



Biodiversity Conservation at the Landscape Scale

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

Greater Yasuní-Napo Moist Forest Landscape Conservation Area

Annual Report FY 2003

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I. Summary of Activity Status and Progress

a. Introduction/Summary

The long-term objective of the Wildlife Conservation Society/Biological Conservation at the Landscape Scale (BCLS) Program in the Greater Yasuní-Napo area of eastern Ecuador is to conserve the biodiversity of the Greater Yasuní-Napo Moist Forest Landscape Conservation Area (Figure 1). To accomplish this purpose, the BCLS Program is working with local ethnic groups, public and private sector stakeholders, and private volunteer organizations as partners to develop a landscape strategy and to improve management of the protected areas and biological resources in these lands. Through these partners, BCLS Program staff is working to establish baseline ecological information, provide support for monitoring and design of local-level initiatives, strengthen management of national protected areas, promote change in patterns of resource use, and craft policy initiatives to encourage conservation-compatible land uses in the region. This landscape approach is designed to determine the needs of key wildlife species, assess human subsistence and economic activities across the same landscape, and use the intersection of these elements to focus efforts on those areas and actions which emerge as key conservation conflicts or opportunities. The Kichwa and Huaorani Indians are key local ethnic groups, but BCLS Program includes interventions with the Shuar ethnic group, as well as the *mestizo* colonists, as appropriate. Efforts with indigenous groups will occur in parallel with the strengthening of on-site park management and national institutional structures. This capacity building is intended to increase the ability of park staff to respond to conservation and management needs of the landscape and to build partnerships with local populations.

All BCLS Program work in Yasuní is designed to contribute to a landscape conservation action plan that is coherent and consensus-based. The plan will take into account all major stakeholders, from local resource users to large-scale, industrial entities. We expect results to include a reduction in habitat loss, a decline in hunting pressure on landscape species, and the development of capable co-management by public and local institutions. To accomplish this goal, we focus on four interrelated objectives: Establish baselines and monitor landscape species and the landscape context in which they are found; strengthen local, on-site protection and management of biological resources across the landscape; promote the development of national policies that support the landscape conservation approach; and elaborate a participative, integrated landscape conservation action plan.

During July 2002-September 2003, BCLS focused on four main activities. First, we promoted the Long-term Conservation Financing Strategy through the consolidation of the Strategy Advisory Group and leadership in the Strategic Environmental Assessment. Second, we worked closely with FEPP (*Fondo Ecuatoriano Populorum Progressio*) and Ecuador National Environmental Fund to develop and help implement a revised Management Plan for Yasuní National Park (see Appendix 2 for a list of organizations in the Yasuni landscape). This plan will contribute significantly to improving the protection and management of the park. It has been heavily inspired by BCLS strategy on threat-based interventions and landscape-level biodiversity conservation activities. Third, we conducted biological and human activities monitoring and revised monitoring protocols to improve

our ability to characterize conservation threats to the Yasuní landscape. Through monitoring and building upon the baseline information collected earlier in collaboration with EcoCiencia (community mapping, subsistence hunting, and wildlife use and knowledge), we will be able to assess conservation threats to landscape species and propose coherent interventions to protect these species and their habitats. Finally, we promoted the consolidation of the Yasuní Biosphere Reserve Management Committee through training, information exchanges, and the compilation of information about the Yasuní landscape. Throughout, we employed adaptive management as a flexible response to opportunities and unexpected challenges.

In conclusion, the conservation challenges to the Yasuní landscape are numerous and serious, but we have made progress in addressing these challenges. As a result of BCLS Program efforts, local Yasuni stakeholders are working together to enhance the conservation status of this unique landscape. While significant improvements may take years to achieve, the current level of local support and interest suggests that long-term improvements are possible.

b. Highlights

- Monitored threats at 10 sites to compile baseline data on the distribution and relative abundance of five landscape species and two species of special interest. (Activity 1.1)
- Conducted ecological research on three landscape species: giant river otter (*Pteronura brasiliensis*), black caiman (*Melanosuchus niger*), and scarlet macaw (*Ara macao*). (Activity 1.2)
- Monitored and mapped community resource use at 10 Kichwa communities along the Via Auca and Napo and Tiputini Rivers. (Activity 1.3)
- Compiled and distributed a bibliography of approximately 100 documents that will serve as the basis for the Yasuní Meta-database. (Activity 1.4)
- Developed and helped implement a revised Management Plan for Yasuní National Park. (Activity 2.1)
- Provided technical support to the Ministry of the Environment toward the resolution of the conflict due to new Kichwa Indian settlements and commercial activities within Yasuní National Park. (Activity 2.1)
- Provided technical and administrative support to the Yasuní Biosphere Reserve Management Committee. Compiled draft report on management committees for protected areas in Latin America (with Byron Real and Jim Barborak). (Activity 2.2)
- Completed draft reports on land use and tenure conflicts in the Yasuní landscape (with Ecolex) and the institutional context of the Yasuní landscape (with FEPP/DARE). (Activity 3.1)
- Raised \$170K to conduct the Strategic Environmental Assessment that will serve as the basis for the Long-term Conservation Financing Strategy. (Activity 3.2)
- Promoted a Natural Resource Management Plan for the Huaorani Ethnic Reserve with ONHAE officials. (Activity 4.1)
- Conducted community coordination meetings and strengthened inter-institutional relationships with several Ecuadorian organizations. BCLS Program became a member of the National Network of Biosphere Reserves. (Activity 4.2)

c. Table of Activity Status

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II. Detailed Description of Progress

a. Key Program Objectives for this Reporting Period (July 2002 – September 2003)

The principal tasks of the BCLS Program in the Greater Yasuni-Napo Area for this reporting period were to: (a) secure funding and undertake the Strategic Environmental Assessment that will be the basis for negotiating the Long-term Conservation Financing Strategy with the oil sector; (b) develop and help implement a revised Management Plan for Yasuni National Park; (c) undertake biological and human activities monitoring and revise monitoring protocols; and (d) consolidate the Yasuni Biosphere Reserve Management Committee.

b. Activity Description

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

Activity 1.1. Baseline Biological Assessments: Monitoring protocols and initial assessments

During FY 2003, BCLS Program staff conducted biological monitoring of landscape species, revised monitoring protocols to include information on human activities, and completed an initial assessment of the results. This baseline information will enable us to identify the nature and extent of conservation threats to landscape species and key areas on which to focus conservation actions. The status of this activity is **On Track**. The major highlights of this activity include the following:

- **Monitoring Results:** A total of 10 sites were monitored (6-8 days/site). Distribution and relative abundance data were recorded for all landscape species. Differences across and within sites related to vegetation and human activities were noted, with the lowland tapir (*Tapirus terrestris*) and white-lipped peccary (*Pecari tajacu*) especially abundant and widespread in forest habitat with fewer conservation threats (Report on 'Biological Monitoring in the Yasuni Biosphere Reserve' available on request). Based on preliminary observations, the migratory behavior of peccaries in Yasuni will require special conservation actions of a regional nature as a single herd can easily range over 200 km², moving into and out of the park and across the lands of several communities.
- **Revised Protocols:** The revised protocols will allow us to characterize more effectively human activities across the landscape and how they change over time. Additional variables were included and ranked (low, medium, and high) in order to have site-specific information and to detect changes in these values over time. One important determination was that hunters and fishermen along the Napo River will walk 10-20 km south on trails through the forest to get to the Tiputini River, where they have camps, in order to exploit wildlife in Yasuni National Park. Another important finding was the unexpectedly high number of houses and hunting/fishing camps along rivers within and adjacent to the park; 85 houses and 63 camps were located during the 2002-2003 surveys. These findings suggest that conservation actions also need to take into account distant or apparently undisturbed areas in the park as local residents range widely throughout the Yasuni landscape.
- **Additional Monitoring Sites:** Four new monitoring sites were selected along the via Auca, an area that is heavily impacted by human activities such as agriculture and logging in the northwest portion of the Yasuni landscape (Figure 2). The vegetation types and human activities of these sites reflect those of the surrounding area and will enable future comparisons with other, less-impacted sites in the eastern and southern portions of the Yasuni landscape.
- **Training Ecuadorian Biologists:** We trained Luis Sandoval and Javier Torres, undergraduate biology students, in landscape species monitoring techniques. Three park rangers also received training and participated in BCLS monitoring (see also Activity 2.1).

