



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 2007 – September 2008

Living Landscapes Program- Bolivia/Madidi
Wildlife Conservation Society
30 September 2008

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



Biodiversity Conservation at the Landscape Scale

A Program of the Wildlife Conservation Society
Supported by the USAID/EGAT Global Conservation Program
**Greater Madidi Landscape Conservation Area
Annual Report**

October 2007 – September 2008

I. Summary of Activity Status and Progress

a. Introduction/Summary:

The Greater Madidi-Tambopata Landscape is documented as one of the most species-rich regions of the world. This bi-national area of approximately 95,000km² includes a sweeping altitudinal range on the eastern flanks of the Andes. Spectacled bears, giant otters, jaguars, maned wolves 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 National 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 principal project goal for the Greater Madidi-Tambopata Landscape Conservation Area is to conserve biodiversity through application of the landscape species approach. The landscape conservation approach is based on the development of spatially explicit models that represent: (a) the threats to biodiversity across the landscape, and (b) the biological needs of a suite of landscape species. Due to their extensive and heterogeneous spatial needs, landscape species often represent an extreme challenge for long-term conservation purposes. Their ecological importance also implies that their removal from a landscape will have deleterious, cascading impacts on ecosystems. WCS wishes to conserve ecologically functional landscapes and therefore we are tailoring many of our efforts to respond to the spatial needs of landscape species. A working hypothesis is that by ensuring the needs of area-demanding landscape species, much of the rest of biodiversity will also be conserved.

Although the seven selected landscape species (jaguar, giant otter, maned wolf, military macaw, 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-Tambopata Landscape Conservation Area, we are determining the spatial needs of ecologically functional populations of these landscape species, developing management strategies that include both protected areas and non-protected areas critical to their needs, and including the full participation of local people and other stakeholders in management decisions.

The Greater Madidi-Tambopata Landscape Conservation Area Project's strategy has been to work closely with the Takana people to win legal recognition of their traditional territory, the Takana Indigenous Communal Land (or Takana TCO), which borders a large portion of Madidi protected area. By working with the Takana, using the landscape species conservation approach, we will ensure that significant tracts of natural and semi-natural habitat will retain a high conservation value for the focal landscape species and biodiversity as a whole. Because most wide-ranging species move throughout the lowlands, sound management in the TCO will also help to maintain the integrity of the adjacent Madidi National Park. This approach has been expanded to include work with the second Takana TCO in the Madre de Dios region of La Paz Department, two requested Lecos TCOs around Apolo and Guanay respectively, and at a regional level to support both the indigenous representative organization at the La Paz Department level (CPILAP) and national level (CIDOB).

At the same time, the landscape approach provides the local population with incentives to improve land-use practices and policies through the development and support of community-based natural resource management projects. Our project has also provided key technical support in the development of the first Management Plan for the Madidi protected area (2004) and a full revision of the Pilón Lajas protected area and indigenous reserves management plan (2006). Efforts have gradually shifted towards full implementation of these plans. Appropriate integration of the Madidi and Pilón Lajas management plans is critical because of the montane forest corridor shared by these protected areas and the need to coordinate protection activities and standardize tourism regulations which involve many of the same actors.

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

Overall, we are pleased to report once more that the Greater Madidi-Tambopata Landscape Program remains on track. To accomplish the long-term goal of biodiversity conservation at the Greater Madidi-Tambopata Landscape Conservation Area, we focus on five interrelated objectives: 1) establish baselines and monitor landscape species and the landscape context in which they are found; 2) facilitate community-based natural resource management across the landscape; 3) strengthen institutional capacity in natural resource conservation and management; 4) promote the development of national policies that support the landscape conservation approach; and 5) elaborate a participative, integrated landscape conservation action plan.

Major Accomplishments:

Work with Indigenous Organizations

During the last year we were able to make important advances in our work with different levels of representation within the indigenous organizations found in the landscape. At a national level the Strategy for Participation of CIDOB (Confederación de los Pueblos Indígenas del Oriente Boliviano) in the Management of the National Protected Areas System was completed with technical and financial support from WCS. This strategy was successfully included in the formal agreement between the Vice Ministry of Biodiversity, Forestry and Environment, SERNAP (Servicio Nacional de Areas Protegidas and CIDOB) signed in October 2007.

At the regional level WCS worked with CPILAP (Central de Pueblos Indígenas de La Paz), the regional representative organization for indigenous people in the development of the first Strategic Institutional Plan of CPILAP which was published in June 2008.

At the local level the diagnostic phases of both the Lecos Larecaja and Lecos Apolo management plans for the indigenous territories were concluded. Each indigenous organization developed a methodology for developing strategic plans at the community level, then consolidating them into groups of neighboring communities and finally into a TCO- (Tierra Comunitaria de Origen) wide strategic and territorial plan. This process will include the development of general regulations for the management of the TCO. The Lecos Larecaja methodology is complete and implementation of this final phase of the strategic planning process has begun. PILCOL (Pueblo Indígena Leco y Comunidades Originarias Larecaja) participated in the development of the terms of reference and selection of the technical team which will work with them in this phase. In July we supported two communities of the Lecos Larecaja in developing proposals for the PUMA Foundation: Uyapi successfully presented a Pacu breeding project, and Chuswara successfully presented an ecotourism project.

Finally we have also provided legal assistance to the Lecos Larecaja and Lecos Apolo for the consolidation of their indigenous territories and PILCOL has been awarded land titles for a second 24,250 hectare polygon of the Lecos Indigenous Territory in the Guanay region.

At the same time we have continued support of CIPTA (Consejo Indígena del Pueblo Takana) in their land titling efforts. During this period a further ca. 16,000 hectares were titled to the Takana TCO bringing the total land titled to approximately 388,000 hectares. The process to title the second Takana TCO has not yet concluded although the size of the demand was formally approved following an official government study of the spatial needs of the four northernmost Takana communities of La Paz Department. Much of the information analyzed in the government report was provided by the CIPTA-WCS study and planning process for a Sustainable Natural Resource Management Strategy for the Takana TCO II which is going to press in the next month following formal approval from CIPTA and the communities.

The CIPTA administrative unit now directly manages funds with a comprehensive administrative manual and an in-house accounting system. Under this new and ground-breaking relationship, the quality and speed of administrative reporting has gradually improved over the last year and CIPTA is committed to a formal financial audit by the end of 2008. The CIPTA administrative unit now consists of four out of five locally hired Takana and is an outstanding achievement for the outgoing Directorate and the CIPTA-WCS partnership.

Work with local and regional authorities

During this period we concluded an analysis in partnership with the La Paz and Beni Departmental governments entitled 'Identification of Priority Areas for Conservation in northern La Paz and Beni Departments. This analysis was carried out with complementary CI funds in the case of Beni. In the case of La Paz a Plan for the Establishment of a System of Departmental Protected Areas was drafted with the participation of Nativa, a Tarija based NGO with experience in departmental protected area systems. This Plan has been approved by the departmental council and includes an institutional analysis for the establishment of a protected area office within the La Paz Prefecture.

Meanwhile the Ixiamas Municipality established their tourism office with WCS assistance and hired their first tourism technical staff.

Work with national protected area service and other national authorities.

In September 2007 the national study on environmental conflicts in protected areas was published: Salinas, E. 2007. Conflictos ambientales en áreas protegidas de Bolivia. La Paz, Bolivia. This publication was linked to a baseline database of 58 existing and historical conflicts from 18 protected areas that was formally presented to SERNAP for use in their monitoring department (Servicio Nacional de Areas Protegidas). SERNAP is now implementing the conflict monitoring recommendations through additional DANIDA Funding leveraged using the WCS study.

The 'Pilon Lajas Life Plan - Management Plan' was formally reviewed by SERNAP and the Vice Ministry of Biodiversity, Forestry and Environment. WCS provided all technical support and information to this plan with additional funds from Conservation International, as well as matching WCS funds.

This year we began implementing the Integrated Environmental Monitoring System for the Madidi and Pilon Lajas protected areas. This included training of fifteen park guards from both protected areas in data collection, and data entry and processing, as well as specific training to four park guards on the appropriate use of GPS and GIS technology. The first monitoring report was developed for both protected areas and the implementation has been evaluated with the director of monitoring of SERNAP leading to adjustments to our work as well as to the guidelines provided by SERNAP.

Integrated regional planning

During this year a draft strategic and territorial plan for the Association of Municipalities of Northern La Paz was developed. This document takes into account protected area management plans, indigenous territorial management plans and existing municipal plans and provides a landscape level government plan. This document will be presented for final approval to the regional stakeholders in the following months.

We concluded and presented with the Conservation Strategy Fund an environmental assessment of the impacts of the Northern Corridor road improvement and construction proposal on the neighboring protected areas, which resulted in several press articles.

b. Highlights:

- In early 2008 CIPTA and the Takana communities of the Takana TCO received a third land title of 16,558 hectares from the Bolivian government increasing the total area titled to just over 388,000 hectares. This means that in the final stage of land titling the Takana are now owed a little less than 18000 hectares according to the commitments made by the Bolivian government following the spatial needs study. It is worth underlining that the Takana TCO was the indigenous territory demand with greatest number of third parties within the territorial demand in Bolivia and one of the highest densities. As such the fact that over 95% of the formally agreed upon total area has now been titled is a major achievement for the CIPTA-WCS partnership.
- Similarly, in late 2007, a second title of 24,110 hectares was formally approved for PILCOL and the Lecos Larecaja communities around Guanay increasing their recognized territory to more than 88,000 hectares. Here it is important to emphasize that assisting indigenous organizations in formal land titling processes improves the outlook for sustainable land management and natural resource use due to the legal establishment clear ownership, as well as the overall sustainable development vision of this previously marginalized sector of local society.
- The BCLS team has successfully been applying methodological models developed with our work with the Takana to other indigenous groups and representative organizations in the landscape. This year, within the context of our partnership with PILCOL, we completed Participatory Rural

Appraisals in 28 out of 33 Lecos communities around Guanay. These have subsequently been approved by PILCOL and the communities. In the same way, CIPLA and Lecos Apolo communities have approved Participatory Rural Appraisals in all 177 Lecos communities around Apolo.

- At the same time the BCLS team has also made some major advances with the regional indigenous representative organization, CPILAP, with the design, development and publication of an overall strategy for the organization. Apart from setting out a strategic plan in the face of a diagnostic of regional scale threats to indigenous people, this document will provide a road map for the organization over the next five years and guard against mission drift in the face of biannual elections of representatives.
- Support to local partners has also included the successful development of additional proposals to locally available sources of funding with the Swiss Corporations Biocultura Initiative now funding institutional strengthening activities with PILCOL, CIPLA and CPILAP, and the PUMA Foundation funding two community projects from PILCOL communities interested in ecotourism and fisheries respectively. At CIPTA, BCLS support helped ensure the success of a proposal to Canadian Aid for institutional strengthening in the Takana Womens Organization (CIMTA). In total last year BCLS helped leverage more than \$200,000 additional funds for our indigenous partners.
- Finally, a major highlight has been the successful transition in our relationship with CIPTA thought the implementation of formal agreements with accompanying work plans and budgets. Although there were some cash flow problems to begin with due to delays in administrative reporting, overall CIPTA were able to successfully administer \$140,000 during the last fiscal year. Moreover they were able to do so with Takana administrative staff (see Success Story below for more details).

