



Are protected areas working?

An analysis of forest protected areas by WWF

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Front cover photograph by Sue Stolton

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

Protected areas are perhaps the most important of all conservation tools. WWF has been working with partners to increase the total area of forest protected areas and this effort has contributed to a significant expansion in the number and coverage of forest protected areas over the past few years. Over 35 million hectares of new forest protected areas have been established with WWF support since 1998: an area larger than Germany. But designation is only the first step. If protected areas are to be effective in fulfilling their aims of biodiversity conservation, environmental management and the protection of the world's cultural heritage, they must also be well managed. This is 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.

So in addition to working to establish new protected areas, we have also been putting effort into increasing management effectiveness of existing ones, including supporting the development of various assessment methodologies and approaches to improving effectiveness. Amongst the tools designed and used over the last five years is a 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 systematically and periodically in all forest protected area projects supported by WWF. The tool will continue to be revised as we learn more.

The following report outlines the results from the first application of this tool: we believe it constitutes the global survey with the widest sampling of countries yet undertaken of protected area effectiveness, using a single methodology. The analysis of its results enables us to argue with some confidence about what needs to be done to improve protected area effectiveness, and also helps WWF to define its own programmatic priorities in this field. However, 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.

An earlier version of this assessment¹ was presented to the Seventh Meeting of the Conference of the Parties (COP-7) to the Convention on Biological Diversity (CBD) 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. WWF is delighted that COP-7 adopted the proposed target of having an assessment of at least 30 per cent of each Party's protected areas, as well as evaluations of national protected area systems and ecological networks in all countries, by 2010. As our analysis here demonstrates, effectiveness is strongly correlated with monitoring and evaluation. We hope that WWF's work in this field, including the various other evaluation tools that we have developed for assessing protected area effectiveness at a system-wide level and for marine protected areas, can help in that endeavour. We urge the Parties to CBD to implement such assessments, invite the multilateral and bilateral aid agencies to provide support to this global effort, and look forward to collaborating and sharing our expertise.

Although we have assessed over 200 protected areas, we are well aware that this still remains a small sample and that the methodology used is simple. We therefore very much welcome any comments, both about the tool itself and the results presented here.

Leonardo Lacerda
Manager, Forest Protected Areas Initiative
WWF International

¹ *How Effective are Protected Areas?*, published by WWF in February 2004 for the Seventh Conference of Parties of the Convention on Biological Diversity

Summary of key findings

WWF has surveyed management effectiveness in over 200 forest protected areas in 37 countries, using a tracking tool developed with the World Bank and the World Commission on Protected Areas. This is the global survey with the widest sampling of countries yet undertaken of protected area effectiveness using a consistent methodology. The report summarises key findings.

1) Status – the good and the bad in management performance

The survey shows patterns of strengths and weaknesses. In general, issues relating to **legal establishment, biodiversity condition assessment, boundary demarcation, design and objective setting** seem to be satisfactorily addressed, while activities relating to **people** (both local communities and visitors) are less effective, as are **management planning, monitoring and evaluation, budget and education and awareness**.

- **Staff numbers** correlate well with good biodiversity condition and with overall management effectiveness. Adequacy of training is 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 in different parts of the world, with Latin America generally having far lower staffing levels.
- There is a very good correlation between the success of a protected area in **education and awareness-raising** and its overall effectiveness, with the highest correlation coefficient out of all those tested. This is highly significant in terms of future interventions because education was one of the issues in which many parks scored lowest.
- Analysis suggests that a good **monitoring and evaluation** system is closely correlated to those protected areas where biodiversity is best being conserved. Unfortunately, few protected areas reported having comprehensive monitoring and evaluation programmes.
- One depressingly consistent problem is a failure to manage relations with **people**. Problems are evident in terms of effectively channelling the input of local communities and indigenous peoples and securing their voice and participation in management decisions. Management of tourists is also problematic, with the provision of visitor facilities and access to commercial tourism scoring lowest of all. In spite of this, respondents identified work with communities among the top critical management activities. This might indicate that the level of awareness of the problem is high and that time and effort are being dedicated to the issue, but that measures taken are more recent and thus far are not sufficient to show satisfactory results across the sample surveyed.

2) Trends – are protected areas being managed better over time?

We tested results against age of protected area, geographical region, IUCN category, and against some international designations (natural World Heritage sites, Man and the Biosphere reserves and the Ramsar Convention sites).

