Field-testing of Conservation International's

Management Effectiveness Assessment Questionnaire

in Seven Protected Areas in Bolivia

Author:
Stéphane Pauquet

Data collection:
Mario Diego Lilienfeld and Stéphane Pauquet

October 2005

ParksWatch-Bolivia

Contents

Acronyms and Abbreviations

BR Biosphere Reserve
CBD Convention on Biological Diversity
COP Conference of the Parties
CEPF Critical Ecosystem Partnership Fund
CI Conservation International
ha hectare or hectares
IMNA Integrated Management Natural Area
IUCN International Union for the Conservation of Nature
MHNNKM Museo de Historia Natural Noel Kempff Mercado
NP National Park
PA Protected area
PW ParksWatch
TCO Indigenous Communal Lands (Tierra Comunitaria de Origen)
TT Tracking Tool
VABC Vilcabamba-Amboró Biological Corridor
WCPA World Commission on Protected Areas
WWF World Wildlife Fund

I. BACKGROUND

1. Presentation of ParksWatch

ParksWatch - based at Duke University's Center for Tropical Conservation at Durham, North Carolina - works in partnership with in-country NGOs to conduct independent evaluations of protected areas throughout the tropics[1] and identify strategies for overcoming the major threats as well as help government agencies, NGOs, and community groups succeed in their conservation efforts.

Practitioners and donors alike are increasingly recognizing the benefits of such audits, which include:

- o providing an objective baseline against which donors can measure future changes;

- o providing independent technical recommendations for improving park management;

- o allowing protected area managers to demonstrate to donors that their funds are producing conservation gains;

- o building public and political support for protected areas.

ParksWatch selects the parks to evaluate according to several criteria, including biodiversity, presence of endemic and/or endangered species, size, severity of threats, and level of implementation. Besides, ParksWatch also produces evaluations in response to requests made by stakeholders such as government agencies or NGOs.

Our park audits begin by investigating and synthesizing all available background information. The on-site data collection follows a standardized ParksWatch questionnaire, completed through field observations and interviews with park directors and other personnel, scientists, tourists, and local residents. This questionnaire is organized in several categories - management, budget, human landscape, conservation and research projects, pressures and threats -, in which both direct threats (e.g., poaching, logging, and oil exploration), and indirect threats (e.g. inadequate budget or staffing, conflictive policies) to park viability are assessed. Completed questionnaires are incorporated into our database, and are subject to analyses aimed at serving the needs of the academic and conservation communities as well as the political arena.

The primary product derived from this survey work is a Park Profile, which is a cross-disciplinary diagnosis of the state of the park based on an analysis of threats, local socioeconomic conditions, management needs, relationships with local, regional and national organizations, and other critical aspects for its effective management. Each profile includes a set of recommended solutions to alleviate or remedy the park's most pressing problems.

By revisiting priority areas every three or four years to update our data and gauge changes in conservation status, ParksWatch is thus able to inform national park administrations and the

---

[1] ParksWatch currently has active programs in Brazil, Bolivia, Peru, Venezuela, Mexico, Guatemala and Argentina, with plans to expand to other countries and continents in the short to medium future.

conservation community at large of the successes and failures of their conservation actions, and draw attention to problems wherever and whenever they occur.

Since this information is only useful if made widely accessible to the relevant stakeholders, a key component of our work is disseminating the results of our audits locally and internationally:

- Locally: Nationally and locally, ParksWatch partner NGOs use their own proven advocacy methods to publicize results and to focus attention where needed most. Activities may include publishing newspaper articles, doing radio and TV interviews, participating in lobbying campaigns, drafting management plans or contributing to new legislation. Our partners also freely and regularly share the results of the evaluations during conferences, meetings and workshops to any number of stakeholders, including NGOs, governmental agencies, academic institutions and local communities involved in park management. Inevitably, our role will vary from site to site, but overall we seek to bring attention towards the highest priority situations as determined by our evaluations. Our hope is that governments, NGOs, and donors alike eventually rely on our datasets as a primary source of information on prioritizing efforts to improve the management of tropical parks.

- Internationally: The data gathered through our field evaluations are posted on our website in the form of interactive park profiles (accessible through a database called the '*Park Profile Navigator*'), and in the future will also be made available as geo-referenced datasets accessed through a dynamic map server. By sharing all our data and keeping the existing information up-to-date, we aim to provide visitors worldwide with the wealth and quality of information expected from a clearinghouse on protected areas. Although our main target audiences are institutional donors and international conservation organizations, our information has already proven to serve the needs of a much larger public, including scientists, students and tourists interested in visiting the parks evaluated.

2. Project background

In July 2004, ParksWatch (PW) submitted a proposal to CEPF entitled "*Comparing Methodologies for Improved Protected Area Evaluation in the Vilcabamba-Amboró Biological Corridor (VABC)*", in which it proposed to collaborate with various scientists at Conservation International (Drs. Fred Boltz, Tim Killeen, Aaron Bruner, and Luis Solorzano) on comparing the numerous methodologies that have been applied in the VABC in Peru and Bolivia. CEPF decided to postpone its approval until the release of the results of the current "*Strengthening of Management Effectiveness in the Andes*" study conducted by IUCN's Regional Office in Quito, but issued a small grant to allow PW complete the first steps of this project. PW took advantage of this opportunity to complete its seven ongoing PA evaluations, initiated in 2003 (Figure 1), the results of which are available online at the following URL:

http://www.parkswatch.org/parkprofile.php?l=spa&country=bol

In April 2005, PW signed an agreement with Conservation International (CI) to apply its Management Effectiveness Assessment Questionnaire, still in draft format, to the Bolivian parks in the VABC in order to incorporate the results of this methodology into the comparison with other completed studies once funding is available.

In addition to readying the results of the application of this questionnaire, PW was asked to compare them with the data obtained with its own methodology, indicating where the CI evaluation tool might be missing key aspects of protected area function. Another interest expressed by CI concerned the quantitative indicators used by ParksWatch and other organizations for management effectiveness assessment.

In response to these requests, this report provides, after describing the study area and the two methods compared, a discussion divided in three sections:

After presenting the findings of this field-application, **Section 1** discusses the reasons and possible implications of the discrepancies detected between the CI and PW final ratings and evaluates the relative effectiveness of the two methodologies. **Section 2** summarizes the value and shortcomings of strictly quantitative methodologies by looking at one that has also been applied to the protected areas concerned by this study, i.e. the "PA Consolidation Index" developed by the GIS department of the Museo de Historia Natural Noel Kempff Mercado (MHNNKM, Santa Cruz, Bolivia) in 2003. Finally, **Section 3** provides recommendations for the incorporation into CI's Tracking Tool of a GIS-based threat assessment methodology that PW is currently in the process of integrating into its own suite of assessment tools.

II. STUDY SITES AND METHODS

a) Protected areas considered in the study

The protected areas concerned by this study are all comprised within the Bolivian part of the Vilcabamba-Amboró Biological Corridor (VABC), an almost uninterrupted continuum of protected areas stretching over 298,000 km^2 of the "Tropical Andes" hotspot between the Vilcabamba Cordillera in Peru and Amboró National Park in central Bolivia (Figure 1).

In spite of ambitious conservation initiatives, the exceptional biodiversity found in this region is falling under increasing development pressure, progressively putting its biological integrity at risk through forest fragmentation and natural resource use. The major challenge for the successful conservation of this unique biogeographical realm is thus to consolidate and ensure the effective management of an extensive and representative network of protected areas.

The Bolivian side of this corridor, known as Amboró-Madidi Corridor (AMC), is composed of seven protected areas of distinct management categories (National Parks, Integrated Management Natural Areas, or Multiple Use Reserves, Indigenous Territories and a Biosphere Reserve), placed under the jurisdiction of the Bolivian park administration (*Servicio Nacional de Areas Protegidas*, SERNAP). They are all inhabited, present varying degrees of threats, and some of them are facing pressures and conflicts jeopardizing their very existence as valuable tracts of natural habitats (see Figure 2 for an overview of the conservation status of the region in which they are immersed). They vary considerably in size (from 61,000 to nearly 2 million ha) and time since creation (from 1965 to 1995), but none of them saw any effective management before the 90s and the ratification of the Convention on Biological Diversity (CBD) by Bolivia in 1994, which led to the effective launch of its National Strategy on Biodiversity.

Figure 1. Vilcabamba-Amboró Biological Corridor

(Source: Fundación Amigos de la Naturaleza, 2003)

Table 1 provides a rapid overview of the principal characteristics of these seven protected areas, while Figure 1 indicates their location within the Bolivian National Protected Area System, along the eastern slope of the Andes Cordillera.

Table 1: Protected areas considered in the study

Name	Category	IUCN Cat.	Size (ha)	Year created	Ecoregion(s)
Amboró	NP-IMNA	II-VI	Total: 637,600 - NP: 442,500; - IMNA:195,100	08/16/1984 Recategorized 10/11/1991	Humid to pluvial evergreen montane forest and Semi-humid low montane forest
Apolobamba	IMNA	VI	483,700	01/07/1972 Recategorized 01/14/2000	Glaciers, Puna, Dry mesothermic valleys, and Humid to pluvial evergreen montane forest
Carrasco	NP	II	622,600	10/11/1991	Semihumid Puna, Humid to pluvial evergreen montane forest and Semi-humid low montane forest
Cotapata	NP-IMNA	II-VI	(40,000) 61,000*	09-07-1993	Puna and Humid montane forest
Isiboro Sécure	NP-IT		(1,236,300)	22-11-1965	Amazonian sub-andine forest,

			1,372,180*	Recategorized 24-09-1990	Amazonian pre-andine forest, Amazonian flooded forest, and Flooded savannahs
Madidi	NP-IMNA	II-VI	(1,895,700) 1,880,996*	21-09-1995	Puna, Dry mesothermic valleys, Humid to pluvial evergreen montane forest, Humid seasonal tropical lowland forest, and Palm savannahs
Pilón Lajas	BR-TCO	IX	400,000	09-04-1992	Humid to pluvial evergreen montane forest and Lowland humid seasonal tropical forest

Abbreviations: NP = National Park; BR = Biosphere Reserve; IMNA = Integrated Management Natural Area; IT = Indigenous Territory; TCO = Indigenous Communal Lands (Tierra Comunitaria de Origen).
*Size figuring in the new Management Plans, but not yet enacted by Law.