Table of Activity Status:

Greater Madidi-Tambopata Landscape Conservation Area			
<i>Activity Number</i>	Activity Title	Status	Page Number
Obj. 1	Establish baselines and monitor landscape species and the landscape context in which they are found		
1.1.	Describe the Ecological Context of the Landscape	On track	7
1.2.	Research and Monitoring	On track	8
1.3.	Ecological Studies of Special Elements	On track	9
Obj. 2	Facilitate community-based natural resource management across the landscape		
2.1.	Community Based Natural Resource Management	On track	9
2.2.	Community Mitigation of Human-Animal Conflicts	On track	14
2.3.	Land Tenure and Territorial Planning	On track	15
2.4.	Environmental Education	On track	18
Obj. 3	Strengthen institutional capacity in natural resource conservation and management		
3.1.	SERNAP Institutional Strengthening	On track	20
3.2.	Protected Area Support and Staff Training	On track	20
3.3.	Wildlife Management Program (Institute of Ecology)	On track	21
3.4.	Monitoring Strategy Implementation	On track	22
3.5.	CIPTA Institutional Strengthening	On track	22
3.6.	Local Government Environmental Planning and Management Support	On track	24

Obj. 4	Promote the development of national policies that support the landscape conservation approach		
4.1.	Policy Support	On track	25
4.2.	Financing Mechanisms	On track	25
4.3.	Threats Assessment Working Group	On track	26
Obj. 5	Elaborate a participative, integrated landscape conservation action plan		
5.1.	Integrated Landscape Conservation Action and Stakeholder Workshops	On track	26
Obj. 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		
6.1	Provide technical assistance to site-based conservation	On track	28
6.2	Design, implementation, and testing of decision support tools	On track	28
6.3	Catalyze cross-site and cross-organizational learning, and communication	On track	29
6.4	Application of Living Landscapes Program tools beyond core sites	On track	30
6.5	Ensure coordination and communication services for the program	On track	30
	Appendices		37

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 tenth year in the landscape, our attention has been increasingly focused on developing the capacity of a series of local actors – protected area administrations, indigenous organizations, local government bodies, natural resource management associations, and local communities – to receive and administer funding directly and to 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 the immediately surrounding region. Finally, we are currently working intensively to develop model examples of sustainable finance mechanisms for the various management units within the landscape. At the moment this effort is focusing on Avoided Deforestation mechanisms and associated Trust Funds for indigenous territories.

b. Activity Description

Key Management Issues:

During this period the major challenge has been coping with political tensions between local actors in relation to the land titling process in Apolo and the Madre de Dios region. Additionally, it has been complicated to continue activities of support with Madidi protected area because the new director is reticent of taking decisions and of working with international NGOs, in particular those with USAID funds. Government criticism of USAID and partner NGOs during FY08 led to problems with the technical coordinator that had been hired by the Lecos Apolo but, because of his limited technical capacity CIPLA has terminated his contract and the process is now being recovered. The Parliamentary Brigade of La Paz has also been unwilling to use the logos to recognize technical support to their strategic plan. We will try and equilibrate this with a detailed agreement with the Viceministry which we hope will be the first step to establish a coordination committee with the participation of SERNAP, the Viceministry and representatives of our most important local partners including CIDOB and possibly the Institute of Ecology.

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

Mammal Diversity, Density and Relative Abundance

Line transects and camera trap surveys were conducted along the Tambopata and Chunchu Rivers in southern Peru within the Bahuaja-Sonene and Tambopata protected areas. These surveys were conducted in collaboration with Peruvian colleagues at the University of Cayetano Heredia in Lima. This field survey also included direct opportunistic observations and records from tracks, scat and other wildlife sign. Thirty species of medium to large sized mammals were registered for this area including *Callicebus aureipalatii* confirming its presence in extreme southern Peru, *Cebus albifrons*, and *Galictis vittata*.

Currently a camera trapping survey is underway in the Tuichi, Hondo and Quiquibey Rivers in the Madidi and Pilon Lajas protected areas and will be completed by the end of this reporting period. The Tuichi and Hondo sections of the overall continuous survey is a repeat from our original surveys in 2001 and 2002 and will provide a subsequent data point on hypothesized wildlife recovery in Madidi since the creation of the park in late 1995. Even more critically, these surveys will provide up-to-date data on the wildlife situation for both parks in the face of imminent exploration for hydrocarbons in the Tuichi, Hondo and Quiquibey Rivers.

Medium and Large Mammal Database

We continued updating the Bolivian Medium to Large Mammal National Database using incoming published and grey literature from our library and material and collections from the Museo de Historia Natural Noel Kempff Mercado (MHNNKM). We are using local reports, researchers' data, management plans, student theses, and our own databases. So far, we have been able to record 35,417 data points and 7,651 independent locality records for Bolivia for a total of 113 medium to large sized mammals. The data base is currently under analysis to generate range maps to be incorporated in the soon to be completed Bolivian medium to large sized mammal book. The data base will also be published separately at the end of 2008 as a DVD. To further contribute to this national effort, we mentored a Bolivian undergraduate student, Nohelia Mercado, who completed her thesis in September 2008 using the location points for the 23 species of primate in Bolivia and modeling potential distributions based on geographical and climatic datasets.

In August 2008 we received a request from the Bolivian government to formally contribute to the revision of the Bolivia Red Data List which will be published in late 2008 or early 2009. The maps generated for the Bolivian Mammal Book and Bolivian Data Base projects will be simplified and used as the basis for evaluating the 113 species of medium to large sized mammals.

Andean Fox

During this fiscal year a Bolivian Masters student thesis, Andrea Morales, who was financially and technically supported by WCS, successfully defended her Masters thesis at the National University of Costa Rica to investigate population abundance and habitat preferences for Andean fox (*Pseudolopex culpaeus*). This predator is responsible for over 80% of all livestock related human-animal conflicts in the Apolobamba region. Understanding more about this species' habitat preference and abundance is a critical step in developing practical strategies for reducing or halting human-wildlife conflict.

Marsh Deer

Similarly this fiscal year a Bolivian Masters student, Boris Rios-Uzeda, successfully defended his Masters thesis at the University of Mato Grosso do Sul in Brazil on the distribution, abundance and conservation of marsh deer (*Blastocerus dichotomus*) in northern La Paz Department. This represents only the second attempt at generating abundance data at the national level using standard over flight methodologies. The previous attempt was a Greater Madidi Landscape effort in the Pampas de Heath in 2004 and this thesis surveyed all of the more extensive natural grasslands of northern La Paz, as well as some important locations in the vast Beni grasslands. Results show that important populations of marsh deer are present in northern La Paz and, as suspected, much of the grasslands have no human activity and no livestock, confirming their considerable importance and potential as conservation areas for this under-represented biome in Bolivia's protected area system. This work has been submitted for formal publication in a scientific journal.

Pink River Dolphins

Finally, we are supporting a Bolivian undergraduate student, Patricia Aramayo, to study the pink river dolphin (*Inia boliviensis*) in the Yacuma River in south-western Beni. This study will provide baseline data for use in the management of the local tourism industry and as part of the ongoing management plan process for the Santa Rosa Municipal Reserve.

Activity 1.2 Research and Monitoring

Andean Condor

We sent out the questionnaires for the forthcoming Bi-national Workshop for Andean Condors in Bolivia and Peru to almost 200 recipients following formal approval from both relevant government authorities as invited co-hosts of the event, along with local NGO partners ARMONIA and BIOTA in Bolivia, and the Cayetano Heredia University in Peru. To date we have received replies from the majority of recipients, although many did not have relevant Andean Condor data to share. By the end of September we will have closed the period for reception of data and will have begun the processing stage prior to the Bi-national Workshop. Meanwhile, during this period Boris Rios-Uzeda submitted a paper on Andean condor foraging behavior and social hierarchies for publication.

Andean Bear

Similarly, during this reporting period WCS began designing a questionnaire survey regarding Andean bear distribution and conservation in Bolivia and Peru as a first step towards a planned workshop in Lima in November 2008 as part of the Second International Symposium on Andean Bears. This questionnaire process is in partnership with the Cayetano Heredia University in Peru and the Cochabamba Biodiversity and Genetics Center in Bolivia. More than 100 invitations have been sent to experts and government and NGO representatives, and at the time of writing more 30 replies have been received with more expected before the closure date (October 20th 2008).

A paper was submitted regarding the diet of Andean bear in Apolobamba and Madidi during this period. Finally, a local booklet summarizing Andean bear knowledge gathered to date in the landscape was produced for local distribution.

Jaguar

The camera trapping surveys along the Tambopata and Chuncho Rivers in southern Peru within the Bahuaja-Sonene and Tambopata protected areas were designed to estimate jaguar abundance for this region of the Greater Madidi-Tambopata Landscape. The density estimate for this area was around 3 individuals per 100km² and wildlife diversity was similar to other sites in the region.

Currently a camera trapping survey is underway in the Tuichi, Hondo and Quiquibey Rivers in the Madidi and Pilon Lajas protected areas and will be completed by the end of this reporting period (see Activity 1.1 above). Finally, a local booklet summarizing jaguar knowledge gathered to date in the landscape was produced for local distribution.

Activity 1.3 Ecological Studies of Special Elements

Endemic *Callicebus*

Together with the Institute of Molecular Biology at the Universidad Mayor San Andres we concluded the description of the genetics of the two *Callicebus* monkey endemics from southwestern Beni Department, initially with samples from similar species, and 39 scat samples from *C. olallae* and 51 scat samples from *C. modestus* previously collected by our field team during directed sampling sessions at strategic field sites in the known distribution of both endemics. Results of first phase analyses suggested that they are indeed two different species, and preliminary second phase genetic sequencing results are providing further support for this conclusion.

An undergraduate thesis study by Heidy Lopez-Strauss, on the abundance of the two species in a number of forest patches of the Beni using their calling behavior, was successfully defended. A Bolivian young professional, Jesus Martinez, and a Bolivian undergraduate student, Lesly Lopez, conducted behavioral ecology studies of the apparently more threatened *Callicebus olallae* at the La Asunta field site on the Yacuma River with two habituated groups. This work will conclude in December 2008 and is now involving field work for a second Bolivian undergraduate thesis project, Vilma Hidalgo from the Universidad Autonoma Gabriel Rene Moreno in Santa Cruz.

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

Activity 2.1 Community-based Natural Resource Management

Fisheries

This year we continued technical assistance to the community-based monitoring of commercial and subsistence fishing activities in 6 Tacana communities along the Beni River (Carmen del Emero, San Antonio del Tequeje, Esperanza del Enapurera, Cachichira, Altamarani, and San Miguel del Bala) implementing through our partnership with CIPTA a new streamlined design for the monitoring of catch. Databases of all fishing monitoring activities from CIPTA/WCS and MHNN (National Natural History Museum) have been harmonized and have been analyzed with two publications currently in informal review.

This support extended to technical and administrative assistance for organized supra-community fishing campaigns using the previously established harvest centers with freezer capacity and thereby guaranteeing better prices for fresh fish as opposed to dried and salted fish. One of these fishing campaigns included a second and third commercialization experience in the city of La Paz as a way to generate higher income with lower overall harvest levels. These campaigns generated approximately 5,800 bolivianos (\$800) and 12,000 bolivianos (\$1,600) respectively and this was distributed among participating fishermen.

At the same time we have continued studies on the degree of mercury contamination from samples of the most commercially important species and a Bolivian undergraduate student, Sandra Rivera, is analyzing collected samples.

Ornamental Fish

During this reporting period our efforts on ornamental fish management focused on working with the Bolivian government and relevant authorities in the development of appropriate legislation regarding this natural resource management activity in Bolivia. As such Guido Miranda worked with the General Biodiversity and Protected Area Directorate to organize and conduct a workshop with participation from relevant ministries, technical government offices, regional government, indigenous organizations, ichthyologists and business personnel. The workshop concentrated on summarizing the situation to date in Bolivia and presenting the various incipient initiatives for the harvest of ornamental fish, and then developing the structure and minimum content of a regulation on the sustainable harvest, conservation and commercialization of ornamental fish in Bolivia. Subsequently a subcommittee was charged with writing and reviewing the draft regulation and Miranda has participated in this activity. Based on progress to date, by the end of September a draft regulation for formal review was expected.

Because of the process mentioned above, management and investigation activities in the Takana TCO have been suspended until a legal framework with which to formally present the draft Ornamental Fish Management Plan for the Takana TCO is in place. Previously the CIPTA-WCS partnership has identified 116 species as having ornamental potential. Twenty five of these species have reproductive, feeding and population ecology information that suggests they could be tolerant of regulated commercial harvest. Ornamental fish management will be one of the future activities of the wildlife management 'Animalucua' Association in the Takana TCO.

Native Bees

This year WCS continued to provide technical, logistical and administrative backstopping to CIPTA in the implementation of two projects with local sources of funding for native bee honey production. WCS has supported the CIPTA native bee program since 2001 and subsequently in 2006 the National Program of Sustainable Biocommerce (PNBS) and the PUMA Foundation have supported the program in 5 Tacana communities: San Pedro, Santa Fe, Tres Hermanos, Santa Rosa de Maravilla and Tumupasha. At the time of writing the PNBS project had been successful executed and the PUMA activities were also almost complete and expected to conclude before the end of September 2008.

Each community now has four trained local technicians that lead community native bee honey production and management efforts on a rotation basis and monitor the production and health of each hive. Across the five communities there are now 155 established hives of the 'señorita' species of bee and 22 hives of the 'erereu' bee species. This year 21.57 kg of señorita honey was harvested and commercialized at 130 Bs. per kg, and 7.56 kg of erereu honey was commercialized at 80 Bs. per kg. In total this generated 3408.9 Bs. for the bee producers and 90% of this was distributed among producers with the remaining 10% put aside to help cover the costs of the Native Bee Honey Producers Association that represents all five communities. The Association is now slowly but surely moving towards the implementation of another 800 hives. Once these have been implemented and all hives are producing at optimal levels production will increase at least tenfold. Increased production may also allow access to value-added markets. It is worth stressing here that although this activity is not comparable in terms of income with other natural resource management activities such as forestry or Brazil nut harvesting, it is also an activity that requires little time investment compared to others.