Activity 1.2. Baseline ecological research: Landscape Species

During FY 2003, BCLS conducted ecological research on three landscape species: giant river otter, black caiman, and scarlet macaw. In addition, we held a training course focusing on research and monitoring of tapir and white-lipped peccary in August 2003. Information from these studies will be combined with those of other activities discussed below and used to identify areas of the greater Yasuni landscape that are of critical importance for the conservation of these landscape species. Based on this information, we will develop and undertake appropriate conservation actions to improve the conservation status of these species. The status of this activity is **On Track**. The major highlights of this activity include the following:

- **Preliminary biological landscapes for five landscape species** – white-lipped peccary, tapir, caiman, giant river otter and scarlet macaw – were created using literature-derived, habitat associations and a new land cover map generated by WCS from Landsat TM and JERS radar imagery (Appendix 1). Preliminary results suggest that flooded areas are particularly important to all species, except macaws. Thus the Cuyabeno Wildlife Production Area and flooded river systems in the north-central sector of the Yasuni Biosphere Reserve are likely to be critical for conservation. Macaws show complementary habitat needs to the other four landscape species. However, our biological monitoring results suggest that riverine areas and palm patches in flooded areas were frequently used by macaws. The preliminary landscapes – when combined with primary threats to each landscape species – indicate the number of species needed for effective conservation planning could be reduced to three: tapir or peccary, otter or caiman, and macaw (Appendix 1). We will use additional field data from Yasuni in the coming months to test this idea.
- **Research Completed:** Three undergraduates completed theses on landscape species under the BCLS Program: Geovanna Lasso (giant river otter), Paola Carrera (giant river otter), and Maria de Carmen Urresta (black caiman; see Appendix 3 for additional information). The information gained through these theses provided important insights about the conservation threats to these species. Lasso, for example, determined

in northeastern Yasuni hunting, habitat destruction, and water contamination by oil company canoes were the main conservation threats to giant river otters. Second, Carrera determined that while competition for fish between fishermen and giant river otters was limited, several human activities were detrimental to otter survival, including fishing, fishing camps in otter areas, the use of dynamite, petroleum exploration, and noise contamination along rivers due to oil company canoe traffic. And finally, Urresta determined that while human activities were limited in the Limoncocha Biological Reserve, unregulated housing construction and wastewater disposal threatened the survival of black caiman at that site.

- **Research Underway:** (a) Two undergraduate biology students, Francisco Villamizar (black caiman) and Luis Pinos (giant river otter; Appendix 3) are finishing their thesis projects. Villamizar determined that the critical nesting time for black caimans was during October-February (dry season). Pinos concluded that ecotourism and petroleum exploration in the vicinity of Añangu potentially could drive away giant river otters to less impacted areas.. (b) Two Ecuadorian biologists, José Fabarra and David Yunes, conducted an ecological study of the scarlet macaw in the vicinity of Tiputini Biological Station in cooperation with Dr. Jordan Karubian, Center for Tropical Research. They found that macaws are highly sensitive to hunting, nest site availability, and the seasonal availability and distribution of fruits. This has led us to refocus our monitoring efforts around macaw nesting sites.
- **Training:** During 10-22 August 2003, Dr. José Fragoso (State University of New York, Syracuse) conducted a training course on ungulate monitoring and research techniques. Approximately 15 people participated, including park rangers and young biologists. This course will serve as a preface to monitoring and research on two landscape species: tapir and white-lipped peccary. BCLS Program designed and coordinated the course, selected the participants, and compiled bibliographic information about the species.

Activity 1.3. Baseline and Monitoring of Impacts: Monitoring human activities along roads and rivers

During FY 2003, BCLS developed protocols, prepared a draft data form to record human activities, and conducted community mapping (baseline mapping of community resource use) along the via Auca and Napo and Tiputini Rivers. This form was field tested during the 2002-2003 field season and will also be used by park staff as they begin to collect these data. Based on the results of the threats workshop (January 2001) and visits to the area, we know that the via Auca is one of the most heavily human-impacted sites in the Yasuni area. We will map human activities along the via Auca during FY 2004. In addition to the universal pattern of road and river access, people are increasingly moving into unexploited areas to hunt, collect forest resources, and establish permanent or temporary settlements. We are expanding our monitoring activities to include these areas and consulting with partners on possible interventions. The status of this activity is **On track**. The major highlights of this activity include the following:

- **Monitoring Protocols and Data Form:** Developed and updated. Signs of human activities were also documented during biological monitoring (see Activity 1.1). Regarding conservation threats, canoe traffic was heaviest at Añangu (37 canoes per day), while Indillama and Yasuni Biological Station had a total of 44 oil wells within 10 km. Only 3 of the 10 monitoring sites were relatively undisturbed. As more sites are evaluated, we will be better able to characterize the nature and extent of threats and their relationship to landscape species distribution and abundance.
- **Community Mapping:** Conducted mapping of natural resources and use patterns at 10 Kichwa Indian communities along the via Auca and Napo and Tiputini Rivers (with FEPP Report on 'Participatory Assessment of Natural Resource Management in 10 Communities in Yasuni Biosphere Reserve' available on request). The maps and information obtained will serve as the basis for community management plans to be developed with FEPP during FY 2004. While some communities had relatively intact wildlife and forestry resources, others were severely depleted. Therefore, we will develop conservation actions that take into account specific problems and needs of individual communities.

Activity 1.4. Landscape Data Baseline: Meta-database

During FY 2003, BCLS Program staff compiled information on the ecology of Yasuni landscape species. Our review indicates that little site-specific information is currently available but BCLS has provided the Yasuni Biosphere Management Committee with a meta-database containing all available information from other areas and a synthetic review of knowledge to-date. The five thesis students, the scarlet macaw researchers, and training course participants used this information to interpret and guide their work. We will soon incorporate relevant information from partner organizations and investigators conducting research in Yasuni to expand the meta-database. The meta-database and the information contained therein will be used to identify gaps in our knowledge about the Yasuni area, distribute available information to avoid duplication of efforts, and characterize current technical information about the biological and human landscapes in Yasuni. This activity necessarily will continue over several years. The status of this activity is **On Track**. The major highlights of this activity include the following:

- **Bibliography:** A total of 96 articles about the Yasuni landscape have been obtained, primarily from local institutions. From a synthetic review of 96 of the most relevant scientific studies, we have identified critical gaps in our knowledge of the Yasuni landscape and made the meta-database available to Yasuni managers. Several hundred additional documents will be reviewed shortly to assess their relevance to the Yasuni landscape. The meta database will be made available to the public via a WCS web page on the internet.

