



Biodiversity Conservation at the Landscape Scale

A Program of the Wildlife Conservation Society
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Coordination Unit, New York, USA Annual Report October 2002 – September 2003

a. Introduction/Summary

The Biodiversity Conservation at the Landscape Scale (BCLS) Program is designed to develop and test an integrative, landscape-level approach to biological conservation across multiple sites. Accordingly, the program encompasses a diverse array of land-use categories and resource-use issues, in addition to a variety of approaches to site-based management. In order to facilitate work among these sites and capture the synergistic benefits from diverse experiences, a New York-based Coordination Unit is charged with managing the BCLS Program. This unit guides the three field sites as the landscape approach to conservation is developed and tested, assists in the design and development of sound monitoring programs at these sites, promotes cross-site learning, and ensures communication among the sites, WCS staff (central and field), USAID (Global Conservation Program (GCP) and country missions), and the larger conservation community. In addition, the Coordination Unit assesses and promotes opportunities for application of the Landscape Approach to new sites, with complementary funding from USAID and/or other sources.

During FY 2003, the Coordination Unit (BCLS New York) accomplished most of its planned programmatic, technical, and administrative goals. We have completed the full design of the process for selecting landscape species, including development of software to be used as a decision-support tool for analysis and target species selection and dissemination of the concept through a peer-reviewed publication. In collaboration with field staff, we completed a first round landscape design for each of the three core sites. These designs involved significant adaptation and refinement of our plans for design, in particular in our modeling of biological landscape requirements for landscape species. We also continued to produce communications materials for use within WCS, for distribution to field staff, and for external audiences. Furthermore, we have joined as co-founders the Conservation Measures Partnership, and thus have engaged several GCP partners on addressing conservation issues in site-based strategic planning and monitoring.

b. Highlights

- Field and BCLS New York staff jointly developed proposals that were submitted to USAID for GCPII support. Four sites were selected for funding, three of which are new to the program (Glovers Reef, Belize; Eastern Steppe, Mongolia; and Maya Biosphere Reserve, Guatemala). While allowing the program to broaden the portfolio of core sites for demonstrating the landscape approach piloted

under GCPI, the new sites will also provide the opportunity to learn from new socio-economic and political contexts, habitats, fauna, and types of threats.

- BCLS socio-economic monitoring specialist was selected by GCP members to lead the newly established learning panel that is mandated to recommend allocation of GCP learning funds to most effectively promote inter-organizational learning within and outside of GCP. He is also playing a leadership role in the GCP inspired Conservation Measures Partnership to promote inter-organization learning.
- BCLS New York staff worked with USAID/DRC to persuade WWF, CI, AWF and WCS to use conceptual models to set explicit goals, threats and planned interventions to be undertaken with Congo Basin Forest Partnership funding (within 11 landscapes that cover over 30% of the surface area of Central Africa).
- BCLS New York staff provided support to a WCS regional program for Amazonian landscapes to secure funding for four new sites using BCLS-derived techniques, the four sites are; Piagaçu-Purus Landscape, Brazil; Kaa-Iya del Gran Chaco Landscape, Bolivia; Greater Yavari-Miri Landscape, Peru; and Caura River Watershed Landscape, Venezuela.
- The landscape species approach has been extended to two very different biome types: savanna woodlands and the sea. WCS has established Living Landscapes programs in the Rungwa-Ruaha region of southern Tanzania and in the coastal shelf break region between Argentina and the Falkland Islands (otherwise known as the "Sea & Sky" project).

c. Table of Activity Status

Activity Number	Activity Title	Status	Page Number
Obj. 1	Guide development and testing of the Landscape Species Approach		
1.1	Landscape Species Approach Design	On track	3
1.2	Threat Assessments	Completed	4
1.3	Cross-site Analyses	On track	4
Obj. 2	Provide technical and monitoring assistance to BCLS field implementation		
2.1	Project Design and Monitoring	On track	5
2.2	Project Needs Assessment	On track	7
2.3	Application of Landscape Approach to New Sites	On track	7
Obj. 3	Ensure coordination and communication services for the Program		
3.1	Project Consultation/Site Visits	On track	8
3.2	Annual Meeting	Redesigned	9
3.3	Budget and Administration	On track	9
3.4	Communications and Informational Packets	On track	9

II. Detailed Description of Progress

a. Key program objectives for this reporting period (October 2002 – September 2003)

The program continued in the development of the Landscape Species Approach, providing landscape ecology and quantitative analysis assistance to field projects, ensuring effective functioning of the program, and continuing communications about concepts and progress. Our objectives for site-based work in FY2003 also included completion of first-round conservation landscape designs for each of the three core sites and establishing frameworks for monitoring at each of the sites. In order to benefit from the learning throughout this site-based process, and multiply the effects of this work, we also planned to: document the processes, create protocols and software to facilitate landscape species designs elsewhere; collaborate formally with other GCP partners in designing strategic planning and monitoring tools; and begin analysis of diverse approaches to community participation in wildlife conservation. Finally, we planned to continue to apply lessons from BCLS projects at new sites, further expanding the portfolio of core WCS landscape conservation projects – including additional sites to receive GCP support.

b. Activity Description

Objective 1: Guide development and testing of the Landscape Species Approach.

Activity 1.1. Landscape Species Approach Design

On track

Landscapes: Field staff from the Northwestern Bolivian Andes, Ndoki-Likouala and Yasuni-Napo Landscapes, together with members of the New York coordination unit refined the biological and human landscapes for each of these sites (detailed under Activity 2.1) by updating existing databases on threats and human activities, and by incorporating new data predicting the spatial distributions and vulnerabilities of landscape species for each site produced through the research programs at these sites. During this modeling process general protocols for developing biological, human and (combined) conservation landscapes were developed. These protocols form part of the strategic framework and methodology for the Landscape Species Approach. In this process, we have adapted our approach to build biological landscapes based on the suitability of various habitats for designated landscape species, rather than on actual population distribution and documented habitat use. Resultant conservation landscapes are therefore constructed as areas of ranked priority, with area priorities dependent on biological value (habitat suitability) for the landscape species, degree of threat, and location with respect to other high-priority areas. This strategy ensures that our conservation planning and management benefit healthy, ecologically-functional populations, even when current populations or distributions have been depressed below these levels.