- Older protected areas tended to score slightly higher than newer areas, suggesting that given more time and effort, **management can be improved**. However, it should be noted that there are many exceptions.
- Analysis also found **differences between regions**; principally that Latin America scored significantly lower than the other three regions.
- There is a highly significant relationship between overall score and **IUCN category**, with the most highly protected categories exhibiting more effective management, although it should be noted that numbers within the sample for Category III and V protected areas are too low to give a confident picture.
- However, there were no significant differences in effectiveness amongst World Heritage, UNESCO Man and the Biosphere and Ramsar sites compared to other protected areas.

3) Threats – 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 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.

4) Critical management activities – key success factors for management effectiveness

Law enforcement and surveillance was by far the most important management activity identified, listed by over a third of all sites, followed by working with **regional authorities** and with **local communities, management planning**, building institutional and governance **capacity** and **ecotourism**.

- **Enforcement** shows one of the strongest relationships 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 management plans a few years ago.

5) Biodiversity condition – success factors for maintaining biodiversity

What needs to be in place to ensure that biodiversity is well conserved inside protected areas and in surrounding areas? Appropriately staffed protected areas; in possession of clear documents of legal gazettement; with capacity and means to manage their 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 for conservation, 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".

6) Tracking tool – does the tracking tool work?

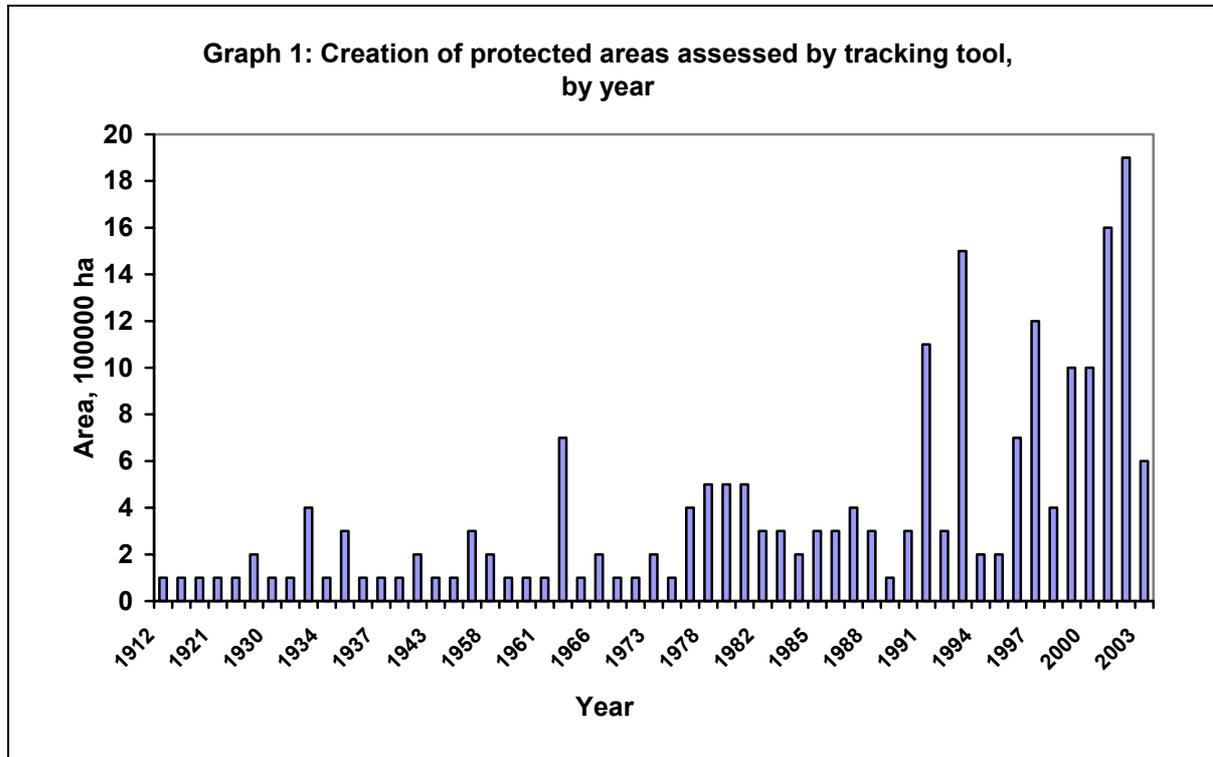
We tried to assess the extent to which the effectiveness of individual management actions correlated with other actions. Analysis of correlation coefficients suggests a high degree of matching between elements. Overall staff numbers is most highly correlated with the largest number of other items, followed by resource management, provision of equipment and education and awareness. Other important elements include monitoring and evaluation, personnel management and visitor facilities. We also assessed the significance of the overall score. Most individual questions were quite closely related to the total score, the exceptions being those relating to legal status, protected area design, local communities and indigenous people. This means that total score apparently relates reasonably well with most individual scores and thus can serve as a reasonably good indicator of overall management effectiveness.