OBJECTIVE 2: Strengthen local, on-site protection and management of biological resources across the landscape.

Activity 2.1. National Park Authority Support

During FY 2003, BCLS provided both training (two 2-week courses on biological field techniques to park rangers) and financial support to the Ministry of the Environment and Yasuni National Park. BCLS also collaborated with FEPP and Ecuador National Environmental Fund to develop the Yasuni Management Plan (*Plan Operativo Gerencial*). In addition, FEPP and BCLS provided technical support to the ministry toward resolving the conflict generated by occupation of park and community lands along the Tiputini River by Kichwa Indians from Sucumbios and the community of Loreto in the western portion of Orellana. The status of this activity is **On Track**. The major highlights of this activity include the following:

- **Yasuni Management Plan (*Plan Operativo Gerencial*):** Given the need to revise the original management plan (approved in 1998), FEPP, BCLS, Ecuador National Environmental Fund, Catholic University of Ecuador (ECY), and San Francisco University of Quito (EBT) met 20 times over 1.5 years to develop and help implement a revised Management Plan for Yasuni National Park (Appendix 4). These parties agreed to the plan in 2003; it has been formally accepted by the Ministry of the Environment. Ecuador National Environmental Fund will use this plan as a model for other protected areas in Ecuador because they felt the threats-based approach to landscape conservation had merit and felt the plan held out a model for economically and locally sustainable protected area management.
- **Training:** (a) BCLS proposed curricula for field and administrative staff based on proposals from Antisana and Maquipucuna Foundations, as well as other Ecuadorian institutions, to the Ministry of the Environment. BCLS Program has been evaluating these proposals with Ecuador National Environmental Fund and ministry officials. Training for junior level ministry staff will include (1) use of GPS, (2) the characterization of oil spills, (3) biological monitoring techniques (including data collection and preliminary analyses), and (4) human activities monitoring techniques (including data collection and preliminary analyses). Senior level staff will be trained in the following topics: (1) conflict resolution for land use and tenure issues, (2) impact of decentralization on protected areas management, (3) inter-institutional relationships with NGOs and the scientific community, and (4) monthly and annual work plans (development, implementation, and evaluation). Ecuador National Environmental Fund and BCLS have agreed to co-finance a training program. (b) Two park rangers were trained in ungulate monitoring and research techniques during the course that was held in August 2003. (c) BCLS offered \$2400 to Alonso Jaramillo, Yasuni National Park Director, to support his undergraduate degree program in Natural Resource

Management (correspondence course, 3 years remaining). This degree is a prerequisite for Jaramillo to continue as a park director within the Ministry of the Environment.

- **Infrastructure:** Approximately \$1500 was used to refurbish the park ranger station at Añangu. Another \$600 helped develop a series of environmental education posters that will be displayed at the ecotourism facilities at Añangu.
- **Community Relations and Conflict Resolution:** During 2002, Kichwa Indians from outside the Yasuni area illegally occupied park and community lands along the Tiputini River. In response to complaints by the affected communities, a Special Commission named by the ministry visited the area during 25-29 August 2003 and will produce a formal report and set of recommendations on the situation. Two BCLS Program staff formed a part of the commission.

Activity 2.2. Yasuni Biosphere Reserve Management Committee: Technical and administrative support

During FY 2003, BCLS provided both technical and administrative support to the Yasuni Biosphere Reserve Management Committee. BCLS Program and FEPP facilitated committee meetings and an exchange of experiences with the Sumaco Biosphere Reserve Management Committee. Committee members cited petroleum activities and institution weakness by the Ministry of the Environment as the two major problems in the area. Strengthening the Yasuni Biosphere Reserve Management Committee will be essential to improve protection and management of Yasuni National Park and Biosphere Reserve. The status of this activity is **On Track**. The major highlights of this activity include the following:

- **Management Committee Report:** Mr. Byron Real and Dr. Jim Barborak (WCS Meso America Program) have completed the report on protected area management committees (see FY 2002 and 2003 Implementation Plans; Appendix 5). A portion of this study was presented at the Ecuador National Parks Congress held in Quito in July 2003. This report confirms the importance of a small, highly motivated, and well-informed group of people to participate in the management committee. BCLS is well-positioned to serve as the energizing core of the committee at Yasuni.
- **Meetings:** Management committee meetings were held at El Coca, Nuevo Rocafuerte, Arajuno, Tiputini, and Puyo. A draft work plan was adopted and is being implemented. Committee members identified three priority issues in the plan: biosphere reserve zoning, land use and tenure issues, and the public dissemination of the biosphere reserve concept. BCLS has supported the committee by funding a study of land use and tenure legislation (Ecolex report; see Activity 3.1). One of the main accomplishments of the committee was to review the Environmental Education Plan for the Province of Orellana. BCLS provided critical input to improve the content, design, and implementation strategy for the plan that will be executed in the province's school system (Report on 'Environmental Education Plan for the Province of Orellana' is available on request).
- **Exchange of Experiences between the Yasuni and Sumaco Groups:** Over the past 10 years the Sumaco Biosphere Reserve Management Committee won formal recognition of the Sumaco working group by the Ministry of the Environment and financial support for programs that generate income for local residents while protecting local natural resources. The Yasuni and Sumaco groups met on 20 February 2003 and discussed experiences and perceptions about the management of biosphere reserves and management committees. From this collaboration emerged the need to establish the National Network of Biosphere Reserves (see Activity 4.2). These "lessons learned" will be applied by members of the Yasuni Biosphere Reserve Management Committee as they conduct their activities.

OBJECTIVE 3: Promote the development of national policies that support the landscape conservation approach.

Activity 3.1. Current land policy and institutional context of the Yasuní landscape

During FY 2003, BCLS and partners completed two documents that will enhance our understanding of the Yasuní human landscape. The Ecolex report, for example, traces the previously undocumented history of contacts between the Government of Ecuador and several indigenous federations as lands were assigned and reassigned often without taking into account all legal requirements. Second, the FEPP-DARE report documents how park and oil concession boundaries often were established and modified without taking into account the communities that already occupied those lands. These actions and omissions reflect the institutional weakness of the federal government and are the cause of many conflicts today. These studies will be an important reference for the Yasuní Biosphere Reserve Management Committee, as well as others wishing to understand the history and context of the Yasuní landscape. The status of this activity is **On Track**. The major highlights of this activity include the following:

- “Characterization of Conflicts in Yasuní Biosphere Reserve” (*Caracterización de Conflictos en la Reserva de Biosfera Yasuni*): This draft report by Ecolex summarizes Ecuadorean legislation that pertains to land use and tenure issues and the history and potential solutions for conflicts currently underway in the Yasuni landscape (Appendix 6). The sudden, unplanned colonization of portions of the Tiputini River by Kichwa communities requires a solution consistent with both historical precedents and current political realities. In general, Ecuadorean law would not support the occupation of park lands by colonists subsequent to the declaration of Yasuní National Park. Politically, however, it would be more convenient for the Government of Ecuador to establish long-term easements with these people that include strict conservation clauses than to remove them forcibly from the area. The results of this study will be shared with stakeholders via workshops in order to resolve those conflicts and avoid future ones.
- “History, Problems, and Perspectives on Yasuní National Park and its Buffer Area” (*Historia, problemas y perspectivas del Parque Nacional Yasuni y su área de influencia*): This draft report by FEPP-DARE summarizes the current socio-economic context of the Yasuní landscape, with special attention given to the several instances when the boundaries of Yasuní National Park were modified to benefit oil concessions and indigenous communities (Appendix 7). One of the major conclusions of the report is that the Yasuni landscape and its peoples have long been neglected by the central government in Quito. This neglect has created a situation where foreign oil companies essentially serve as a proxy government in the region and finance many of the social and infrastructure projects (e.g., roads and health centers). This emphasizes the need to work with the oil industry in Yasuní to advance conservation strategies (see Activity 3.2, 4.2[d], and Success Stories, below).