These protocols have now left the ‘development’ stage and are being disseminated more widely within WCS and beyond. Toward this end the landscape ecologist, the monitoring specialists, in collaboration with BCLS field staff and other WCS colleagues, have begun the process of documenting these methods in a *Living Landscapes Resource Book*.

Landscape species selection: The software to facilitate the landscape species selection process was completed by the biological monitoring specialist. The software has an intuitive graphical user interface

that permits data entry, automates and standardizes calculations, and acts as a decision support system for the selection of landscape species. This will ease future dissemination of the Landscape Species Approach to other projects within WCS and beyond to other interested users. Having completed beta testing, the first version of the software together with its online manual has been released and is available on the Living Landscapes Program website (www.wcslivinglandscapes.org).

Testing the Landscape Species Approach: BCLS staff have also been working in collaboration with academic ecologists to evaluate the Landscape Species Approach. Specifically, landscape species were selected from a 30-year enforcement data set collected in Ghana. The preliminary results suggest that landscape species are among the most vulnerable to human threats, and that successful conservation of landscape species will protect other, less sensitive and less area-demanding species. Analyses are ongoing and will lead to a scientific publication and a more accessible report for general audiences (management partners, donors, and policy makers).

Monitoring: The socio-economic monitoring specialist began the development of a decision support tool to assist field staff to effectively allocate scarce resources among threats abatement interventions and impact monitoring activities. The first step in development was to build a simulation model using Bayesian Belief Network software to explore the likely consequences of allocating different levels of resources to monitoring activities when threats vary in urgency, irreversibility and abatement cost.

The coordination unit team is also developing a concept paper articulating the philosophy and guidelines for using 'Ecologically Functional Populations' as conservation targets (i.e. the quantitative goals toward which progress is monitored). This concept has guided the Living Landscapes Framework from philosophical point of view since its inception, but the technical details remained difficult to resolve. However, significant progress was made in highlighting examples from current WCS field sites, and these are being described in a draft manuscript to be submitted in FY 04. The editor of a forthcoming conservation biology text has also asked for a condensed version of the manuscript for inclusion in the updated volume.

Activity 1.2. Threats Assessments

Completed

As detailed in the last report, threats assessments have been completed in conjunction with staff at each of the three core sites. During this reporting period, as the conservation context changes threats assessments continued to be refined in conjunction with staff from the two North American sites of Adirondacks and Greater Yellowstone, and from the Ndoki-Likouala Landscape. Periodic reassessment and refinement of threats are an important part of applying the Landscape Species Approach at each site. The monitoring specialists completed a draft review of core site experience conducting threats assessments. The review will be published as a LLP Bulletin and as a chapter in the upcoming Living Landscapes Resource Book. Threats assessments using this model are already underway at other WCS site-based projects.

Activity 1.3. Cross-site Analyses

On track

Conservation Measures Partnership: The BCLS socio-economic monitoring specialist continues to play a leadership role in the GCP inspired Conservation Measures Partnership (CMP members include the African Wildlife Foundation, Conservation International, The Nature Conservancy, Wildlife Conservation Society, and World Wildlife Fund/World Wide Fund for Nature, Enterprise Works Worldwide, Foundations of Success, and the World Commission on Protected Areas) to promote inter-organization learning. This work has resulted in the development of formal multi-partner workplans to: 1) complete

and validate a “rosetta stone” and lexicon to translate the different languages used by each of the conservation organizations to describe their approaches to strategic planning, implementation and monitoring and adaptive management, 2) describe and validate a consensus derived set of open standards for promoting effective conservation, 3) describe and validate a consensus derived set of global biodiversity status indicators, 4) conduct a set of pilot studies to evaluate the administrative costs and management utility of implementing activity-based cost accounting, 5) devise and test a system for conducting independent audits of conservation projects, and 6) develop a consensus derived decision tree for selecting indicators for measuring conservation effectiveness. To assist in taking first steps, BCLS New York staff were successful in working with the MacArthur Foundation and CMP to secure seed funding to conduct a series of pilot audits of GCP/CMP partner projects. In addition, the socio-economic monitoring specialist engaged the Chief Financial Officers of WCS, WWF, CI, TNC and AWF to combine and build on the ongoing and planned activity-based cost accounting activities of both CMP and the CFO working group.

GCPII Learning Fund: BCLS New York staff were integrally involved in the design of the GCPII Learning Fund, including drafting the contractual mechanism for its implementation. Although the allocation of funds will not proceed as planned, due to constraints in USAID contracting, BCLS staff have nonetheless created a template for other GCP partners’ subsequent Associate Awards. In addition, the BCLS socio-economic monitoring specialist was selected by GCP members to lead the newly established learning panel that is mandated to recommend allocation of GCP learning funds to most effectively promote inter-organizational learning within and outside of GCP.

Community Participation Assessment: The program director and socio-economic specialist have begun a cross-site analysis of ways to engage communities in the conservation of wildlife and wildlands. This analysis will focus on a learning portfolio of sites to document and compare a range of conservation strategies adopted with local communities, and characterize the conditions (socio-economic, political, and biological) under which different approaches are undertaken and appear most applicable. The projects represented within the assessment are intended to span a range of degrees of threat, sources of power and/or governance, forms of tenure, and biological attributes (see Appendix 1 for details of the study). The initiation of this study was postponed due to a delay in complementary funding. Some additional financing has now been secured, and the study will begin in FY 2004.

Objective 2: Provide technical and monitoring assistance to BCLS Field Implementation.