Subsistence Hunting

Through our technical support to CIPTA we continued supporting the hunting self monitoring process in the TCO Takana (hunting records per community and faunal counts in transects) working with 5 adjacent communities along the Beni River, allowing for the management of a continuous spatial area. We are also working on subsistence hunting management in a Mosestén-Tsimane community, Asunción del Quiquibey, inside the Pilon Lajas Biosphere Reserve and TCO. As a result of the self monitoring efforts these communities have taken decisions regarding reducing the harvest of tapir, spider monkey, howler monkey and marsh deer because of their vulnerability to local over harvest.

During this reporting period much of the WCS effort has focused on the analysis of data which will inform a series of scientific articles on lessons learned including a) the veracity of data from self-monitoring for hunting, b) the usefulness and broader applicability of different measures of sustainability, c) basic biological and reproductive data for a series of Amazonian mammals and large game birds, d) community decision making regarding subsistence hunting and the sustainability of the self-monitoring process, and e) the sustainability of subsistence hunting for a range of mammals and larger game birds. These articles will be completed and submitted for publication during the next reporting period.

At the same time CIPTA wildlife biologists financed as part of the CIPTA-WCS partnership have continued the self-monitoring process. As such CIPTA is assuming responsibility for the management of these professionals previously employed by WCS and is including wildlife management activities in annual work plans and budgets. WCS provides senior technical advice through the participation of Guido Miranda, Kantuta Lara and Robert Wallace. This year agreements have been reached with four of the communities to give local schools and teachers the responsibility of receiving and processing hunting data as part of the curricula for the community children (7-15 years old). Data processing and hunting discussions and activities can be incorporated built into most subjects, particularly science, mathematics and the promotion of the Takana language. This process leads to broader discussions about the sustainability of natural resource use with the next Takana generation and provides a low-cost solution for CIPTA and Takana communities to monitor hunting activities across the TCO. An experimental phase of implementation of this novel approach has just begun in three Takana communities.

Meanwhile, two undergraduate theses concerning the population structures of two peccary species (Madeleyne Villa), the hunting activities of a T'simane community (Tania Carafa) are complete and awaiting defense dates. A third student thesis concerning the abundance and characterization of reproductive sites of river turtles (Pamela Carvajal) is already in draft form and informal review and will be defended by the end of 2008. During the fieldwork phase of this thesis 12 nests of hatchling turtles were transferred to safer nesting sites and then reared in semi-captivity for the first week of their life by the communities protecting the study beaches along the Beni River and then successfully released into the wild by community members.

Sustainable Harvest of Caiman (*Caiman yacare*) in the TCO Takana

The first spectacled caiman harvest of the two-year formally approved management plan was successfully conducted in the Takana TCO during September and October of 2007. The campaign lasted just over three weeks and the Takana hunters were well organized and efficient during the harvest. A total of 524 skins were processed and sold to a tannery in Trinidad and the benefits (\$8,281) distributed equitably to the 23 participating Takana hunters, with 10% of benefits to CIPTA, 5% to the communities, and 5% to the wildlife management 'Animalucua' Association of the Takana TCO. Subsequently, a detailed report to the Bolivian authorities was produced and

presented to the General Biodiversity and Protected Area Directorate (DGBAP) in early 2008. This report represents one of the first documents that details a formally approved harvesting process and contains information regarding a) number of wounded animals during the harvest, b) changes in hide size during the drying process, and c) proportion of males to females harvested that is potentially critical for the longer term management of spectacled caiman across the country. Similarly, the results of the first harvest have been summarized in a scientific manuscript that will be submitted to the Journal of Wildlife Management in the next quarter.

It must be noted that this intervention was a response to expanding harvest of caiman arising in the Beni Department which has had terrible results on the indigenous organizations and animal populations. CIPTA with our support has acted preemptively by developing a management plan which establishes harvest levels based on solid information, but also establishes a common proposal which can mitigate negative impacts on the internal cohesion of the indigenous organization at all levels.

In August 2008 the second year of the approved harvest began and will run into early September. An agreement to sell the caiman hides has already been reached at an increased price from the previous year. Immediately following the harvest a technical report will be produced for internal analysis within CIPTA and also distribution to relevant authorities. In addition, CIPTA have committed to a monitoring census in the managed area in order to produce renewed sustainable harvests for 2009 and 2010.

Finally, by the end of this reporting period a specific harvest regulation for spectacled caiman in the Takana TCO will have been developed and approved by the participating communities, the wildlife management 'Animalucana' Association in the Tacana TCO, and the CIPTA directorate. This will be consistent with the existing Natural Resource Access and Use Regulation but enter more specifics of how harvests should be conducted and regulated.

Forestry

Technical and institutional support continued to CIPTA for the management of the various community-based forestry initiatives within the Tacana TCO. Currently there are fifteen community forestry initiatives, with over 250 members, all of whom have approved annual harvest plans and nine of which now have approved sustainable management plans by the Forestry Superintendence. Three of the remaining six initiatives have management plans in the process of being formally approved and three have management plans that have been temporarily paralyzed due to technical problems. In total 3364 hectares are now harvested annually and 86,014 hectares are under forestry management in the Takana TCO. WCS-funded CIPTA forestry professionals have supported the permit process with the Forestry Superintendence and for some community initiatives have also assisted the fieldwork and document production phases of the management plan development.

In line with the Natural Resource Regulations developed for the Tacana TCO, existing community forestry initiatives are now contributing between 5% of their earnings to their local communities. Sixty percent of earnings go towards paying the operational costs of each forestry initiative, 10% goes to investment in the community business and 15% is divided up between the partners within each community initiative. Three percent of the total timber volume is given to CIPTA prior to these divisions to support the activities of the grass-roots representative organization. These funds are becoming a significant source of funding for CIPTA and other natural resource management initiatives such as ecotourism and wild chocolate (cacao) production have also begun to contribute. In addition, with BOLFOR, the CIPTA-WCS team has performed the first audits of community forestry initiatives with the Tacana community forestry businesses, again representing a precedent

for the region and another step towards increased transparency in natural resource management. During this reporting period data from eight of the fifteen community initiatives showed a total income from forestry activities of more than 1,112,640 bolivianos or approximately \$150,000, of which CIPTA received approximately \$15,000 and the communities another ca. \$7,500. Without doubt forestry is now the most important source of cash income for the Takana communities of the TCO I, with ecotourism tipped to provide the next major contributor over the next five years. In the Takana TCO II Brazil nut harvesting is probably comparable to forestry in terms of current economic importance.

A remaining challenge for the CIPTA-WCS team will be to work with different forestry initiatives to significantly improve the price of their timber by moving along the chain of production at the selling stage and avoiding the need for additional middlemen. Eventually this could more than double income from forestry activities. Another challenge remains parallel illegal logging activity in and around Takana management areas, and although an agreement was reached with the Forestry Super Intendancy to fund a lawyer to assist seizure activities, there are still insufficient control and vigilance activities in the region.

Tourism

Community-based tourism efforts this year have again concentrated on San Miguel del Bala lodge through the continuation of a formal agreement with CIPTA for administrative support through the provision of an administrator. In addition, we provided technical support in the development of a wildlife monitoring form for visiting tourists and ecotourism guides that is currently being printed for implementation in September 2008. Finally we developed a proposal for the construction of an ecotourism camp in the Tuichi valley as part of the San Miguel del Bala ecotourism package. Ultimately, this proposal was unsuccessful, although commended, by Tourism Cares for Tomorrow, however CIPTA and San Miguel del Bala are now submitting the proposal to alternative sources of funding.

A modified version of the wildlife monitoring form is also being implemented by the Ascencion del Quiquibey community and the Mapajo ecotourism lodge in the Pilon Lajas protected area and Mosen-Tsimane indigenous territory. Finally, the first phase of construction of the bridge and macaw observation tower for the Mapajo ecotourism lodge is underway with the Mosen-Tsimane community as part of a WCS small grant originally awarded in 2004 but postponed due to construction permits delays.

Domestic Animal Management and Fauna's Health in the TCO Takana

At the request of CIPTA we began participatory diagnostics Takana communities to determine the sanitary problems and management needs of domestic animals in the Takana TCO. Subsequently, theoretical and practical training modules were provided to communities by WCS Field Veterinary Program staff, and together with CIPTA the family registry of domestic animal management was implemented across the 20 communities of the Takana TCO. During this reporting period the Animal Epidemiology Monitoring Network in the TCO Takana has grown considerably with 42 community members from 11 different Takana communities now trained in domestic animal health monitoring.

This network has already generated a baseline of knowledge regarding diseases and other health issues affecting community livestock across the TCO and this has been augmented with systematic veterinary sampling in 12 communities across the Takana TCO. This year results were summarized and published as Health calendars for the domestic animals of the TCO with posters published for each animal (400 for horses, 400 for cattle, 600 for pigs, and 600 for chickens and ducks). In

addition, a Manual of Health and Domestic Animal Management in the Lowlands was published summarizing the training program that has been implemented and this will be distributed to participating communities and beyond. During this period households within each community also began to implement preventative and curative measure to improve the health status of their livestock including the continuation of the community veterinary medicine kits that have been presented to each of the communities within the training program.

Finally, technical support for the implementation of the cattle ranching projects in Carmen del Emero, Santa Fé, Carmen Pecha and Macahua continued, and support has been extended to the Capaina community, interested in implementing a chicken farm. To this end and in line with our evolving relationship with CIPTA and the strengthening of the CIPTA technical team, WCS is financing the hire of a CIPTA Veterinarian to supervise this support and respond to livestock health emergencies across the Takana TCO and those reported by the Animal Epidemiology Monitoring Network.

Vicuña

The vicuña parasitological research program in the ANMIN Apolobamba completed a preliminary diagnostic of the health and diseases of 54 vicunas. The results of this health assessment were formally presented to the relevant authorities, SERNAP and DGBAP, and to the participating communities, park guards and the local Association of Vicuña Managers. Critically, this evaluation took an integrated approach and also evaluated domestic livestock health and diseases in the same communities (see activity 2.2 below). To put things in perspective, the Apolobamba plains are home to around 10,500 wild vicunas and around 100,000 domestic camelids and sheep.

Activity 2.2 Community Mitigation of Human-Animal Conflicts

As part of our support to the protected area we are working on human-wildlife conflict mitigation in the ANMIN Apolobamba. Our focus is on quantifying and characterizing predation events affecting camelid ranchers, and then on applying and evaluating different non-lethal interventions to diminish conflicts between humans and wildlife. We are now working with seven communities on these issues: Medallani, Cañuhuma, Caalaya, Curva, Lagunillas, Puyo Puyo and Nube Pampa. Results indicate that the non-lethal human-animal conflict mitigation methods designed and employed by the five communities have greatly reduced livestock losses (80-90% reduction) and that the communities are pleased with the results. These methods have included the implementation of simple corrals for livestock during the night and bells for livestock. In addition, the communities are employing traditional wildlife drives immediately after the alpaca calving season to drive Andean foxes away from the calving area during this critical period of wildlife related livestock loss, and this method has proved effective and, interestingly, requires a level of inter-community organization that is rarely observed in other activities.

During this reporting period the most recent communities to join the program, Puyo Puyo and Nube Pampa, have designed and implemented new interventions involving small shelters for calving alpacas to help avoid infant mortality from foxes as well as weather related mortality. On the basis of results from the monitoring program, participating families who had best implemented the corrals for livestock were rewarded with additional materials for human-wildlife conflict management and mitigation. Two chakus or wildlife drives involving all seven communities were successfully completed during the most critical seasons of the year.

Parallel to the above, and in coordination with the Apolobamba protected area administration WCS-Field Veterinary Program staff has been working with communities to produce assessments of

livestock health including laboratory analyses identifying diseases in the domestic camelid and sheep populations. These diagnostics have provided the basis for planning and applying solutions for improved livestock management including mitigating and appropriate training for improved livestock health and monitoring of livestock management activities. A comprehensive training program involving more than 40 community members and park guards has been successfully implemented in the Apolobamba with more than 50% of participants completing and passing the courses. The modules for these course have been completed and are currently being published as a series of manuals for use in Apolobamba and beyond in the Bolivian altiplano. Critically the modules provide an integrated approach to diagnosing and managing domestic camelid and sheep disease. The first module is at the printers and the three subsequent modules now have final versions currently being formatted for printing. Community domestic animal health calendars have also been produced and distributed for participating communities and these will soon be printed for broader distribution.