Activity 3.2. Long-term Conservation Financing Strategy: Produce a strategy to seek long-term financing from the oil industry

During FY 2003, BCLS made important progress toward the development of a long-term conservation finance strategy. This strategy is essential as the Government of Ecuador generally receives no compensation for indirect impacts of the petroleum industry (e.g., unplanned colonization that requires the provision of basic services such as water and electricity). Our next step will be to monitor indirect impacts assess damages, identify stakeholders, and work with oil companies to mitigate negative consequences of petroleum exploration and exploitation. We will benefit from lessons learned in negotiations with the foreign-owned timber concessions within the GCP-funded Congo BCLS site. If we succeed in leveraging funding from oil companies, this could provide financial support to communities and national parks impacted by petroleum exploration and exploitation. The status of this activity is **On Track**. The major highlights of this activity include the following:

- Strategic Environmental Assessment: In coordination with CAIMAN Project (funded by USAID/Ecuador), terms of reference were approved and financing was secured (Appendix 8). BCLS will conduct the

assessment over 4-6 months starting in late 2003. CAIMAN Project will provide \$172,000. BCLS will provide key staff for this assessment as an in-kind contribution. While the assessment will focus specifically on Amazonian Ecuador, the results will be applicable throughout Latin America where petroleum activities occur.

- Strategy Advisory Group: Four conservation NGOs have agreed to form a coalition with BCLS to promote the long-term conservation financing strategy: Conservation International (CI), The Nature Conservancy (TNC), *Futuro Latinoamericano* (Latin American Future), and *Ambiente y Sociedad* (Environment and Society); the first three organizations are international, while the last one is an Ecuadorean organization.
- Professional Talk: On 14 May 2003, Amanda Barrera de Jorgenson, BCLS Program Coordinator, presented a talk entitled: "Petroleum: Threat or Opportunity for Conservation and Sustainable Development in Ecuador?" This talk, attended by about 50 people, was presented in the context of a public seminar series on oil issues in Ecuador organized in Quito by FLACSO (Latin American Social Sciences Faculty). The text of the presentation will be published in formal proceedings of the event (available on request).

OBJECTIVE 4: Elaborate a participative, integrated landscape conservation action plan.

Activity 4.1. Natural Resource Management Plan for the Huaorani Ethnic Reserve: Next steps and proposal development

During FY 2003, BCLS met with Huaorani officials (especially with Armando Boya, ONHAE President; *Organización de Nacionalidad Huaorani de la Amazonía Ecuatoriana* [Organization of Huaorani Nationality from Ecuadorian Amazon]) to discuss potential collaboration on a Natural Resource Management Plan for the Huaorani Ethnic Reserve that comprises about 25% of the Yasuni landscape. BCLS accepted an invitation by ONHAE to work on the management plan, as well as a strategic plan for that organization. Since those meetings and agreements, however, ONHAE has been beset with internal problems, including the murder in mid 2003 of 12-15 women and children of the Taromenane clan by Huaorani warriors. An Ecuadorean federal prosecutor is investigating matters, but ONHAE officials have decided this matter will be dealt with internally by the Huaorani people. The status of this activity is **Delayed**. The major highlights of this activity include the following:

- Meetings: Five meetings have been held where a Natural Resource Management Plan was discussed with ONHAE officials. Given the absence of clear, long-term objectives, BCLS Program agreed at these meetings to assist ONHAE first in the development of a Strategic Plan based on the ideas and concerns of former ONHAE presidents. Both the Natural Resource Management Plan and the Strategic Plan, however, are on hold pending the interest and availability of ONHAE officials. While a management plan for the reserve likely would be a prerequisite for ONHAE natural resource management of Yasuni National Park, Ministry of the Environment officials have yet to take a formal position in that regard. BCLS Program has approached CAIMAN Project to determine if funds would be available through that project to develop the plan.
- Cofán-Huaorani Exchange: Three meetings were held with Mr. Randy Borman, *Fundación Sobrevivencia Cofán* (Cofán Survival Foundation) President. Borman expressed great interest in the proposed exchange. Outside funding subsequently was obtained from Edwards Mother Earth Foundation to conduct some joint Cofán-Huaorani activities, and will continue during FY 2004.

Activity 4.2. Strengthening of local constituencies, coordination and contacts

During FY 2003, BCLS held meetings to strengthen relationships between partners and community officials involved in the planning process for the Yasuni Biosphere Reserve. Close coordination and contacts are absolutely critical to the success of the Yasuni Living Landscapes Program. The status of this activity is **On Track**. The major highlights of this activity include the following:

- Community Coordination Meetings: FEPP worked closely with BCLS to coordinate and undertake 20 community meetings designed to explain and promote the biosphere reserve concept around Yasuni (see

also Activities 1.1, 1.3, 2.1, and 2.2). As a result of these meetings, local officials and community members are increasingly supportive of BCLS activities in the Yasuní landscape.

- **Inter-institutional Relationships:** (a) FEPP (El Coca Regional Office) and BCLS have developed a cooperative work plan to coordinate activities in the Yasuní landscape. Joint activities conducted under this agreement included Community Mapping (Activity 1.3), National Park Authority Support (Activity 2.1), Yasuní Biosphere Reserve Management Committee (Activity 2.2), and Land Policy and Context of Yasuní Landscape (Activity 3.1). (b) CAIMAN Project will support BCLS Program to conduct the Strategic Environmental Assessment (Activity 3.2) and possibly some activities with the Cofán, Kichwa, and Huaorani nationalities (Activity 4.1). (c) The Yasuní Biosphere Reserve Management Committee met with its Sumaco counterpart and obtained valuable information on training, regional planning, biosphere reserve zoning issues, and the development and implementation of the Sumaco Biosphere Reserve Management Plan (Activity 2.2). This relationship was formalized through the creation of the National Network of Biosphere Reserves with the participation of the Yasuní, Sumaco, and Galápagos groups (see National Level Initiatives, below). (d) EnCana Ecuador (Canadian Energy Corporation, previously known as AEC) recently purchased three oil concessions in the Yasuní landscape (Blocks 14, 17, and 27). In a meeting on 6 June 2003, Mr. Fernando Benalcázar, EnCana Ecuador representative, made a verbal commitment to BCLS Program to conduct oil exploration and exploitation in the Yasuní landscape in an environmentally-friendly manner. Benalcázar also invited BCLS Program staff to form part of the Scientific Advisory Committee that will oversee EnCana Ecuador activities in the Amazon. While the details have yet to be formalized, BCLS membership on the committee would potentially allow us to provide significant input to EnCana on activities impacting the Yasuní landscape. (e) FEPP, UNESCO, and BCLS have agreed to produce a video about the Yasuní Biosphere Reserve (Terms of Reference for Yasuní Biosphere Reserve video is available on request). This video will be made available to local stakeholders and used in environmental education programs to increase awareness of the biosphere reserve and the need to conserve its natural resources (total cost *ca.* \$5000). (f) In cooperation with FEPP, VAA (*Vicariato Apostólico de Aguarico*; Apostolic Vicarship of Aguarico), and CIBT (*Centro de Investigación de los Bosques Tropicales*; Tropical Forest Research Center), BCLS prepared a concept paper and project profile entitled "Conservation and Development in the Lower Napo River Basin (Ecuador)." This concept paper was submitted to USAID-GDA, but was not approved at this time. A new revised version will be presented to USAID-GDA for the next funding cycle.
- **National Level Initiatives:** As a result of BCLS activities, UNESCO and the Ministry of the Environment formally convened the National Network of Biosphere Reserves (*Red Nacional de Reservas de Biosfera*). This network includes Yasuní, Sumaco, and Galápagos Biosphere Reserves. Two meetings have been held (14 April and 9 May 2003) and a work plan is being developed to exchange information between reserves, seek approval of "biosphere reserve" as an official protected area category by the Government of Ecuador, and seek external funding to support reserve activities and infrastructure needs.