Figure 1: Protected areas considered in the study

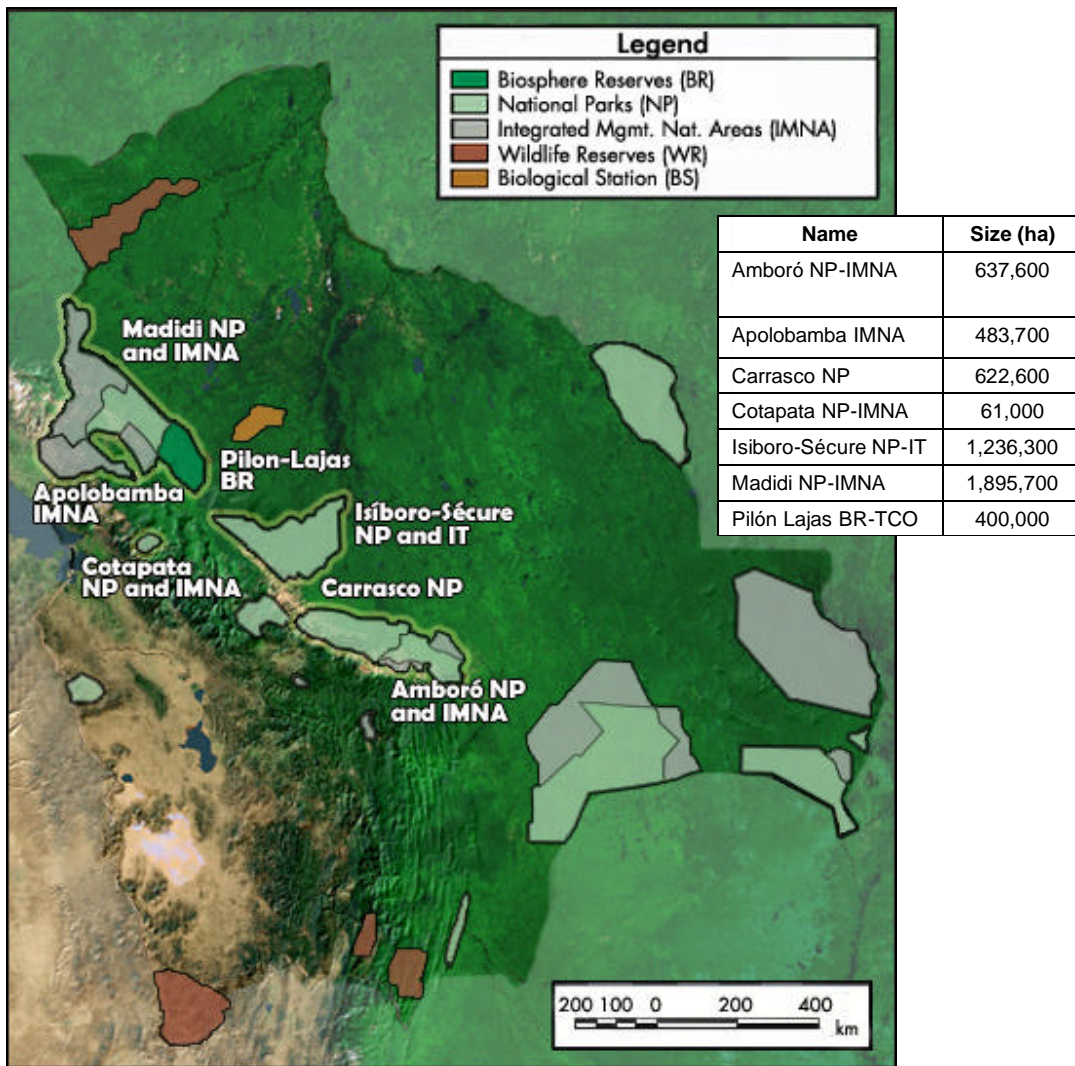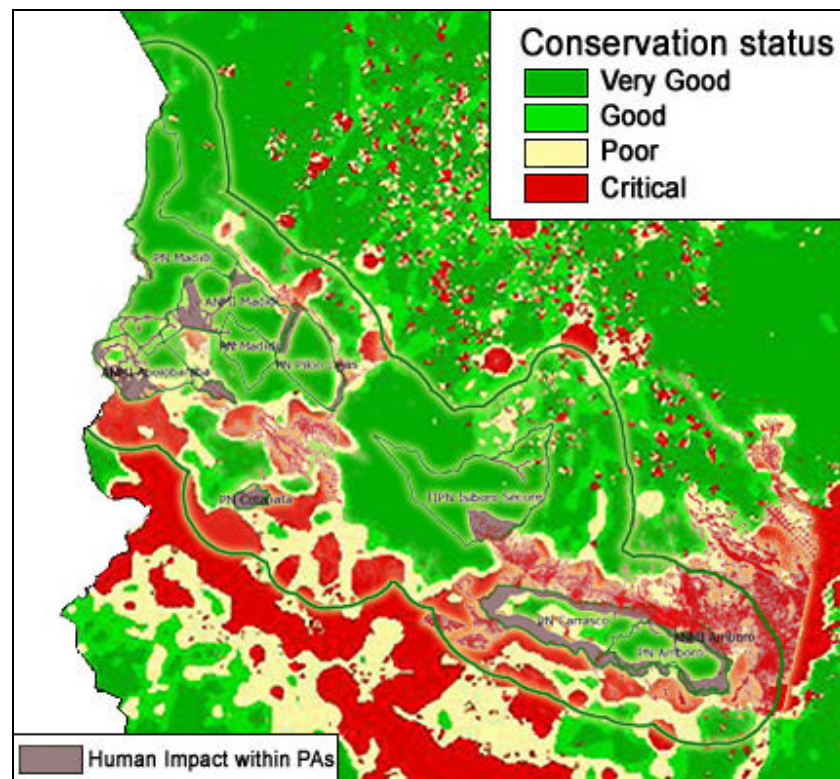| Name	Size (ha)
Amboró NP-IMNA	637,600
Apolobamba IMNA	483,700
Carrasco NP	622,600
Cotapata NP-IMNA	61,000
Isiboro-Sécure NP-IT	1,236,300
Madidi NP-IMNA	1,895,700
Pilón Lajas BR-TCO	400,000

Figure 2. Conservation status of natural ecosystems and human impacts within protected areas on the Bolivian side of the VABC

(Source: Adapted from Killeen et al, 2003 and Ledezma and Painter, 2004)

Along with their Peruvian counterparts, all these protected areas were brought to the limelight with the launch of the CEPF, a $150 million fund created to safeguard biodiversity hotspots in developing countries, and which in the Tropical Andes focuses its efforts on the Vilcabamba-Amboró Forest Ecosystem. Since its inception in 2002, the CEPF has granted several million dollars for the consolidation of the 16 protected areas comprised by this extensive region, attracting donations from other grant-making organizations considering this as an opportunity to leverage their investments. This has fostered a strong interest from various groups of stakeholders in the conduction of baseline studies (or preliminary *status assessments*) and the implementation of monitoring systems to help follow trends in key indicators over time, and ultimately measure the outcomes of conservation actions.

As an approach to establishing a program in Bolivia, ParksWatch chose to focus on these seven protected areas for its first series of park evaluations in the country, supported by voluntary participation and the successive donations of anonymous donors, the Wildlife Conservation Society and the CEPF.

The section below describes the two questionnaires that were applied to each protected area.

b) Description of the CI and PW Questionnaires

- CI Tracking Tool: Originally developed by the World Bank/WWF Alliance for Forest Conservation and Sustainable Development to facilitate reporting on management effectiveness of protected areas within WWF and World Bank projects, this Scorecard-based questionnaire is built around the WCPA framework and has been adopted by the GEF and other international aid agencies.

Baptized 'Tracking Tool', it is intended to provide information on the status and appropriateness (or efficiency) of protected area management processes and resources relative to need. In other words, it measures the level of consolidation of the protected area based on commonly used indicators (legal and political context, management, staffing, financing and equipment, service infrastructure, etc.). This is done through a subjective scoring of variables (four alternative text answers per question) with the help of park managers and other knowledgeable stakeholders. Although the results lend themselves to many readings, the final rating, obtained by summing up all the individual scores (with or without the use of a weighting system), is the main and often only valuable piece of information concerning the site under evaluation (Lacerda, 2004).

The version of the questionnaire used in this study is a slight adaptation of WWF's original Tracking Tool, prepared by CI staff in charge of developing a site-monitoring methodology within the organization's Monitoring Outcomes framework, according to the targets agreed upon at the last COP meeting of the CBD.

- PW Questionnaire: The PW questionnaire (provided in a separate document along with this report) is a more detailed survey form composed of approximately 600 questions focused on managerial aspects and pressures/threats to the protected area (considering both direct pressures and threats such as logging or poaching, and less tangible problems such as mismanagement of funds, future developments projects, macroeconomic forces, etc). It thus provides both a comprehensive status and threat assessment of the park surveyed, which forms the basis of the Park Profile published after each PW evaluation. The need for assessing the distribution, prevalence, impact and source of threats within and across protected areas and protected area systems was one of the main conclusions of the *Management Effectiveness Evaluation* workshop held at the fifth and most recent World Parks Congress in Durban (Hockings et al, 2004).

With the exception of Outcomes, this methodology covers all the elements of the WCPA framework (Context, Planning, Inputs, Process, and Outputs). The questionnaire is completed through both field observations and interviews with the park administration and other stakeholders, such as scientists, consultants, NGO workers, tourists, and, local residents, so that the results contained in the final survey reflect the view of a broad respondent base. As mentioned above, all the data gathered from our surveys are incorporated to the ParksWatch database, which is currently being analyzed and should me made available on our website once the results have been published in the scientific literature.

It is also based on a Scorecard system and also provides a way to compute a composite rating, this time as an indication on the protected area's overall threat status. This allows us to rank each park according to a scale based on IUCN's system for classifying threatened species, presented in Table 2.

Table 2: Rating system used by the PW methodology

Score	Park Status	Description
0	Currently not threatened	The area has been evaluated and does not satisfy the criteria for any of the anterior categories. There is no evidence that gives reason to believe that the protected area will fail to protect and maintain biological diversity in the near future.
1	Vulnerable	There is a tangible risk that the protected area will fail to protect and maintain biological diversity in the medium-term future. Monitoring is needed.
2	Threatened	There is a high risk that the protected area will fail to protect and maintain biological diversity in the near future. Remedial action is needed.
3	Critically threatened	The protected area is currently failing to protect and maintain biological diversity; or, there is an extremely high risk that the protected area will fail to protect and maintain biological diversity in the immediate future. Urgent solutions are needed.

III. RESULTS AND DISCUSSION

1. Results of the field-application of the CI and PW questionnaires

- CI Tracking Tool: One of the main advantages of using the undemanding 32-question survey form is that it can be applied regularly (generally on an annual or biannual basis) to provide a regular measure of progress towards improved protected area management. It also easily lends itself to local adaptations and suits a variety of purposes related to PA management, such as threat assessments, conservation valuation, planning, and strategy development at both system and site levels (Chape et al, 2005). Finally, it is a simple means to plan and prioritize Monitoring and Evaluation (M&E) efforts across a system of protected areas or a range of issues within a protected area, leading to savings in limited time and resources.