Activity 2.1. Project Design and Monitoring

On track

Landscape designs: The biological monitoring specialist and landscape ecologist, together with colleagues from the Ndoki-Likouala Landscape, completed initial expert-based models describing the biological and human landscapes for this region, overlaying them to create (combined) maps of the conservation landscape. The area of interest in northern Congo centers around the Nouabalé-Ndoki National Park, the Lac Télé-Likouala Aux Herbes Community Reserve, the designated Buffer Zone, and also extends into the trinational region that includes part of Cameroon and the Central African Republic. Similarly, biological, human and conservation landscapes that were drafted by the field staff from the Northwestern Bolivian Andes Landscape, the core landscape ecologist, and biological monitoring specialist during the previous reporting period, were updated and improved by the field staff. Finally, to assist in the Yasuni landscape design, funds were secured to send Gillian Woolmer of the WCS Landscape Ecology and GIS analysis lab to the Jet Propulsion Laboratory to be trained in the analysis of JERS-Radar remote sensing imagery. Gillian’s training by Dr. Sasan Saatchi provided us the technical

expertise to complete the first ever map of perennially and seasonally flooded forests and savannas in the Yasuni-Napo Landscape. This flood regime map was essential to building biological landscapes for the Yasuni-Napo Landscape, as flooding is the primary determinant of where and when terrestrial and aquatic species occupy the terrain. Rough preliminary biological and human landscapes have therefore been mapped. Figures depicting these landscapes for all three core sites are appended to their respective semi-annual reports.

One of the mechanisms used to advance landscape designs in these areas included a multi-project workshop held in April at the WCS GIS Laboratory in New York. At this workshop GIS specialists and program staff from Yasuni, Congo, Cambodia, the Adirondacks and Greater Yellowstone, met to review existing approaches to characterizing the local distributions of focal species, evaluate these methods for use at their own sites, and provide general input and technical suggestions for how the process can be made more effective. In addition to producing products for site-based planning at the participant sites, the outputs of the workshop provided a broader set of examples from which to draw in highlighting a landscape approach and demonstrating the variety of ways it can be applied. It was also the first opportunity for a number of WCS's field-based GIS specialists to receive direct training in the Living Landscapes Framework and contribute to its development and dissemination. These individuals will now serve as regionally based resources for their colleagues within and outside WCS.

Ndoki technical assistance: The socio-economic monitoring specialist organized and completed a multi-partner review and short-term action plan of the WWF and WCS supported Sangha-Trinational Landscape projects in Cameroon, Central African Republic and Congo. A key outcome from this review was a clarification and institutionalization of what threats and threat abatement actions within the Trinational landscape are sovereign in nature and do not require or would be inappropriate for bi-lateral or tri-lateral intervention. (Report available upon request).

Capacity-building for field-based monitoring: In order to improve field staff ability to quantitatively monitor wildlife conservation targets, the biological monitoring specialist provided training on the design and analysis of distance sampling surveys as part of a 5-day workshop on 'Parameter Estimation and Decision-Making for Conservation and Management of Animal Populations and Communities' held in Bangkok, Thailand at the end of March. Distance techniques can be efficient and cost-effective for sampling and monitoring wildlife that occur in large populations, for populations at low or medium density or for populations sparsely distributed over large geographic regions. These are characteristics that are frequently associated with many of the landscape species selected at the various landscape sites. WCS field staff, including colleagues from current (Congo, Cambodia) and future (Guatemala) landscape sites attended the workshop.

Monitoring Illegal Killing of Elephants (MIKE) technical assistance: The MIKE CITES program has the broad aim of providing information needed by elephant range states to make appropriate management and enforcement decisions, and to build institutional capacity for the long-term management of their elephant populations. There are two major monitoring components: Elephant population density and distribution, and law enforcement. The biological monitoring specialist participated in a MIKE technical meeting held in Thailand in March. The objectives of the meeting were to (1) discuss the advantages and disadvantages of potential elephant population survey methodologies in the South East Asia forest context, (2) to suggest an appropriate approach for each of the provisional MIKE Asia sites, and (3) to identify and recommend research needs where no current approach appears viable. In addition, the biological monitoring specialist assisted Dr. Stephen Blake, WCS's Forest Elephant Conservation Coordinator, with the design of line transect elephant dung surveys for the sites that comprise the Central African component of MIKE. The Nouabalé-Ndoki National Park and adjacent timber concessions of Mokabi and Loundougou to the north and east of the Park, within the Ndoki-Likouala Landscape, comprise one of the designated MIKE sites.

Activity 2.2. Project Needs Assessment

On track

The director and other programmatic staff continue to assess the technical needs of the core sites by maintaining regular contact with field staff and BCLS New York staff. This resulted in a number of field staff visits to New York to work with BCLS New York staff on various aspects of conservation landscape building and monitoring. (See Activity 3.1 for details).

Activity 2.3. Application of Living Landscapes Approach to New Sites

On track (well ahead of "on track")

GCPII: BCLS New York staff and field staff designed proposals to be considered for GCPII support. We were successful in being awarded support for four sites, three of which are new to the program (Glovers Reef, Belize; Eastern Steppe, Mongolia; and Maya Biosphere Reserve, Guatemala). This will allow us to broaden the base of core demonstration sites for the landscape approach we have been piloting under GCPI, and increase the opportunities to learn from new socio-economic and political contexts, habitats, fauna, and types of threats.