In addition, two student theses and two student undergraduate projects have been supported and supervised by WCS staff regarding vicuña health, domestic animal health and natural ethnoveterinary solutions to parasitic infection in domestic camelids. One pasantia is completes and the other three students are preparing final drafts during September and October 2008. Finally, a Manual for the Identification of Predation Events on Domestic Cattle by High Andean Carnivores was published during this reporting period.

Activity 2.3 Land Tenure and Territorial Planning

Takana and CIPTA

With respect to the land titling process in the TCO Takana I, this year the Bolivian government titled 16,558 hectares, about half of the amount still owed to the Takana, and bringing the total now titled to the Takana to more 388,000 hectares. This land titling followed previously reported meetings and subsequent agreements with representatives of the local campesino federation, FESPAI, regarding proposed allocation of remaining state owned land in the original Takana TCO-I claimed area. CIPTA ceded some of the claimed areas to FESPAI and in return FESPAI agreed to facilitate the compensation titling process and respect TCO boundaries. This means that around 18,000 hectares remains to be titled in the first TCO demand. CIPTA continue to work with the Bolivian governments land titling agency to prioritize land to include in this 'compensation'. Possibilities being explored include some forestry concessions that are in the process of being revoked to the Bolivian government. CIPTA and FESPAI are requesting that any such areas can be either titled to communities already in the area, and/or ceded as community forestry concessions for sustainable management.

We are still awaiting the formal approval of the official document "Plan de Ordenamiento Predial" (POP or Land Organization Plan) for the TCO Takana-I from the Agriculture Ministry of the Bolivian government. The problem, as with many of the previous processes with CIPTA, is that there are few if any previous examples of an indigenous territory plan being formally submitted for approval.

The situation in the Takana TCO-II is considerably more complicated. Although on numerous occasions CIPTA has reached agreements with the Bolivian government that have included formal commitments to fast-tracking the land titling process in and around the demand, unfortunately these have not been fulfilled. After seven years, this situation has recently led to decisions within CIPTA and the communities of the second TCO, with important moral support from the communities of the first TCO, to begin an internal land-titling process. During this reporting period the CIPTA-WCS

partnership funded the formal spatial needs study, a legal requirement prior to on-the-ground land titling. This study approved the modified demand of 342,000 hectares but it has not yet been published by the Vice Ministry of Land. One of the problems with the second TCO demand is that this area is the subject of a colonization demand in the Vice Ministry by people from the city of El Alto. This means that there are conflicting pressures on the land titling agency. In late September 2008, the government signed another agreement and formal land titling is due to start within the next week. If the land titling agency complies with this agreement then the internal land titling process would halt.

The CIPTA-WCS partnership completed the sustainable development strategy of the TCO Tacana-II and this has been approved by the communities and by CIPTA. The strategy also includes the micro-zoning of the TCO Tacana-II claim, which will have to be adapted following the completion of the land titling process. CIPTA negotiated with the Vice Ministry of Land to ensure that these documents and maps formed the basis of the previously mentioned formal spatial needs study. The strategy for the second TCO has not been published because CIPTA has decided to combine this strategy with an updated strategy for the first TCO and additional Takana member communities to produce an overall and integral strategy for the Takana people in discontinuous territories. During this period WCS worked with CIPTA to produce a methodology for this strategy and this will be implemented beginning in September 2008.

Strengthening of Environmental Management with the Lecos Larecaja Indigenous People

This year we continued supporting the land titling process through a lawyer to PILCOL (Pueblo Indígena Lecos y Comunidades Originarias Larecaja) to support the process. As a result of this support Polygon 2 (24,110 has) has been signed by the Bolivian president to add the previously titled Polygon 1 (64,424 has). Polygon 6 is currently in the field evaluation process of land titling and has been divided into three sub-polygons with sub-polygons 6a and 6b currently being prioritized.

At the same time, through our partnership with PILCOL we have continued implementing the Leco Indigenous Community Environmental Management Strategy by beginning the process of developing their territorial plan (POP) and internal natural resource use regulations. During this reporting period, this has involved the completion of Participatory Rural Appraisals in 28 of the 33 communities who are members of PILCOL, all of which have been approved by the communities and PILCOL. This information formed the mainstay in the completion of an overall diagnostic for the Lecos Larecaja TCO that has also been approved by PILCOL. A PILCOL technical team has been assembled for the production of the Life Plan or Management Plan for PILCOL and methodologies and technical instruments developed and approved. The technical team is now beginning field work for this final stage of the Life Plan production which will also include a complete census of the 33 communities.

Our support has also extended to a series of additional institutional strengthening activities with PILCOL including the installation and equipping of a newly established PILCOL office in Guanay. The PILCOL-WCS partnership has also conducted and/or supported workshops on organizational strengthening for the Lecos Larecaja Women's Organization (OMIL) and the two indigenous sub-municipalities of Teoponte and Guanay. Critically, all of the above activities have been conducted within the framework of a formal general agreement between PILCOL and WCS that has been extended to the end of 2010, and specific agreements with work plans and associated budgets until the end of June 2009. We are also beginning to build the administrative capacity within PILCOL. We plan to gradually improve their capacity to directly administer funds before shifting to a fiscal relationship similar to that described with the Takana and CIPTA.

Similarly, apart from continued legal and technical support to PILCOL representatives and community leaders, the WCS team has assisted in the development of a series of proposals for additional financial support to the process. These proposals have included three successful proposals to PUMA in Bolivia including a community ecotourism proposal, a rubber tapping project, and a pacu fish captive breeding project. PUMA projects are notoriously difficult to develop and manage and are only possible for most communities with additional support from institutions and/or non-governmental organizations. Similarly, we have assisted PILCOL in the development of a proposal to Biocultura (Swiss Cooperation) for additional support for the development of the Life Plan and its subsequent implementation. This project also includes support to CIPLA and CPILAP (see below) and its approval is expected by the end of September. Finally, we have just helped PILCOL prepare a proposal for the small grants program of the USAID Amazon Initiative (ICCA), specifically for capacity building in territorial management and administration.

Strengthening of Environmental Management with the Lecos Apolo Indigenous People

Our work with the CIPLA (Central Indigene del Pueblos Lecos Apolo) and the Lecos Apolo indigenous people continues, which is critical because their territorial claim overlaps with over 70% of the southern part of the Madidi Protected Area. As mentioned in the previous report, with legal support from WCS they have obtained the title of the first polygon of their TCO (269,595 has). However, over the last twelve months legal support has shifted to dealing with a serious legal challenge to this titled TCO by the local campesino federation (FSUTCFT).

We have also continued the partnership with CIPLA in the development of a Strategic and Territorial Plan for the Lecos Apolo TCO which is compatible both with the Madidi Management Plan and the Apolo Municipal Plan. This has included the completion and formal approval of 17 Participatory Rural Appraisals for all member communities of CIPLA, and an overall diagnostic of the TCO completed and approved. Again methodologies and technical instruments have also been approved, and the technical team assembled and currently on the ground working towards the production of the overall Life Plan for the Lecos Apolo TCO, including an updated and thorough census. In this case, the technical team has been assembled under a formal agreement with the Territory Management of the national indigenous organization, CIDOB.

These efforts remain formalized through general agreements between CIPLA and WCS that have been extended to December 2010, as well as specific agreements and work plans and associated budgets through June 2009. We are also beginning the first steps towards building administrative capacity within CIPLA and over the next few years we will gradually improve their capacity to directly administer funds before shifting to a fiscal relationship similar to that described with the Takana and CIPTA. Similarly, WCS support has helped equip CIPLA offices in the Inca community near Apolo and an office in La Paz.

Similarly, apart from continued legal and technical support to CIPLA representatives and community leaders the WCS team has also assisted in the development of a series of proposals for additional financial support to the process. These proposals have included a successful proposal to Conservation International for financial support in the Life Plan development, as well as a proposal to Biocultura (Swiss Cooperation) for additional support for the development of the Life Plan and its subsequent implementation. This project also includes support to PILCOL and CPILAP (see above and below) and its approval is expected by the end of September. Finally, we have just helped CIPLA prepare a proposal for the small grants program of the USAID Amazon Initiative (ICCA), specifically for capacity building in administration and accounting.

Support CPILAP- the La Paz Indigenous People's Association

This year we have also continued our work with CPILAP (Central Pueblos Indígenas de La Paz) to provide support to their initiatives regarding indigenous people's participation in the protected area service and integrated territorial management. Previously we had focused on supporting the development of a proposal for co- management of the Madidi protected area, one of the main inputs used by SERNAP to establish their position regarding differentiated participation mechanisms for actors, both private and public, and both inside and outside the protected area. Nevertheless, this proposal also includes particularly active participation by local communities with traditional rights over the protected area. This proposal formed the basis of the CIDOB proposal at a national level from increased indigenous participation in protected area management and a formal agreement approving this proposal was signed with the Bolivian government in late 2007.

During this reporting period we also provided technical and financial support to CPILAP in the production of a Institutional Strategic Plan 2008-2012 that was recently published and provides an important framework for existing activities and basis for proposal development. On that note we provided technical support to CPILAP in the development of four project proposals. Two have already been successful: Rainforest Foundation Norway – Institutional strengthening and technical support in hydrocarbon issues; Evo Cumple Bolivia – Construction of office infrastructure for CPILAP in La Paz. Another to Biocultura regarding institutional strengthening is expected to be approved in the next month (see above), and fourth regarding improvements for constituent members and their communities with regarding the chain of production for natural resources is complete and awaiting submission to an as yet unidentified donor.

This year we have technically and financially supported CPILAP in processes to develop consensus positions with its member territorial organizations regarding a number of key issues facing indigenous people in the coming years, as well as strengthen CPILAP capacity to respond to these threats. This process has involved a series of workshops with participation of community representatives of member indigenous organizations from northern La Paz Department regarding the following issues: a) projected hydrocarbon exploitation in Northern La Paz, b) land titling and management, c) the national Constituent Assembly process, and d) gender. All of these activities are covered by a general formal agreement with WCS that runs until the end of 2010, as well as more specific agreements tailored to work plans and associated budgets. Once again in the longer term we will be working to build administrative capacity within CPILAP and that process has already begun under existing agreements.

Activity 2.4 Environmental Education

Apart from the publications listed below, this year we also participated in the following international events:

- Robert Wallace, Oscar Loayza, Elvira Salinas, Robert Cartagena, Gregorio Quety, September/October 2007, II Congreso de Áreas Protegidas de Latinoamérica, Bariloche, Argentina
- Robert Wallace, October 2007, III Congreso de Primatología de México, México
- Robert Wallace, Jesús Martínez, Nohelia Mercado, Heidi Lopez, Guido Ayala, Herminio Ticona, Rodolfo Nallar, Fabian Beltran, Erika Alandia, Madeleyne Villa, III Congreso de Mastozoología de Bolivia, October 2007, Santa Cruz, Bolivia.
- Robert Wallace, Oscar Loayza, Elvira Salinas, November 2007, Congreso de Derecho Ambiental, La Paz, Bolivia

- Robert Wallace participated in the WCS Landscape Finance meeting in February 2008 in Puerto Madryn, Argentina and in the three WCS workshops on Carbon, Sustainable Finance, and Strategy and Planning workshops in September 2008 in Lima, Peru.

The development of a web site for the WCS Bolivia program is well underway with a test site already designed and information developed for each component of the WCS program. This website is expected to go on line for public access by the end of the 2008 calendar year. This activity has involved the time of Lilian Painter and Robert Wallace as program directors, as well as Teddy Siles and Jorge Calvet from the information management team in Bolivia, and Jonathan Palmer from WCS New York. It is also transferring the knowledge we have gained in the design and implementation of an information system for the program. Indeed much of the information on the web site will be based on sections of our internal information system.

In July 2008 an outdoor photographic exhibition was launched by the Municipality of La Paz with support from USAID Bolivia and a number of conservation NGO's. The WCS Greater Madidi-Tambopata Landscape Conservation Program contributed 17 of the 24 photographs on exhibition and also provided a number of outreach materials for the local press: central message regarding the photographic exhibition about northern Amazonian La Paz; biodiversity in northern La Paz; jaguar conservation in northern La Paz; indigenous territory management in the Takana TCO; community natural resource management in northern La Paz; scientific discovery of new species of titi monkey in Madidi national park. WCS staff and CIPTA partners also appearing on TV and radio shows regarding the launch of the exhibition whose theme was Amazonian La Paz Department. The exhibition has received acclaim in the local press.

