



# How effective are protected areas?

A preliminary analysis of forest protected areas by WWF – the largest ever global assessment of protected area management effectiveness



A report prepared for the Seventh Conference of Parties of the Convention on Biological Diversity, February 2004

Published by WWF International

For further information please contact:

Leonardo Lacerda  
WWF International  
Avenue du Mont Blanc  
CH-1196  
Gland  
Switzerland

Tel: +41-22-364-9017

E-mail: [LLacerda@wwfint.org](mailto:LLacerda@wwfint.org)

This report was written by Nigel Dudley, Alexander Belokurov, Oleg Borodin, Liza Higgins-Zogib, Marc Hockings, Leonardo Lacerda, and Sue Stolton, based on questionnaires completed by T Adhikeri, Tri Agung, Iftikhar Ahmad, Salah el Aloui, Zakiya Aloyce, Oswaldo Aramayo, Ben Arinaitwe, Yuyu Arlan, Masood Arshad, Biney Aryal, Anvar Ayupov, Adria Ali Ayub, Eko Bambang, Wei Baoyan, Luis Barrios, Batsukh, Jaromir Blaha, Zheng Bo, Alexander Bondarev, Sergio Boschele, Henry Campero, Fabrizio Canonico, Rosalia Gondim de Castro, Deng Changshen, Hu Chongde, Zhu Chunquan, Javier Corcuera, Patricia Dávila, Geoffrey Davison, Li Diqiang, Li Dongqun, Maria das Dores Melo, Thinley Dorji, Drasopolino, David Duli, Cesar Flores, Fundación Vida Silvestre Argentina, Scott Grenfell, Marius Gunawan, Alberto Guzzi, Gu Haijun, M Ridha Hakim, Muniful Hamid, Wu Haohan, Adhi Rachmat Hariyadi, Shirley Noely Hauff, Zhang Hemin, Heino Hertel, Wang Hongjia, Matti Hovi, Liu Huajun, S Hut, Awriya Ibrahim, Elisabet Iwan, Stefan Jakimiuk, Kahika James, Ramon Janis, Li Jianguo, Zhu Jianzhou, Lang Jianmin, Qi Jizhong, Ranaivo Arivelo McGordon Joatera, Houcine el Kahlaoui, Rosenda Ch Kasih, Dong Ke, Graham Keet, Ashiq Ahmad Khan, Ramaz Kiknadze, Godson Kimaro, Robert Knysak, Vladimir Krever, Ma Kuitai, Martin Labo, Tonia Lamberti, Constantinos Liarikos, Tang Liexiang, Zhang Liming, Ling Lin, Fan Longqing, Faouzi Maamouri, Cyprian Malima, Helena Maltez, Benja V Mambai, Rebecca Manginelli, S Many, Luis Marcus, Aldo Marinelli, Nicole Martínez, Enzo Mauri, Nicola Merola, Sam Mwhanda, Revaz Moiscrafishvili, Mariana Montoya, Pedro Gomez Montero, Diego Moreno, Befourouack Julien Moustafa, Tran Van Mui, Natia Muladze, Carlo Murgia, Angela Natale, Saturnino Neto, Martin Nganjé, Eunice Nyiramahoro, Joss Oboo, Odonchimeg, Antonio Oviedo, Li Ning, Linda Norgrove, Parlindungan, V Pavéoashvili, Mario Pellegrini, Olga Pereladova, Antonio Pizzuti Piccoli, Widodo Prayitno, Giuseppe Pugliese, Zhang Qian, Muhammad Yousaf Quersh, Michel Randriambololona, Devendra Rana, Wawan Ridwan, Sun Ruiqian, Verónica Rusch, Rosa Lemos de Sá, Augusto De Sanctis, B G Saroy, Purna Bhahta Shrestha, Gloria Sigismondi, Andri Hansen Siregar, Chak Sokhavicheboth, Nhorn Sophal, Mzia Stepnadze, Peter Sumbi, Zhong Tai, Chkheidze Temur, Leonard Usongo, Andrew Venter, Alejandro Vila, Francesco Vincenzo, Karel Wamafma, Sangay Wangchuk, Sonam Wangchuk, Zhang Weidong, Gu Xiaodong, Lei Xiaoping, Li Xuelin, Tian Xurong, Ma Yong, Yong Yang, Ma Yisheng, Chen Youping and Ouyang Zhiyun. WWF is extremely grateful for the efforts made by colleagues and protected areas managers around the world in the compilation of this data. Please forgive us if some of the names have been omitted or misspelled above

February 2004

Front cover photograph by Nigel Dudley

The authors and WWF would be pleased to receive any comments about the content and opinions expressed in this paper and on suggestions for how it could be strengthened and improved. Please send comments to WWF as above.

The material and the geographical designations in this report do not imply the expression of any opinion whatsoever on the part of WWF concerning the legal status of any country, territory or area, or concerning the delimitation of its frontiers or boundaries.

## **Preface**

The Seventh Conference of the Parties to the Convention on Biological Diversity provides the first opportunity for this extremely important convention to focus in detail on the role and importance of protected areas. Like most institutions – governmental and non-governmental – concerned with biodiversity conservation, we believe that it is critically important to complete ecologically-representative networks of protected areas, and we commend the CBD for its lead in encouraging Parties in this vital endeavour.

At the same time, we recognise that establishment is only the first stage in the commitment to ensure that protected areas play their critical role in conservation of the world's biodiversity. Protected areas also need to be managed: a complex and continually evolving task that requires skill, dedication and resources to carry out effectively. And in order to manage well, we need to know the strengths and weaknesses of existing protected areas, and understand better the critical factors that ensure their effective management.

WWF has been working with partners to increase the total area under protection. In addition, we have been putting effort into increasing management effectiveness of the existing protected areas, including supporting the development of various assessment methodologies and approaches to increasing effectiveness. Amongst the tools developed over the last five years is a simple tracking tool to provide a quick and simple assessment of effectiveness in individual protected areas, developed in cooperation with the World Bank and the World Commission on Protected Areas. After being tested and modified for three years, the tracking tool is now operational and we are committed to using it in all forest protected area projects supported by WWF. The systematic and periodical use of the methodology will enable us to track progress on management effectiveness overtime.

The following report outlines some preliminary results from the first application of this tool: we believe it constitutes the largest global survey yet undertaken of protected area effectiveness, using a single methodology. We are presenting it at the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity to highlight the fundamental importance of carrying out management effectiveness evaluations - as identified by the Fifth World Parks Congress – and to help inform discussions about the Programme of Work on Protected Areas. We firmly believe that targets should be established in this regard, and that the CBD should encourage Parties to complete site-specific evaluations of management effectiveness in at least 30 percent of each Party's protected areas, as well as evaluations of national protected area systems and ecological networks in all countries, by 2010.

The results of this survey are preliminary. They will be further analysed and written up as a more detailed paper for publication. This first analysis only shows a snapshot of the situation in the protected areas surveyed: the greatest value will be found in its systematic use to enable us to track progress and report on this over time.

We very much welcome any comments, both about the toolkit itself and the results presented here.

Leonardo Lacerda  
Manager, Forest Protected Areas Initiative  
WWF International

## Summary of key findings

WWF has surveyed management effectiveness of almost 200 forest protected areas in 34 countries, using a tracking tool developed with the World Bank and the World Commission on Protected Areas. This is the largest ever global survey of protected area effectiveness. The report summarises key findings.