Congo Basin Forest Partnership (CBFP): The use of conceptual models (situation diagrams) in landscape scale strategic planning is a core component of the WCS Living Landscapes Approach to conservation. Last year we formalized the process within our three core sites. This year we are pleased to report that BCLS New York staff were successful in persuading USAID/DRC to encourage WWF, CI, AWF and WCS to develop and use conceptual models to make explicit the goals, threats and planned interventions to be undertaken with CBFP funding (within 11 landscapes that cover over 30% of the surface area of Central Africa). We expect that this will both strengthen the planning for individual landscapes in the CBFP and provide a common basis for landscape project comparisons over time. BCLS experience was also key to securing \$1.67 million in support for a multi-partner (WCS, WWF and CI) effort to conserve the 13 new national parks established recently by President Omar Bongo in Gabon. We expect that these activities will benefit from continued technical assistance from core BCLS New York staff, utilizing tools that we have been developing under BCLS support. Similarly, BCLS New York staff were successful in helping to design a WCS regional program for Amazonian landscapes, which has secured complementary support from the Moore Foundation. The program will be initiated in September 2003, adding four new sites to the landscape portfolio using BCLS-derived techniques (Piagaçu-Purus Landscape, Brazil; Kaa-Iya del Gran Chaco Landscape, Bolivia; Greater Yavari-Miri Landscape, Peru; Caura River Watershed Landscape, Venezuela), and providing an opportunity for comparison with the Mamirauá site (Brazil), which implements large-scale conservation without using landscape species as a focus.

In addition, the BCLS New York staff have also begun to extend the landscape species approach to two very different biome types: savanna woodlands and the sea. With funding complementary to USAID/GCP, WCS has initiated Living Landscapes programs in the Rungwa-Ruaha region of southern Tanzania and in the coastal shelf break region between Argentina and the Falkland Islands (a project called "Sea & Sky"). These sites can now be added to a growing list of core sites actively using the Landscape Species Approach (see past reports for the addition of: Northern Plains of Cambodia; Adirondack Mountains, US; and the Greater Yellowstone Area, US).

In summary, the initial work under BCLS, supported by USAID/GCP, has provided the groundwork for a swelling number of landscape programs throughout the world. Lessons learned from the core BCLS sites, and the protocols derived from this work, have provided the basis for the extension of landscape strategic

planning in all of these new sites described above. The multiplier effect of initial USAID/GCP support continues to grow significantly.

Activity 2.3.1 (from FY 2001 and FY2003). Wildlife Health Research

On track

USAID Wildlife Health Guidelines: Last year we had reported that Dr. Osofsky of the WCS Field Veterinary Program was in the process of revising the draft USAID wildlife health guidelines, based on feedback from several USAID offices including Environment and Science Policy and Natural Resource Management. The work was completed and 150 copies of the guidelines entitled: *Animal Health Matters: Improving the Health of Wild and Domestic Animals to Enhance the Long-Term Development Success in USAID-Assisted Countries* were professionally printed and bound. These have been distributed to USAID project evaluators in addition to a broader audience of wildlife health practitioners, conservation professionals, public health officials and veterinarians. The guidelines comprise invaluable information on: Examples of animal health issues in North America; applied lessons for foreign assistance programs; wildlife health hotspots (Mongolia, Tanzania, Bolivia, Argentina, Congo Basin, and Southern Africa) and practical guidelines for scientists and project evaluators (including web resources and literature references). They have also been made available on the Field Veterinary Program and the IUCN SSC (Species Survival Commission) Veterinary Specialist Group (VSG) web sites (www.fieldvet.org and www.iucn-vsg.org, respectively).

Animal Health for the Environment And Development: As part of the World Parks Congress in Durban, South Africa, the Field Vet Program hosted a 2-day forum entitled "Southern and East African Experts Panel on Designing Successful Conservation and Development Interventions at the Wildlife/Livestock Interface: Implications for Wildlife, Livestock and Human Health" with co-funding provided by USAID. The forum's goal was to foster a sharing of ideas among African practitioners and development professionals that would lead to concrete and creative initiatives that address conservation and development challenges related to health at the livestock/wildlife/human interface. The focus of presentations will be ongoing efforts and future needs in and around the region's flagship protected areas and conservancies and their buffer zones- the places where tensions and challenges at the livestock/wildlife interface are often greatest. The initiative *AHEAD- Animal Health for the Environment And Development* was launched at this meeting. WCS, IUCN VSG, IUCN Southern Africa Sustainable Use Specialist Group (SASUSG) and other partners are helping to start *AHEAD* in recognition of the importance of animal health to both conservation and development interests. For more information on these issues, please see the IUCN SSC VSG website at www.iucn-vsg.org and www.fieldvet.org. Proceedings of the workshop are currently in preparation and will be completed and distributed in hard copy via the IUCN SSC network during the next fiscal year. An electronic version of the proceedings will be distributed within Southern and East Africa and beyond.

Objective 3: Ensure coordination and communication services for the Program.

Activity 3.1. Project Consultation/Site Visits

On track

A number of staff representing each of the core sites made visits to New York during the year, negating the need for field site visits by BCLS staff. Earlier in the year, the outgoing project coordinator for Lac Télé-Likouala Aux Herbes Community Reserve (LTCR) in Congo visited and had discussions with BCLS staff about the draft biological and human landscape maps and gave feedback on the accuracy of both maps. As part of a visit to the Africa Regional Program in New York, the director for the Project for

Ecosystem Management of the Periphery of the Nouabalé-Ndoki National Park (PROGEPP) had discussions with BCLS staff on using available empirical data to further refine the biological landscapes.

During the last quarter of the year, the outgoing NNNP research coordinator spent a considerable amount of time working with the BCLS biological monitoring specialist and landscape ecologist refining the initial biological and human landscapes and constructing draft conservation landscapes (See Appendix 1 in Congo FY03 Annual Report). Discussions were also held with the socio-economic monitoring specialist on resource allocation and decision-making for prioritizing investments in threat abatement and monitoring impacts for the Ndoki-Likouala Landscape Conservation Area.

As part of a landscape building workshop conducted in April 2003, the new Northern Andes sub-regional coordinator held discussions with BCLS staff on landscape principles, and in particular about the Yasuni project. She worked with the BCLS monitoring specialists on the preliminary biological landscapes for Yasuni-Napo Landscape (See Appendix 1 in Yasuni-Napo FY03 Annual Report).

At the beginning of the second quarter, a visit by the director and the conservation ecologist from the Northwestern Bolivian Andes project provided an opportunity for a WCS wide presentation of the project's activities. The team also spent time discussing the monitoring framework for Madidi and developing a proposal that was later awarded GCPII funding.