Other press articles have included Sunday newspaper magazine articles on Andean condor conservation in Bolivia and jaguar research and conservation in northern La Paz Department. The outgoing CIPTA President, Celin Quenevo, was also named a Disney Wildlife Conservation Hero following a WCS proposal with CIDOB backing and outreach regarding this story will have been published by the end of September.

In September 2008, WCS co-organized with several other national and international conservation and science NGOs and SERNAP a three day meeting about the importance of Madidi National Park. Apart from a day of major presentations regarding the park aimed at the local press, the meeting also included a two day workshop to analyze existing available biodiversity information and prioritize gaps in our nascent knowledge, from both a scientific and management perspective, regarding this most amazing protected area.

Finally, the CIPTA-WCS partnership place 12 banners at a stand at the Santa Cruz Biocommerce Fair, with WCS banners considering aspects of both WCS programs in Bolivia (La Paz & Santa Cruz) and CIPTA banners concentrating on natural resource management in the Takana TCO (native bees, caiman, chocolate, handicrafts and forestry).

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

Activity 3.1 SERNAP Institutional Strengthening

In October 2007 we provided support to SERNAP in the development of a comprehensive country level report on the state of the protected area system to be presented in the Second Latin American Protected Area Congress, held in Bariloche. As well as participating in discussions about key elements to be included in the report, we provided the specific content for the evaluation of the contribution of the protected area system to the conservation of Bolivia's natural heritage by using a "human footprint" layer and overlapping it with a map of Bolivia's ecoregions and protected areas in a GIS. Additionally, information on jaguar, and white-lipped peccary gathered by WCS in the Greater Madidi-Tambopata Landscape was used to show the effective contribution of protected areas to wildlife population recovery. Indeed, this is the most concrete example of the effectiveness of management on conservation objects that SERNAP has got to date. Finally, we also provided information on the indigenous population linked to the protected area system and on the main environmental conflicts which the protected areas face.

On the basis of the national report detailed above we began discussions with the monitoring direction of SERNAP on the need to revise the monitoring program and strengthen communication flow from the individual protected areas to the SERNAP central office and subsequently to other government offices. This has led to the design of an information system which will be housed initially in the Institute of Ecology and which is beginning with a pilot case study on Northern La Paz, using information mostly gathered by the WCS Greater Madidi-Tambopata Landscape Conservation Program. This system is structured around key information needs of SERNAP: biodiversity and conservation value; economic and environmental benefits; local stakeholders and participation mechanisms; development scenarios and institutions working in and around protected areas. We anticipate that this information system will be launched by December 2008.

Additionally, we were asked to provide inputs to a FUNDESAP (Foundation for the Development of the Protected Area System) consultancy on the social and economic benefits generated by the protected area system.

Activity 3.2 Protected Area Support and Staff Training

This year it was necessary to train the park guards of Pilon Lajas and Madidi in order to implement the Integrated Environmental Monitoring System. Training was again necessary on the basis of an analysis of the weaknesses in the implementation of the monitoring system in the previous year due to an over emphasis by park guards on gathering wildlife information, as opposed to threats information. Additionally, because of institutional instability in SERNAP many park guards left and new staff needed to be trained. During this period we trained fifteen park guards from both protected areas in data collection, and data entry and processing. Four park guards also received training on appropriate use of GPS and GIS technology. The monitoring consultant hired to support both protected areas developed the first monitoring report for both protected areas and the implementation has been evaluated with the director of monitoring of SERNAP leading to adjustments to our work as well as to the guidelines provided by SERNAP. This monitoring report was presented to the Madidi management committee in July.

We supported the Madidi and Pilon Lajas protected areas with a lawyer to provide follow up to all the administrative processes and this has been crucial to address threats of illegal settlements in

both Madidi and Pilon Lajas. Additional Macarthur Foundation funds allowed us to support the implementation of a joint control and vigilance strategy between the protected area service and the Forestry Superintendence.

Finally, we have supported the environmental education program of Pilon Lajas in its efforts to communicate the Life Plan and Management Plan of the Pilon Lajas Indigenous Territory and Biosphere Reserve developed by a WCS led technical team. The environmental education consultant held workshops with all local TV and radio stations as well as with the protected area staff and has provided assistance to the protected area director and the Consejo Regional Tsimane-Moseten in their participation in public events.

Activity 3.3 Wildlife Management Program (Institute of Ecology)

During this reporting period the following students have defended undergraduate theses: Heidi Lopez - *Callicebus olallae* and *C. modestus* abundance; Nohelia Mercado - Primate distribution and conservation priorities for Bolivia; and Madeleine Villa - Peccary population structure in the Tacana TCO). Similarly the following students successfully defended their Masters theses: Boris Rios-Uzeda (Marsh deer abundance and conservation) in Brazil, and Andrea Morales (Andean fox abundance) in Costa Rica.

The following students have final WCS approved versions of their undergraduate theses that are currently under formal University review as a precursor to defense: Hugo Aranibar – Cracid distribution and abundance in northern La Paz Department; Diego Romero - White-lipped peccary abundance; Cynthia Jurado - Giant River Otter abundance; Tania Carafa - Hunting management in the Pilón Lajas Biosphere Reserve; and Bader Pena – Andean bear distribution in southern La Paz Department.

We also concluded twelve volunteer research projects for undergraduate interns (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; jaguar perfume attractants at La Paz zoo (Maria Viscarra); paca (*Cuniculus paca*) photo-identification (Maria Viscarra); commercial fish weights in the Takana TCO (Nayarit Aillon); white-lipped peccary corridors between Madidi and the Takana TCO (Pamela Carvajal); river turtle consumption in five Takana communities (Pamela Carvajal).

As such, WCS continues to support the following students in their undergraduate students with the Institute of Ecology: Paola de la Torre - *Callicebus aureipalatii* behavior; Lesly Lopez - *Callicebus olallae* behavior; Pamela Carvajal – River turtle distribution and abundance in the Beni River; Magaly Mendoza – Biology and ecology of ornamental fish in the Tacana TCO; and Sandra Rivera – Mercury levels in commercial fish and spectacled caiman in the Tacana TCO. Most of these theses will be completed over the next six months. We are also supporting two Masters Theses: Alicia Kuroiwa (Jaguar prey abundance using standardized camera trapping frequencies), and Elvira Salinas (Historical analysis of land use and natural resource management in Apolobamba).

During this reporting period we have also committed to technical and financial support to the following undergraduate students: Patricia Aramayo (Pink river dolphin distribution and abundance in Yacuma); Cecilia Flores (Jaguar and puma diet in lowland Madidi); and Vilma Hidalgo (Dry season diet and foraging ecology of *Callicebus olallae*).

This year we continued our support to the “Journal Club” (a specific course on the Biology Course class curriculum of the Universidad de San Andrés), where several WCS technical staff supports the academic development of new students with eight sessions to date by the WCS team: Conservation Planning using Focal Species, Adaptive Management in Conservation, GIS and Conservation Planning, Ecosystem Health, Radio-telemetry, Line Transects & DISTANCE, and Camera Trapping. We are also supporting this Biology Course by providing them with theme ideas for thesis dissertations, according to the new class curriculum. Invited lectures for the Masters Course at Cayetano Heredia University in Lima, Peru: Conservation Planning using Focal Species & Landscape Conservation as a Spatially Explicit Planning Tool.

Activity 3.4 Monitoring Strategy Implementation

Our priorities for monitoring the Greater Madidi Landscape Program are monitoring for individual management units and local partners within the Landscape and as such we are working with the Madidi and Pilón Lajas protected areas, implementing monitoring systems through the park guards (see activity 3.2).

We are continuing with the process of developing our monitoring database that responds to the intervention specific conceptual models previously developed by the Program. Stress has been placed on identifying ‘multiple’ and ‘realistic’ indicators such that we can triangulate trends. During this reporting period the Wildlife Investigation & Monitoring, Natural Resource Management, and Field Veterinarian components of the program completed the process of retroactively compiling information over the eight-year history of the Program for indicators for which this is possible as identified by the technical team. Over the next six months the remaining three components of the Greater Madidi-Tambopata Landscape Conservation Program will complete this task and in a subsequent general meeting we will review the indicators to assess which are useful in themselves and which contribute to broader ‘macro-indicators’ as set by the program itself, as well as donors to the program such as USAID and the Moore Foundation.

Activity 3.5 CIPTA Institutional Strengthening

As mentioned in a previous report the WCS project has provided additional administrative strengthening to CIPTA by developing a plan for evolving the CIPTA-WCS partnership to one involving formal sub-agreements with accompanying budgets and work plans for the FY08 session and developing the accounting plan for CIPTA that takes into account all CIPTA funds and those received from differing donors. This will broaden the financial curriculum of CIPTA, enabling them to access additional and more significant sources of funding in the future, and represents a significant institutional step for the Takana as well as the CIPTA-WCS partnership.

The new phase of the partnership began in July 2007 and has been closely monitored by WCS technical and administrative staff. By the end of June 2008, CIPTA had successfully reported \$140,000 to WCS, and although to begin with there were some cash flow problems linked to delays in administrative reporting, the transition to this new relationship has been extremely smooth. With technical support from WCS, CIPTA now manages seven technical staff, 10 local technicians and 5 administrative staff. One of the most incredible aspects of the administrative capacity building

program is the fact that as of July 2008 the entire CIPTA in-house administrative team is Takana. During the Takana General Assembly (see below) WCS investment in CIPTA and the communities was once again detailed and approved by the maximum level of decision-making for the Takana, and this time CIPTA also presented its accounts for the period covered by the new funding arrangement. The importance of timely and transparent administrative reporting to communities will only increase further as income from natural resource management initiatives increases, not to mention potential income from Avoided Deforestation mechanisms. A CIPTA administrative manual is ready to go press and more importantly is being implemented within the CIPTA team and communities currently benefiting from the small grants program. Once again, this success represents a model for the relationships we have developed with other indigenous organizations in the landscape (see Activity 2.3 above).

WCS also financed the CIPTA General Assembly that is held every four years in the Macahua community in April 2008 where once again CIPTA-WCS technical reports and partnership expenditures were presented to the community representatives and unanimously approved. As scheduled the General Assembly elected a new President, Jesus Leal, and Vice President, Neide Cartagena, both of whom had previously held positions in the CIPTA directorate. All of the secretaries that were elected are new to the CIPTA directorate and gradually understand the magnitude of their new responsibilities. In general, although the elections changed the make up of the CIPTA directorate, the Takana people clearly voted for continuity thereby approving the previous directorate who were given the Takana equivalent of a standing ovation at the close of the Assembly.

The legal team continues to provide backstopping for a series of conflicts in the Takana TCO-I and the Takana TCO-II claim (see activity 2.3 above). WCS has also supported a radio program promoting the use of the Takana language presented by two Takana elders talking to each other about everyday life in Tumupasha. This is a critical part of the overall Takana strategy and the goals to revalue and rescue Takana culture. WCS staff also continued to support the indigenous interchange between Canadian Cree indigenous people and the Takana, with 10 Takana traveling to Canada. WCS staff also supported CIPTA in the process of securing funding from the Bolivian and Venezuelan governments for infrastructure in Tumupasha, as well as Canadian Aid for strengthening of the Takana Women's Organization (CIMTA). WCS also supported the General Assembly of CIMTA this year with a new directorate elected and a strategy developed. CIMTA now sits alongside the CIPTA gender secretary in the organizational structure to ensure greater coordination and synthesis possibilities and it is worth mentioning that 2 of the 8 members of the CIPTA directorate are now women.

The brochure regarding CIPTA's territorial administration has been published and well received by recipients across the country as well as the Takana communities as a synthesis of the success and complexity of territory management. Similarly, the Regulation for Access, Use and Management of Natural Resources in the Takana TCO is at the printers and will be published by the end of September 2008. It is already seen as a pioneer publication and instrument by the national indigenous authority CIDOB.

Finally, the CIPTA-WCS small grants program for community natural resource management program is currently financing six projects: two cattle ranching projects in Macahua and Carmen Pecha, one chicken farm in Capaina, and three ecotourism projects in San Miguels del Bala, Villa Alcira and Tumupasha.