It took PW evaluators on average less than a day to fill the form for each protected area, taking into account that the meetings and logistics had already been organized for the PW evaluations. Within the study region, a minimum of two or three days would probably be necessary to carry out a site assessment by external evaluators having to travel to the area. Also, it was not possible to answer all the questions on-site, and complementary information had to be sought at the central park administration in La Paz (in particular those related to Context). The skills required to apply this methodology are not particularly constraining, but a certain experience with the tool and some preliminary knowledge about the area are certainly preferable, precluding the most inexpensive methods, such as relying on untrained volunteers or proceeding through distance communications with park managers unfamiliar with Scorecards. Given the aspects considered, the indicators are probably better suited for an annual evaluation than quarterly or bi-annual updates.

About a third of the questions (especially in the Process component) involve a level of subjectivity that may produce respondent-dependent results, but this is a widely documented shortcoming of all Scorecard-based systems that is generally considered acceptable in the trade-off between qualitative and quantitative approaches. This is mostly because the insight provided by subjective input is often of equal or superior value than the use of strictly quantitative proxies for the issues under consideration. Moreover, since the Tracking Tool is primarily meant to help reporting progress of a given project or at a given site (Stolton, 2003), it is likely to be answered by the same respondents in successive applications and thus yield consistent results. At any rate it is very important to keep track of who participates in the data gathering process and who is responsible for the final answers.

On the other hand, since the rankings are often influenced by local stakeholders, they present limited value for comparative analyses. If applied, the composite scoring system will be most useful in tracking progress over time at one site or a closely related group of sites. In other words, this tool serves very specific purposes and should not replace more thorough assessment methods. As a consequence, it cannot be regarded as an independent assessment or as the sole basis for adaptive management. For example, it does not establish causal relationships between conservation actions and the observed results (Dudley et al, 2003). Nor is it to be mistaken with a full-fledged M&E system, of which it is only a preliminary component. Similarly, one of the limitations of the use of composite scores is that they can present ambiguities in interpretation, a problem which may be compounded by the absence of weighting or the use of arbitrary weights from one variable to the other (Stem et al, 2005).

The results of the application of the CI questionnaire to each of the seven parks considered in this study are summarized in Table 3 (please refer to the official survey form for a description of the different scores, which overall follow the standard '0 = Poor', '1 = Regular' or 'Fair', '2 = Good', and '3 = Excellent' scale). Results for individual parks are presented in the Appendix.

Table 3. Results obtained with the CI Tracking Tool

CONTEXT	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
1. Legal Status: Does the protected area have legal status?	3	3	3	3	3	3	3
2. National Policies: Do policies at the national level conflict with the protected area's objectives?	2	0	0	0	0	0	0
3. Protected Area Regulations: Are inappropriate land and resource uses legally regulated?	3	1	1	1	1	1	1
4. Judicial System Response: Does the judicial system effectively enforce PA-related sanctions?	2	1	1	1	2	1	1
5. Protected Area Boundary Is the boundary known and demarcated?	2	2	1	2	2	1	2
6. Land Tenure Is land tenure in surrounding communities and/or PA secure?	2	2	2	2	1	2	2
***Context* Score**	**14**	**9**	**8**	**9**	**9**	**8**	**9**

PLANNING	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
7. Protected Area Objectives: Have objectives been agreed upon?	2	2	2	2	2	2	2

	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
8. Protected Area Design: Does the protected area need enlarging corridors etc. to meet its objectives?	2	2	2	1	2	1	2
9. Management Plan: Is there a management plan and is it being implemented?	1	2	3	3	1	0	1
10. Zoning Are there defined use and management zones?	2	1	1	1	1	1	1
11. Operational Plan: Is there an operational (annual) work plan?	3	2	2	2	2	2	2
12. Financial Plan: Is there a financial plan and is it being implemented?	1	1	2	1	1	1	1
13. Biodiversity Inventory: Do you have enough information to manage the area?	2	1	2	2	2	2	1
14. Natural and Cultural Resource Inventory: Do you have enough information to manage the area?	2	1	2	2	2	1	1
***Planning* Score**	**15**	**12**	**16**	**14**	**13**	**10**	**11**

INPUTS	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
15. Staff Numbers: Are there enough people employed to manage the protected area?	3	1	1	1	1	1	1
16. Staff Training: Have staff been adequately trained for the job?	2	1	1	1	1	1	1
17. Operational Budget Is the operational budget sufficient?	1	2	3	3	2	2	2
18. Financial Security: Is multi-year financing secure?	1	2	2	2	2	2	2
19. Research: Is there a program of management-oriented survey and research work?	2	2	2	2	2	1	1
***Inputs* Score**	**9**	**8**	**9**	**9**	**8**	**7**	**7**

| PROCESS	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
20. Enforcement activities Are regulations adequately enforced by PA staff?	2	1	1	2	2	1	1
21. Management of Budget: Is the budget managed to meet critical management needs?	2	2	2	2	2	2	2
22. Personnel Management: Are the staff well managed?	2	2	2	2	2	2	2
23. Equipment: Is equipment adequate for the needs of the protected area?	1	1	1	1	1	1	1
24. Maintenance of Equipment and Facilities: Are management equipment and PA facilities adequately maintained?	2	1	2	2	1	2	2
25. Controlling Access and Use: Are the available management mechanisms working to control access and use of the PA?	2	1	1	2	2	0	1
26. Stakeholder Engagement: Are PA stakeholders engaged in planning and management?	3	1	1	2	2	0	1
27. Education and Awareness: Is there a planned education program for stakeholders and visitors?	2	1	1	2	1	1	1

28. Commercial Tourism: Do commercial tour operators contribute to protected area management?	1	0	1	0	0	1	0
29. Acceptable Change Standards: Are there standards for acceptable change in the ecosystem caused by the impacts of visitors?	3	0	0	0	0	0	0
30. Monitoring and Evaluation: Does the protected area have an effective monitoring and evaluation system in place?	2	2	2	0	2	0	0
Outputs Score	22	12	14	15	15	10	11

OUTPUTS	Apol.	PL	Mad.	Cot.	Amb.	Car.	IS
31. Visitor Facilities: Are visitor facilities and services sufficient?	1	1	1	0	2	1	0
32. Fees: If fees (tourism, fines) are applied, do they help protected area management?	0	0	3	0	0	0	0
Outputs Score	1	1	4	0	2	1	0

TOTAL SCORE (/96)	61	42	51	47	47	36	38
TOTAL SCORE (/100)	63.5	43.7	53	49	49	37.5	39.6

As shown in Figure 3 below, the mean of the final ratings (46/96, or 48/100) is significantly higher than the average score found for the Latin America and Caribbean region (40), which is mostly explained by the extraordinary level of attention drawn to the area since the promotion of the Vilcabamba-Amboró Biological Corridor concept, translated in levels of investment which are significantly above the regional average. We note, however, that the results are highly heterogeneous, with one of the protected areas (Apolobamba IMNA) performing outstandingly well (with 61 points, or 63.5/100), while two parks (Carrasco NP and Isiboro-Sécure NP-IT) are considerably behind the rest (with scores of 37.5/100 and 39.6/100, respectively).

Figure 3. Average scores per region
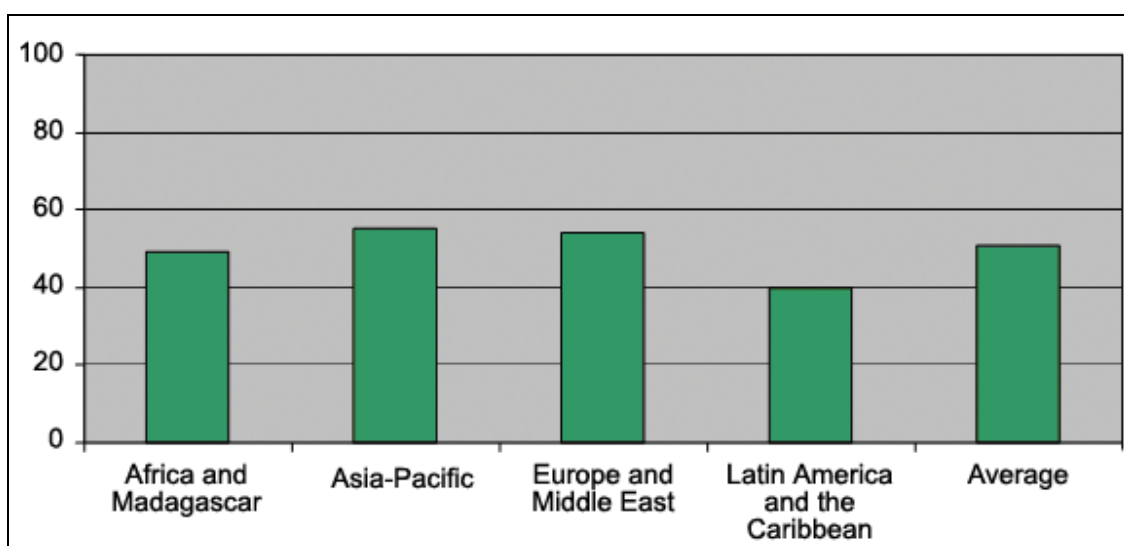
(Source: Lacerda, 2004)

- PW Questionnaire: Given its level of detail, the PW questionnaire takes considerably more time and effort to fill (and analyze) than the Tracking Tool. Typical PW evaluations involve an average of 2-4 weeks of field work depending on accessibility, size and other features specific to each protected area, of which a significant part is dedicated to filling the survey form, which contains a large number of descriptive fields later used for the redaction of the park profile. Sufficient and independent information will often imply the interview of a representative sample of the local stakeholder community (including park rangers from all districts), which generally involves field trips and extended stays in stations or communities within and around the park. Therefore, at present assessments are programmed to be conducted every 3-4 years.

The benefits and limitations of the use of a composite rating for general threat status appraisal are the same as the ones described for the Tracking Tool. However, by using an average value rather than a sum of all individual scores, its function is shifted from the fairly precise - albeit potentially flawed - measurement of progress at a specific site over time to the general - but generally more reliable - rating of the park against a fixed scale of threat intensity. As a result, this final rating may be more useful for comparing different sites than for performing successive evaluations of the same site. It should nonetheless be noted that the level of subjectivity associated with this overall methodology imposes the same level of prudence when comparing protected areas ranked by different evaluators, especially from different countries.

As a consequence of the objectives pursued at the time of its design, the ParksWatch questionnaire in its present form does not permit an accurate measurement of trends at a given site. This methodology was indeed mainly conceived as a way to assess the conditions determining - or susceptible to determine - the failure or success of the protected areas evaluated, effectively the substance of our park profiles. Just like the Tracking Tool, it is not an M&E approach per se, but rather a preliminary step to the implementation of a M&E framework. But now that the time since our initial visit to certain protected areas (3-4 years) is starting to warrant a re-evaluation (which our Guatemalan and Venezuelan partners have already begun to do in several areas), we are starting to develop the skills and tools needed to acquire a monitoring capacity, starting with the adoption of the GIS-based methodology presented in Section 3 below.