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. More importantly, we expect far more information from a second sampling: i.e. we believe that the tracking tool will be more effective at tracking progress at one site than in comparing between sites. 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 final section includes specific recommendations for WWF.

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 following graph shows the date of creation of those protected areas included in the current survey, giving graphic evidence of the speed of development.



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 at least four vital roles with respect to biodiversity conservation²:

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

² 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

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 frontier³. 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 system⁴ 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 protected areas. WWF has therefore been collaborating with the World Bank in a study of 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 and of the World Bank in systematically monitoring improvements on management effectiveness in existing protected areas that it supports

WWF forest officers and World Bank staff have completed the questionnaire for forest protected areas where they run or fund projects, if possible in association with the protected area manager. Tracking tools have now been completed for 206 forest protected areas, in 37 countries in Europe, Asia, Africa and Latin America. We hope that the survey and the database will eventually extend to protected areas in other biomes.

The following report, published to coincide with WWF's 2004 Annual Conference in Madagascar, outlines some key results and draws some policy conclusions and recommendations.

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

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

³ *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

⁴ *Squandering Paradise*, Christine Carey, Nigel Dudley and Sue Stolton, WWF International, 2000

What we found out about management effectiveness

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

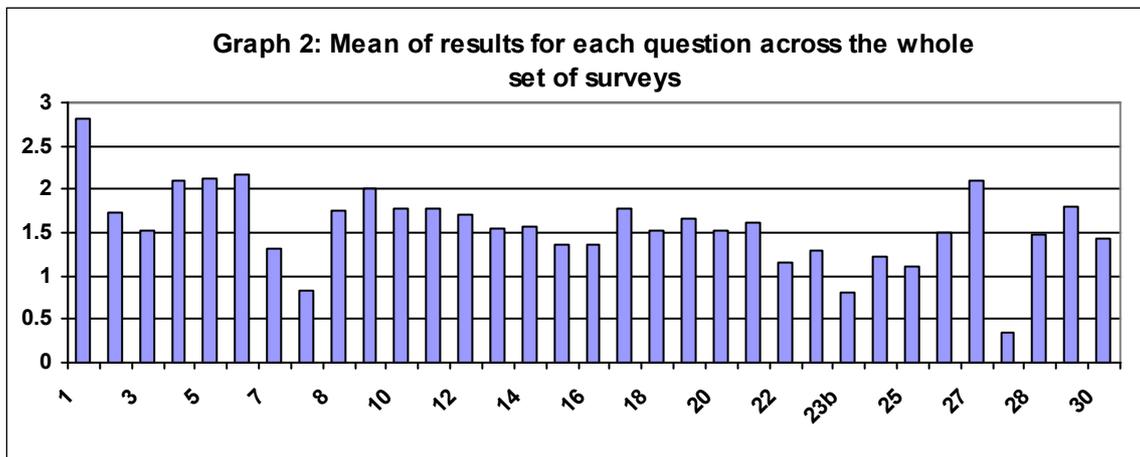
The protected areas surveyed show identifiable patterns of strengths and weaknesses⁵. In general, issues relating to protected area **legal establishment, condition assessment, boundary demarcation, design** and **objective setting** have been quite well addressed, while activities relating to **people** (both local communities and visitors) are less effective, as are **management planning, monitoring and evaluation, budget** and **education and awareness**. The highest and lowest scores are shown in the box below and mean scores in Graph 2 (see page 30 for a full list of questions).

Ten highest scored questions (in descending order)

- Legal status
- Biodiversity condition assessment
- Protected area demarcation
- Protected area objectives
- Protected area design
- Regular work plan
- Protected area regulations
- Management of budget
- Resource management
- Research

Ten lowest scored questions (in descending order)

- Education and awareness
- Monitoring and evaluation
- Current budget
- Security of budget
- Fees
- Management plan
- Local communities
- Visitor facilities
- Indigenous peoples
- Commercial tourism



⁵ The limitations of the methodology and of the sample must both be stressed. This preliminary analysis contains substantial bias in geographical regions – for example with comparatively large samples from Italy, the Russian Federation and Argentina as compared with other parts of the world. In addition some of the countries with the largest sample (particularly Italy and Argentina) also included many small reserves as compared with other countries, where management pressures and challenges are often very different from larger protected areas. The sample includes different ownership patterns – public, private and community for instance – and has sometimes been filled in by the protected area managers and sometimes by WWF staff. Whilst we believe the results are interesting and indicative (hence this paper) we are well aware that they are not a definitive picture of management effectiveness and that more detailed surveys and studies are now required. Far more information will be available once the surveys are repeated in two years time.