### 1) What is eroding biodiversity in our forest protected areas?

Protected areas face a series of **critical threats**. The most severe threats to forest protected areas identified were **poaching** (identified in a third of protected areas), **encroachment** by agriculture, ranching and urban development, and **logging** (both illegal and legal), with collection of **non-timber forest products** also being a common problem. These four were considered to be key threats in more protected areas than all other problems added together.

### 2) The Good and the Bad in Management Performance

Protected area management shows consistent patterns of strengths and weaknesses around the world. Management performance has been reported as sufficient in the following fields: protected area **design, legal establishment, boundary demarcation, resource inventory / assessment and objective-setting**. Conversely, performance has been weakest in activities relating to **people** as well as **management planning, monitoring and evaluation, budget security and law enforcement**.

One depressingly consistent problem is a failure to manage relations with people. Problems are evident both in terms of relations with local communities and indigenous peoples and also with management for tourists, with the provision of visitor facilities and access to commercial tourism scoring lowest of all; yet many respondents identified work with communities as a critical management activity.

There are signs of management effectiveness progress over time but also of inherent problems. Older protected areas tended to perform slightly better: however there is only a weak correlation between time of establishment and performance and many exceptions, suggesting that strengths and weaknesses may be endemic to some protected areas. As an illustration of weaknesses in planning, only 12 per cent of the protected areas surveyed have an approved management plan under implementation.

### 3) Key Success Factors for Management Effectiveness

A **well-funded, appropriately staffed** protected area, with **good environmental education and community outreach**, and also with **excellent enforcement capacity** are the minimum critical ingredients for effective management.

**Budget** correlates closely with management effectiveness: although funding availability alone is not sufficient, typically the higher the budget, the better the performance. Budget varies dramatically around the world. In the sample surveyed, average budget per protected area in Europe, for example, is eight times that for Latin America, even though in the latter case protected areas are likely to be far larger.

**Education and awareness** plays a vital role in building support for protected areas in general and for particular management actions. The study shows that management is more effective where a planned and effective education and awareness programme fully linked to the objectives and needs of the protected area is in place.

**Enforcement** shows the strongest correlation to management effectiveness. Enforcement activities carried out by a motivated, competent and empowered corps of rangers are critical, particularly where protected areas face problems of poaching or invasion. However, it should be noted that protected area staff also place a strong emphasis on community issues and sustainable resource use – issues that would not have appeared in most protected area plans a few years ago.

#### 4) Success factors for good biodiversity condition

What needs to be in place to ensure that biodiversity is well conserved inside protected areas and their surroundings? Appropriately staffed protected areas; in possession of clear documents of legal gazettelement; with capacity and means to manage its critical ecosystems, species and cultural values; and with a monitoring and evaluation programme that ensures adaptive management. We looked particularly at biodiversity condition because this outcome is of primary importance to the CBD, and tested how it correlated with various different management actions. The strongest correlation was found with **monitoring and evaluation; resource management; staff numbers** and **legal status**.

Surprisingly, in spite of the many weaknesses identified, the great majority of responses reveal that **biodiversity condition in the protected areas surveyed is perceived as good**, even in areas that would have been typically described as "paper parks".

We caution that the sample of the survey is small in the universe of over 100'000 existing protected areas, and that figures and correlations need further analysis. In spite of that, the study illustrates the usefulness and points to the urgent need to carry out such management effectiveness evaluations for informing priority-setting and guiding protected areas management decisions, particularly at the site and country/system-wide levels. A summary of implications of these findings and recommendations to the Convention of Biological Diversity can be found on page 18 of this report.

## Why we looked at protected area management effectiveness

Protected areas are the cornerstone of most national biodiversity conservation strategies. The latest survey from the UNEP World Conservation Monitoring Centre suggests that over 11 per cent of the planet's land surface is now under protected areas status.

Most of these protected areas were set up during the twentieth century and the movement therefore represents what is probably the largest and certainly the fastest conscious change of land use in history. The future of the world's biodiversity is closely linked to the strength of the global protected areas network. While most species do and should live outside officially protected areas, the protected area network plays three vital roles with respect to biodiversity conservation<sup>1</sup>:

- Maintaining species and ecosystems that cannot survive outside natural or near natural conditions
- Providing an "ark" for threatened species in those places where changes in land use have been sudden and wide ranging, to allow wild species a breathing space until a combination of restoration and sustainable management creates more suitable habitat
- Creating "living laboratories" where scientists and conservationists can learn more about how ecosystems work and therefore how to accommodate biodiversity in other areas

Legal gazettement of protected areas is a fundamental step, and has proven to be a critical factor in deterring land use changes, particularly in areas of development frontier<sup>2</sup>. Our own study suggests that legal status is a key success factor in ensuring good biodiversity condition. Under certain conditions, even "paper parks" have a pivotal role in conserving biodiversity.

However, in the medium to long term, protected areas only work if they really are protected. Unfortunately this is not always the case. WWF has already identified some serious threats to the world's protected areas system<sup>3</sup> and at the Fifth World Parks Congress in 2003 IUCN The World Conservation Union identified increased management effectiveness as one of its key aims for the next decade. WWF has a target for increasing management effectiveness of protected areas.

We still have little detailed information about the state of many of the world's parks. WWF has therefore been collaborating with the World Bank in a study on management effectiveness in protected areas where the two organisations are working, using a simple tracking tool based around 30 or so key questions relating to management. A description of the tracking tool is included in Appendix 1. The survey had two main aims:

- To help build understanding about the strengths and weaknesses of the global protected area network and to feed into debates at the Fifth World Parks Congress, the Seventh Conference of Parties of the Convention on Biological Diversity and the future programme of the World Commission on Protected Areas
- To guide the work of WWF in systematically monitoring improvements on management effectiveness in existing protected areas that it supports

WWF forest officers have completed the questionnaire for forest protected areas where it runs or funds projects, if possible in association with the protected area manager. Tracking tools

---

<sup>1</sup> Note that protected areas play many other roles as well, including: protecting fragile human communities and sites of sacred or religious importance; maintaining ecosystem services; creating recreational opportunities; and helping to protect against climate change

<sup>2</sup> *Protected Areas or Endangered Spaces?* Leandro V. Ferreira, Rosa M. Lemos de Sá, Robert Buschbacher, Garo Batmanian, Nurit R. Bensusan, Kátia Lemos Costa, WWF Brazil, 1999; and *Effectiveness of parks in protecting tropical biodiversity*, Aaron G Bruner, Raymond E Gullison, Richard E Rice and Gustavo A B de Fonseca, *Science* **291**: 105, 2001

<sup>3</sup> *Squandering Paradise*, Christine Carey, Nigel Dudley and Sue Stolton, WWF International, 2000