Beyond these internally-driven methodological adjustments, the philosophy of ParksWatch is to adapt its tools to the trends and fluctuations of demand and to the constant methodological and technological improvements made in the field of conservation M&E. The current questionnaire is thus to be considered as a work in progress, whose revision will focus on: (i) adapting it to existing frameworks so as to facilitate and stimulate its use by a wide number of stakeholders; (ii) simplifying it in order to streamline its implementation in the field; (iii) improving the scoring descriptors to assure objectivity and thus consistency among evaluators and over time, and; (iv) incorporating the standard quantitative measurements of most current protected area M&E frameworks (relying essentially on GIS analysis). Provided the present scoring system is maintained, one of the options under consideration is the adoption of 5 scoring levels instead of the current 4 to take better account of the general S-shaped curve of threat intensity vs. extension.

Table 4 presents the final ratings obtained with the ParksWatch methodology, which will help put the Tracking Tool results into perspective. We argue in the following discussion that the application of the Tracking Tool should be complemented by a threat analysis yielding information on the protected area's likeliness to achieve its conservation objectives under different scenarios.

Table 4. Final ratings yielded by the ParksWatch and CI methodologies

Name	ParksWatch		CI-TT Score
	Ranking	Num. value	
Apolobamba	Vulnerable	1	61
Pilón Lajas	Threatened	2	42
Madidi	Threatened	2	51
Cotapata	Vulnerable	1	47
Amboró	Vulnerable	1	47
Carrasco	Threatened to Critically Threatened	2/3	36
Isiboro-Sécure	Vulnerable	1	38

As appears from this table, there is no clear correspondence between the final ratings obtained by the two methodologies. For example, Madidi NP-IMNA displays an above-average level of consolidation with the Tracking Tool while the PW evaluators ranked it as *threatened*. In contrast, Isiboro Sécure NP-IT is considered "only" *vulnerable* in spite of a significantly lower score with the Tracking Tool, and Carrasco NP appears as both little consolidated (37.5/100) and nearly critically threatened. This is simply due to the fact that the two methodologies are not measuring the same thing: while the Tracking Tool focuses on management capacity and the efficiency of management processes relative to need, the ParksWatch questionnaire bases its final rating on the park's threat status (although it does collect information on the administration's efforts to abate those threats).

The discrepancies between the final scores obtained with these two methodologies are just an indication that site consolidation and pressure/threat status are two largely independent variables, at least in the case of such young protected areas as the ones under study, where the range of mechanisms supposed to shield them against negative human impacts are yet to be fully put into place. As a consequence, by focusing exclusively on managerial issues, the Tracking Tool generally fails to capture the vulnerability of the protected area to the pressures and threats affecting it, which may lead to erroneous conclusions concerning the park's performance when comparing ratings obtained in different years or for different protected areas. In other words, a park could be severely failing to achieve its conservation objectives but still display improved indicators of consolidation over time. In the same manner, similar trends observed in two different protected areas may hide totally different realities.

In order to avoid losing such crucial information, we thus recommend the incorporation of a measure of the threats (or challenges) facing the protected area into the computation leading to the final rating, or that the present 'site consolidation' score be presented along with another rating, such as a '*Site Context*' or '*Site Threat Status*' index. This would allow users of the information, and especially decision-makers, to make more informed choices about where to focus future efforts and/or investments. Since a detailed analysis of threats such as the type of assessment conducted by ParksWatch entails a significant amount of additional work, several alternatives might have to be weighed against each other with respect to efficiency, relevance to needs, and usefulness.

After describing a quantitative Site Consolidation analysis, we present the GIS-based methodology that PW is considering to use in its future threat (and in fact, conflict) assessments.

2. Example of a strictly quantitative evaluation methodology: the PA Consolidation Index (Killeen and Urioste, 2003)

The Protected Area Consolidation Index developed by CI-Andes/MHNNKM within the Vilcabamba-Amboró Corridor is a purely quantitative evaluation system procuring an alternative to the mostly subjective approaches that have been applied in the region to date, and which all seem to fail to provide sufficiently precise and objective metrics to satisfy the need for inter-site comparisons.

This approach is based on the idea that there exists an optimal situation for each protected area (in terms of administration, finances, planning, etc) that can be quantified and therefore used as a precise benchmark against which to assess the area's situation at any given time. As indicated in its name, this methodology also results in the computation of a single value, or set of composite values, supposed to convey all the information requested about the site under study[2]. But above all, the Consolidation Index and derived statistics are meant to be fully comparable across protected areas and their evolution over time supposed to allow an accurate interpretation of the situation on the ground and guide the selection of appropriate corrective measures.

The choice of indicators used by this method is based on four criteria: (i) ease of access of information; (ii) relevance to protected area management; (iii) usefulness for planning purposes, and; (iv) potential for tangible social benefits.

Table 5: Indicators used in the computation of the PA Consolidation Index

Index	Category	Indicator (expressed in numerical values)
Administration	Staff	Number
		Training courses followed
		Education level
		Incentives provided
	Infrastructure	Management
		Protection
		Public access
	Equipment	Transport
		Communications
		Security
		Other
Financial management	Budget	Operations
		Maintenance
	Investment	Infrastructure
		Equipment
	Revenue sources	Number of sources

---

[2] The procedure used to compute this Index is akin to the computation of the *Consumer Price Index*, which measures average change in prices over time, or a country's rate of inflation.

Community relations	Local participation	Number of people involved
		Number of organizations involved
		Other
	Tourism	Number of tourist
		Number of ecotourism projects
		Other
Ecosystem Integrity	Roads	Road type
	Deforestation rate	Number of ha deforested
		% of total cover
	Human impacts	Various

The site's current situation is expressed as a function of the installed capacity and the resources available at the time of evaluation, while the optimal situation is defined by placing numerical values on the following aspects (via participatory assessments): (i) management needs for the entire PA; (ii) management needs considering only areas under human impact (Human Impact Zone, of HIZ[3]), and; (iii) purported impact of human occupation and activities within the PA. An extract of the Excel spreadsheet used for the computation of this Index is presented in Figure 4 below.

Figure 4: Extract of the PA Consolidation Index spreadsheet

PROTECTED AREA: AMBORO			
MANAGEMENT CATEGORY: NP IMNA			
A. STAFF		**WEIGHT (%)**	**Consolidation Index**
Number		50	**25,4**
Training		25	**28,3**
Education level		10	**15,7**
Incentives		15	**2,1**
Total Index Component I		**100**	**71,5**
A. STAFF	**Current**	**Optimal**	**Index (%)**
A.1. Total Number	**29,0**	**57,0**	**50,88**
A.2.1. Park rangers with basic training	**15,0**	**23,0**	**65,22**
A.2.2. Park rangers with experience	**33**	**69**	**47,83**
A.3.1 Education level of executive personnel	**22,5**	**25,0**	**90,00**
A.3.2. Education level of operational personnel	**10,0**	**15,0**	**66,67**
A.4. Incentives total	**4**	**28**	**14,29**

---

[3] The Human Impact Zone is determined by a GIS analysis focused on road networks and deforestation patterns, using specific parameters for the area of influence of different road types: asphalt road (15 Km), gravel road (5 Km); dirt track (1 Km).

The main shortcoming of this methodology is the fact that the subjectivity avoided by the use of strictly quantitative indicators is reintroduced by resorting to a weighting system to set the relative "importance" of the different sub-variables among each other (e.g., attributing a higher different weight to the park director than to a park ranger), an approach which becomes arbitrary when applied similarly across parks and countries, in spite of the complex interplay between, and likely variations in the criteria used to determine these weighting factors in the first place. In other words, in spite of their robustness with respect to value judgments in the measurement of variables (which in other methodologies may lead to different appraisals from one evaluator to the other), the results yielded by this methodology are neither completely objective nor free of distortions when applied to parks immersed in a different setting than the one for which it was developed.

However, provided homogeneous conditions, such as the ones that may be observed among protected areas of the same biogeographical region within the same country, the use of this strictly quantitative approach provides undeniable benefits with respect to more subjective methodologies, especially to decision-makers in need of standard and precise measurements on which to base their investment choices. By expressing indicators as the difference between an actual and an optimal situation and using a specific scale for each variable, it allows to draw more accurate conclusions concerning the reasons behind observed performance levels and to establish a clearer causality between the factors at play. Also, final results can be significantly affected by minute changes that would not have been perceived by a more qualitative approach, conferring the fine-grained analysis capacity that tends to be foregone with the use of Scorecards.

3. Use of a GIS-based approach to monitor environmental conflicts

This section presents the quantitative, GIS-based tool to assess and monitor PA management effectiveness that ParksWatch is considering to incorporate into its methodology and is currently field-testing in a set of four protected areas in the Argentinean Andes. This methodology was developed as part of a park monitoring system designed in the framework of a GEF-funded project aimed at consolidating the National System of Protected Areas of Bolivia (Monjeau et al, 2003), and has been implemented by the Bolivian park authority in six pilot areas. More material is available upon request to the principal author, which became the director of the ParksWatch Southern Cone program in 2004.

This GIS-based methodology, depicted in Figure 5, relies on the overlap of pressure/threat distribution and conservation value maps to determine the size and distribution of sensitive areas, or priority areas for management interventions. This yields so-called sensitivity maps, in which the use of a color code inspired from the red light system used to regulate car traffic worldwide (green, orange and red) allows for a rapid and straightforward interpretation, and therefore easy communication between different stakeholders. In this code, green corresponds to the most benign situation, i.e. to areas of low conservation value or faced with little or no threats, while places marked in orange may warrant special attention and/or monitoring and areas colored in red require urgent action.

In a first step, a workshop is organized with as many park rangers as possible in order to establish and map a list of indicator species and a list of threats. This will yield a varying number of

thematic maps according to the park under study. For example, a protected area covering numerous ecoregions on the eastern slope of the Andes and subjected to a complex set of human-induced pressures and activities such as Madidi National Park will require more features to be mapped than a reserve established on the highland plains to protect a single camelid species (such as the Eduardo Avaroa Reserve in Southwestern Bolivia). This workshop is generally combined with a course on monitoring, the use of GIS and the other components of this monitoring system that will require the participation of park rangers.