These general patterns disguise substantial variation between sites: some low average scores 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 input and participation of local and indigenous communities in management decisions had low average scores and moderate standard deviations, meaning that while most sites performed badly, a few performed well.



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.

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- **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 association was found with:

- Monitoring and evaluation
- Resource management
- Access assessment
- Budget management

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: in general biodiversity conditions was fairly weakly correlated with other questions⁶. They nonetheless raise some interesting issues in terms of management objectives. Legal status, i.e. the legal gazettelement 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 resource management (and staff numbers also correlated quite strongly) together suggest that most protected areas are improved by active management. The link with monitoring and evaluation (M&E), 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:

- Education awareness (most strongly correlated)
- Staff numbers
- Equipment
- Resource management

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.

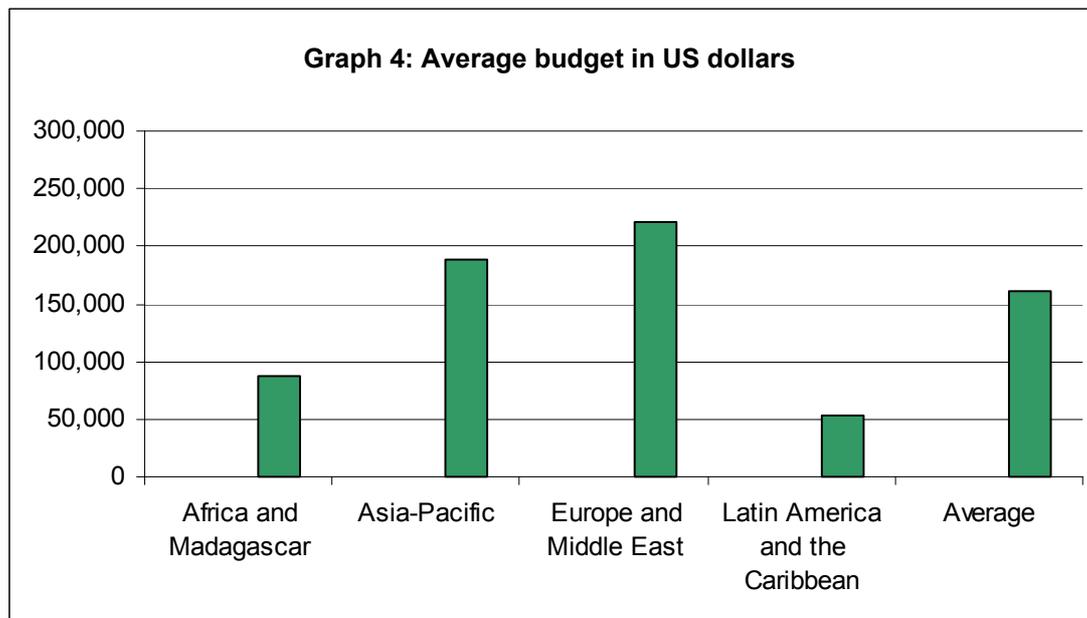
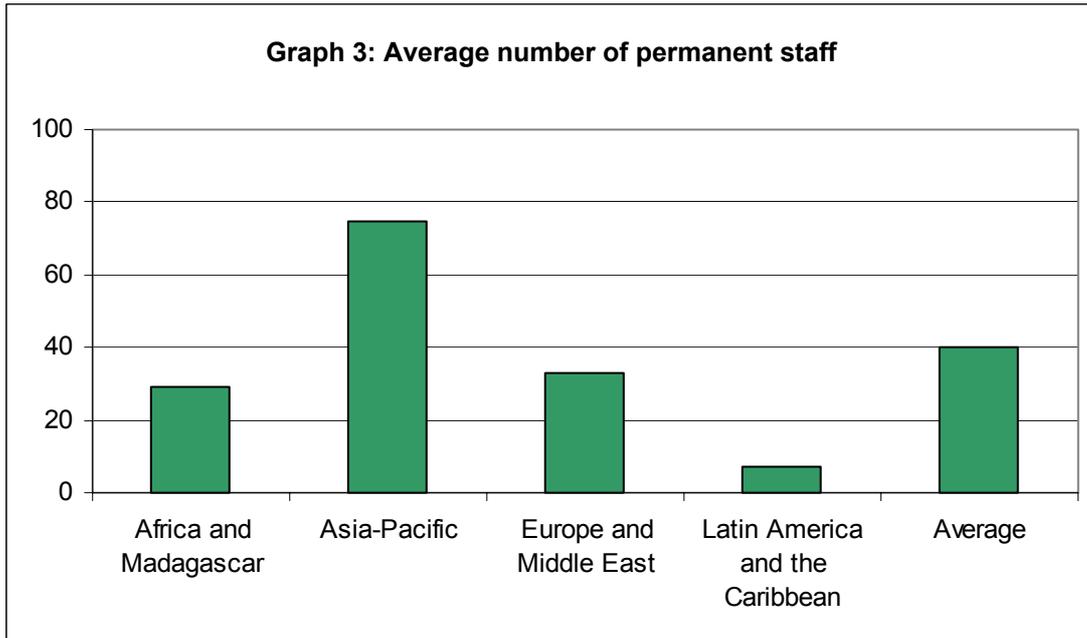
⁶ Indeed, methodologies for monitoring ecological integrity in general are often lacking and are currently the subject of cooperative studies between a number of protected area authorities and NGOs