c. Key Management Issues

In previous reports, we have commented on changes in the structure and personnel of the Ministry of the Environment and how those events were having a negative impact on our efforts in the region. During FY 2003, there were essentially no improvements in those matters despite BCLS efforts:

- The Ministry of the Environment has had three different ministers within the past year. Lourdes Luque de Jaramillo resigned in January 2003 as the Noboa Administration was replaced by the Gutiérrez Administration. Edgar Isch resigned in July 2003 for political reasons. César Narváez is the current minister. As result, progress on important environmental issues, such as the proposed "Biodiversity Law", has stopped. We responded by focusing our efforts at the local and district level, where personnel changes are less frequent.
- The Government of Ecuador has continued to institutionalize its policy of decentralization. In our case, the Orellana Provincial Assembly is the lead authority at the local level. Given their limited technical expertise, BCLS will provide advice and materials to assembly members, especially through the Yasuní Biosphere

Reserve Management Committee. With regard to the Sucumbios and Orellana District Office (Ministry of the Environment), BCLS Program staff will seek to strengthen our institutional relationship and coordinate field and administrative training for ministry staff in the district.

- In mid 2003, Alonso Jaramillo was named Director of Yasuni National Park but most problems that have plagued the park since its creation continue, for example: budgetary and personnel problems. The base annual budget of Yasuni National Park is \$9,000. While the Government of The Netherlands through Ecuador National Environmental Fund has provided an additional \$45K, those monies are insufficient to meet the annual needs of the park (estimated at \$100-150,000).
- The problem with new Kichwa Indian settlements along the Tiputini River complicates several key management issues. First, neither the ministry nor the six affected communities honored an agreement made in 1997 to prepare individual community management plans that would be the basis for conservation easements so that the communities could continue to occupy their lands within Yasuni National Park. Second, in 2001 the ministry gave informal approval to an illegal occupation of park lands by Kichwas from outside of the Yasuni area. As a result of the Special Commission visit in August 2003, the six affected communities – with the assistance of FEPP, BCLS Program, EcoEcuador Foundation, and the scientific stations – will prepare a collective management plan and seek approval by the ministry.
- The Huaorani people occupy a large and biologically important portion of the Yasuni landscape, but are not active participants in the protection of their lands. One factor is that many Huaorani do not feel that their lands are endangered. Second, the several Huaorani communities are not accustomed to working together for the common good. And third, ONHAE, the Huaorani Federation is administratively weak. This makes it difficult for organizations, such as BCLS, to undertake conservation and research activities in the Huaorani Ethnic Reserve. To address those problems, we are reaching out to other organizations – including CARE, CAIMAN Project, and *Fundación Sobrevivencia Cofán* – to identify and implement appropriate solutions, including the development and implementation of the Natural Resource Management Plan for the Huaorani Ethnic Reserve (see Activity 4.2). This effort likely will continue over several years.

III. Success Stories and Appendices

Success Stories

- **Long-term Conservation Financing Strategy:** BCLS won support to conduct a Strategic Environmental Assessment of the long-term cumulative indirect impacts of the oil industry. Our assessment will provide the baseline information necessary to characterize and quantify the indirect impacts of petroleum-related activities in Ecuador, as well as to design a program to prevent, control, and mitigate those impacts. We will use the results to negotiate with the oil industry. Our goal is winning a significant contribution to protected area management and support of indigenous territories in the Amazon Region of Ecuador. The assessment will be financed by CAIMAN Project (\$172,000).
- **Yasuni Management Plan:** Over a series of meetings during 2002-2003, Ecuador National Environmental Fund, BCLS Program, ECY, EBT, and FEPP – in cooperation with Ministry of the Environment officials – developed a revised Management Plan for Yasuni National Park that was simple, feasible, and consistent with park priorities. Feasible is defined as consisting of activities that can be accomplished with the current funding and personnel levels. BCLS Program will be a critical partner in the implementation of this plan as we will provide information on the biological and human landscapes, as well as technical and financial support to the Yasuni Biosphere Reserve Management Committee. Essentially all park priorities are similar to BCLS Program objectives. This plan was formally accepted by the Ministry of the Environment and will serve as the basis for planning and implementation for the next 2 years.
- The biological and human landscapes are the two pillars of the BCLS Program and the living landscape approach. In our case, the Yasuni landscape covers approximately 2,800,000 ha (*ca.* 1770 square miles). To date, BCLS Program staff members – including two young Ecuadorean biologists trained in monitoring techniques – have conducted 2 years of biological monitoring at 10 sites, primarily in the northern portion

of the Yasuni landscape. Through day and night surveys conducted along terrestrial and aquatic transects, we have compiled baseline information on the distribution and relative abundance of our five landscape species and two species of special interest, as well as approximately 50 other species of birds, mammals, and reptiles. Landscape species are generally less abundant in the northern portion of the landscape – versus the central or eastern areas – due to hunting and agriculture. As we enter our third year of biological monitoring, new sites will be added to expand the range of conditions studied, as will the recording of data on associated human activities (e.g., hunting, fishing, timber harvest, and petroleum activities). We will also review the preliminary results of the Landscape Species Analysis to take into account hydrological conditions and the feasibility of reducing the number of landscape species due to duplication of biological characteristics (see Activity 1.2). This baseline information will enable us to apply appropriate conservation actions more effectively and efficiently in order to improve the conservation status of landscape species.

- Yasuni Biosphere Reserve Management Committee: Informed local participation is a key component of the living landscape approach. In Yasuni, BCLS Program staff has promoted the formation of the Yasuni Biosphere Reserve Management Committee. First proposed in January 2001, the committee now has a formal structure, function, membership, and work plan. The committee consists of the following organizations: Ministry of the Environment (president), VAA, ONHAE, FOCAO, FFAA, Ecorae, FCUNAE, USFQ, *Alcaldia de Orellana* (Mayor of Orellana), and the *Honorable Consejo Provincial de Orellana* (Orellana Provincial Assembly). FEPP and BCLS are permanent, non-voting advisors to the committee. Prior to BCLS activities, these Ecuadorean organizations had little if any contact with each other. Now, however, these organizations are beginning to coordinate some activities together, such as the Environmental Education Program for the Province of Orellana. While much remains to be accomplished, the results achieved to date reflect the interest of these organizations in the Yasuni Biosphere Reserve.
- One of the main objectives of BCLS Program is to strengthen local, on-site capacity to protect and manage biological resources across the Yasuni landscape. Two young investigators working under the BCLS Program were awarded Fulbright scholarships during 2003 due – in part – to their studies on landscape species in the Yasuni landscape. Paola Carrera conducted research on fish in the diet of the giant river otter and will attend Portland State University. José Fabarra conducted research on the behavior and ecology of scarlet macaws and will attend University of Missouri-St. Louis. The training that Carrera and Fabarra will obtain through the Fulbright Program will significantly enhance Ecuadorean capacity to protect and manage biological resources as both anticipate returning to Ecuador to assume professional positions upon completion of their graduate programs. A third recent graduate, Geovanna Lasso, was awarded an internship to work on giant river otters in Peru.