Activity 3.6 Local Government Environmental Planning and Management Support

Development of the Alto Madidi Ecolodge

This year we worked with the Ixiamas Municipality in the finalization of a Management Plan for the 37,000 hectare Municipal Tourism Reserve that is centered on coordination with the Madidi protected area staff. The environmental permits required to construct the lodge have also now been formally approved. Proposals for financial support to the Reserve and Madidi Jaguar Lodge within the Reserve remain under consideration with TICOS, as a potential carbon offset project. However, the management plan and the process of building the ecolodge within the tourism Reserve has stalled due to land tenure issues in the Reserve. The area covered by the Reserve is currently under demand for colonization by people from the city of El Alto, but at the same time it is also being demanded by the local campesino Federation, FESPAI. The latter group envisages tourism activities in this area and as such preliminary discussions between FESPAI and the Ixiamas municipality are underway regarding a co-management of the Reserve and proposed ecotourism lodge. This tourist reserve is 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.

Conservation Opportunity Analysis for Beni and La Paz Departments

With a grant from Conservation International and in partnership with the regional governments and the Bolivian NGO NATIVA (in the case of La Paz) we concluded an analysis of conservation possibilities in Beni and La Paz Departments. We identified 11 areas with potential as conservation land management units in these two Departments. The analysis was based on biological landscapes for a suite of regionally important wildlife species, the overall conservation status of the Departments, an assessment of the status of land tenure and titling in the Departments, and a GAP analysis recently completed for the National Protected Area System. In La Paz the Departmental Council has formally approved the report as a Plan for the Implementation of a Departmental Protected Area System.

Mancomunidad de Municipios & Fundacion Amigos del Madidi

Our work continued with the Association of Municipalities of Northern La Paz (Mancomunidad del Norte Paceno) which includes Tacacoma, Guanay, Mapiri, Teoponte, Pelechuco, Apolo, San Buenaventura and Ixiamas municipalities through technical and financial support in the completion of a first complete draft of their Strategic Plan for the Integrated and Sustainable Development for Amazonian La Paz. This plan will be formally approved following local consultation and diffusion efforts that are currently underway.

The Fundacion Amigos del Madidi (Friends of Madidi Foundation) is a new local non-governmental organization which focuses on promoting debate and discussion regarding development and conservation in the municipalities overlapping with Madidi Protected Area and it is important to strengthen their capacity because of the absence of another local organization which can speak to, in particular, the urban population. International or La Paz based organizations do not have the local legitimacy or representative condition to promote this dialogue. As such during this reporting period we have technically and financially supported the Foundation to hold a series of local events to inform, analyze and discuss planned infrastructure projects in the region through presentations and the development of local materials. To date events have been held to discuss a) planned and existing road infrastructure, b) proposed hydrocarbon exploration and exploitation, and c) hydroelectric projects.

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

Activity 4.1 Policy Support

WCS has been invited to participate in the national REDD (Reducing Emissions from Deforestation and Forest Degradation) technical committee and has focused in supporting CIDOB in analyzing the mechanism as it relates to indigenous territorial management plans. CIDOB has presented the National Clean Development Office the position that indigenous participation should not be limited to the participation in productive projects but, that the potential of indigenous lands should be recognized as a strategic component for addressing climate change emissions. This is to say that building indigenous capacity for integral territorial management is a prerequisite for a REDD scenario on indigenous lands and therefore financial mechanisms, such as trust funds for territorial management, must be established to support the implementation of indigenous strategic and territorial management plans.

During this reporting period we provided technical support to CIDOB in developing a strategy for their participation in protected area management, which will be published in the next couple of months. As a result of this alliance SERNAP was able to provide input to the new land titling regulations and include particular clauses safeguarding protected areas of national importance from new settlements and tying the fulfillment of the social and economic function to respect of protected area management plans and territorial zoning.

As previously mentioned, we have continued to work with the Bolivian government on the development of specific legislation regarding management guidelines and best practices for ornamental fish harvests. We are also beginning work with the Bolivian government on the production of a new Red Data List where WCS data will form the basis of evaluating the 113 species of medium to large sized mammals.

Activity 4.2 Financing Mechanisms

Over this period efforts have again concentrated on strengthening a series of local partners (CIPTA, PILCOL, CIPLA, CPILAP, and the Ixiamas municipalities and communities) such that they can access a series of local and international funding sources (see details embedded in various activities above). 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. This support has also included the strengthening of proposal development capabilities and critically the installation of administrative capacity, particularly within the indigenous organizations.

During this period following approval from the CIPTA directorate, Rob Wallace has developed informative materials regarding the Takana TCO as a possibility for funding under the voluntary option of the Avoided Deforestation carbon credit facility (REDD). These materials have received favorable reviews from WCS New York staff and also from at least one private company interested in assisting the development of full carbon proposals with an eye to having the option of bidding for available credits. During the month of September, the process of developing full proposals will begin with the Takana TCO at the vanguard for other indigenous territory options in the landscape such as the Lecos from Guanay, the second Takana TCO and the Lecos from Apolo. A full proposal for the Takana TCO will have been developed by June 2009 and the Greater Madidi-Tambopata

Landscape Conservation Programs GIS office is currently producing up-to-date estimates of deforestation in the landscape, prioritizing the Takana TCO, to build on an analysis between 1991 and 2001 that has recently been published in Biotropica by the WCS team.

Activity 4.3 Threats Assessment Working Group

Corredor del Norte (Northern Corridor)

During this reporting period we concluded and printed a study with Conservation Strategy Fund (CSF): “Roads and Protected Areas”. The study is the third cost benefit analysis of different infrastructure projects that WCS carries out in alliance with CSF, previously in 2006 we developed two economic evaluations, one on the costs and benefits of projected roads going through Madidi and another on the regional economic benefits generated by the Madidi protected area. Infrastructure development represents one of the greatest challenges to environmental conservation and the development of vulnerable populations, for example indigenous people. Roads are important development tools but can also cause considerable environmental and social impacts. This study analyzed the economic viability of paving the Northern Corridor, a component of the Peru-Brasil-Bolivia of the IIRSA initiative and the construction of the Ixiamas-El Chive road. The study focused on estimating only part of the environmental costs associated with three protected areas: Madidi, Manuripi Heath and Pilon Lajas.

We presented this study in La Paz to all relevant government authorities and SERNAP has used it in their negotiations with the ABC (Bolivian Road Authority). Unfortunately, they are not backed by a political will to address these issues in the ABC. IUCN is incorporating this information as a case study in an analysis of all IIRSA projects which will be concluded this year.

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

Activity 5.1 Integrated Landscape Conservation Action Plan and Stakeholder Workshops

This year we continued the development of a bi-national second iteration of the landscape species analysis with INRENA and SERNAP in a third workshop in Puerto Maldonado and coordination with members of the Fundación Cayetano Heredia in Lima, Peru. Seven landscape species have been selected (Andean condor, vicuna, Andean bear, military macaw, jaguar, giant otter, maned wolf) and biological (habitat suitability) models produced and tested for each species. In addition, we developed a comprehensive human landscape for the bi-national area and approved these models at the third workshop. During this reporting period we also intersected the comprehensive human landscape with biological models for each species and produced conservation landscapes accordingly. These models were presented and accepted with minor observations at the third workshop in August 2008. In addition, we produced three participative conceptual models for the bi-national area and work towards a comprehensive monitoring strategy using associated monitoring frameworks. This work is being conducted through coordination with the Fundación Cayetano Heredia including a sub grant to support Alicia Kuroiwa.

This year we also published the memoirs of the “Second Meeting of Natural Resources Management Initiatives by Local Communities of Northern La Paz”. The Third Meeting will be carried out before the end of 2008.

Objective 6: New York Coordination Unit Strategy: Guide the design and testing of wildlife-focused planning, implementation, and evaluation tools for effective conservation at a landscape scale, and promote learning across sites and beyond

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

During FY08, the priority for the Coordination Unit continued to be working with field sites to promote adoption of best-practice tools for effective conservation at landscape scales, and to plan to consolidate lessons learned as the USAID GCP approaches its final year.

Activity 6.1 Provide technical assistance to site-based conservation

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

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

- **Finalization of each site's suite of Landscape Species.** LLP-NY support included providing guidance on the candidate species and other data required for the target selection process, technical support for the software used to select Landscape Species, and review of draft Landscape Species suites in order to assist field staff in choosing the most appropriate conservation targets for their site.
- **Development of quantitative population targets for Landscape Species.** LLP-NY provided technical support and helped gather information from the literature. Setting appropriate population targets is pivotal to the strategic application of the Landscape Species Approach (LSA).
- **Creating draft Biological, Human, and Conservation Landscapes or Seascapes for Landscape/Seascape Species.** LLY-NY led on the development of several models and provided technical support to field staff to ensure the successful development of these models that are at the core of the LSA.

Dr. Karl Didier worked closely with WCS Mongolia staff to produce a spatial model of the distribution of Siberian marmot one of the Eastern Steppe's Landscape Species for which we previously had little information. The pelts and meat of Marmots contribute significantly to local economies though their populations have been severely depleted by over harvesting by non-local trappers. The model and map will be invaluable for focusing conservation attention on parts of the steppe critical for marmot conservation.

Dr. Karl Didier completed a technical manual entitled "Building Conservation Landscapes – Mapping the Possible Impacts of Your Conservation", which has been printed and will be shortly available for download from the Living Landscapes' web site (www.wcslivinglandscapes.org).

Monitoring highly elusive species scattered across vast geographic areas is a huge challenge and Dr. Samantha Strindberg of LLP-NY traveled to Belize City and to Flores, Guatemala in March 2008 to assist the Belize and Guatemalan field teams with the design and analysis of their biological monitoring data. In Belize the focus was on the LAMP (Long-term Atoll Monitoring Program) surveys, fisheries catch data collection program, spawning aggregation counts, and in-water sea turtle surveys, while in Guatemala the challenging species in terms of monitoring included the scarlet macaw and Central American river turtle with the decorative palm (xate), although stationary and fairly abundant, posing its own distinct monitoring challenges.

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

Activity 6.2.1 Living Landscapes Program technical manuals

WCS/NY staff also wrote and published two more installments in its series of Technical Manuals and Bulletins: "Technical Manual 7: Building Conservation Landscapes – Mapping the Possible Impacts of your Conservation Actions" (Appendix B1), and "Summary: Landscape Species Approach – A Wildlife Based Strategy for Conservation" (Appendix B2).

Activity 6.2.2 Landscape Species Approach progress

As planned, in April of 2008, staff from the Living Landscapes Program developed and facilitated for the first time a 2-week intensive course entitled "Conservation Planning Using the Landscape Species Approach". The course was designed for WCS field staff and was attended by 18 staff from 7 landscapes and 1 seascape. During the course, field staff members were trained in all steps of systematic conservation planning and specific LSA tools developed over the past 10 years of GCP funding, and were given the opportunity to apply those tools to their particular landscapes. The course also provided LLP-NY staff to expose field staff to the newly released strategic planning and adaptive management software program – Miradi – developed by the Conservation Measures Partnership with support from Benetech.

We plan to offer the course at least 2 more times for WCS staff, and may offer it to practitioners outside of WCS, depending on funding availability (i.e., a NASA grant for which we've recently applied). This training demonstrates how we are now extending the benefits of the LSA (and the GCP funding that allowed for its development) far beyond the 6 sites that directly received funding.

Activity 6.2.3 Integrating strategic planning and project management

As WCS is going through an organizational transformation to more explicitly interconnect the living institutions (our zoos and aquarium) with the global conservation program progress on integrating strategic planning with operations planning and report was slow in FY08. LLP tools and approaches to conservation developed with the support of GCP continued to be enormously influential as WCS developed both its strategic goals – saving wildlife and wild places and connecting people to nature, and its operational systems for attaining these goals. LLP continued to work with the developers of Miradi to ensure that this desktop tool effectively integrates strategic planning and operations planning and reporting. WCS continues to be corporate sponsor of Miradi development.

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

Activity 6.3.1 Annual meeting, cross-site and cross-organizational learning

In FY08, LLP-NY staff finished writing and producing a series of “Guidance Briefs” based on information gathered at the LLP Annual Meeting in May 2007 that brought together the 14 LLP sites, including the 4 currently funded by USAID (see Appendices B3-B10). The Briefs are intended to be an accessible, user-friendly way to introduce new sites to the Landscape Species Approach and to guide users in when and how the LSA works best. As soon as the new WCS website is finalized -- it is currently being completely redesigned – we will post the Guidance Briefs.