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

Staff numbers correlated well with good biodiversity condition and with overall score for management effectiveness.

Adequacy of staff training was 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 in protected areas in different parts of the world. Drawing on data from the current questionnaire, the following regional averages for permanent staff emerge (graph 3) compared with annual budget (graph 4):



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, Białowieza 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. The importance of regional averages should not be overstated, because there are also huge differences within regions. For instance average number of staff per protected area surveyed is 120 in India and 1 in Lao PDR. However only one country in Latin America (Peru) has more permanent staff on the average than the country with the lowest staffing in Africa (Cameroon): 12 as opposed to 10 staff per protected area. This issue relates closely to questions of enforcement, tackled on the next page.

Furthermore, local conditions such as accessibility, remoteness, etc may determine the different needs, even within the same region, for greater or lesser number of staff for effectively managing a given protected area. For instance, although Australia is not included in the present study, it is known to have very low levels of staffing compared to other countries, yet its protected areas are generally regarded as successful. Staffing needs are strongly related to pressures and to overall levels of governance.

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 2: 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**

Linked to staffing, our research suggests that enforcement activities are critical and need to be undertaken in the long term. In all, 76 out of the 206 protected areas assessed identified enforcement as the number one critical management activity, over a third of the total and more than twice as many as the next in order of importance (working with regional authorities).

Enforcement also shows one of the strongest associations 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 enforced.

The existence of good protected area regulations is generally recognised as essential and this scored high in the analysis and correlated well with overall effectiveness as indicated by the total score, although less well with biodiversity condition.

While a proportion 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 Park in South Africa are worth a million dollars a year. As mismanagement reduces the populations of such 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.

This result echoes earlier research by Conservation International⁷. 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 management 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.



⁷ 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 activities play 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 taxpayers to shoulder the bills for protection.

There is a very good correlation between the success of a protected area in education and awareness-raising and its overall effectiveness, with the highest correlation coefficient out of all those tested. However it is unclear whether education increases effectiveness or is a natural by-product of successful management.

The survey also makes clear that education programmes are often poorly developed compared with other features of management, suggesting that this is often an issue where positive interventions can make a difference.

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 4: 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 can benefit from adaptive management approaches