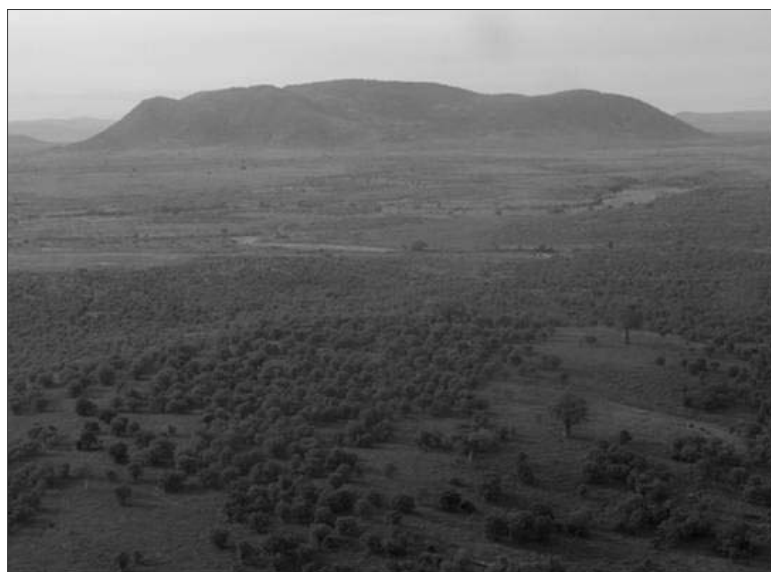
have now been completed for almost 200 protected areas, in 34 countries in Europe, Asia, Africa and Latin America.

The result is the largest site-based global survey of protected area effectiveness undertaken to date using a single methodology. We hope that the survey and the database will eventually extend to protected areas in other biomes.

The following report, prepared especially for COP-7 of the CBD, outlines some key results and draws some policy conclusions and recommendations for the Convention on Biological Diversity.

Protected areas from the following countries were included in the survey:

- Argentina
- Bhutan
- Bolivia
- Brazil
- Cambodia
- Cameroon
- China
- Côte d'Ivoire
- Czech Republic
- Finland
- Georgia
- Ghana
- Greece
- India
- Indonesia
- Italy
- Kazakhstan
- Lao PDR
- Madagascar
- Malaysia
- Mongolia
- Nepal
- Nigeria
- Pakistan
- Peru
- Poland
- Russian Federation
- South Africa
- Tanzania
- Tunisia
- Turkmenistan
- Uganda
- Uzbekistan
- Vietnam



**Figure 1: Precious spaces:** protected areas provide: vital habitat for species that cannot survived in modified environments; an “ark” in lands and waters that have been degraded; and irreplaceable laboratories for research. Protected areas also have many other values: for example the Ruaha National Park in Tanzania also protects vital drinking water catchments.

© Nigel Dudley

## What we found out about management effectiveness

### ▪ Protected area management shows consistent patterns of strengths and weaknesses around the world

The protected areas surveyed show identifiable patterns of strengths and weaknesses. In general, issues relating to protected area **design, legal establishment, boundary demarcation, resource inventory / assessment** and **setting objectives** have been quite well addressed, while activities relating to **people** (both local communities and visitors) are less effective, as are **management planning, monitoring and evaluation, budget security** and **law enforcement**.

#### *Ten highest scored questions (in descending order)*

- Legal status
- Protected area design
- Protected area demarcation
- Protected area objectives
- Biodiversity condition assessment
- Resource inventory
- Economic benefit assessment
- Management of budget
- Resource management
- Regular work plan

#### *Ten lowest scored questions (in descending order)*

- Protection system and access / use of resources
- Equipment
- Security of budget
- Management plan
- Current budget
- Local communities
- Fees
- Indigenous peoples
- Visitor facilities
- Commercial tourism

These general patterns disguise substantial variation between sites: some low scores overall sometimes mask the fact that a few sites are performing very well on particular issues. By inspecting means and standard deviations for each question, we found that the most consistently successful aspects of management across all sites related to legal status and setting of objectives; those with the greatest variability included management plans, work plans, equipment, education and awareness, commercial tourism, fees and access assessment. This means that while some sites have good planning and tourist infrastructure, others have not addressed this issue at all. The responses relating to local and indigenous communities had low scores and moderate standard deviations, meaning that while most sites performed badly, a few performed well.

**Figure 2: Completing the protected area network:** New protected areas are still needed; for instance the recent gazettment of a protected area on the Kinabatangan River in Sabah, Borneo, has set aside for protection vital habitat for the population of a hundred elephants living along the river corridor



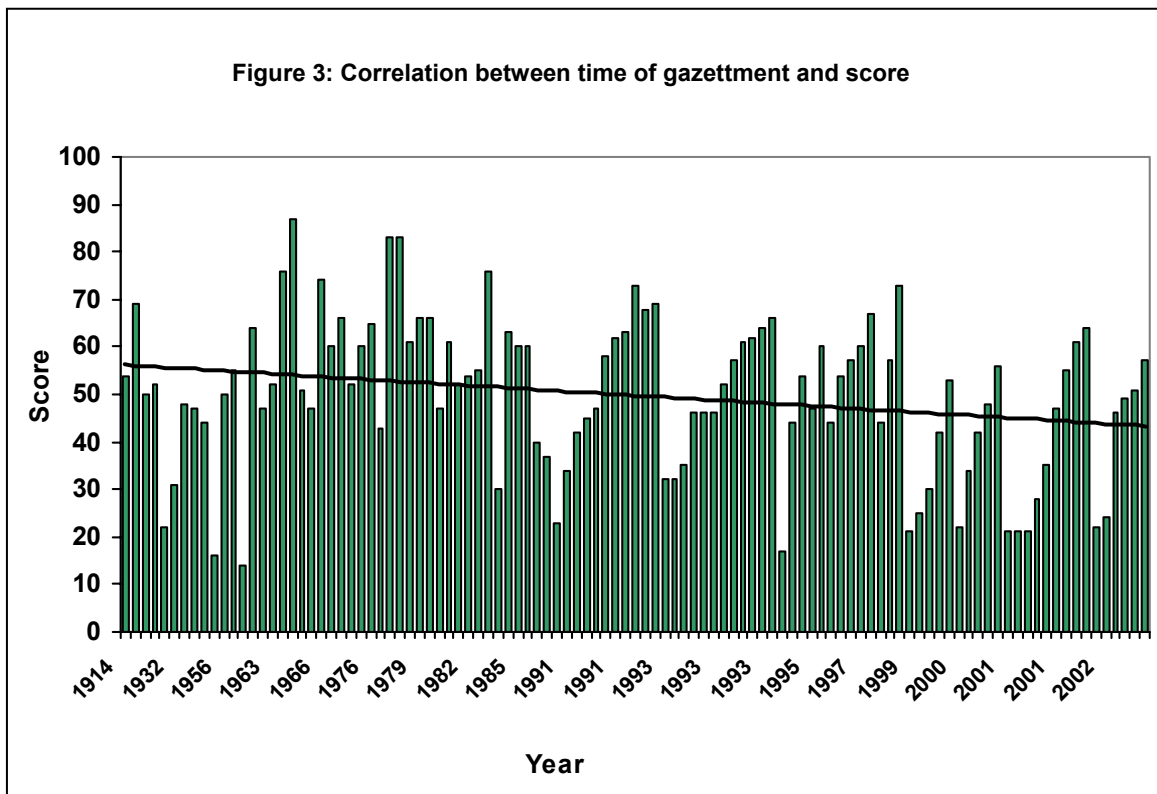
© WWF-Canon / Denis Landenbergue



- **There are signs of progress in management effectiveness over time but also some inherent problems**

Have older protected areas scored better for management effectiveness? Results have been mixed.