Activity 3.2. Annual Meetings

Delayed

An annual meeting of the Living Landscapes Program was not held during this reporting period and associated (WCS) funds were carried over into the next fiscal year. In lieu of the annual meeting, BCLS staff worked with representatives of the core-sites during their visits to USA. It was also felt that an annual meeting during FY04 would provide a more opportune time for interaction between existing core-site project staff and new sites added under GCPII.

Activity 3.3. Budget and Administration

On track

During this reporting period, all USAID reporting deadlines were met in a timely fashion. Annual Performance Monitoring Plans were prepared by field staff, and submitted by the program officer. Quarterly accounting reports were submitted to GCP by the program coordinator in April, July, and September. The program coordinator, director and socio-economic monitoring specialist participated in the annual GCP meeting in February, and the program coordinator and socio-economic monitoring specialist participated in a second quarterly meeting in July.

The GCPI and GCPII core site staff, assisted by the program coordinator and director, prepared a 5-year budget and budget narratives, as well as an annual budget each. In addition, WCS has assumed the role of chairing the joint GCP partners learning initiative during its first year of operation, towards this end the director and program coordinator prepared a budget for FY04 that was submitted to USAID.

Activity 3.4. Communications and Informational Packets

On Track

The BCLS/LLP core team continued to develop a number of informational materials about the Program for distribution to field sites, USAID Missions and other conservation and donor partners. To date, 9000 Living Landscapes Program Bulletins have been distributed. Hard copies and electronic copies of the

bulletins, and other information on the program were distributed as part of WCS CDs at the World Parks Congress in September. During this reporting period, Bulletin 5 ("Using Conceptual Models to Set Conservation Priorities"), Bulletin 6 ("Monitoring Conservation Project Effectiveness") and Bulletin 7 ("Setting Priorities: Threats Reduction or Monitoring Effectiveness") were printed in Spanish and French (See Appendix 2). In addition, the program resource CD has been updated and made available to interested individuals and organizations; and a program brochure and fact sheets on cores sites have been drafted and will be completed during the first quarter of the next fiscal year. The *Living Landscapes Resource Book* will also be finalized and will be published in a number of modules.

The socio-economic monitoring specialist was invited with Sanjayan Muttulingam of TNC to give a presentation on the GCP inspired Conservation Measures Partnership at the annual meeting of the Consultative Group on Biological Diversity.

The landscape ecologist was invited to speak at Princeton University on the topic: Ecological Functional Populations as Conservation Targets. He also played a key role in the leading sessions and participating in the planning of Patagonian Marine Ecosystem (Sea and Sky) project in January and April.

The program coordinator and the biological monitoring specialist were invited to give presentations on aspects of the Landscape Species Approach during the July 2003 Earth Summit of the WCS-organized Girls for Planet Earth Program, which encourages young women to enter the field of conservation.

III. Success Stories and Appendices

During this reporting period, we have worked with other WCS staff and the wider conservation community to extend BCLS-derived strategies and methods to many parts of the world, as well as new biomes. BCLS New York staff, with USAID/DRC, encouraged WWF, CI, AWF and WCS to use conceptual models to set explicit goals, threats and planned interventions to be undertaken with Congo Basin Forest Partnership funding (within 11 landscapes that cover over 30% of the surface area of Central Africa). In addition, with support from BCLS New York, the WCS regional program for Amazonian landscapes secured funding for four new sites using BCLS-derived techniques. The World Bank Environment Representative in Tanzania has also expressed an interest in the use the BCLS framework to design a World Bank project in Tanzania.

Appendices

Strategies for Effective Community-Based Wildlife Conservation: A Comparative Analysis of Field Experience

Copies of Bulletins 5-7

Appendix 1

Strategies for Effective Community-Based Wildlife Conservation: A Comparative Analysis of Field Experience

Wildlife Conservation Society Project Summary

Wildlife conservation, by definition, is process of developing and enforcing norms that limit how wildlife populations and habitat are used. Ever since Yellowstone was established as the first national park in 1872, the debate continues as to who should define the rules and who should have the authority and responsibility for applying them. In the past, many believed that the state should be solely responsible for wildlife management. More recently the paradigm has shifted, with many arguing that local communities, living with wildlife, would be more appropriate and effective stewards. Unfortunately, little critical work has been done to assess the comparative advantages of community versus state-based conservation, nor to understand the factors that promote conservation success under these two management regimes. Despite a lack of evaluation, policies that determine governance and stewardship responsibilities over wildlife are shifting dramatically toward subsidiarity and local control.

As a significant contribution to this debate, the Wildlife Conservation Society (WCS) proposes to identify a set of key principles that lead to successful community-based conservation (CBC), and develop a decision support tool that will help lead to successful CBC. With support from the Tinker Foundation, WCS will undertake a structured comparison of its Latin American field conservation projects that work closely with local communities to manage wildlife. This project will use explicit indicators of conservation success in combination with targeted site visits, one-on-one and group interviews, and a workshop of project staff to tease out the factors that contribute to effective community-based conservation. Results will be distilled into reports in Spanish, English and French, disseminated in hard copy and electronically, and presented in a variety of donor and NGO venues.

The study capitalizes on the range and depth of practical expertise found within the Wildlife Conservation Society's International field program and core Living Landscapes Program. We expect that the results of this assessment will shed important light on both the benefits and limitations of CBC, offer project managers with a decision support tool to help identify when and how to most effectively engage local communities in conservation, and highlight the conditions under which CBC can best achieve success. Results will be presented to help governments, conservation organizations, and donor agencies improve conservation policies and planning by moving beyond often simplistic, incomplete and unrealistic expectations.