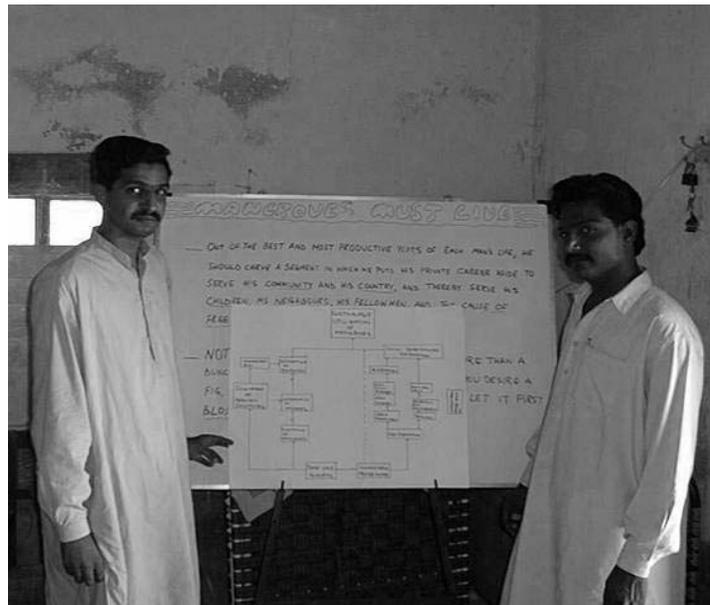
Spending time and resources on monitoring and evaluation often seems a low priority compared with the many other pressing management needs. Yet analysis of the current survey results suggests that a good monitoring and evaluation system is closely correlated to those protected areas where biodiversity 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, as the analysis demonstrates.

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, for instance, wildlife population changes over time.

Figure 5: 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



- **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 the input and participation of local communities and indigenous peoples in management decisions 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 6: 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.

However, it should be noted that our analysis shows a surprising weak relationship between effectiveness of community relations and overall effectiveness of the protected area. This appears to be in direct contradiction to the reports from detailed studies in individual protected areas and might repay further examination, through detailed surveys and comparison with other assessment methods.

- **Management effectiveness tends to improve over time**

The bulk of the world's protected area network is still quite new, or still in the process of development. Governments argue that because many protected areas have only been established very recently there has been insufficient time to develop effective management. In some parks, large amounts of money have already been spent by conservation organisations, governments and development agencies in building protected area infrastructure, improving capacity and helping protected area staff with planning and training. If management deficiencies are due to the lack of time available, it follows that management will improve over time and that therefore older protected areas show up as being more efficient.

Our analysis found that older protected areas did indeed tend to score slightly higher than newer protected areas, suggesting that given more time and effort, management can indeed be improved⁸.

However, it should be noted that there are many exceptions. 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 relatively 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 7: Facing up to challenges and improving management over time: the WWF Indochina Programme ran a six-year project in association with the Government of Vietnam in Cat Tien National Park, aimed at helping to develop management planning, building staff capacity and carrying out educational activities with local communities

Cat Tien National Park is a UNESCO biosphere reserve and Ramsar site and contains one of two remaining populations of the Javan rhinoceros
© Nigel Dudley



⁸ We used a Spearman Rank Correlation Coefficient to look at relationship between date of gazettal and total score. This test is appropriate for ordinal data and assigns ranks to the data and then looks at correlations between ranks rather than treating the data as interval (real numbers). It shows a significant negative correlation (-0.35, $p < .001$) between gazettal date and score (i.e. the older the protected area the higher the score).

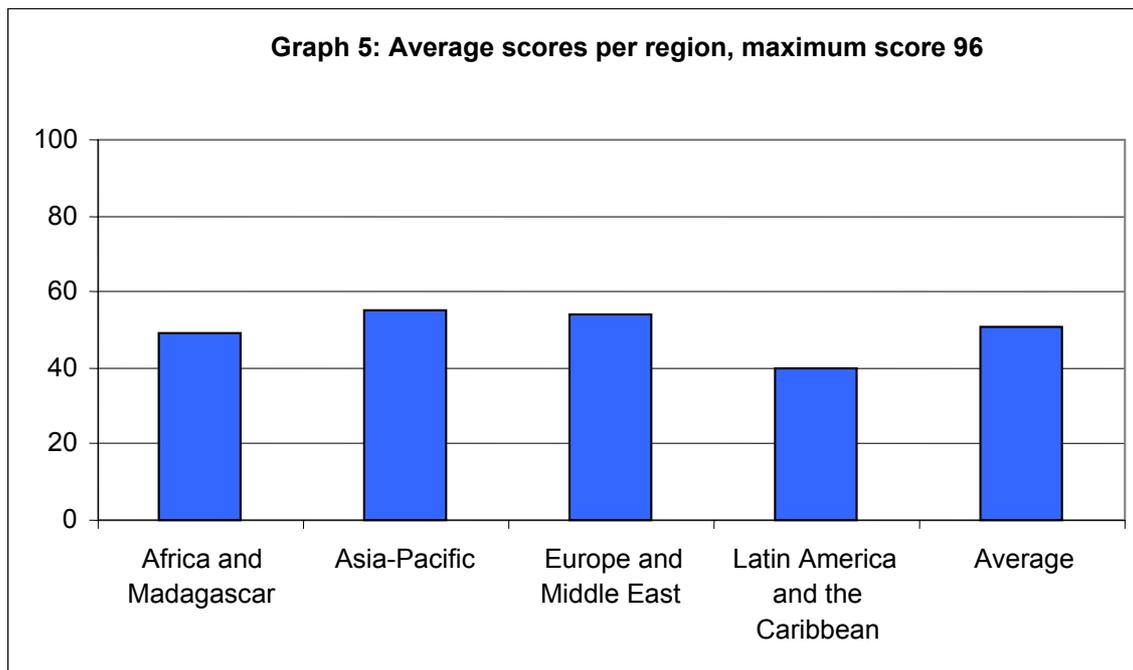
▪ **Management effectiveness differs around the world**