Older protected areas tended to score slightly better, suggesting that given more time and effort, management can be improved. However, it should be noted, as Figure 3 shows below, that there is only a weak correlation between time of establishment and total score for management effectiveness (see appendix for explanation of scoring), and there are many exceptions to the rule. In Argentina, for instance, the Los Alerces National Reserve, established in 1937, scored only 56 overall, while La Aurora del Palmar Wildlife Refuge established comparatively recently in 1998, scored 73; similar discrepancies occur in many other countries. The weak correlation and the many exceptions suggest that strengths and weaknesses may be endemic to some protected areas and that unless targeted management action is taken, time alone will not improve management or condition. Clearly some protected areas are failing to address major management problems and a few may even become less effective as time goes on.



**Figure 4: Facing up to challenges and improving management over time:** Wanglang Nature Reserve is one of the oldest surveyed in China, set up in 1963. It was also rated the highest overall for management effectiveness in the Chinese sample. Where managers of new protected areas face major challenges, including past degradation and possibly contemporary problems such as poaching, management effectiveness will generally take time. Wanglang has a strong policy of community involvement and also a well developed educational and visitor centre.

Locals from the Baïma tribal group at Wanglang nature reserve. Sichuan Province, Pingwu, China

© WWF-Canon / John E. Newby



- **One consistent problem is a failure to manage relations with local communities**

Despite a wide recognition of the importance of social issues, respondents taking part in the survey generally concluded that these issues are still not being addressed very effectively.

Problems are evident both in terms of relations with local communities and indigenous peoples and also with tourists, with the provision of visitor facilities and access to commercial tourism scoring lowest of all. This is despite the fact that many respondents identified work with communities as a critical management activity. It appears that although work is taking place and efforts at addressing social issues are increasing, these are still not working well enough or, possibly, that current efforts have not yet had time to mature and produce results.



WWF staff work together with local Baka pygmies and Bangando young men to put a radio-collar on the neck of an elephant to enable better monitoring. Jengi Project, Lobéké National Park, Cameroon

© WWF-Canon / Peter Ngea

**Figure 5: Respecting local communities and indigenous peoples, garnering support:**

Respecting rights and addressing human needs in protected areas is undoubtedly a challenge and our research suggests that even with good intentions, there are still a significant number of failures and much room for improvement.

But there are a growing number of examples of protected areas working successfully with people and these can provide models for others to follow. For example, the forest surrounding Lobéké National Park is an integral part of the lifestyle of two groups of Cameroonian people, the Baka pygmies and the Bagando, who make up about 40 per cent of the area's population. Both rely on the forest for food, medicine, building materials and cultural identity, yet their environment and lifestyles have been severely threatened by the activities of the new immigrants. Following biological and socio-economic investigations that demonstrated the value of the forest, both to Cameroon and the local communities living nearby, the Government of Cameroon classified Lobéké as a National Park in March 2001. The Park covers more than 200,000 hectares of protected forest with multiple use zones comprising community hunting areas, professional sport hunting zones and logging concessions making up 600,000 hectares more. WWF has been working in Lobéké since 1995 with local communities, the government, various stakeholders and conservation partners to seek lasting practical solutions that address the needs of people and nature conservation. The project is based on the idea that the many conservation issues to be addressed in the region require a combination of strategies. These include:

- A collaborative management approach between government and stakeholders
- An adaptive approach that tests options in the field, and comprehensive monitoring that provides information on management success or failure
- Empowerment of local communities in a participatory system that provides direct access and ownership of resources, such as the seasonal harvesting of non-timber forest products and the agreement of five community hunting zones, which can also be leased for sport hunting, thus increasing income in the area.

## Protected areas face a series of critical threats, which commonly include poaching, encroachment and illegal logging

The most severe threats to forest protected areas identified spontaneously by respondents were **poaching** (identified in a third of protected areas), **encroachment** and **logging** (mainly illegal, but also legal logging), with collection of **non-timber forest products** also being a common problem. These four were considered to be key threats in more protected areas than all other problems added together. Most likely, these are the immediate threats that are occupying protected areas managers' attention. The threats least mentioned by respondents include pollution, poverty and invasive species. A notable absent among the responses was the threat of climate change. However, these responses must be treated with caution and the data may well benefit from more careful analysis. Because respondents spontaneously wrote down threats, choice of wording can affect analysis. Encroachment and unsustainable agriculture were both identified as major problems while human-wildlife conflict was not: but it is possible that the last was subsumed into or assumed to be part of the other two responses in some cases. In addition, poverty may have been regarded by respondents as an underlying causal factor rather than a direct threat in its own right.

**Figure 6: Illegal and legal logging: a key threat:** In Bielowieza, in Poland, legal logging in the last pristine forests of Europe, around the buffer zone of the core protected areas are putting at risk the values of the national park.

© Stephanie Mansourian



Some of the threats that have received high profile at the policy level and in the media – such as invasive species, fire and human-wildlife conflict, while undoubtedly real problems in some cases do not appear to be a priority for the managers of a large majority of the forest protected areas surveyed. Over the past few years, for instance, the threats from alien and invasive species have received increasing attention from conservation specialists. The IUCN Species Survival Commission writes that: “it has been well documented that invasive alien species are the second greatest threat to biological diversity globally and the highest threat on many island ecosystems”<sup>4</sup>. Yet alien species hardly featured in the analysis. There are a number of possible reasons. It may remain an unrecognised threat by many managers: the application of other management effectiveness assessments tools by WWF has revealed that the main perceived “threats” spontaneously identified by respondents do not always correspond to the severity of actual “pressures”. Alternatively, the analysis may have under-represented places where aliens are the greatest threat – such as small islands, New Zealand and Australia – and has looked at forest protected areas only, whereas invasive species are for example a particular threat in many freshwaters. Lastly, the threats from invasive species may have been exaggerated and remain less important to most protected areas than immediate problems such as poaching and encroachment.

In general, the responses suggest that the day-to-day tasks of building support from local communities, preventing poaching and developing practical, long-term ways of maintaining biodiversity take up the majority of time for protected area managers.

<sup>4</sup> *Aliens* 13: 3

- **Biodiversity condition was linked with legal status, resource management, staff numbers and monitoring and evaluation; while budget and education also correlated closely with effectiveness**

We looked particularly at how well the ecological and biodiversity condition is being maintained in the protected areas, because this outcome is of primary importance to the CBD, and tested how it correlated with various different management actions. The strongest correlation was found with:

- Monitoring and evaluation
- Resource management
- Staff numbers
- Legal status

These figures should be treated with caution: none of these correlations are very strong and more analysis is needed to check and enlarge on these. However, they already raise some interesting issues in terms of management objectives. Legal status, i.e. the legal gazettement of protected areas, seems to provide some immediate guarantees of protection and, under certain conditions, to serve as a deterrent to significant land use changes and habitat conversion, even in the absence of other management actions. However, the correlation with staff numbers suggests that most protected areas are improved by active management. The link with monitoring and evaluation, which was the strongest correlation found, may suggest that M&E systems are actually working in terms of promoting adaptive management and better outcomes, although these figures require closer study.