Background

For decades, the means to success in wildlife conservation were assumed to lie in strict protection of individual species and of the habitats vital to them. This mode of conservation has been embodied in endangered species legislation and in the creation of parks and reserves. Most nations of the world have created systems of protected areas, with an estimated 10% of the global land area now under some form of formal restricted use. Though the degree of resource use restrictions vary across protected area types and nations, all feature biodiversity conservation as the primary,

mandated land-use. As a result protected areas have long been considered the strongest and best means for ensuring effective conservation over the long-term. However, flawed design and weak application of protected area legislation has meant that the success of protected areas has proven uneven – particularly in developing nations.

During the past 20 years, and particularly in the last 10 years, a growing movement has arisen in the ranks of conservationists, declaring protected areas inappropriate, insufficient, and/or ineffective. Some consider exclusionary regulations as a Western, elitist strategy that precludes the concerns of local people – and their assumed traditions of sound stewardship. Others reason that developing nations cannot afford wildlife conservation, see protected areas as a drag on economic development, and argue that local communities will resist conservation efforts unless they help alleviate poverty. And still others feel that protected areas do play important roles in conservation of some species, but are often too far too small to fully meet the resource needs of many wildlife populations.

As an alternative to politically discredited protected area approaches to biodiversity conservation, many governments, international agencies, and conservation organizations now promote the concept of “community-based conservation”. This shift has taken place in the belief that a CBC approach is more politically acceptable, less expensive in terms of management cost, more profitable in terms of local household income, and more ecologically effective. Local people are tied most closely to the area’s natural resources, and bear the major costs of foregone benefits when use is restricted. For reasons which include equity, honoring traditional rights, and the efficiency of direct management by users, community-based management is now promoted as the new conservation paradigm. The principle of subsidiarity supports this paradigm by arguing that governance decisions should be taken at the local level, before they are taken at the district, national, or international level. This assumes, however, that the resource use governance decisions of local communities are not in conflict with the interests and welfare of the broader national and international communities.

Although CBC is advocated by donors, governments and NGOs, the factors that promote or militate against effective conservation by communities have not been well established from field experience. As a result, approaches to CBC are often simplistic and expectations for its success wildly unrealistic and optimistic. Problems of governance, management capacity, scale of threats, diversity of values, and vast differences in socio-economic and demographic conditions operating in different areas all militate against simple or formulaic approaches to CBC. Linkages between community interests and conservation interests often remain undefined and tenuous at best. And although sound underpinnings are being developed in the theory of community-based natural resource management, it is as yet unknown whether they will lead to greater conservation success on the ground, since they are rarely being critically examined and applied to actual conservation planning and practice. Much promise in CBC has produced little measurable progress.

Wildlife Conservation Society's Living Landscapes Program

In the midst of this paradigm shift in conservation theory and practice, the Wildlife Conservation Society’s (WCS) Living Landscapes Program proposes to conduct a comparative study of on-going conservation projects in Latin America¹ to:

¹ Although the Latin American sites to be funded by the Tinker Foundation will form the core of the analysis, the full comparison will include a larger set of globally-distributed project sites, funded by other WCS sources.

- critically assess the biological, social, political, economic and institutional factors that facilitate effective community-based conservation;
- identify a set of key principles for promoting effective community-based conservation; and
- develop a decision support tool to guide development of effective community-based conservation.

This assessment will be conducted within a framework, to be devised during the study that fosters critical thinking about strategic factors that help to determine which approaches have the greatest likelihood of success. Such a framework will incorporate recent advances in natural resource economics, politics and management, as well as those in conservation biology.

The key principles and decision support tool will provide practitioners with a menu of approaches to community-based conservation from which they can select those most appropriate for their specific contexts.

When land and resource uses by individuals, groups or firms destroy valued wildlife habitat and deplete valued wildlife populations, local, national and international society has typically responded by either setting aside parks and reserves where all consumptive resources uses are prohibited, or by enforcing formal or informal regulations to reduce land cover conversion and wildlife harvesting to sustainable levels. Regardless of whether resource use is prohibited or regulated, both require that someone or some organization has the capacity to enforce the rules and thus ensure that the resources valued by society are conserved. Simply put, if there are no resource use rules and regulations and no capacity to enforce these formal or informal laws, then resource access and resource use will remain "open access" and conservation is unlikely to occur.

Whether and under what conditions states, communities, individuals or firms should have the authority and responsibility for conserving wildlife and natural resources continues to be debated. As land is the root source of all wealth, it is not surprising that the issue of land and resource use rights is highly politicized. As a result, much of what has been published on community-based conservation (CBC) has focused more on the rights of individuals versus society, rather than a critical assessment of the comparative advantages of community versus state-based management for effective conservation

However, drawing from global experience and available literature, we have been able to define a set of working hypotheses as to the conditions likely to promote effective community-based conservation (Abbot et al. 2000; Borrini-Feyerabend 1997; Brandon & Wells 1992; Brown & Wyckoff-Baird 1992; Byers 2000; Curran et al. 2000; Gibson & Marks 1995; IIED 1994; Li 2002; Mitraud 2001; Ostrom 1999; Robinson & Redford 1994; Seymour 1994; Wells & Brandon 1992; Wells & Brandon 1993; Western et al. 1994). In the project we will use these hypotheses to frame the analysis, provide a structure for outlining key principles for effective CBC, and develop a decision support tool. Our initial hypotheses are as follows:

Table 1 Hypotheses for successful community based conservation

Hypotheses	Description
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Condition	The resource is a) not at a point of deterioration such that the costs of organization exceed the benefits gained from exploiting the resource; or b) the resource is underutilized such that users' benefits from the resource are not declining.
State	Reliable and valid information about the state of the resource is available at reasonable cost
Spatial Extent	The resource is contained within a sufficiently small area that users can specify boundaries and can monitor resource use within the area
Productivity	The resource has rapid growth and reproduction rates.
Users	Over-exploitation of the resource is primarily by non-local users. Community regulation of non-local users is likely to be supported as their exclusion will likely benefit local users
Value	The local community is dependent on the resource for a significant portion of its livelihood. When national and international society values the resource more than local society, extra-local support for conservation will be needed.
Common understanding	The local community has a shared image of the resource and how individuals actions affect each other and the resource
Discount rate	The local community has a sufficiently low discount rate in relation to future benefits to be gleaned from the resource
Distribution of interests	Local individuals with higher economic and political assets are similarly affected by the current pattern of resource use
Trust	Members of the local community trust one another to keep promises and relate to one another with reciprocity
Autonomy	The local community is able to determine access and harvesting rules without outside authorities countermanding them
Prior organizational experience	The local community has at least minimal skills of organization through participation in other associations or has the capacity to learn and adopt such ways