In Phase 2, the maps produced during this initial workshop are incorporated into a GIS system along with all other reference maps available (geology, soils, vegetation types, topography, hydrology, zoning, protected area limits, fires, human settlements, infrastructure, etc.). Conservation objects and threats are initially analyzed separately, and then their distributions maps overlapped to yield a final conflict distribution map, as described below:

Figure 5: GIS-based conservation decision-making system
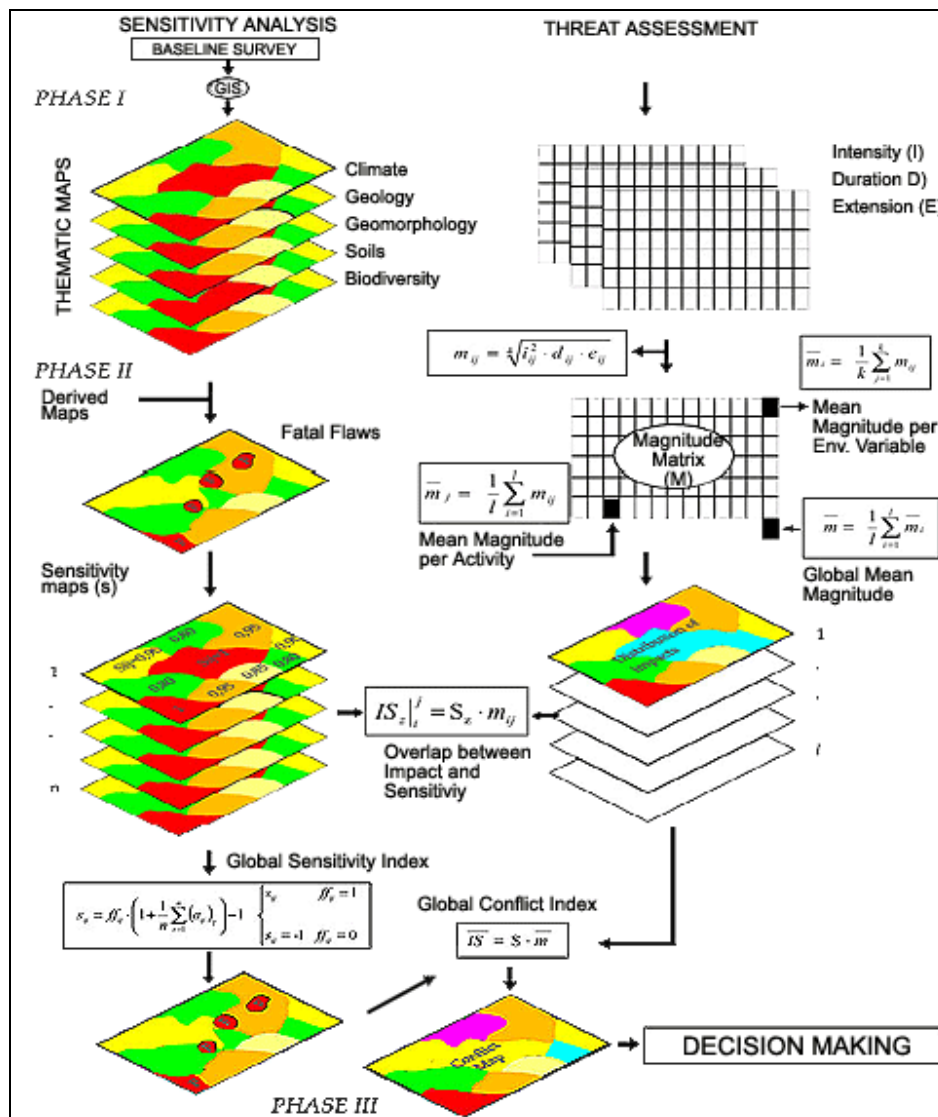
- Mapping conservation value: As indicated in the left column of the figure, each pixel from each layer is assigned a conservation value (ranging from 1 to 10) based on the IUCN Red List of Endangered Species, multiplied by the level of endemism of the species it represents (from 1: cosmopolitan to 5: local endemism). In the case of abiotic and remarkable landscape features, such as geysers, peculiar rock formations or archaeological sites, a conservation value is assigned by consensus during the workshop (following the IUCN system), replacing the level of endemism by a measure of *rarity*. The overlay of all the resulting sensitivity maps yields a Global Sensitivity Map (s) colored with the red light system described above.

Since a protected area may contain zones characterized by outstanding conservation value regardless of the results of the global sensitivity map (for example the habitat of a rare local endemic), a correction factor - called 'fatal flaw' (ff) - is introduced in the equation in order to avoid dilution by the overlap of thematic layers with intermediate values. The presence of a fatal flaw an in a given pixel ensures that it will appear in red in the final map, and therefore systematically draw attention.

An example of this type of map is provided in Figure 6 for Madidi National Park and Integrated Management Natural Area, one of the protected areas under study and one of the pilot sites chosen by SERNAP for the implementation of this monitoring system.

- Mapping threats: To produce the threat distribution map, each thematic layer is assigned a numerical value of impact magnitude (m), composed of an intensity (I), duration (D), and extension (E) factor (right column of Figure 5). *Intensity* is the level of disturbance with respect to pre-existing environmental conditions and is measured according to a Scorecard-system. *Extension* is the area under disturbance from the threat, and is determined either empirically with park rangers during the workshop or through satellite image interpretation.

Finally, *duration* is the estimated time until recovery. Because all disturbances are considered as having a negative effect in relation to the area's conservation objectives, all three values are preceded by a minus sign, ranging from -1 to -3. In this methodology intensity is considered to be the most significant variable, so it receives a special weight with respect to the extension and duration variables. Figure 7 indicates the results of this process for the same park as above.

- Overlay of impact and sensitivity maps - mapping environmental conflicts: Once sensitivity and impact values have been computed for all the features considered, the two global layers are overlapped for the generation of a conflict map (IS, Figure 8), in which the final values are expressed as the product of global sensitivity (s) and global impact magnitude (m).

As already mentioned, a special mathematical treatment for areas of high relevance ensures that these will always appear in red (high priority) regardless of the results yielded by this mapping process. In the absence of a fatal flaw, s.m = 0. In presence of a fatal flaw, s.m = -1 and IS takes on the maximal value in the conflict index (- 3).

**Figure 6: Distribution of conservation values in Madidi NP-IMNA**
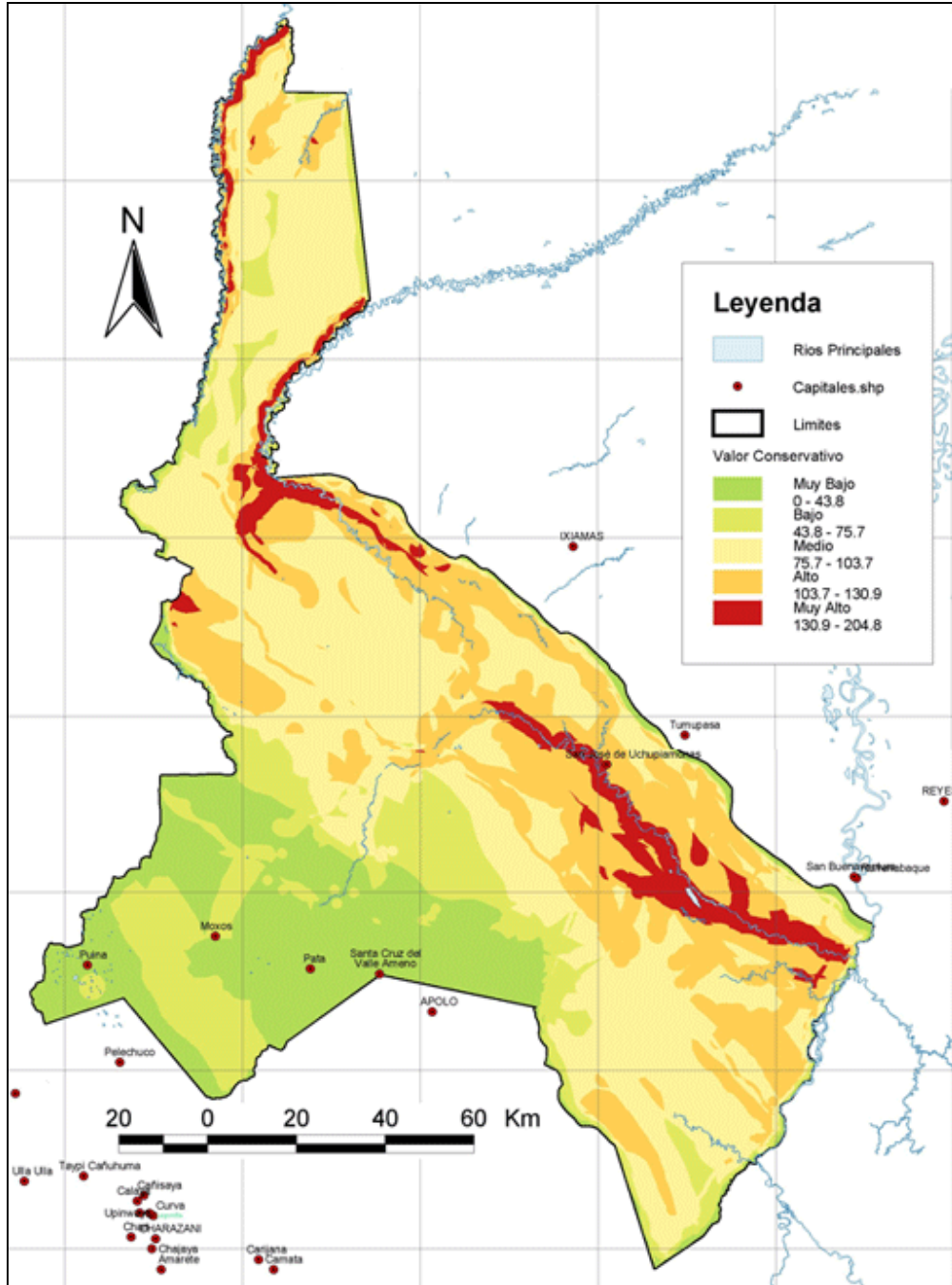
(Source: Saavedra and Daza, 2004)