Correlations were also made between key management actions and the overall score for management effectiveness. Overall the following all correlated reasonably strongly:

- Budget
- Law enforcement
- Education and awareness

Other issues, including involvement of local communities in protected area management decisions and total staff numbers appeared to have a weaker or more ambiguous correlation. More analysis is needed to see if the elements that correlated well with the score help to create good management or are a *by-product* of good management. The limitations of using the overall score to judge management effectiveness should also be noted. However it appears at the moment that reasonably well-funded protected areas with good enforcement and good educational programmes are more likely to be effective than those where these factors are absent.

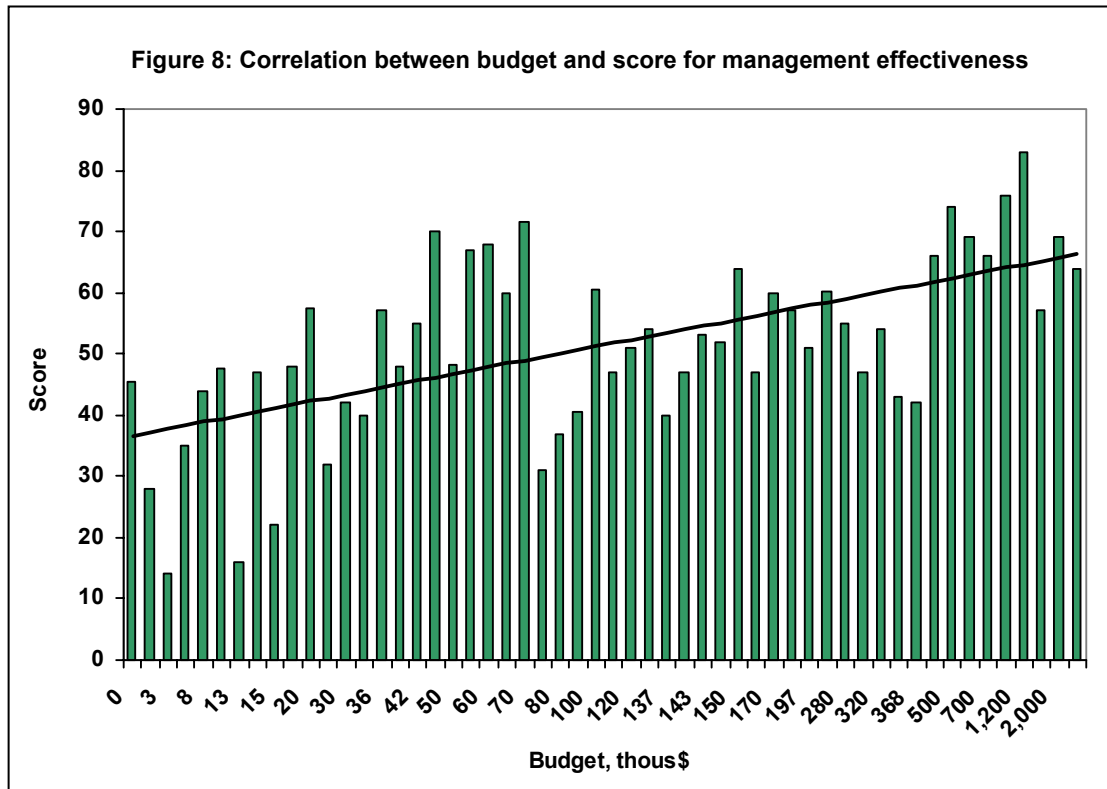
**Figure 7: Legal gazettement, appropriate staffing, good resource management, adaptive manage in place: the minimum for success.** Royal Chitwan National Park in Nepal was designated because of its important wildlife, including the Asian rhinoceros, and its role in protecting highly threatened lowland forest habitat. Its highest scores in the assessment related to legal status, protected area boundary demarcation, commercial tourism and its role in bringing economic benefits to local communities

© Sue Stolton



- **Overall budget correlated closely with management effectiveness**

Budget was quite closely correlated with overall management effectiveness, as shown graphically in figure 8 below. No-one would expect funding to be the only factor involved in effectiveness, and this is born out by the fact that some well-funded parks still do not perform very well, but lack of funding often creates a basic capacity shortfall that is extremely difficult to overcome, even for well-trained and highly motivated staff.



Budget also varies dramatically around the world. According to our sample, average budget per protected area in Europe, for example, is eight times that for Latin America, even though in the latter case protected areas are likely to be far larger.

**Figure 9: Funding, a *sine qua non*:** the question of how much money protected areas “need” is impossible to answer precisely, but there is general consensus that the world’s protected area network is at present seriously under-funded.

Drakensberg Mountains, South Africa  
© Nigel Dudley



- **Staff numbers were also linked closely with ability to manage the protected area**

Staff numbers correlated well with good biodiversity condition although only correlated relatively weakly with overall score for management effectiveness.

Adequacy of staff training was also extremely patchy and many protected areas with low staffing levels also reported that staff faced serious shortfalls in training and capacity building.

There are dramatic differences in average staff numbers per protected areas in different parts of the world. Drawing on data from the current questionnaire, the following regional averages emerge:

▪ Africa and Madagascar	29
▪ Asia and the Pacific	57
▪ Europe and the Middle East	41
▪ Latin America and the Caribbean	6

These differences become even more acute when the different sizes of protected areas are compared. For example, Jaú National Park in Brazil covers an area of 2.2 million hectares (an area two thirds the size of Belgium) and reported only four permanent staff. At another extreme, Białowieża National Park in Poland covers 10, 502 hectares (around half a per cent of Jaú) and has 103 permanent staff. On average protected area staff in the Latin American countries surveyed here are each responsible for over 83,000 hectares while their counterparts in Europe and the Middle East are responsible for just over 2000 hectares each, and far less in many countries.

Differences are not simply between the richer and poorer countries: many protected areas surveyed in Italy for example had no permanent staff while Rinjani Protected Forest on Lombok Island covers 125,000 hectares and has 50 permanent staff.

**Figure 10:** staffing levels in the Jaú National Park in Brazil are two hundred times lower than the other extreme reported in the survey. Under-capacity means that many protected area managers are powerless to address emerging problems, or to maximise the potential benefits of protected areas.

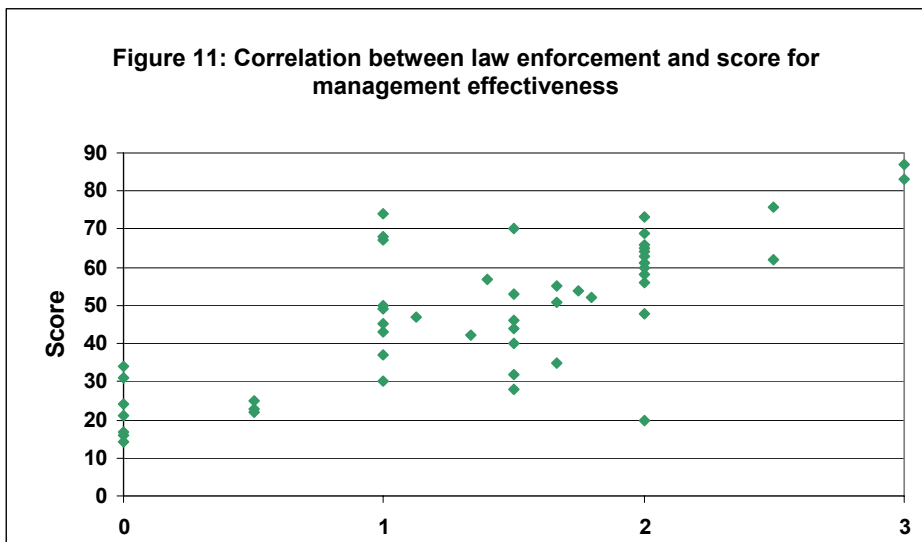
Ibama park guard at the mouth of Rio Jaú; Jaú National Park, near Manaus, Amazonas, Brazil