Cross-site learning

The third two-week LLP/WCS workshop on “Statistical Design and Analysis of Biological Monitoring Programs for Conservation Management”, designed and led by Drs. Samantha Strindberg and Fernanda Marques (WCS Brazil Program) was held in Manaus, Brazil in June 2008. This workshop significantly advanced the access of WCS field staff to the technical knowledge that they need to monitor elusive species. WCS field staff in attendance included Guido Ayala and Boris Rios Uzeda from the Greater Madidi Landscape, Bolivia, along with Eduardo Toral and Javier Torres (Yasuni-Napo Landscape, Ecuador). The Ecuadorian landscape site was supported by the first round of USAID/GCP funding and is continuing to apply the tools and build upon the success of their previous conservation work.

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

Cross-organizational learning

Drs. Didier and Wilkie continued their involvement with a GCP learning project to evaluate the different approaches that conservation NGOs use to select conservation targets (e.g. WCS’s Landscape Species Approach).

Activity 6.3.2 CMP: leadership, design, writing and audits

LLP-NY staff continued to play a leadership role in the identification, design and implementation of Conservation Measures Partnership activities. David Wilkie worked closely with Nick Salafsky of FOS, Dan Slazer of TNC and Benetech a not-for-profit software developer to develop Miradi modules prior to its public release in February 2008. David Wilkie also work with Miradi developers to devise a financing model that would generate sufficient capital for continued evolution of Miradi and to ensure that prospective users from low-income countries could afford to purchase a Miradi license.

Activity 6.3.4 Preliminary assessment of the human welfare impacts of establishing national parks

Significant numbers of data entry errors were found in the Parks and People Access database requiring several additional person-months of investment to clean the dataset in preparation for analysis. The dataset is now accurate and ready for analysis.

Activity 6.4 Application of Living Landscapes Program tools beyond core sites

Activity 6.4.1 Training workshops and technical assistance in the use of LLP tools

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

The third two-week LLP/WCS workshop on “Statistical Design and Analysis of Biological Monitoring Programs for Conservation Management”, designed and led by Drs. Samantha Strindberg and Fernanda Marques (WCS Brazil Program) was held in Manaus, Brazil in June 2008. This workshop significantly advanced the access of WCS field staff to the technical knowledge that they need to monitor elusive species. WCS field staff in attendance included Guido Ayala and Boris Rios Uzeda from the Greater Madidi Landscape, Bolivia, along with Eduardo Toral and Javier Torres (Yasuni-Napo Landscape, Ecuador). The Ecuadorian landscape site was supported by the first round of USAID/GCP funding and is continuing to apply the tools and build upon the success of their previous conservation work.

Activity 6.4.2 Technical Manuals

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

Activity 6.5 Ensure coordination and communication services for the program

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

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

III. Success Stories and List of Publications

a. Success Stories

Administrative Capacity Building and Transparency in CIPTA

Building sustainable capacity for transparent and efficient administration and accounting is an important objective in any organization. However, in local grass-roots organizations it is also a challenge particularly because scarce resources that might be assigned to this objective are often perceived as being better spent on technical implementation of additional sustainable development and conservation interventions. As a result financial mismanagement has been a problem for many indigenous organizations in the past, often accentuated because resources were thrust upon them, without due diligence regarding in-house capacity for administrative and financial management.

Over the last eight years WCS has worked with the Takana people, their communities and their representative organization, CIPTA (Consejo Indigena del Pueblo Takana) on the establishment, design and implementation of sustainable indigenous territory management in the Takana indigenous territories or TCO's (Tierra Comunitaria de Origen). Whilst much of this institutional strengthening program has focused on technical and organizational aspects, the CIPTA-WCS partnership has also included an administrative capacity building program for CIPTA. This program has focused on individual training for indigenous leaders, CIPTA technicians, and community sustainable natural resource initiatives and their productive associations in the management of funds, as well as an institutional focus with the participative design of the administrative branch of CIPTA, the CIPTA administrative manual that sets out the guidelines for the management of funds and installations and equipment, and the installation and training for an accounting package.

Due to these advances, in July 2007 after seven years of support, the CIPTA-WCS partnership took an important step forward with the change to formal sub-agreements that awarded CIPTA an annual budget based on detailed work plans and budgets and an agreed upon schedule of funding installments. As part of this new arrangement all CIPTA technical staff also signed contracts directly with CIPTA. This arrangement was conceived as a major step in improving the CIPTA curricula for direct financial management and building sustainable administrative capacity in the organization. Over 12 months CIPTA successfully executed more than \$140,000 from WCS on agreed upon activities under this new model. A three month no-cost extension was agreed upon to complete activities under the previous sub-agreements, and in October 2008 new sub-agreements will be signed to cover the next 9 months of our partnership. In late April 2008 a partial financial summary was presented by CIPTA to Takana communities at the general assembly and was formally approved. Previously financial and administrative information had been presented by WCS at the assemblies and approved in a similar manner.

It is worth underlining that these important institutional advances have been made by the CIPTA-WCS partnership with a largely local and Takana administrative team in CIPTA. Indeed, as of July 2008 all five members of the CIPTA administrative team are Takana – a wonderful indicator as to the sustainability of this blossoming administrative capacity which is increasingly being recognized as a model for responsible institutional strengthening in the region.

b. External Documents Published in FY08

Book Chapters:

- Shimooka, Y., C. Campbell, A. DiFiore, A. Felton, K. Izawa, A. Link, A. Nishimura, G. Ramos-Fernandez, R. Wallace. 2008. Demography and Group Composition of *Ateles*. Pps 329-348. In C. Campbell (Ed.) *Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles*. Cambridge: Cambridge University Press.
- Ramos-Fernandez, G., R.B. Wallace 2008. Spider Monkey Conservation in the 21st Century: Picking Priorities whilst Recognizing Risks. Pps 351-376. In C. Campbell (Ed.) *Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles*. Cambridge: Cambridge University Press.
- Wallace, R.B. 2008. Factors Influencing Spider Monkey Habitat Use and Ranging Patterns. Pps 138-154. In C. Campbell (Ed.) *Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles*. Cambridge: Cambridge University Press.

Scientific Articles:

- Cabrera, H., R.B. Wallace. 2007. Densidad, composición y patrón de distribución espacial de palmeras arborescentes en un bosque amazónico de Bolivia. *Ecología en Bolivia* 42:121-135.
- Cabrera, H., R.B. Wallace. 2007. Fenología de ocho especies de palmeras arbóreas en un bosque amazónico de Bolivia. *Revista Boliviana de Ecología y Conservación Ambiental* 21:1-17.
- Fraser J., D. Wilkie, R. Wallace, P. Coppolillo, R. Balas McNab, L. Painter, P. Zahler, I. Buechsel. 2008. The emergence of conservation NGOs as catalysts for local democracy. Pp 55-68. In: M. Manfredo, J. Vaske, and D. Decker (Eds.) *Wildlife and Society: The Science of Human Dimensions*. Island Press.
- Martinez, J., R.B. Wallace. 2007. Further Notes on the Distribution of the Bolivian Endemic Titi Monkeys, *Callicebus modestus* and *Callicebus olallae*. *Neotropical Primates* 14:47-54.
- Salinas, E., R.B. Wallace & O. Loayza. 2008. Descentralización de la gestión ambiental en Bolivia. Pp. 53-56. In P. Cisneros, J. Ulloa & V. Lopez. *Descentralización de la Gestión Ambiental*. Ecociencia, Quito, Ecuador. 79 pp.
- Siles, T., R. Wallace & L. Painter. 2008. Sistemas de Información Geográfica en el Gran Paisaje Madidi. Contribución invitada para 'Avances y Beneficio Obtenidos del Uso de SIG en Bolivia'. Geosystems, Santa Cruz de la Sierra, Bolivia.
- Wallace, R.B. 2008. Towing the party line: Territoriality, risky boundaries, and male group size in spider monkey fission-fusion societies. *American Journal of Primatology* 70:271-281.
- Wallace, R.B. 2008. The influence of feeding patch size and quality on black spider monkey, *Ateles chamek*, foraging behavior. *Biotropica* 40:501-506.
- Wallace, R.B. 2008. El Jucumari en Bolivia en 2007. Contribución invitada para Estado Ambiental de Bolivia 2007. LIDEMA, La Paz, Bolivia.
- Wallace R.B., D.I. Rumiz. 2008. Jaguares (*Panthera onca*) en Bolivia. Contribución invitada para Estado Ambiental de Bolivia 2007. LIDEMA, La Paz, Bolivia.

c. Internal Documents Produced in FY08

Local Publications and Theses:

- Alandia, E. 2008. Manual de Sanidad y Manejo de Animales Domésticos en Tierras Bajas. Arte Gráficos Sagitario, CIPTA & Wildlife Conservation Society, La Paz, Bolivia. 156 pp.
- Ayala, G. 2008. Guía para la Toma, Conservación y Envío de Muestras a Laboratorio. Artes Gráficos Sagitario & Wildlife Conservation Society, La Paz, Bolivia. 20 pp.

- Ayala, G. & R. Wallace. 2008. El Jaguar en el Parque Nacional Madidi. Wildlife Conservation Society, La Paz, Bolivia. 29 pp.
- Beltrán L.F., R. Nallar, J. Zapata, H. Ticona & X. Beltrán. 2008. Manual de Entrenamiento en Salud y Vigilancia Epidemiológica en Vicuñas y Camélidos Domésticos de ANMIN Apolobamba - Módulo 1: Educación Ambiental y Sanitaria. Arte Gráficos Sagitario & Wildlife Conservation Society, La Paz, Bolivia.
- CIDOB. 2008. Estrategia de la Conservación de Pueblos Indígenas de Bolivia para la Gestión Compartida del Sistema Nacional de Áreas Protegidas. Artes Gráficos Sagitario & CIDOB, La Paz, Bolivia.
- CIPTA – Consejo Indígena del Pueblo Tacana. 2007. Pueblo Indígena Tacana – Consolidación y Gestión Territorial. Weinberg & CIPTA, La Paz, Bolivia. 50 pp.
- CIPTA – Consejo Indígena del Pueblo Takana. 2008. Reglamento de Acceso, Uso y Aprovechamiento de los Recursos Naturales Renovables del Territorio Indígena Takana: Tierra Comunitaria de Origen Takana I. Artes Gráficos Sagitario & CIPTA, La Paz, Bolivia. 66 pp.
- CIPTA & WCS. 2008. Enfermedades Comunes del Ganado Bovino: Guía para Criadores. Poster. Consejo Indígena del Pueblo Takana & Wildlife Conservation Society, La Paz, Bolivia.
- CIPTA & WCS. 2008. Enfermedades Comunes de los Chanchos: Guía para Criadores. Poster. Consejo Indígena del Pueblo Takana & Wildlife Conservation Society, La Paz, Bolivia.
- CIPTA & WCS. 2008. Enfermedades Comunes de los Pollos: Guía para Criadores. Poster. Consejo Indígena del Pueblo Takana & Wildlife Conservation Society, La Paz, Bolivia.
- CIPTA & WCS. 2008. Enfermedades Comunes de los Caballos: Guía para Criadores. Poster. Consejo Indígena del Pueblo Takana & Wildlife Conservation Society, La Paz, Bolivia.
- CIPTA & WCS. 2008. Calendarios Sanitario de Nuestro Animales Domésticos. Poster. Consejo Indígena del Pueblo Takana & Wildlife Conservation Society, La Paz, Bolivia.
- CPILAP - Central de Pueblos Indígenas de La Paz. 2008. Folleto de Difusión del Plan Estratégico Institucional 2008-2012 – CPILAP - Central de Pueblos Indígenas de La Paz – Tacanas, Lecos, Mosetenes, Esse Ejjas, T'simanes. Creativo & CPILAP, La Paz, Bolivia. 45 pp.
- Fleck, L., L. Painter, M. Amend. 2007. Carreteras y Áreas Protegidas: Un Análisis Económico Integrado de Proyectos en el Norte de la Amazonia Boliviana. Conservation Strategy Fund, Serie Técnica # 12, Conservation Strategy Fund, Brasil. 75 pp.
- Lopez-Strauss, H. 2008. Estimación de Densidad y Composición de Grupos de Dos Especies de Primates Endémicos, *Callicebus olallae* y *Callicebus modestus*, en el sudoeste del Departamento de La Paz. Universidad Mayor San Andrés, La Paz, Bolivia.
- Morales, A. 2008. Influencia de las Características del Hábitat y Actividades Humanas sobre la Frecuencia de Visitas del Zorro Andino (*Lycalopex culpaeus*) a Estaciones Olfativas en el Área Natural de Manejo Integrado Nacional Apolobamba, Bolivia. Universidad Nacional, Heredia, Costa Rica.
- Mercado, N. 2008, Determinación de Áreas Prioritarias para la Conservación de Primates en Bolivia. Universidad Mayor San Andrés, La Paz, Bolivia.
- Nallar, R., A. Morales & H. Gómez. 2008. Manual para la identificación y reconocimiento de eventos de depredación del ganado domestico por carnívoros altoandinos. Artes Gráficos Sagitario & Wildlife Conservation Society, La Paz, Bolivia. 51 pp.
- Rios-Uzeda, B. 2008. Estimación poblacional de ciervo de los pantano (*Blastoceros dichotomus*) durante la época seca y de las amenazas para su conservación en el norte de La Paz y Beni, Bolivia. Universidade Federal de Mato Grosso do Sul, Brasil.
- Rios-Uzeda, B. & R.B Wallace. 2008. El Jucumari en el Gran Paisaje Madidi-Tambopata. Wildlife Conservation Society, La Paz, Bolivia. 30 pp.
- Villa, M. 2008. Abundancia y estructura de edades de *Tayussu pecari* y *Pecari tajacu* al Norte de la Tierra Comunitaria Origen Takana, La Paz Bolivia. Universidad Mayor San Andrés, La Paz, Bolivia.