It is often assumed that protected area management “problems” are principally an issue in the developing world and that richer countries have the resources and the requisite education / awareness to ensure that their protected areas remain in relatively good shape. This assumption has attracted some criticism – for instance the Panel on the Ecological Integrity of Canada’s National Parks, found that only one of Canada’s 39 national parks, the new Vuntut in the northern Yukon, is free of ecological stress and that some of the parks are under such pressure that they are losing valuable species.⁹ Effectiveness is therefore a global issue and regional differences therefore become highly significant.

Analysis of the tracking tool results found differences between regions; principally that Latin America scored significantly lower (mean 40.3) than the other three regions (means of 51.7, 53.7 and 54.6) as shown below – this is highly significant ($p < .0001$)¹⁰

Region	Number	Mean
Africa and Madagascar	27	51.67
Asia-Pacific	66	54.62
Europe and Middle East	74	53.68
Latin America and the Caribbean	39	40.31

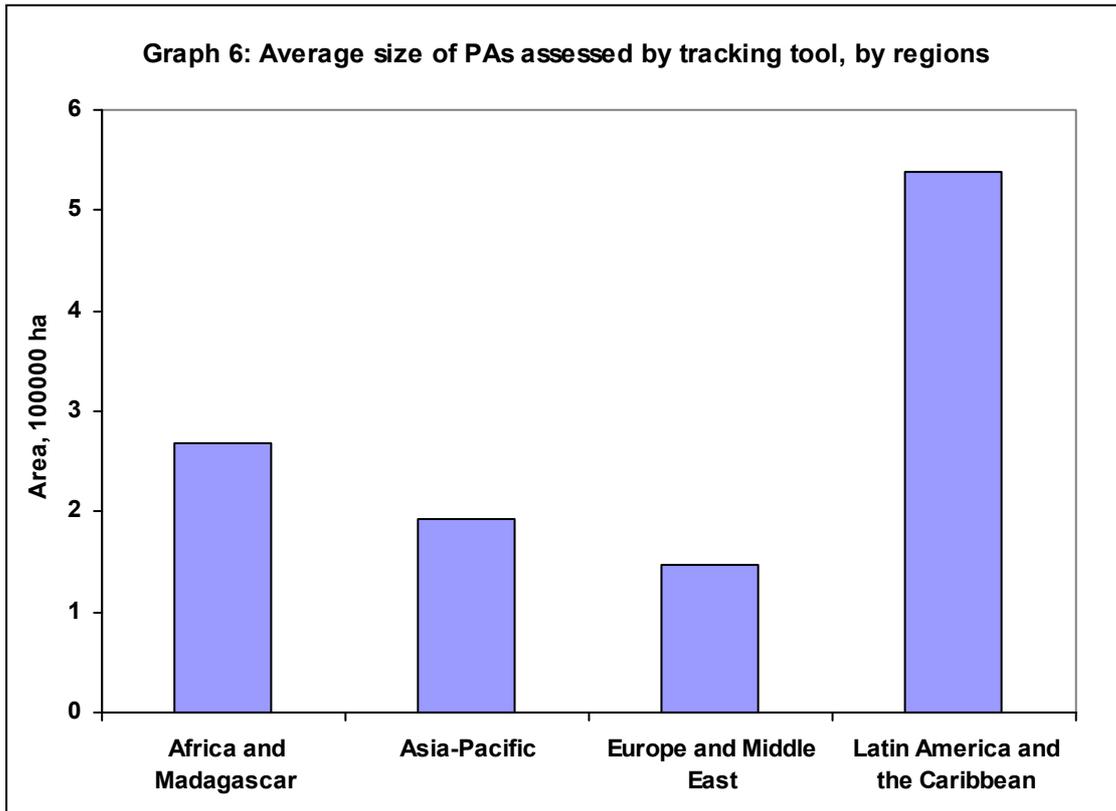
The result is surprising and needs to be assessed with caution. The majority of the protected areas assessed in Latin America were amongst the newest in the world and therefore may not yet have had time to develop effective management (see page 17 above). Further work is required to analyse the results in terms of size of the protected area and date of establishment.