Figure 7: Distribution of threats to Madidi NP-IMNA
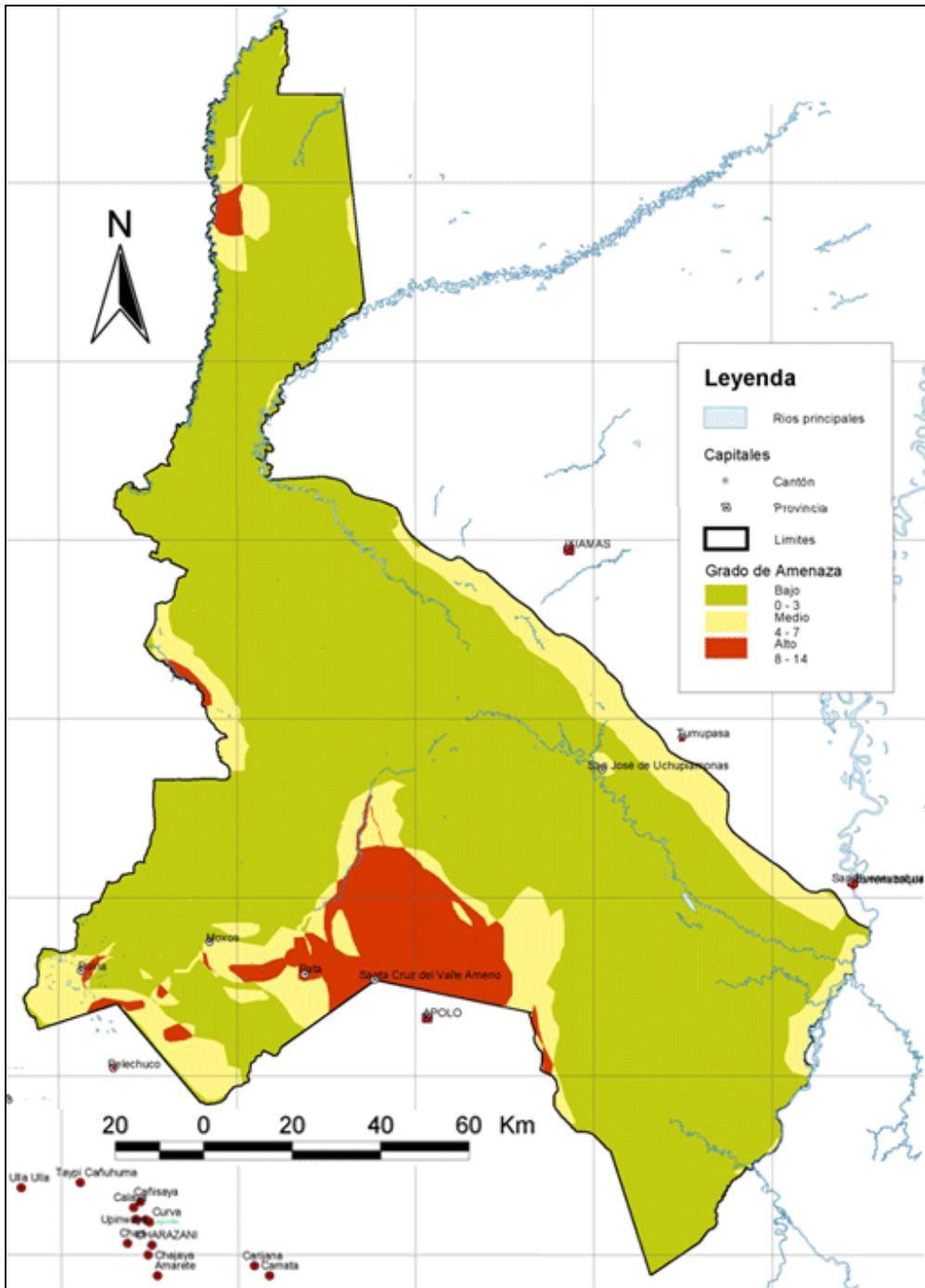
(Source: Saavedra and Daza, 2004)

Figure 8: Distribution of environmental conflicts inside Madidi NP-IMNA

Distribution of threats

Distribution of conservation value

Distribution of conflicts

Legend
Conflict Levels

Low
0 - 162

Medium
163 - 435

High
436 - 1246
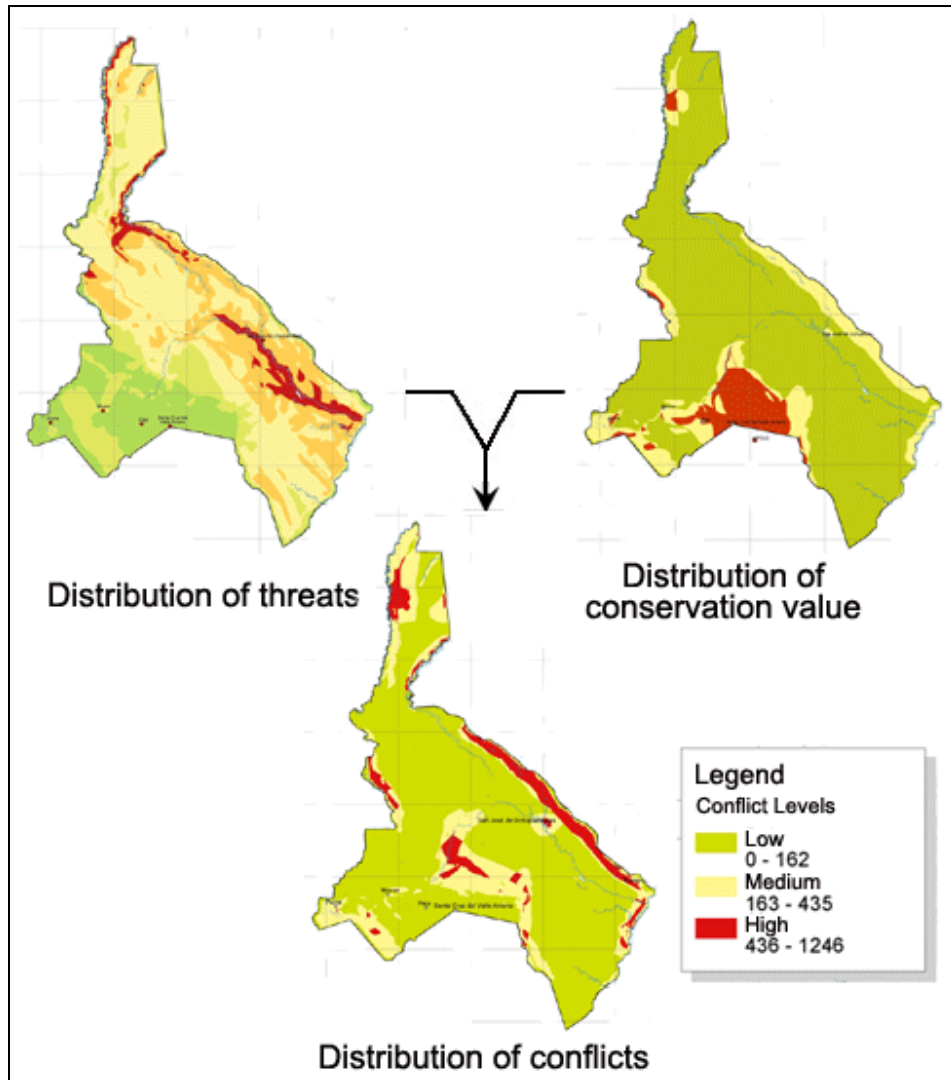
(Source: Saavedra and Daza, 2004)

This environmental conflict analysis acquires all its potential when made part of a broader monitoring scheme considering also abiotic and socio-economic aspects and organized to produce periodic or constant information updates. Figure 9 depicts the framework used in SERNAP's monitoring system (where information on natural resources and threats is complemented by socio-economic data and information on PA management), but it can be associated with other types of indicators, according to needs.

Such a system does not necessarily imply a significant cost if conceived so as to rely on each protected area's installed data collection capacity, i.e. its contingent of park rangers, but also visiting scientists, NGO workers, and, under certain circumstances, local residents. By equipping each park with its own database and providing its staff the proper training and incentives to use it, the maps resulting from the initial workshop can be regularly updated and new statistics generated on demand (at present, mainly due to a bottleneck in data processing capacity, there seems to be no need for real-time data updates on a distant server, but the technology already exists to implement this system at a non-prohibitive cost). ParksWatch-Bolivia is currently developing the GIS functionality that will allow the users of these databases to produce automated maps, and is considering to place the database management system online in order to allow park managers to take part in the entire process, from data entry to map generation, and thus be free to generate maps and statistics on demand. Complementary information concerning this tool, such as the description of the complete monitoring system, and the technical specifications of the GIS and online database, is available upon request.

Figure 9: Schematic diagram of the monitoring system designed by Monjeau et al. (2003)
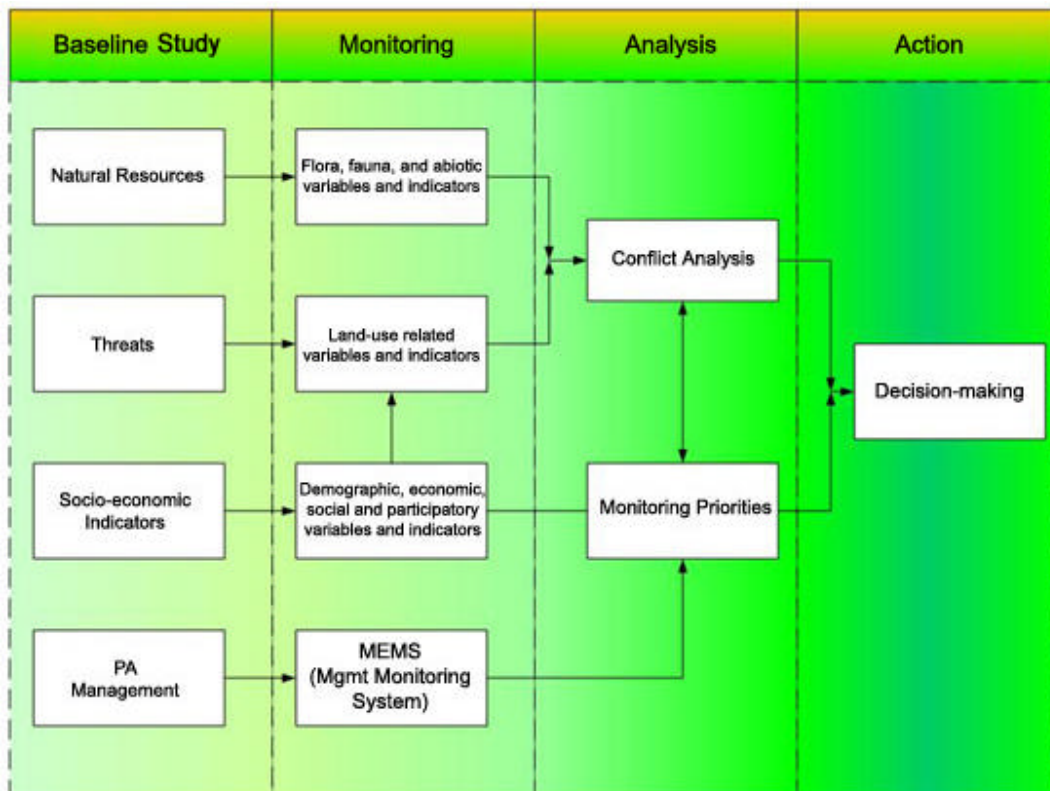
IV. CONCLUSION

A common concern among practitioners of site M&E concerns the reliability of the information used and the risk of interobserver bias in methodologies relying on subjective judgments. Since the credibility of the entire assessment is at stake, it is crucial when designing a methodological framework to plan for a way to be able to accurately verify and replicate the data collected, without neglecting the trade-offs between different approaches, in particular between qualitative and quantitative methodologies. In this respect, the limitations inherent to the subjective Scorecard-based methodologies are increasingly being complemented by the introduction of quantitative measurements. Furthermore, each assessment system needs to be carefully planned in accordance to information needs (it is generally recommended to limit data collection to the strict minimum required by the methodology in use), and its results presented in such a way that they provide unequivocal answers to the questions asked.