Wildlife Conservation Society. 2008. Memoria del Segundo Encuentro de Manejo de Recursos Naturales por Comunidades Locales en el Norte de La Paz. San Buenaventura, La Paz del 17 al 19 de agosto de 2006. Weinberg & Wildlife Conservation Society, La Paz, Bolivia. 78 pp.

Technical Reports:

- Alandia, E. 2007. Evaluación preliminar del estado de salud de lagartos (*Caiman yacare*). Primera campaña de cosecha de lagartos en comunidades del Río Beni-TCO Tacana. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Alvarez, O. & O. Palabral. 2008. Preferencia y hábitos alimenticios del oso andino (*Tremarctos ornatus*) mediante el análisis de excretas. Pasantía de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Angulo, S. 2008. Proyecto "Vigilancia Epidemiológica de Enfermedades de Aves Silvestres y Alerta Temprana Contra la Influenza Aviar". Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Ayllon, N. 2007. Variación de los pesos, tallas y amplitud de área de pesca de ocho especies comerciales de seis comunidades de la TCO Takana I. Pasantía de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Beltrán, L.F. & H. Ticona. 2007. Diagnóstico de entrevistas *Fasciolosis* en Caalaya. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Beltrán L.F., R. Nallar, J. Zapata, H. Ticona & X. Beltran. 2007. Manual de Entrenamiento en Salud y Vigilancia Epidemiológica en Vicuñas y Camélidos Domésticos de ANMIN Apolobamba - Módulo 1: Educación ambiental y sanitaria.
- Beltrán, L.F. 2008. Informe Técnico 2006 - 2007 Sanidad en Vicuñas y Ganado del ANMIN Apolobamba. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Beltrán, L.F. 2008. Final Technical Report *Vicugna* Bolivia. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Butrón, R. 2007. Plan de trabajo para elaborar el Plan de desarrollo Integral y Sostenible del Norte Paceño. Informe técnico, Mancomunidad Norte Paceño & Wildlife Conservation Society, La Paz, Bolivia.
- Butrón, R. 2007. Intervención institucional en el proceso de elaboración del PDIS. Informe técnico, Mancomunidad Norte Paceño & Wildlife Conservation Society, La Paz, Bolivia.
- Butrón, R. 2007. Proyecto: Política regional de desarrollo productivo rural (2do informe de avance), Informe técnico, Mancomunidad Norte Paceño & Wildlife Conservation Society, La Paz, Bolivia.
- Carvajal, P. 2007. Aporte al manejo de fauna de la TCO Takana I en base al conocimiento local sobre la caza en general y en particular sobre los chanchos de tropa (*Tayassu pecari*), confirmación de corredores utilizados por esta y otras especies de fauna. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Carvajal, P. 2007. Evaluación del consumo de peta de agua (*Podocnemis unifilis*), en cinco comunidades de la TCO Takana I, en base a registros de automonitoreo de cacería. Wildlife Conservation Society, La Paz, Bolivia.
- CIPLA. 2007. Propuesta base para la elaboración del plan de gestión territorial de la TCO Leco Apolo. CIPLA, La Paz, Bolivia.
- CIPLA. 2007. Propuesta base para la elaboración del plan de gestión territorial de la TCO Leco Apolo. CIPLA, La Paz, Bolivia.
- CIPLA. 2007. Definición de principios y criterios de sostenibilidad ambiental social económica y política organizacional en la TCO Leco de Apolo. CIPLA, La Paz, Bolivia.
- CIPLA. 2007. Estatuto orgánico del CIPLA. CIPLA, La Paz, Bolivia.
- CIPLA. 2007. Reglamento interno del CIPLA. CIPLA, La Paz, Bolivia.
- Da Silva, M. 2008. Evaluación de la dieta del jaguar (*Panthera onca*). Pasantía de Investigación. Universidad Mayor San Andrés & Wildlife Conservation Society, La Paz, Bolivia.

- Lopez, L. 2008. Guía de Mamíferos de Santa Rosa del Yacuma. Pasantia de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Loza I. & M. Cornejo. 2007. Evaluación de la dieta de *Hippocamelus antisensis* y *Odocoileus peruvianus* mediante análisis de excretas. Pasantia de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Ocampo, E. 2008. Primer Taller Lineamientos Estratégicos para el Desarrollo Productivo Regional del Norte Paceño Amazónico. Informe técnico, Mancomunidad Norte Paceño & Wildlife Conservation Society, La Paz, Bolivia.
- Ojeda, H. 2008. Diagnóstico Rural Participativo en las diferentes comunidades afiliadas a la FESPAI. Informe técnico, FESPAI & Wildlife Conservation Society, La Paz, Bolivia.
- Osorio, F., J. Sarmiento, G. Álvarez & D. Osorio. Manejo y Aprovechamiento Sostenible del Suchi en la Comunidad Santa Catalina del Municipio de Apolo. CIPLA, Instituto de Ecología & Wildlife Conservation Society, La Paz, Bolivia.
- Padilla, R. 2008. Identificación de Endoparásitos Gastro Intestinales Presentes en Felinos Silvestres de Zoológico Municipal de La Paz. Pasantia de Investigación. Wildlife Conservation Society & Universidad Publica del Alto, El Alto, Bolivia.
- Pomar, F.A. 2008. Metodología para la clasificación de imágenes con apoyo del NDVI. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Pomar, F.A. 2008. Protocolo para la coregistración de imágenes Landsat TM. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Pomar, F.A. 2008. Protocolo para la clasificación de imágenes Landsat TM. Informe técnico, Wildlife Conservation Society, La Paz, Bolivia.
- Porcel, Z. & B. Zapata. Evaluación de la dieta del Zorro andino (*Lycalopex culpaeus*) a través del análisis de heces. Pasantia de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Ricalde, D. 2007. Plan de Manejo de la Reserva Turística Municipal de Ixiamas. Municipalidad de Ixiamas & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2007. Sistematización de datos diagnostico socioeconómico. Comunidades Lecos Larecaja. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2007. Diagnóstico validado Kelequelera. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Carura. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Aguas Blancas. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Mariapo. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Michiplaya. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Cotapampa. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Santa Rosa de Carura. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Polopata. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Uyapi. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Candelaria. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.

- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad San José de Pelera. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Tomachi. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Alcarani. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Baronpampa. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Flor de Mayo. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Nueva Generación. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad San Juanito. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Santa Rosa de Challana. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Wacacala. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Tres Arroyos. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Wituponte. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Alto Chijini. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Cavaría. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad La Aguada. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad San Julián. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Tutilimundi. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Pajonal Vilaque. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Consolidación de Diagnostico Socioeconómico Comunidad Yolosani. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Silicuana, T. 2008. Diagnostico Preliminar de TCO Lecos Larecaja. PILCOL & Wildlife Conservation Society, La Paz, Bolivia.
- Torrico, O. 2008. Estudio de la dieta de pequeños felinos altoandinos a través del análisis de heces. Pasantía de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Viscarra, M.E. 2007. Evaluación de la dieta del puma (*Puma concolor*). Pasantía de Investigación. Universidad Mayor San Andres & Wildlife Conservation Society, La Paz, Bolivia.
- Viscarra, M.E. 2007. Evaluación de la metodología para la fotoidentificación de jochi pintado (*Cuniculus paca*). Pasantía de Investigación. Wildlife Conservation Society, La Paz, Bolivia.
- Viscarra, M.E. 2007. Diferencia de la frecuencia de ejecución de comportamientos de jaguares (*Panthera onca*) ante la presencia de fragancias comerciales en el zoológico Vesty Pakos Sofro, La Paz, Bolivia. Pasantía de Investigación. Wildlife Conservation Society, La Paz, Bolivia.

Wildlife Conservation Society. 2008. Aportes del Programa de Conservación del Gran Paisaje Madidi a la Gestión de Áreas Protegidas del SNAP. Estado de Conservación de las Áreas Protegidas del SNAP. SERNAP, La Paz, Bolivia.

IV. Appendices

- A1. Beltrán L.F., R. Nallar, J. Zapata, H. Ticona & X. Beltrán. 2008. Manual de Entrenamiento en Salud y Vigilancia Epidemiológica en Vicuñas y Camélidos Domésticos de ANMIN Apolobamba - Módulo 1: Educación Ambiental y Sanitaria. Arte Gráficos Sagitario & Wildlife Conservation Society, La Paz, Bolivia.
- A2. CIPTA – Consejo Indígena del Pueblo Takana. 2008. Reglamento de Acceso, Uso y Aprovechamiento de los Recursos Naturales Renovables del Territorio Indígena Takana: Tierra Comunitaria de Origen Takana I. Artes Gráficos Sagitario & CIPTA, La Paz, Bolivia. 66 pp.
- A3. Nallar, R., A. Morales & H. Gómez. 2008. Manual para la identificación y reconocimiento de eventos de depredación del ganado domestico por carnívoros altoandinos. Artes Gráficos Sagitario & Wildlife Conservation Society, La Paz, Bolivia. 51 pp.
- A4. Salinas, E. 2007. Conflictos ambientales en áreas protegidas de Bolivia. Wildlife Conservation Society, La Paz, Bolivia.
- A5. Siles, T., R. Wallace & L. Painter. *In press*. Sistemas de Información Geográfica en el Gran Paisaje Madidi. Contribución invitada para '*Avances y Beneficio Obtenidos del Uso de SIG en Bolivia*'. Geosystems, Santa Cruz de la Sierra, Bolivia.

- B1. LLP Technical Manual 7. Building Conservation Landscapes – Mapping the Possible Impact of Your Conservation Actions.
- B2. LLP Summary Manual. The Landscape Species Approach: A Wildlife-based Strategy for Conservation Developed by the Living Landscapes Program of the Wildlife Conservation Society.
- B3. Didier, K., V. Falabella, A. Johnson, V.H. Ramos, A. Rasphone, T. Siles and the L.L.P. 2008. Living Landscapes Field Guidance: Biological Landscapes. 4 pp.
- B4. Garcia, R., A. Johnson, A. Pattanavibool, H. Rainey, E. Suárez, A. Vedder and the L.L.P. 2008. Living Landscapes Field Guidance: Conceptual Models. 4 pp.
- B5. Bryja, G., V. Falabella, A. Fine, A. Novaro, A. Rasphone, F. Semanini and the L.L.P. 2008. Living Landscapes Field Guidance: Conservation Landscapes. 5 pp.
- B6. Bean, T., P. Coppolillo, E. Delattre, R. Garcia, H. Rainey, S. Strindberg and the L.L.P. 2008. Living Landscapes Field Guidance: Landscape Species Selection. 6 pp.
- B7. Clements, T., J. Gibson, A. Pattanavibool, E. Stokes, S. Strindberg, A. Vedder and the L.L.P. 2008. Living Landscapes Field Guidance: Monitoring Frameworks. 5 pp.
- B8. Bean, T., T. Clements, P. Coppolillo, A. Fine, A. Novaro, E. Stokes and the L.L.P. 2008. Living Landscapes Field Guidance: Setting Population Targets. 4 pp.
- B9. Bryja, G., E. Delattre, K. Didier, S. Hoare, O. Lkhamjav, V.H. Ramos, and the L.L.P. 2008. Living Landscapes Field Guidance: Threats Landscapes. 4 pp.
- B10. Gibson, J., S. Hoare, O. Lkhamjav, F. Semanini, T. Siles, E. Suárez and the L.L.P. 2008. Living Landscapes Field Guidance: Participatory Threats Assessment Workshop. 3 pp.