Appendices

1. Preliminary Biological and Human Landscapes for the Yasuni-Napo Conservation Area.
2. Organizations in the Yasuni area.
3. Bibliography of theses conducted under the BCLS Program.
4. Revised Yasuni Management Plan (*Plan Operativo Gerencial*).
5. Barborak Report: Management Committees for Protected Areas.
6. Ecolex report: “Characterization of Conflicts in Yasuni Biosphere Reserve” (*Caracterización de Conflictos en la Reserva de Biosfera Yasuni*).
7. FEPP monograph: “History, Problems, and Perspectives on Yasuni National Park and its Buffer Area” (*Historia, problemas y perspectivas del Parque Nacional Yasuni y su área de influencia*).
8. Terms of Reference for the Strategic Environmental Assessment.

FIGURE 1

Map of the Yasuní landscape

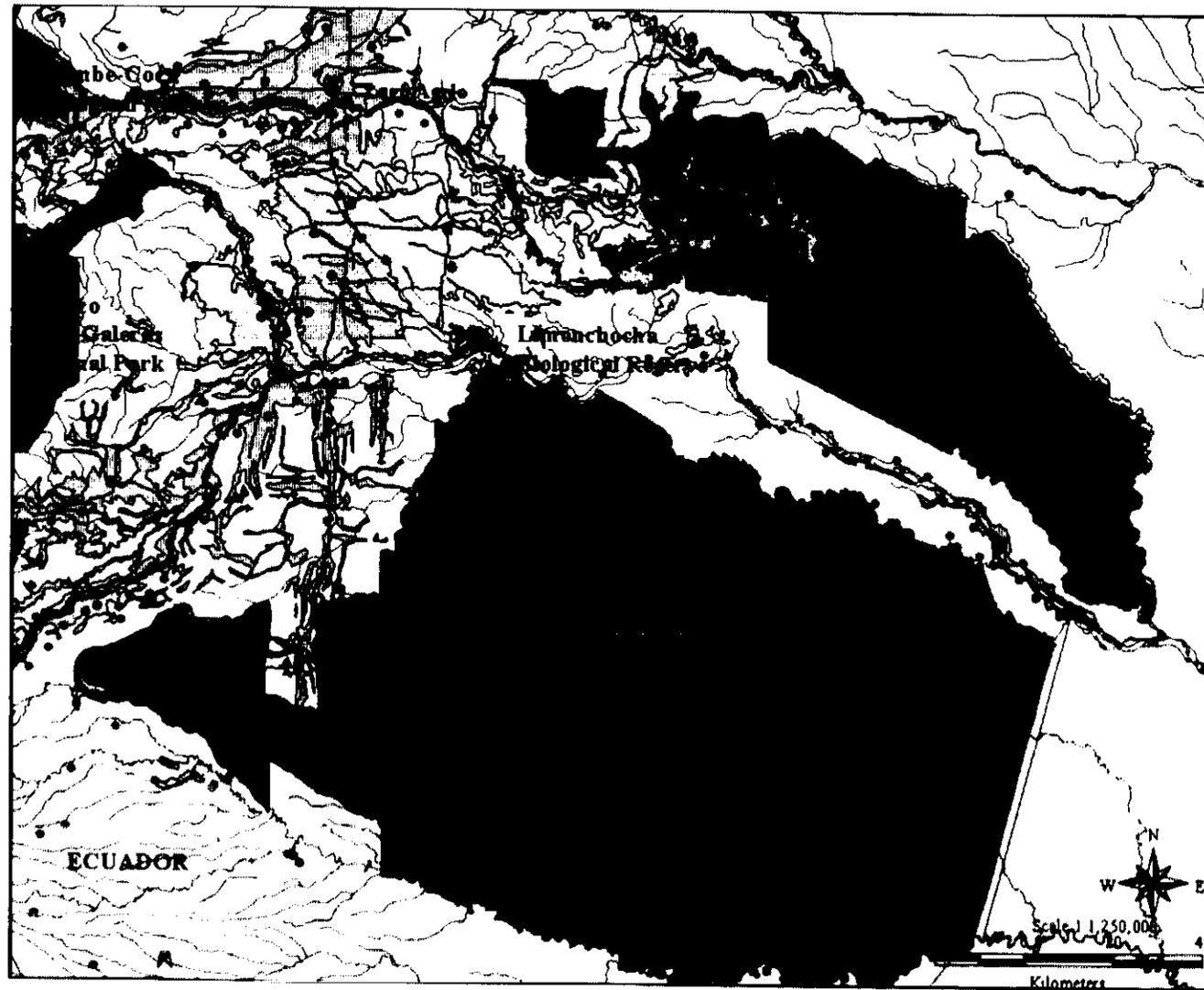
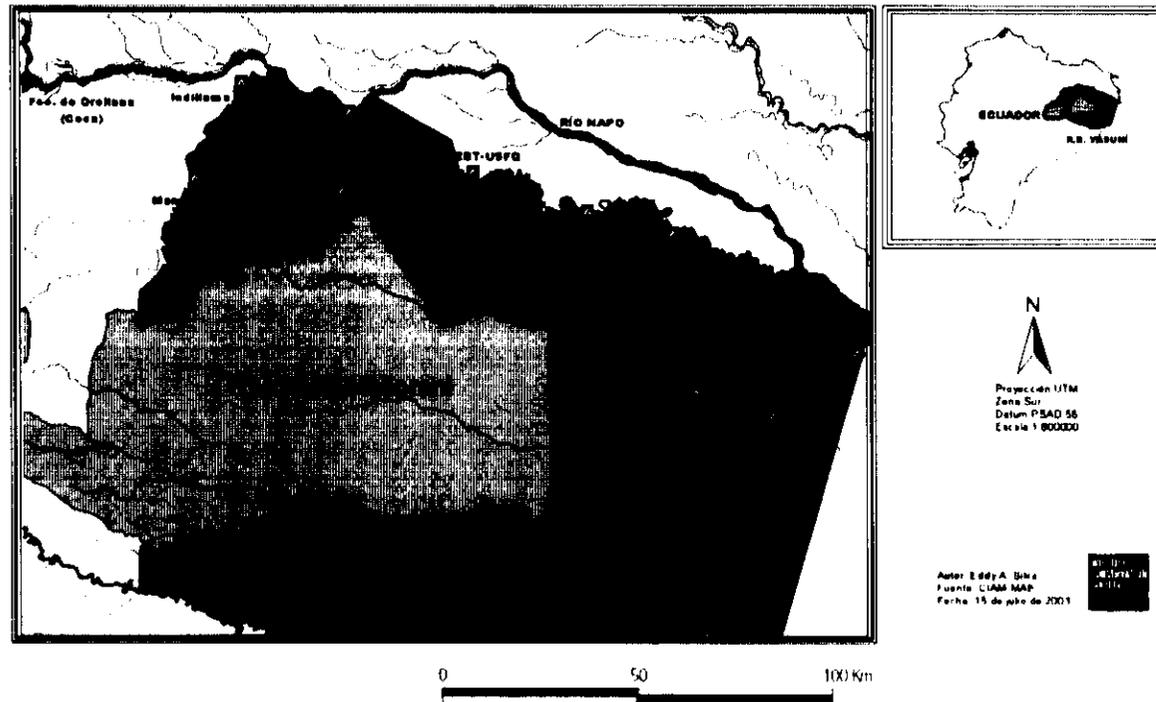


FIGURE 2

Map of biological and human activities monitoring sites in the Yasuní landscape.