Step 1: Conducting a comparative field assessment

This study is designed to compare a diversity of field project approaches to community-based conservation, and to determine the conditions under which different approaches are likely to have more success. More specifically, we would like to compare examples in which the biophysical, socio-economic and political factors that threaten wildlife vary significantly both in nature and intensity, and have led practitioners to employ different conservation strategies. This part of the assessment will be based on extensive knowledge and experience of WCS field staff and field programs, who will catalog their current practices and rationale for adopting different community-based conservation strategies.

A. Site selection. The field study will draw comparisons among six to eight conservation projects underway in Latin America, which as a group span a variety of biophysical, socio-economic and

political conditions. These projects will form the core of our analyses, but will be complemented by an additional six to eight field projects from developing countries located on other continents (to be funded by other WCS sources). We will select a portfolio of sites that are engaged in a variety of community conservation strategies, and cover a range of social-economic-political attributes as well as focal wildlife attributes. Social-economic-political contexts will include differences in population, local governance systems, economic status and expectations, dependencies on natural resources, and scale of threats. Wildlife and wildland attributes will vary by conservation value, potential for sustainable use, and population/extent. It is the resultant combinations of these factors that will set up contrasting contextual “conflict situations” which subsequently can be analyzed through the lens provided by our working hypotheses.

Although a full set of projects has not yet been selected, a central core will include WCS programs at the following sites²:

- Northwestern Bolivian Andes (Madidi), Bolivia
- Maya Biosphere, Guatemala
- Mamiraua Flooded Forest, Brazil
- Kaa Iya/Chaco, Bolivia
- San Guillermo/High Steppe, Argentina

B. Characterization of Community Approaches. WCS projects involve a variety of strategies for working with local communities. For example, we work closely with government park authorities to encourage local training and employment, support small-scale community resource management initiatives, provide expertise for indigenous groups to gain secure tenure rights, organize environmental education activities in schools, facilitate inter-institutional management committees with local representation, train local people in field research and monitoring, and help communities to develop their own vigilance and rule enforcement systems. These are but a few of the types of activities in which we are currently engaged.

To begin our analysis, therefore, we will first document the CBC approaches that each project is undertaking (most projects use multiple strategies at the same time, in order to address multiple threats and underlying conditions.) These approaches will be identified, described, and the strategic rationale for each will be outlined. This will be done by field staff at each of the sites, with coordination and synthesis provided by core WCS Living Landscapes Program staff in NY. To organize our thinking, we will then group and characterize these approaches along several different axes, e.g.: (a) degree of protection vs. sanctioned resource use; (b) initiatives managed by external actors vs. management by local individuals or institutions; (c) regulated management vs. incentive-driven; and (d) private vs. public tenure, and individual vs. communal. For example, a conservation strategy of strict enforcement of national park protection, with direct employment in the conservation sector and compensation regimes for local people, would exemplify an approach that is strongly protectionist, driven and regulated by the national level, on public lands. On the other hand, promotion of legal titling of lands to indigenous people, based on government-approved natural resource management plans, represents community ownership and conservation management with internally designed regulation - albeit with government standards in effect. Alternatively, a strategy of creating policy and market incentives for sustainable use of wild products could be a strategy for full local management on private or communal lands, with little or no formal

² See Appendix 1 for short description of these sites and projects.

controlling regulation in effect. The final axes to be used for these characterizations will be determined by group discussion and consensus at early stages of the study, derived empirically from the catalog of field initiatives.

C. Conditions/context. Given that we recognize a diverse suite of community conservation approaches being undertaken, we are interested in examining the context and conditions under which conservation project staff choose to develop one approach rather than another. It is reasonable, for example, that when a globally significant population of a rare species is declining under hunting pressure from a populous local community, a project would tend to adopt a stronger protectionist approach, possibly through the national government – looking for alternative sources of protein that could satisfy local needs. On the contrary, in a context of subsistence use of a quickly renewing wildlife population, the benefits of direct local management may be paramount. We therefore plan to examine the contextual factors within which each of the field projects are operating – and which field staff perceive as determining their choice of strategies. Factors will include a suite of socio-economic and political factors, as well as wildlife attributes. Each of these will be characterized - and quantified where appropriate - for each of the project sites. The full team of staff, both field and core, will determine the final set of variables at the outset of the study, but these will likely include:

Socio-economic and political factors:

- population (total, density, trends)
- heterogeneity within communities (communities of place, practice and interest)
- systems, strengths, and effectiveness of governance (especially over natural resources): both formal and informal; local and national
- tenure systems (land and resource)
- economic activities, status and expectations
- environmental awareness, information available
- dependencies on natural resources (nature, intensity, impacts, alternatives)
- scale of operations
- values of natural goods, including wildlife and wildlands (utilitarian and non-utilitarian; economic and cultural)

Wildlife attributes (assessed by target species):

- status of species and population (abundance, endangerment)
- productivity, renewal rates
- resiliency of the population
- economic values (both consumptive and non-consumptive)
- extent and sufficiency of habitat

D. Compilation of outcomes/lessons-in-progress. To complete the field assessment portion of our work, we will also document both the problems and successes that community strategies within each field project have experienced to date. Field staff, in conjunction with core Living Landscapes personnel, will assess changes in local attitudes toward conservation, the degree of participation in project-facilitated CBC initiatives, changes in conservation-related behavior, any reduction in threats to wildlife and/or habitats, and impacts of any of these changes on biodiversity. Assessments will be based on a combination of standard project reporting, additional surveys, cross-site evaluation visits, and critical expert opinion. In this process, we should note that all project efforts are on-going,

meaning that results will represent a “snap shot” of work in progress. However, we believe that these interim results can provide real and significant insight. Project field staff will annotate each of the results with their understanding of why progress is being made or not, with consultation from non-project staff (from other sites and core). The impacts to date of each of the CBC initiatives will be compiled and shared among the group of field practitioners, forming the basis for further group analysis of lessons that can be learned across the board.