In this report we have shown that, although considered to be an appropriate assessment method, the Tracking Tool can lead to incomplete and potentially erroneous interpretations by focusing exclusively on management related issues. Although we assumed that this simple survey form represents just a step within CI's broader Outcome Monitoring Framework, we took the opportunity to present the new module that ParksWatch is currently incorporating into its own methodology, which relies on a GIS analysis of threat and conservation value distributions to map environmental conflicts within protected areas, and thereby draw attention to where it is most needed. This relatively low-effort and low-cost methodology seems like an adequate complement to the Tracking Tool, as it would help benchmark its final rating against the situation of the protected area vis-à-vis an oft complex and encroaching human landscape.

The recognition that M&E efforts should go beyond biological and management-related information reflects this complexity, and to truly assess the outcomes of conservation actions, the activities and aspirations of surrounding human populations need to be taken into account. In their review of M&E methodologies, Stem et al. rightly conclude that in order to appropriately assess management effectiveness, it is important to measure the threats and opportunities that may influence the conservation variables that the interventions are targeting. We thus recommend that the Tracking Tool be formally associated with a threat assessment module, which ParksWatch is entirely willing to provide.

V. REFERENCES

Chape, S., J. Harrison, M. Spalding, and I. Lysenko. 2005. *Measuring the Extent and Effectiveness of Protected Areas as an Indicator for Meeting Global Biodiversity Targets*. Phil. Trans. R. Soc. 360: 443-455.

Dudley, N., M. Hockings, and S. Stolton. 2003. *Protection Assured*: *Guaranteeing the Effective Management of the World's Protected Areas - a Review of Options*. A background paper for the World Commission on Protected Areas.

Hockings, M., J. Ervin, and G. Vincent. 2004. *Assessing the Management of Protected Areas: The Work of the World Parks Congress Before and After Durban*. Journal of International Wildlife Law & Policy 7(2): 31-42

Lacerda, L. 2004. How effective are protected areas? A report prepared for the Seventh Conference of Parties of the Convention on Biological Diversity. WWF. 24 pp.

Monjeau, J., M. Lilienfeld, J. Marquez, I. Goetting, E. Corrales, C. Danklmeier, J. Ramos, y C. Ugarte. 2003. *Sistema de Monitoreo de Áreas Protegidas en Bolivia*. SERNAP-GEF II. Report to the World Bank. 529 pp.

Rapoport, E., G. Borioli, J. Monjeau, J. Puntieri, and L. Oviedo. 1986. *The Design of Nature Reserves: A Simulation Trial for Assessing Specific Conservative Value*. Biological Conservation 37: 269-290.

Saavedra, G. y R. Daza. 2004. *Establecimiento de la Línea Base sobre la Calidad Ambiental*. Programa Biodiversidad y Áreas Protegidas/SERNAP. La Paz, Bolivia.

Stem, C., R. Margoluis, N. Salafsky, and M. Brown. 2005. *Monitoring and Evaluation in Conservation: a Review of Trends and Approaches*. Conservation Biology 19: 295-309.

Stolton, S., M. Hockings, N. Dudley, K. MacKinnon, and T. Whitten. 2003. *Reporting Progress at Protected Area Sites: A Simple Site-level Tracking Tool Developed for the World Bank and WWF*. WWF-WB. 17 pp.

VI. APPENDICES - Results of the field application of the CI Tracking Tool

Apolobamba Integrated Management Natural Area

Name of Protected Area:	Apolobamba	
Location of Protected Area:	Northeast of the La Paz Department (Bautista Saavedra, Franz Tamayo and Larecaja provinces)	
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:**	**Gazetted:**
		1972, recategorized, renamed and resized in 2000
Management Authority:	Servicio Nacional de Areas Protegidas (SERNAP)	
Size of Protected Area (ha):	483,743 ha	
Number of Staff :	**Permanent: 37**	**Temporary: n/a**
Budget:	US$ 287,163 (2003)	
Designations (IUCN category, World Heritage, Ramsar etc):	Integrated Management Natural Area (Category VI)	
Reasons for Designation:	The area was designated in 1972 as a National Wildlife Reserve (Ulla Ulla) for the preservation of its vicuña (*Vicugna vicugna*) populations and high-andean ecosystems, and recategorized and resized in 2000 to encompass nearby low montane ecosystems	
Brief Details of CI Funded Projects in PA:	- Drafting of the new Management Plan - Biodiversity in Regional Development (BiRD, 1999-2001) (production of a promotional CD-ROM on the region, biological inventories and threat assessment) - Environmental education (Carpa Verde)	
Brief Details of Other Relevant Projects in PA:	- AECI (Spanish cooperation agency): Araucaria Program (1998-2004) (support to PA management, infrastructure, equipment, vicuña management, local economic development, promotion of local medicinal practices, etc.) - WCS: Living Landscapes Project (research, monitoring, natural resources management, land use planning, regional integration, tourism, and assistance in the creation of indigenous communal lands)	
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity	
	Objective II: Preservation of cultural heritage of native communities	
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Gold mining	
	Threat II: Livestock grazing and agricultural practices	
List Top Two Critical Management Activities:	**Activity I:** Law enforcement and surveillance	
	Activity II: Natural resources management (Vicuña)	

Tracking Tool results

[Adaptation of the WWF Tracking Tool]

RATING: 61/96

Pilón Lajas Biosphere Reserve and Communal Lands

Name of Protected Area:	Pilón Lajas
Location of Protected Area:	In the departments of La Paz (Sud Yungas, Larecaja and Franz Tamayo provinces) and Beni (Ballivian province), in their northern and western portions, respectively.

Date of Establishment (distinguish between agreed and gazetted):	**Agreed:**	**Gazetted:**
		1992

Management Authority:	- Biosphere Reserve: Servicio Nacional de Areas Protegidas (SERNAP) - Indigenous Communal Lands: Consejo Regional Tsimane Mosetene (CRTM)	
Size of Protected Area (ha):	400,000 ha	
Number of Staff :	**Permanent: 21/22**	**Temporary: n/a**
Budget:	US$ 270,000 (2004)	
Designations (IUCN category, World Heritage, Ramsar etc):	Biosphere Reserve (MAB-UNESCO) and Indigenous Communal Lands	
Reasons for Designation:	Exceptional biological diversity and presence of various indigenous ethnic groups (chimanes, mosetenes, tacanas, and Esse-Ejja)	
Brief Details of CI Funded Projects in PA:	In partnership with ICIB (*Instituto de Conservación e Investigación de Biodiversidad*), CI is implementing the communication and environmental education component of the "Carrasco National Park and Pilón Lajas Biosphere Reserve-Communal Lands Management Strengthening Project", funded by USAID, which includes the construction of an environmental interpretation center, support to the formation of an Interinstitutional Coordination Council and occasional support with equipment and infrastructure.	
Brief Details of Other Relevant Projects in PA:	- WCS: Living Landscapes Project (research, monitoring, natural resources management, land use planning, regional integration, tourism, update of the Management Plan) - PRISA-Bolivia: Two small agroforestry projects in the Yucumo area with CARITAS, which has promoted rural development in Yucumo for several years. - SERNAP-GEF II: Support of the AIPAC (*Asociación Integral de Productores Agropecuarios de Cascada*) in ecological coffee production and of APABIO in Money production in the Cascada area.	

List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity
	Objective II: Improvement of living conditions of resident and adjacent indigenous communities

List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Social conflicts and invasions into the reserve (most important single source of habitat destruction within the reserve)
	Threat II: Illegal logging (jeopardizing threatened species such as Mahogany - *Swietenia macrophylla* - and Cedar - *Cedrela odorata*)

List Top Two Critical Management Activities:	**Activity I:** Community outreach
	Activity II: Law enforcement and surveillance

Tracking Tool results

Criteria — Current situation

CONTEXT
Legal status
National policies
PA regulations
Regulation enforcement
Protected area boundaries
Land tenure
Scoring scale — Bad | Regular | Good | Excellent

PLANNING
PA Objectives
PA design
Management Plan
Zoning
Operational Plan
Financial Plan
Biodiversity inventory
Natural and cultural resource inventory
Scoring scale — Bad | Regular | Good | Excellent

INPUTS
Staff numbers
Staff training
Operational budget
Financial security
Research
Scoring scale — Bad | Regular | Good | Excellent

PROCESS
Enforcement activities
Management of budget
Personnel management
Equipment
Maintenance
Controlling access and use
Stakeholder engagement
Environmental education and awareness
Commercial tourism
Acceptable change standards
Monitoring and evaluation
Scoring scale — Bad | Regular | Good | Excellent

OUTPUTS
Visitor facilities
Fees
Scoring scale — Bad | Regular | Good | Excellent

[Adaptation of the WWF Tracking Tool]   RATING: 42/96

Madidi National Park and Integrated Management Natural Area

Name of Protected Area:	Madidi
Location of Protected Area:	In the northeast of the La Paz Department, in the Franz Tamayo, Abel Iturralde and Bautista Saavedra provinces
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:** **Gazetted:**
	1995
Management Authority:	Servicio Nacional de Areas Protegidas (SERNAP)
Size of Protected Area (ha):	1,880,996 ha
Number of Staff :	**Permanent: 42** **Temporary: n/a**
Budget:	US$ 235,415 for operations and US$ 646,100 for investments (2004)
Designations (IUCN category, World Heritage, Ramsar etc):	National Park and Integrated Management Natural Area (Categories II and IV, respectively)
Reasons for Designation:	To protect the region's exceptional biological diversity and create a transboundary protected area with Peru
Brief Details of CI Funded Projects in PA:	- Chalalán Ecolodge (1995-2001): Luxury jungle lodge catering to wealthy tourists and managed by the indigenous community of San José de Uchupiamonas - Biodiversity in Regional Development (BiRD, 1999-2001 Production of a promotional CD-ROM on the region, biological inventories and threat assessment - CI-ITTO (completed in 2004) Establishment of a transboundary protected area with Bahuaja-Sonene NP in Peru (support in legal matters, communication, natural resources management, and the identification of ecotourism projects)
Brief Details of Other Relevant Projects in PA:	- WCS: Living Landscapes Project (research, monitoring, natural resources management, land use planning, regional integration, tourism, and assistance in the creation of indigenous communal lands) - KfW (German Cooperation Bank): Biodi-versity and Protected Areas Project (BIAP) Investments in infrastructure and equipment and support of the land titling process
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity (NP)
	Objective II: Promotion of sustainable use of natural resources by local residents (IMNA)
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Two road construction projects : One across the area (from Azariamas to Ixiamas), and one along it's northeastern border (Ixiamas-Puerto Chive)
	Threat II: Agricultural frontier expansion and colonization (on the southern and eastern flanks of the PA)
List Top Two Critical Management Activities:	**Activity I:** Law enforcement and surveillance