APPENDIX 1

Preliminary Biological and Human Landscapes for the Yasuní-Napo Conservation Area

[Digital file of the report attached.]

APPENDIX 2

Organizations in the Yasuní Area¹

- CAIMAN Project – (*Proyecto Conservación en Áreas Indígenas Manejadas*) Conservation in Indigenous Managed Areas is a USAID project that aims to promote the conservation and management of natural resources in indigenous areas in N and E Ecuador, especially in Awá, Cofán, and Huaorani areas. CAIMAN will provide financial support for the Strategic Environmental Assessment. Contact: Joao Queiroz, Director.
- CARE – (*Coordinación Americana de Remesas al Exterior*) is an international conservation and development organization. In Ecuador, CARE conducted some of the first development projects in the Yasuní area and with the Huaorani (SUBIR Project; Huaorani Activity). No active projects in the Yasuní region at this time. Contact: Peter Buijs, Director.
- Center for Tropical Research – affiliated with UCLA university, this international conservation and research organization conducts ecological research on birds in Ecuador. In the context of the BCLS Program, CTR is coordinating the scarlet macaw study at Tiputini Biodiversity Station. Contact: Jordan Karubian, Ecuador Coordinator.
- CIBT – Centro de Investigaciones de los Bosques Tropicales (Tropical Forest Research Center) is an Ecuador conservation NGO that works on research, land titling, community development, and boundary marking within the context of tropical forest conservation. In the context of the BCLS Program, CIBT was an early supporter of ONHAE and the Huaorani Ethnic Reserve; CIBT presently is working with VAA, FEPP, and BCLS Program to develop the BRN Project. Contact: Martha Lucy Mondragón, Director.
- EcoCiencia - *Fundación Ecuatoriana de Estudios Ecológicos* (Ecuadorian Foundation for Ecological Studies) has worked in association with WCS and CARE in the Huaorani Ethnic Reserve. EcoCiencia staff has conducted research on subsistence hunting, ethnobotany, community mapping, wildlife use and knowledge, and cultural aspects of the Huaorani ethnic group. . In the context of the BCLS Program, no activities at this time. Contact: Galo Medina, Director.
- Ecolex – (*Corporación de Gestión y Derecho Ambiental*; Corporation for Environmental Management and Law) is an Ecuadorian NGO that promotes natural resource conservation through the development and implementation of national legislation. In the context of the BCLS Program, conducted a study of land use and tenure legislation and conflicts in the Yasuní area. Contact: Manolo Morales, Director.
- Ecorae – (*Instituto para el Ecodesarrollo de la Región Amazónica Ecuatoriana*; Institute for the Ecodevelopment of the Amazon Region in Ecuador) is an Ecuadorian GO that promotes

¹ Partial list only

community development using funds generated by the petroleum industry. In the context of the BCLS Program, member of the Yasuní Biosphere Reserve Management Committee. Contact: Mauricio Castillo, El Coca Office.

EnCana Ecuador – Canadian Energy Corporation, formerly known as AEC; recently purchased oil rights in four concessions in the Yasuní area. Contact: Fernando Benalcázar, Community Affairs Manager.

EPN - *Escuela Politécnica Nacional* (National Poly-technical School) undertakes ecological studies and environmental impact assessments in Yasuní National Park and the buffer area. Contact: Luis Albuja, Director Department of Biology.

FAN - *Fondo Ambiental Nacional* (Ecuador National Environmental Fund) is an Ecuadorian conservation NGO that works closely with the Ministry of the Environment. FA coordinated the development of the revised Yasuní Management Plan. Contact: Samuel Saguenza, Director.

FCUNAE - *Federación de Comunas Unión de Nativos de la Amazonía Ecuatoriana* (Organization of Native Communities from Ecuadorian Amazon) represents the Kichwa communities in the Napo and Yasuní areas. In the context of the BCLS Program, member of the Yasuní Biosphere Reserve Management Committee. Contact: -- Inocencio Macanilla, President.

FEPP - *Fondo Ecuatoriano Populorum Progressio* (Ecuadorian Fund for Human Development) is an organization with 30 years of experience in social and economic development. FEPP is primarily financed by the Government of The Netherlands and undertakes activities such as education, public health, resolution of territorial conflicts, and agricultural development. FEPP is a BCLS Program partner and promotes community development activities within the context of biodiversity conservation. Two FEPP/DARE representatives compiled the Yasuní “History, Problems,—” volume for BCLS Program (DARE is an internal advisory group within FEPP). Contact: Rafael Castillo, Director El Coca Regional Office.

FFAA – *Fuerzas Armadas* (Armed Forces of Ecuador) includes the army and navy and is responsible for national security in the Yasuní area. In the context of the BCLS Program, member of the Yasuní Biosphere Reserve Management Committee. Contact: Coronel EMC Hugo Guerrón.

FLACSO – (*Facultad Latinoamericana de Ciencias Sociales*; Latin American Social Sciences Faculty) is an international center of higher learning that in Ecuador promotes research in the social sciences. In the context of the BCLS Program, FLACSO representatives are coordinating a series of activities to evaluate the petroleum industry and its impact on the socio-economic condition of Ecuador. Contact: Guillaume Fontaine.

FOCAO – (*Federación de Organizaciones Campesinas de Orellana*; Federation of Farm Organizations in Orellana) represents farm organizations when dealing with governmental matters at the local and regional levels. In the context of the BCLS Program, member of the Yasuní Biosphere Management Committee. Contact: Ángel Cogitambo.

Fundación Ambiente y Sociedad – Environment and Society Foundation is a major conservation NGO in Ecuador. In the context of the BCLS Program, FAS is a member of the Strategy Advisory Group for the Long-term Conservation Financing Strategy. Contact: Jorge Albán, Director.

Fundacion Sobrevivencia Cofan – Cofán Survival Foundation is the Cofán Indigenous Federation. The Cofán nationality occupies lands in the Cuyabeno area, along the border with Colombia. In the context of the BCLS Program, FSC will participate in the experience exchange with ONHAE/Huaorani officials. Contact: Randy Borman, President.

Futuro Latinoamericano – Latin American Future is an Ecuadorian NGO that focuses on social and political issues through training and institutional strengthening. In the context of the BCLS Program, this foundation is the source of good advice on environmental and training matters. Contact: Yolanda Kakabadse, Director.

HCPO – *Honorable Consejo Provincial de Orellana* (Orellana Provincial Assembly) is the main political entity and environmental authority in the Province of Orellana. In the context of the BCLS Program, the assembly is a member of the Yasuni Biosphere Reserve Management Committee. Contact: Oswaldo Flores, Representative.