© WWF-Canon / Edward Parker



## Enforcement activities are critical, particularly where protected areas face problems of poaching or invasion

Our research suggests that enforcement activities are critical and need to be undertaken in the long term. Enforcement shows one of the strongest correlations with management effectiveness: the better the enforcement, the more effective the protected area. Well-trained, well-equipped, and motivated teams of rangers are fundamental. But to be effective, the local enforcement effort needs to be backed by a broader environment of good and appropriate governance that ensures that penalties are indeed enforced. While many of the problems of protected area management can be addressed through improved community relations and sometimes by new approaches to management, many protected areas are likely to face continual pressure, often from well organised criminal groups. There is no clearer evidence of the value of the natural resources protected by national parks and nature reserves than the lengths taken to steal them. It is estimated, for instance, that illegal fishing operations in the Greater St Lucia wetland area in South Africa are worth a million dollars a year. As mismanagement reduces these valuable species elsewhere, the temptation to take these from their remaining strongholds in protected areas will continue to increase. It is no particular surprise, therefore, that effective enforcement activities correlate strongly with good biodiversity condition as illustrated in figure 11.



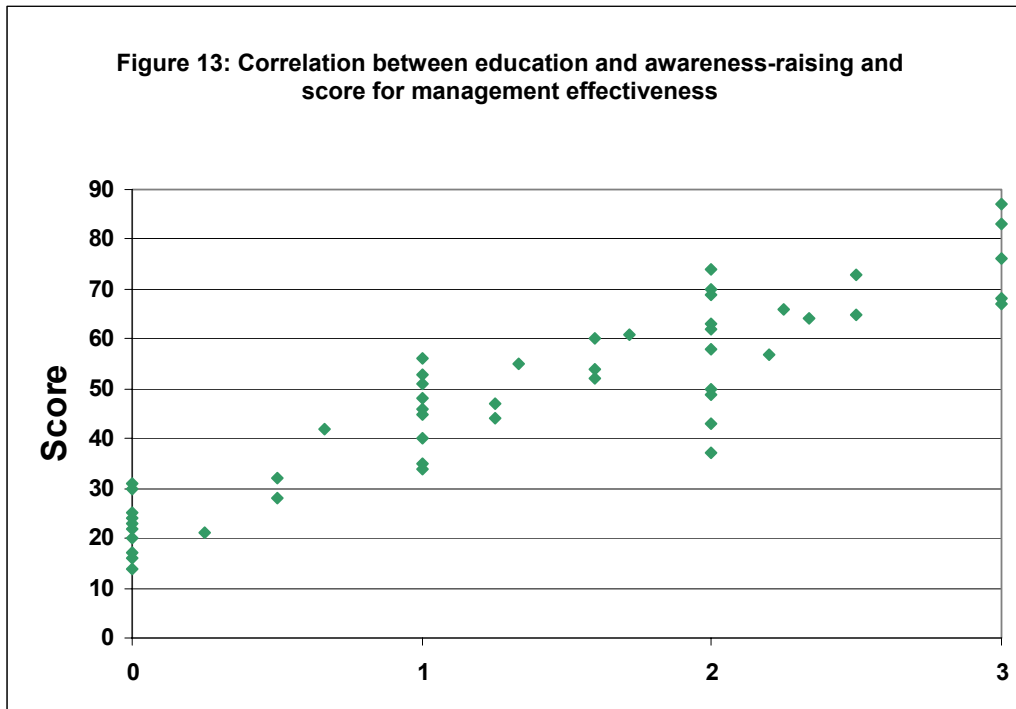
This result echoes earlier research by Conservation International<sup>5</sup>. However, it should be noted that protected area staff also place a strong emphasis on community issues and sustainable resource use – issues that would not have appeared in most protected area plans a few years ago. In particular, it is clear that even in Category I and II protected areas, many managers are working with local communities to develop sustainable harvest policies in response to pressure from people who have lost their land to protection.



<sup>5</sup> Aaron G Brunner, Raymond E Gullison, Richard E Rice and Gustavo A B de Fonseca (2001); Effectiveness of parks in protecting tropical biodiversity, *Science* **291**: 125

- **Education and awareness plays a vital role in building support for protected areas in general and for particular management actions**

If enforcement is a key success factor in ensuring that protected areas maintain their biodiversity and cultural values, the context within which effective enforcement can hope to take place is reliant on the support and goodwill of local communities, local governments, nearby commercial interests and, eventually, on the willingness of governments and tax-payers to shoulder the bills for protection. Figure 13 below shows that there is a fairly good correlation between the success of a protected area in education and awareness-raising and its overall effectiveness, although whether education increases effectiveness or is a natural by-product of successful management is more difficult to determine.



Former South African President Nelson Mandela made a special plea at the launch of the Fifth World Parks Congress for greater involvement of younger generations in protected area management and this plea is repeated in the Congress' *Durban Accord*. Education activities can be a direct responsibility of protected area management or, frequently, be undertaken by local or international non-governmental organisations or by local schools and colleges. A limited number of studies suggest that throughout the world protected areas are increasingly linking with local schools, including field visits. In Madagascar, for example, in the recent past 90 per cent of visits to national parks came from foreign tourists whereas now the majority come from local Malagasy peoples, including many school students.

**Figure 14: Education is closely linked to management effectiveness:** here staff at Bwindi Impenetrable Forest Reserve in Uganda plan their monitoring and outreach programme

© Marc Hockings





- **The importance of monitoring and evaluation also suggests that protected area managers are benefiting from adaptive management approaches**

Spending time and resources on monitoring and evaluation often seems a low priority compared with the many other pressing management needs. Yet analysis of the current survey results suggests that a good monitoring and evaluation system is closely correlated to those protected areas where biodiversity is best being conserved. Unfortunately, very few protected areas reported having comprehensive monitoring and evaluation programmes. A basic monitoring system, if properly designed and implemented, gives managers and their staff vital information on how the protected area is performing, thus giving them time to make adjustments in management quickly if problems occur and to maximise use of resources

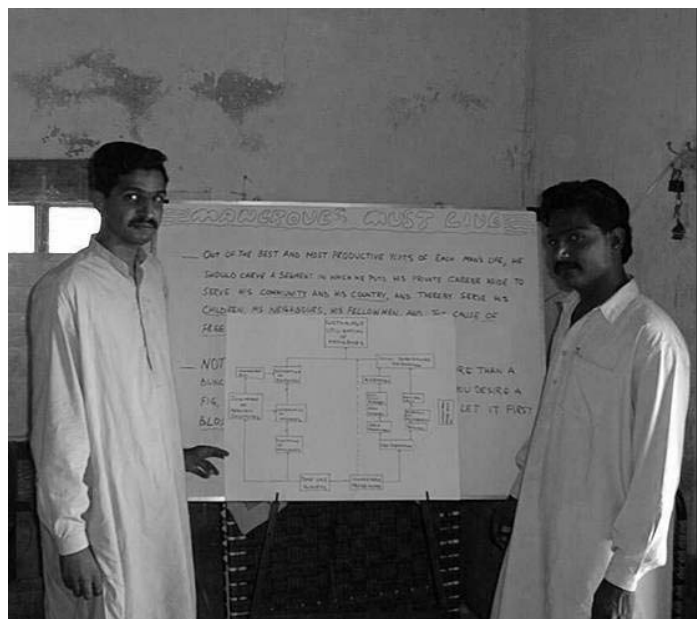
This is the basis of adaptive management – a phrase that is widely used but quite difficult to put into practice.