	Activity II: Community outreach

Tracking Tool results

[Adaptation of the WWF Tracking Tool]   RATING: *51/96*

Cotapata National Park and Integrated Management Natural Area

Name of Protected Area:	Cotapata
Location of Protected Area:	Southeast of the La Paz Department (Nor Yungas and Murillo provinces)
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:**	**Gazetted:**
		1993
Management Authority:	Servicio Nacional de Areas Protegidas (SERNAP)
Size of Protected Area (ha):	60,000 ha (NP: 25,000 ha; IMNA: 35,000 ha)
Number of Staff :	**Permanent: 14**	**Temporary: n/a**
Budget:	US$ 570,167 (operations and investments) (2003)	
Designations (IUCN category, World Heritage, Ramsar etc):	National Park (Category II) and Integrated Management Natural Area (Category VI)
Reasons for Designation:	The park was designated in 1993 to 1991 to mitigate the environmental impacts of the construction of the Cotapata-Santa Barbara road
Brief Details of CI Funded Projects in PA:	Training of touristic guides (in collaboration with Trópico)
Brief Details of Other Relevant Projects in PA:	- KfW (German Cooperation Bank): Biodi-versity and Protected Areas Project (BIAP) Elaboration of Management Plan, monitoring, investments in infrastructure and equipment, support of operations and of the land titling process - BIOTA: Research, forest inventories, educational radio programs and environmental education in local primary schools
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity (NP)
	Objective II: Regulation of natural resource use by local residents and improvement of their living conditions (IMNA)
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Perpetual tensions with local residents
	Threat II: Construction of the Cotapata-Santa Barbara road
List Top Two Critical Management Activities:	**Activity I:** Natural resources management
	Activity II: Tourism regulation

Tracking Tool results

[Adaptation of the WWF Tracking Tool]

RATING: *47/96*

Amboró National Park and Integrated Management Natural Area

Name of Protected Area:	Amboró
Location of Protected Area:	West of the Santa Cruz Department (Ichilo, Manuel Maria Caballero, Florida y Andrés Ibañez provinces)
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:** **Gazetted:**
	1973, resized in 1991
Management Authority:	Servicio Nacional de Areas Protegidas (SERNAP)
Size of Protected Area (ha):	637,600 ha (NP: 442,500 ha; IMNA: 195,100 ha)
Number of Staff :	**Permanent: 33** **Temporary: n/a**
Budget:	US$ 192,000 (2003)
Designations (IUCN category, World Heritage, Ramsar etc):	National Park (Category II) and Integrated Management Natural Area (Category VI)
Reasons for Designation:	The park was first designated in 1973 to protect the area's exceptional biodiversity and the area more than tripled in 1991 without consensus with local residents
Brief Details of CI Funded Projects in PA:	
Brief Details of Other Relevant Projects in PA:	- TNC: Parks in Peril (PiP), in partnership with Fundación Amigos de la Naturaleza (FAN) (2000-2007): Technical support, support of control and surveillance activities with infrastructure and equipment, generation of sustainable income - PROBIOMA: community ecotourism since 1996
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity, in particular of montane cloud forests (Yungas) (NP)
	Objective II: Regulation of natural resource use by local residents and improvement of their living conditions, in particular via ecotourism projects (IMNA)
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Agricultural frontier expansion and illegal settlements in the IMNA
	Threat II: Agriculture and small-scale cattle grazing (on northern, eastern and southern flanks)
List Top Two Critical Management Activities:	**Activity I:** Community outreach
	Activity II: Natural resources management

Tracking Tool results

Criteria	Current situation

CONTEXT

	Bad	Regular	Good	Excellent
Legal status				
National policies				
PA regulations				
Regulation enforcement				
Protected area boundaries				
Land tenure				
Scoring scale	Bad	Regular	Good	Excellent

PLANNING

	Bad	Regular	Good	Excellent
PA Objectives				
PA design				
Management Plan				
Zoning				
Operational Plan				
Financial Plan				
Biodiversity inventory				
Natural and cultural resource inventory				
Scoring scale	Bad	Regular	Good	Excellent

INPUTS

	Bad	Regular	Good	Excellent
Staff numbers				
Staff training				
Operational budget				
Financial security				
Research				
Scoring scale	Bad	Regular	Good	Excellent

PROCESS

	Bad	Regular	Good	Excellent
Enforcement activities				
Management of budget				
Personnel management				
Equipment				
Maintenance				
Controlling access and use				
Stakeholder engagement				
Environmental education and awareness				
Commercial tourism				
Acceptable change standards				
Monitoring and evaluation				
Scoring scale	Bad	Regular	Good	Excellent

OUTPUTS

	Bad	Regular	Good	Excellent
Visitor facilities				
Fees				
Scoring scale	Bad	Regular	Good	Excellent

[Adaptation of the WWF Tracking Tool]   RATING: **47/96**

Carrasco National Park

Name of Protected Area:	Carrasco
Location of Protected:	In the northeast of the La Paz Department, in the Franz Tamayo, Abel Iturralde and Bautista Saavedra provinces
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:** / **Gazetted:** 1988, resized in 1991
Management Authority:	Servicio Nacional de Areas Protegidas (SERNAP)
Size of Protected Area (ha):	622,600 ha
Number of Staff :	**Permanent: 25** / **Temporary: n/a**
Budget:	n/a
Designations (IUCN category, World Heritage, Ramsar etc):	National Park (Category II)
Reasons for Designation:	The park was designated in 1988 to protect the area's exceptional biodiversity and resized in 1991 to mitigate the environmental impacts of the construction of the Chimoré-Yapacaní road and to include the Silvestre "Cavernas del Repechón" Wildlife Sanctuary
Brief Details of CI Funded Projects in PA:	- Land titling (in partnership with CIDEDER) and definition of new limits (with WWF) - Tourism (planning, construction of an interpretation center, training of guides, rehabilitation of an old road as a tourism trail, promotion of the area) - Interinstitutional Coordination
Brief Details of Other Relevant Projects in PA:	- TNC: Parks in Peril (PiP), in partnership with CIDEDER: Land titling, planning, monitoring, promotion, support in infrastructure and equipment, etc. - WWF: Planning, redefinition of limits, monitoring, support in infrastructure and equipment, etc.
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversitys
	Objective II: Regulation of natural resource use by residents and improvement of their living conditions
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Illegal settlements and invasions
	Threat II: Agriculture (on northern, western and southern flanks)
List Top Two Critical Management Activities:	**Activity I:** Law enforcement and surveillance
	Activity II: Community outreach

Tracking Tool results

Criteria	Current situation

CONTEXT
- Legal status
- National policies
- PA regulations
- Regulation enforcement
- Protected area boundaries
- Land tenure

Scoring scale: Bad | Regular | Good | Excellent

PLANNING
- PA Objectives
- PA design
- Management Plan
- Zoning
- Operational Plan
- Financial Plan
- Biodiversity inventory
- Natural and cultural resource inventory

Scoring scale: Bad | Regular | Good | Excellent

INPUTS
- Staff numbers
- Staff training
- Operational budget
- Financial security
- Research

Scoring scale: Bad | Regular | Good | Excellent

PROCESS
- Enforcement activities
- Management of budget
- Personnel management
- Equipment
- Maintenance
- Controlling access and use
- Stakeholder engagement
- Environmental education and awareness
- Commercial tourism
- Acceptable change standards
- Monitoring and evaluation

Scoring scale: Bad | Regular | Good | Excellent

OUTPUTS
- Visitor facilities
- Fees

Scoring scale: Bad | Regular | Good | Excellent

[Adaptation of the WWF Tracking Tool]   RATING: 36/96

Isiboro Sécure National Park and Indigenous Territory

Name of Protected Area:	Isiboro Sécure
Location of Protected Area (country and if possible map reference):	In the departments of Cochabamba and Beni (Chapare, Moxos and Marbán provinces), in their northern and southern portions, respectively
Date of Establishment (distinguish between agreed and gazetted):	**Agreed:** / **Gazetted:** 1965
Management Authority:	- National Park: Servicio Nacional de Areas Protegidas (SERNAP) - Indigenous Territory: Subcentral Isiboro Sécure
Size of Protected Area (ha):	1,372,180 ha
Number of Staff :	**Permanent: 24** / **Temporary: n/a**
Budget:	n/a
Designations (IUCN category, World Heritage, Ramsar etc):	National Park (Category II) and Indigenous Territory
Reasons for Designation:	To protect the region from the risk of uncontrolled colonization associated with a road construction project between the Cochabamba and Beni departments
Brief Details of CI Funded Projects in PA:	
Brief Details of Other Relevant Projects in PA:	MAPZA-GTZ: Management of Protected Areas and Buffer Zones Project (support of participatory and integrated management processes, including the elaboration of the Management Plan)
List the Two Primary Protected Area Objectives:	**Objective I:** Conservation of biological diversity
	Objective II: Survival and development of the Mojeño, Trinitario and Yuracaré indigenous communities occupying the area
List the Top Two Most Important threats to the PA (and indicate why these threats were chosen):	**Threat I:** Commercial logging pressure in the northwestern sector (jeopardizing threatened species such as Mahogany - *Swietenia macrophylla* - and Cedar - *Cedrela odorata*)
	Threat II: Road construction project across the entire area joining Villa Tunari (Cochabamba Dpt) and Trinidad (Beni Dept
List Top Two Critical Management Activities:	**Activity I:** Resources Management (timber, caimans - *Caiman yacare* - and fish)
	Activity II: Law enforcement and surveillance

Tracking Tool results

Criteria — Current situation

CONTEXT
- Legal status
- National policies
- PA regulations
- Regulation enforcement
- Protected area boundaries
- Land tenure

Scoring scale: Bad | Regular | Good | Excellent

PLANNING
- PA Objectives
- PA design
- Management Plan
- Zoning
- Operational Plan
- Financial Plan
- Biodiversity inventory
- Natural and cultural resource inventory

Scoring scale: Bad | Regular | Good | Excellent

INPUTS
- Staff numbers
- Staff training
- Operational budget
- Financial security
- Research

Scoring scale: Bad | Regular | Good | Excellent

PROCESS
- Enforcement activities
- Management of budget
- Personnel management
- Equipment
- Maintenance
- Controlling access and use
- Stakeholder engagement
- Environmental education and awareness
- Commercial tourism
- Acceptable change standards
- Monitoring and evaluation

Scoring scale: Bad | Regular | Good | Excellent

OUTPUTS
- Visitor facilities
- Fees

Scoring scale: Bad | Regular | Good | Excellent

[Adaptation of the WWF Tracking Tool]   RATING: *38/96*