MA - *Ministerio del Ambiente* (Ministry of the Environment) is a government organization that administers and protects natural areas and resources in Ecuador. The ministry is a BCLS Program partner and authorizes all BCLS Program research and conservation activities. Contacts: Antonio Matamoros, Director Protected Areas and Biodiversity (Quito); Fausto González, Biodiversity Leader, Sucumbios and Orellana District Office (Lago Agrio); Alonso Jaramillo, Director Yasuni National Park (El Coca).

Mayor of Orellana – *Alcaldia de Orellana* is an elected political official for the Municipality of Orellana. In the context of the BCLS Program, the mayor is an important local authority and is the home institution for a nature interpretation center along the waterfront in the town of El Coca. Contact: Guadalupe Lupe, Mayor.

ONHAE - *Organización de Nacionalidad Huaorani de la Amazonia Ecuatoriana* (Organization of Huaorani Nationality from Ecuadorian Amazon) represents the political interests of the Huaorani Nation within and beyond Ecuador. In the context of the BCLS Program, ONHAE is a partner, local authority, and member of the Yasuni Biosphere Reserve Management Committee. Contact: Armando Boya, President.

Petramaz – (*Proyecto Explotación Petrolifera y Desarrollo Sostenible en la Amazonia Ecuatoriana*; Petroleum Exploitation and Sustainable Development Project in the Ecuadorian Amazon) was a GEF-funded project that compiled baseline information about the Amazon Region. While Petramaz reports are generally available, the data files usually are not. Petramaz has no activities in the Yasuni area at this time. Contact: Antonio Matamoros, MAE.

Pérez Companc Ecuador - Argentinean oil company that previously undertook oil exploration and exploitation activities in Yasuni National Park (Block 31). This block was recently sold to PetraBras. Contact: none.

Petroecuador – is the state-managed oil company for the Government of Ecuador. In the context of the BCLS Program, Petroecuador officials are interested in an update of environmental legislation as it pertains to oil concession contracts and are our main contact with all private petroleum companies in Ecuador. Contact: Edmundo Guerra, Environmental Protection Officer.

PUCE - *Pontificia Universidad Católica del Ecuador* (Catholic University of Ecuador) administers Yasuní Biological Station where several scientific studies are underway, especially plants and primates. In the context of the BCLS Program, PUCE participated in the preparation of the revised Yasuní Management Plan and is the home institution for several thesis students conducting field research with us. Contact: Friedemann Koester, Director Yasuní Biological Station.

SEK University – is an international university with faculties in the life and social sciences. In the Yasuní landscape, SEK administers the field station at Limoncocha Lake. In the context of the BCLS Program, SEK is the home institution for a thesis student who conducted field research with us. Contact: Henry Moya, Limoncocha Biological Station.

UCE - *Universidad Central del Ecuador* (Central University of Ecuador) conducts scientific research in the Yasuní area. In the context of the BCLS Program, UCE is the home institution for a thesis student who conducted field research with us. Contact: Iván Morillo, Director of Biology Department.

UNESCO - *Organización de las Naciones Unidas para la Educación, Ciencia y Cultura* (United Nations Education, Science and Culture Organization) approved the designation of the Yasuní Biosphere Reserve. In the context of the BCLS Program, UNESCO is a member of the National Network of Biosphere Reserves and provides limited support toward meetings and environmental education activities within the context of biosphere reserves. Contact: Jon Maiza, Biosphere Reserve Coordinator.

USFQ - *Universidad San Francisco de Quito* (San Francisco University of Quito) administers Tiputini Biological Station where several scientific studies are underway, especially bird and birds. In the context of the BCLS Program, USFQ participated in the preparation of the revised Yasuní Management Plan and is collaborating in the scarlet macaw study. Contact: Kelly Swing and David Romo, Co-Directors Tiputini Biodiversity Station.

VAA - *Vicariato Apostólico de Aguarico* (Apostolic Vicarship of Aguarico) is the regional office of the Catholic Church in the Napo River area. Coordinated by the Capuchin Mission, the VAA conducts religious activities, as well as promotes health, education, and community development of Kichwa and Huaorani Indians in the area. In the context of the BCLS Program, VAA is the strongest supporter of indigenous rights and welfare in the area; VAA presently is working with CIBT, FEPP, and BCLS Program to develop the BRN Project. Contact: Father José Miguel Goldárez, Napo River Coordinator.

APPENDIX 3.

Bibliography of theses conducted under the BCLS Program

Carrera U., P. 2003. Conflicto de nicho por el recurso pesquero entre el hombre y la nutria gigante *Pteronura brasiliensis* en la cuenca baja del río Yasuní, Amazonía Ecuatoriana [Niche conflict for the fishery resource between humans and the giant river otter *Pteronura brasiliensis* in the lower portion of the Yasuní Watershed, Ecuadorian Amazon]. Thesis. Pontificia Universidad Católica del Ecuador, Quito. 164 pp.

Lasso Gonzáles, G. 2003. Uso del hábitat, dieta y área de vida de la nutria gigante *Pteronura brasiliensis* (Carnívora: Mustelidae) en los ríos Tambococha y Jatuncocha, Parque Nacional Yasuní, Amazonía Ecuatoriana [Habitat use, diet, and home range of the giant river otter *Pteronura brasiliensis* (Carnívora, Mustelidae) in the Tambococha and Jatuncocha Rivers, Yasuní National Park, Ecuadorian Amazon]. Thesis. Pontificia Universidad Católica del Ecuador, Quito. 129 pp.

Pinos V., L.. In prep. Uso del hábitat, área de vida y dieta de la nutria gigante *Pteronura brasiliensis* en el sistema hidrográfico y lacustre de Añangu, Parque Nacional Yasuní, Amazonía Ecuatoriana [Habitat use, homerange, and diet of the gian river otter *Pteronura brasiliensis* in Añangu Watershed, Yasuní National Park, Ecuadorian Amazon]. Thesis. Universidad Central del Ecuador, Quito. – pp.

Urresta C., M. del C. 2003. Evaluación del impacto generado por actividades humanas en el sector de la laguna de Limoncocha y su área de influencia en la distribución y tamaño de la población de Caimán Negro (*Melanosuchus niger*) [Evaluation of the impact generated by human activities in the Limoncocha Lake area and its buffer area]. Thesis. Universidad Internacional SEK, Quito. 139 pp.

Villamarin-Jurado, F. In prep. Biología reproductiva y patrones de uso de hábitat del caimán negro *Melanosuchus niger* en los sistemas lacustres de Limoncocha y Añangu, Amazonía Ecuatoriana [Reproductive biology and habitat use patterns of the black caiman *Melanosuchus niger* in the Limoncocha and Añangu watersheds, Ecuadorian Amazon]. Thesis. Pontificia Universidad Católica del Ecuador, Quito. – pp.

APPENDIX 4

Revised Yasuní Management Plan (*Plan Operativo Gerencial*).

[Digital file of the report attached.]

APPENDIX 5

Barborak Report: Management Committees for Protected Areas.

[Digital file of the report attached.]

APPENDIX 6

**Ecolex report: “Characterization of Conflicts in Yasuní Biosphere Reserve”
(*Caracterización de Conflictos en la Reserva de Biosfera Yasuni*)**

[Digital summary of the report attached.]

APPENDIX 7

**FEPP monograph. : “History, Problems, and Perspectives on Yasuní National Park and its
Buffer Area” (*Historia, problemas y perspectivas del Parque Nacional Yasuní y su área de
influencia*)**

[Digital summary of the report attached.]

APPENDIX 8

Terms of Reference for the Strategic Environmental Assessment.

[Digital file of the report attached.]