Step 2: Defining “principles” for effective community-based conservation

Key to our analysis is investigating whether there are consistent and logical relationships between underlying conditions and CBC strategies undertaken by this suite of conservation field projects. For this, we will draw conclusions from a combination of the work described above (inventory and characterization of CBC approaches for each field project, the identification of conditions within which each are operating, staff rationale for strategic choices made, and qualitative and quantitative assessments of the effectiveness of these choices). We will examine the patterns of correspondence – and lack of correspondence - of CBC strategies with underlying conditions present in each case. Similarities and differences of strategic rationale among projects will be examined. We will follow with a critical comparison of success achieved to date under different strategies, and summary conclusions from the analysis. The results will represent an empirical, field practitioners’ understanding of options for, logic behind, and success of a variety of approaches to community involvement in conservation. This information will be further distilled into a set of “principles” for effective community-based conservation.

Core staff of the WCS Living Landscape Program will initiate these analyzes. Intermediate results will be distributed to all participating field partners for comment and questions. Finally, all participants will meet during a 4-5 day workshop to be held during the second year of the project. The workshop will allow for in-depth discussion of individual and synthetic results, and formulation of final conclusions made by the group.

Step 3: Developing a decision support tool to promote effective CBC

As core Living Landscapes personnel conduct the analysis and begin to tease out the set of principles, we will begin construction of a decision support tool to help practitioners identify the most appropriate options for effective community-based conservation, based on the biogeophysical, socio-economic and political context at their particular site. This tool will most likely be modeled on a binary key or decision flow chart. The end product is intended as a guide to both the promise and constraints of trying to achieve conservation of biodiversity in a local, community-based setting.

As for the synthesis of principles, described above, LLP staff will formulate a draft decision support tool, and circulate it to all participating field partners for review. The draft will then be assessed and amended interactively with field staff during the workshop held in the second year of the project. Participation of field partners is considered essential, ensuring the relevance and utility of such a tool to active conservation programs.

Step 4: Results and their dissemination

We expect that the results of this study will promote approaches that tailor conservation programs and activities with local communities to the particular context in which they are found. Our intent is to provide governments, NGOs, and conservationists with principles and guidelines they should consider as they assess the situation in which they work, and plan approaches accordingly. In a world of heated debate, often rather blindly promoting either protectionist or locally-driven management, we hope to use the proposed analysis of real-world practice to temper and inform the discussion. We also expect to stimulate governments, donor agencies, conservation organizations, and practitioners to think more critically about their policies and program approaches, and plan and execute them more successfully due to the results of this work.

In order to disseminate the results of this study for wide-spread consideration and application, we will:

- actively promote use of the results throughout the WCS field program (the LLP has an “extension” program for dissemination of results and promotion of new tools and techniques within WCS. This includes both written and electronic communications as well as workshops.)
- publish a WCS “white paper”, describing the process of the study and its results, for broad distribution (to governments, national and international NGOs, donor agencies such as USAID, the World Bank and UNDP, and other conservation professionals)
- print results in the WCS Living Landscapes Bulletin series, a handy and accessible vehicle for dissemination of ideas to a large number of conservation colleagues (also available on our public website). Nearly 9,000 copies of bulletins have been distributed in the last 2 years of LLP operation.
- present results in various conservation forums (presentations for donor agencies, meetings with government and NGO colleagues)
- submit at least one paper for publication in peer-reviewed journals (e.g., World Development; Conservation Biology)

Evaluation of Project Impact

This project is intended to produce several levels of impact, each of which will be evaluated as described:

Table 2. Evaluation of Project Impact

Intended Impact	Means of Evaluation
Lessons learned, guiding principles, and the decision-support tool developed in this project will be incorporated into the CBC strategies of WCS projects world-wide	<p><i>Initial:</i> a survey will be conducted, asking WCS staff to comment on the utility of the results and their intention to use them in their CBC work.</p> <p><i>Post-project:</i> at yearly intervals, staff will be asked whether they have incorporated any of the results of this assessment in their work, and whether changes they have made are resulting in more effective conservation work.</p>

Lessons learned, principles derived, and the decision-support tool will be incorporated into other conservation projects, and into government and donor strategies

Initial: we will actively solicit reviews from other practicing NGOs, government departments, and donor agencies to whom we present the results of this study.

Post-project: we will continue to monitor reactions of these conservation players, and use of the principles and decision-support tool by them. In addition, we will track conservation literature to note how our results and frameworks are received, whether they stimulate further debate and analysis, and whether they stimulate more critical thinking about and practice of CBC.

WCS Capability

WCS field program: The Wildlife Conservation Society supports a global program of excellence in field-based conservation. With nearly 400 projects in over 50 countries, our program is renown for a staff that is highly trained, committed, and deeply place-based. We employ the largest number of PhD field scientists in any conservation organization, while at the same time each project is dedicated to improving the actual practice of wildlife conservation. This combination provides a particularly effective foundation for critically analyzing real-world conservation strategies and practices, and restructuring the work of conservation on the ground.

WCS Living Landscapes Program: The Living Landscapes Program (LLP) has been established as a crosscutting program within WCS, designed to strengthen the practice of site-based conservation by developing more comprehensive conservation planning strategies and by synthesizing and disseminating lessons learned from these projects. The core professional LLP staff of 6 includes five PhD scientists, with extensive experience in field conservation planning and practice, quantitative analysis and spatial modeling, and socioeconomic and political science. (See Appendix 2 for curriculum vitae.)

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