Opportunities for monitoring vary widely from place to place and in many of the protected areas included in the survey even basic information about biodiversity is still lacking, let alone accurate information to monitor population changes over time.

**Figure 15: Monitoring and evaluation are critical for adaptive management and success:**

This conclusion is echoed by the experience of a five-year Integrated Conservation and Development project carried out by WWF and funded by the Dutch government. Here again, good monitoring and evaluation was found to be the single most important step in developing a successful project.

Picture from mangrove project in Pakistan from the WWF DGIS portfolio



## Key Implications and Recommendations for the Convention on Biological Diversity and its Parties

Based on the results stemming from this protected areas survey, WWF would like to draw the attention of the Convention on Biological Diversity and of its Parties to the following six major recommendations:

1) **Completion of protected area networks:** Protected areas play a critical role in biodiversity conservation and should be a major focus of the CBD. In spite of their many weaknesses, protected areas are a key strategy in maintaining biodiversity. Although less than an ideal situation, even the so-called "paper parks", under certain conditions, have shown to play an important role in biodiversity conservation. While every effort should be made to ensure their effective management, there still remains some fundamental gaps in representation of the world's species, ecoregions and biomes that require urgent action. Therefore, it is fundamental that the Programme of Work on Protected Areas commits itself to the target already stated in the Global Strategy for Plant Conservation Strategy that calls for achieving **effective conservation of at least 10 per cent of each ecological region by 2010**. Emphasis should also be placed on critically endangered species and habitats. Beyond the terrestrial ecosystems, an urgent effort is required to **address the current under-representation of inland freshwater ecosystems, as well as the marine and coastal environments**. At the country-level, we recommend that **National Strategic Plans for Protected Area Systems** are prepared, and that the Parties carry out analysis to identify representation gaps and take the necessary steps to expand their system of protected areas.

2) **Rights of Indigenous Peoples and Local Communities:** The study shows that there remains a persistent problem in managing relations with local communities and indigenous peoples. To achieve an improvement of such relationships, we recommend that the Programme of Work calls for **an ample recognition and respect for the rights of indigenous peoples, mobile peoples, and local communities**. We also call for the formal recognition and active promotion of **Community Conserved Areas**, as fundamental contributions of indigenous peoples and local communities to conserving biodiversity and maintaining cultural values. Opportunities should be explored to integrate support to such areas as part of the National Biodiversity Strategies and Action Plans, as well as National Poverty Reduction Strategies.

3) **Funding:** Management effectiveness of protected areas is closely correlated to funding availability. The Fifth World Parks Congress recognised a current funding gap estimated at some billion US Dollars annually. In order to bring the current system of protected areas to acceptable levels of management effectiveness and accommodate the much needed expansion of the system, a great effort in innovative fundraising is required. **Environmental services provided by protected areas** (such as provision of clean potable water) need to be recognised and paid for; national funds for protected areas must be strengthened; the budget of the **Global Environment Facility** (GEF) should be substantially increased in its replenishment, so as to meet the challenges of supporting the implementation of the Programme of Work. At the country level, we call for **National Protected Areas Financial Sustainability Plans** to be prepared to enable implementation of the National Strategic Plans for Protected Areas Systems.

4) **Addressing Key Threats: Poaching, logging, and encroachment** have been cited as key threats to protected areas by the great majority of our survey respondents. Often, such threats are by-products of poorly planned infrastructure development. We recommend the CBD to acknowledge these threats, and as a matter of urgency, particularly in the areas undergoing rapid biodiversity loss due to habitat **conversion** to other uses (agriculture, ranching and logging) the concerned parties should undertake prompt measures to curb conversion. Among possible measures, high value habitats must set aside for protection. Although not identified as a key immediate threat to protected areas in the survey, climate change is starting to show its effects particularly in highly vulnerable habitats, such as mountain tops and coral reefs. COP 7 must recognise that **climate change** is a dominant global threat to the integrity of protected areas, and provide guidance on the adoption of climate adaptation measures for the planning and routine practice of protected areas system and site management.

5) **Education:** Good environmental education and community outreach programmes, and enforcement capacity showed the strongest correlations to management effectiveness of protected areas in our survey. We call on the CBD to recognise in the Programme of Work on Protected Areas the **fundamental role of educators and rangers**, and the urgent need to build capacity and develop skills in these two priority areas: enforcement and education. Knowledge management, information exchanges, and international cooperation should be promoted and facilitated within the framework of the Programme of Work.

6) **Target setting and systematic evaluation:** Both targets and monitoring play a pivotal role in ensuring adaptive management and overall effectiveness of protected areas. We recommend that the Programme of Work encourage Parties to complete site-specific evaluations of management effectiveness in at least 30 percent of each Party's protected areas, as well as **evaluations of national protected area systems and ecological networks in all countries, by 2010**. Information gathered in these management effectiveness evaluations should be incorporated into the national reporting process by 2008 and distributed by the Secretariat. We also recommend that an **Ad Hoc Technical Expert Group on Protected Areas be created for supporting, monitoring progress against measurable targets, and reporting to the CoP of the CBD** on the implementation of the Programme of Work on Protected Areas. Finally, for ensuring consistency and international comparability, we recommend the **CBD to consider the IUCN Protected Areas category system to be a common language** that facilitates assessments of, and reporting on, protected area management (including on the Millennium Development Goal on Environmental Sustainability), and a basis on which standards and indicators can be developed.

## Appendix 1: The survey

There is a growing concern that many protected areas are not achieving their objectives. One response has been an increase in work on management effectiveness, including development of several assessment tools. The World Commission on Protected Areas (WCPA) has developed an assessment “framework”<sup>6</sup> to provide guidance and encourage high standards. It is based on the idea that good management follows a process that has six distinct elements:

- it begins with understanding the **context** of existing values and threats
- progresses through **planning** and
- allocation of resources (**inputs**) and
- as a result of management actions (**processes**)
- eventually produces products and services (**outputs**)
- that result in impacts or **outcomes**

The World Bank/WWF Alliance for Forest Conservation and Sustainable Use has set a target: *50 million hectares of existing but highly threatened forest protected areas to be secured under effective management by the year 2005*<sup>7</sup>. A simple site-level tracking tool has been developed to help report progress protected area projects, based on Appendix II of the WCPA Framework. The “tracking tool” is one of a series of assessment tools, which range from the *WWF Rapid Assessment and Prioritisation Methodology* used to assess protected area system to detailed monitoring systems such as those being developed for UNESCO natural World Heritage sites<sup>8</sup>. The Alliance has identified that the tracking tool needs to be:

