Bolivia.

In 2000, CIPTA approached the Wildlife Conservation Society (WCS) for assistance in the development of this vision and support for the indigenous leaders to accompany the ongoing land-titling process in the region. With financial support from USAID/Bolivia, CIPTA and WCS built a partnership based on trust, transparency and tenaciousness. By mid 2005, and after a marathon struggle that included death threats to Celin and other indigenous leaders, as well as innovation and pragmatism in CIPTA's dealings with a plethora of third party land-owners within their territorial claim, CIPTA had received title to 372,000 hectares, forming the core of a Tacana Indigenous Territory. This represents an important buffer for the Madidi Park, and a potentially key area for maintaining stronghold populations of Amazonian species such as jaguar and giant otter.

Critically, Celin and the CIPTA leadership have recognized that the land titling will mean little if appropriate management strategies are not developed and implemented. This has involved several steps, including the completion of a formally adopted strategy for sustainable resource management in the Tacana territory that also recognizes the importance of taking steps in recovering and promoting the Tacana indigenous culture. In late 2005, a participatory micro-zoning process with the Tacana communities was completed. This provides the basis for a land-use plan that will be formally submitted to the Bolivian government. Over 82% of the titled lands have been zoned as areas dedicated to sustainable forestry, sustainable non-timber forest product management, subsistence hunting, tourism or wildlife, natural heritage or environmental services reserves. In fact tourism and reserve areas alone account for over 40% of the Indigenous Territory.

Under the management plan, Tacana communities are developing many innovative production initiatives based on sustainable natural resource use, including community forestry, native bee honey production, wild chocolate or 'cacao' collection, spectacled caiman harvesting, commercial fishing on the Beni River, and local handicrafts materials gathered from the forest. Six Tacana communities are also taking steps to ensure the sustainability of their traditional subsistence hunting, and an eco-tourism strategy for the Territory has been developed and is under implementation. Indeed, the Tacana communities are adamant that even the relatively small areas zoned as livestock or agricultural areas should be managed in an integrated way and not jeopardize other activities.

CIPTA and the Tacana have also proved loyal and committed partners for the Madidi park administration in the face of recent illegal attempts to exploit resources within the protected area by locally influential politicians. The Tacana experience is now firmly established as a model for indigenous territory management for the region, and Celin and the deeply committed Tacana indigenous leaders are now faced with the daunting task of building the long term economical, ecological and social sustainability of the TCO.

Ebelio Romay named Conservation Hero

The Disney Wildlife Conservation Fund (DWCF) has selected eight DWCF Conservation Heroes from applications submitted by environmental organizations working in partnership with communities around the world. Ebelio Romay was nominated by the Wildlife Conservation Society (WCS), and chosen for his work to conserve habitats and species while educating and empowering

local communities. The award was created “to bring attention to the fact that conservation programs are successful because of the people involved with the initiative.” The DWCF Conservation Heroes program rewards the dedication of individuals who, often at the risk of personal safety, work tirelessly to save animals, protect habitat and educate the people in surrounding communities. To honor his work, the DWCF presented a cash award of \$1,000 to the Wildlife Conservation Society, which will be given to Romay to be used at his discretion.

Ebelio Romay has worked for nine years in the most biologically diverse area of Bolivia, the National Park and the Natural Area of Integrated Management Madidi. He began as an environmental education technician, and in the first eight months he visited over 30 communities, using hand-painted drawings on cloth as his only educational resource. He was invited to become the head of the park guard corps, and led the group in peacefully evicting over 40 illegal logging camps. Romay has risked his life in this role, being a victim of not only health problems such as malaria and pneumonia but also violence from illegal loggers who kidnapped and injured him. Despite the challenges and death threats, he helped remove the loggers and as a result, the rainforest habitat and wildlife populations improved. He now heads a team of 24 park guards who protect the area with a ratio of one park guard to every 197,000 acres. His dedication to pioneering alliances with neighboring communities has proven him a leader for conservation, effectively managing and maintaining a large area of the rainforest.

b. Appendices

- B1. LLP Technical Manual 3- *Measuring our Effectiveness- A Framework for Monitoring*
- B2. LLP Technical Manual 4- *Household Surveys- a Tool for Conservation Design, Action and Monitoring*
- B3. LLP Technical Manual 6- *Building Biological and Threats Landscapes from Ecological First Principles, a Step-by-Step Approach*
- B4. LLP Technical Manual 5 (DRAFT)- *A Quick Reference Guide to the Landscape Species Selection Software version 2.1*
- B5. WCS International Program Working Paper- *Casting for Conservation Actors: People, Partnerships and Wildlife.*
- B6. LLP Bulletin 8- *Setting Population Target Levels for Wildlife Conservation: How Many Animals Should We Save?*
- B7. LLP Bulletin 9- *Sharing Valued Landscapes: Conservation Through the Eyes of Wildlife*
- B8. Excerpt from the Conclusions of the Review of the Landscape Species Approach
- B9. *Activity-based cost accounting - two brief case studies within WCS*
- B10. Wilkie, D. S., Morelli, G. A., Demmer, J., Starkey, M., Telfer, P. & Steil, M. (2006) *Parks and People: assessing the human welfare effects of establishing protected areas for biodiversity conservation. Conservation Biology*, 20:247-249
- B11. Detailed methods, a blank database and data dictionary for *Parks and People*
- B12. Wilkie, D. S., Redford, K. H. & McShane, T. O. (2006) *Taking of rights for natural resource conservation: a discussion about compensation. Journal of Sustainable Forestry*, in press.