- Capable of providing a harmonised reporting system for protected area assessment
- Suitable for replication
- Able to supply consistent data to allow tracking of progress over time
- Relatively quick, easy and cheap to complete by protected area staff
- Capable of providing a “score” if required
- Based around a system that provides four alternative text answers to each question
- Easily understood by non-specialists
- Nested within existing reporting systems to avoid duplication of effort

The World Bank/WWF Management Effectiveness Tracking Tool is aimed to help **reporting progress** on management effectiveness and should not replace more thorough methods of assessment for the purposes of adaptive management. It consists of two main sections:

1. **Datasheet:** which details key information on the site, its characteristics and management objectives and includes an overview of WWF/World Bank involvement
2. **Assessment Form:** the assessment form includes three distinct sections, all of which should be completed:
  - **Questions and scores:** a series of 30 questions – each with four alternative responses – that can be answered by assigning a simple score ranging between 0 (poor) to 3 (excellent). Questions not relevant to a particular protected area are omitted, with a reason given in the comments section (for example questions about tourism will not be relevant to reserves where visits are prohibited). There will inevitably be situations in which none of the four alternative answers fit precisely, here the nearest answer is chosen and the comments section used to elaborate.

---

<sup>6</sup> Hockings, Marc with Sue Stolton and Nigel Dudley (2000); *Assessing Effectiveness – A Framework for Assessing Management Effectiveness of Protected Areas*; University of Cardiff and IUCN, Switzerland

<sup>7</sup> Dudley, Nigel and Sue Stolton (1999); *Threats to Forest Protected Areas: Summary of a survey of 10 countries*; project carried out for the WWF/World Bank Alliance in association with the IUCN World Commission on Protected Areas, IUCN, Switzerland

<sup>8</sup> The Alliance also supported the development of both the WCPA framework and the development of the WWF Rapid Assessment and Prioritisation Methodology

- **Comments:** a box next to each question allows for *qualitative judgements to be justified* by explaining why they were made.
- **Next Steps:** for each question respondents are asked to identify a long-term management need to further adaptive management at the site, if relevant.

**Final Score:** is calculated as a percentage of scores from relevant questions

#### **Contents of the tracking tool**

The tracking tool contains a context section and multiple choice questions, some with additional questions added to provide further details:

**Context:** information is requested on: name; size; location; date of establishment; details of ownership and management; staff numbers; annual budget; designations including reasons for particular designations (e.g. IUCN category, Ramsar site etc); and details of WWF and World Bank projects. Information is also requested on the two principle protected area objectives; two main threats and two critical management activities.

**Questions:** 30 questions cover a wide range of issues relating to management:

1. Legal status
2. Protected area regulations
3. Law enforcement
4. Protected area objectives
5. Protected area design
6. Protected area boundary demarcation
7. Management plan – with additional questions about stakeholder involvement, periodic review and incorporation of research data into management
8. Regular work plan
9. Resource inventory
10. Research
11. Resource management
12. Staff numbers
13. Personnel management
14. Staff training
15. Current budget
16. Security of budget
17. Management of budget
18. Equipment
19. Maintenance of equipment
20. Education and awareness programmes
21. State and commercial neighbours
22. Indigenous peoples
23. Local communities – with additional questions about open communications and programmes to enhance community welfare
24. Visitor facilities
25. Commercial tourism
26. Fees
27. Condition assessment – with an additional question about active efforts at restoration
28. Access assessment
29. Economic benefit assessment
30. Monitoring and evaluation

The World Bank has been using the scorecard, and earlier versions, in monitoring its projects since 2001. In 2003, WWF started a serious attempt to use the tracking tool in connection with all its projects involving forest protected areas, by asking forest officers to fill in the questionnaire, wherever possible in collaboration with the protected area manager. Over 200 questionnaires have now been completed at least once.

### Strengths and limitations of the tracking tool

The tracking tool is a simple, site-based tool that relies largely on multiple-choice questions and thus on the opinion of whoever fills in the form. More detailed studies of protected area management<sup>9</sup> have found that initial opinions of managers – for example about primary threats to management – do not always emerge as real priorities on closer examination. There is also clearly a risk of managers providing an overly-optimistic picture of the strengths of management and our own knowledge of particular protected areas included in the current survey suggests that this may sometimes have occurred.

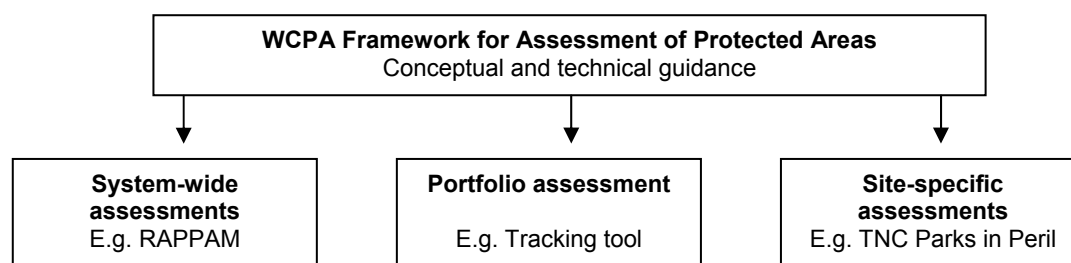
Results should be viewed with these caveats in mind. On the other hand, the system also has some advantages. It is a fast way to establish a baseline against which to measure progress, can be undertaken with minimal resources and provides a quick checklist for future priorities. For many managers, filling in the tracking tool is the first time that they have ever been asked systematically about management effectiveness and experience from staff at the World Bank who have used the assessment repeatedly with the same sites suggests that regular assessment can encourage and help inform adaptive management.

### How does the tracking tool fit into the larger picture?

WWF has supported the work of the World Commission on Protected Areas (WCPA) in developing a comprehensive approach to assessment of protected area management effectiveness, and the tracking tool is one of a series of approaches to assessment, that can be selected depending on time, resources and needs.

For simplicity, approaches to assessment can be divided into three, any of which can involve assessments that range from simple to detailed studies:

- **System-wide assessments:** covering all protected areas of a country or region and aiming to provide advice to managers of national or regional systems of protected areas: **for example** use of WWF's RAPPAM system to assess national or regional protected area networks
- **Portfolio-wide assessments:** covering all protected areas that are part of an organisation's portfolio, which may not necessarily form a "protected area system" and aiming to provide advice to managers of protected areas portfolios of large donors or intergovernmental organisations: **for example** the use of the WWF/World Bank Tracking Tool to measure progress on project portfolios as reported here
- **Site-specific assessments** covering one or a cluster of contiguous protected areas and aiming to provide guidance to protect areas managers: **for example** the Enhancing our Heritage project working with natural World Heritage sites, or the Ecological Integrity methodology used by The Nature Conservancy in its protected areas



<sup>9</sup> For example using the system-wide WWF RAPPAM assessment system, the methodology developed in Central America by WWF and the technical university CATIE or the Enhancing our Heritage methodology being developed for natural World Heritage sites





## **WWF International**

Avenue du Mont Blanc  
CH-1196 Gland  
Switzerland

Telephone: +41 22 364 9111  
Fax: +41 22 364 0640  
Internet: [www.panda.org](http://www.panda.org)

This report has been produced as a contribution to the Seventh Conference of Parties of the Convention on Biological Diversity. It is hoped that it will also be of more general interest to protected area agencies and managers.