⁹ Gérin, Jacques (2000); The answer: our national parks are in trouble, web posting 3/1/2000 <http://ecolog.org>; the full report from Parks Canada was published in late March 2000: Parks Canada Agency (2000); *Unimpaired for Future Generations? Protecting Ecological Integrity with Canada’s National Parks* in two volumes, Minister of Public Works and Government Services, Ottawa

¹⁰ Kruskal-Wallis test. This test is also based on ranks instead of assuming that the total scores are normally distributed.

Kruskal-Wallis Test: Chi-Square = 23.1216; DF = 3; P > .0001



It is also notable that protected areas in Latin America are on average much larger than those in other regions (see graph 6), and are currently being implemented with relatively lower staffing levels. The developing protected areas networks in Latin America provide a unique opportunity to protect large areas of tropical forests with major gains for biodiversity, environmental services, and indigenous peoples and for sequestering carbon to mitigate climate change. Developing the capacity to secure these vitally important protected areas is a global responsibility¹¹.

¹¹ It should also be stressed in this context that the analysis only includes a very small proportion of protected areas in any one region and that further studies would be needed to verify these results.

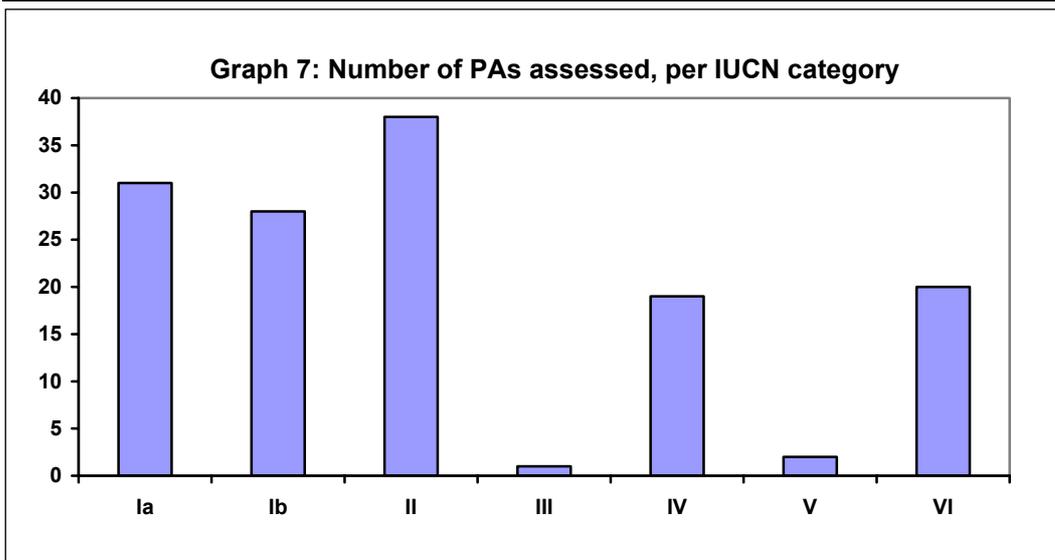
- **There were also significant differences between the effectiveness of protected areas in different IUCN categories**

Governments are requested to categorise their protected areas between six different categories, developed by IUCN and based on management objective. IUCN defines a protected area as: *an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means*. Within it, protected areas are classified into six categories, ranging from strictly protected nature reserves to areas that combine biodiversity protection with other functions:

- **Ia: Strict nature reserve/wilderness protection area:** managed mainly for science or wilderness protection
- **Ib: Wilderness area:** managed mainly for wilderness protection
- **II: National park:** managed mainly for ecosystem protection and recreation
- **III: Natural monument:** managed mainly for conservation of specific natural features
- **IV: Habitat/Species management area:** managed mainly for conservation through management intervention
- **V: Protected landscape/seascape:** managed mainly for landscape/seascape conservation or recreation
- **VI: Managed resource protected area:** managed mainly for the sustainable use of natural resources

IUCN stresses that all six categories of protected areas have a role to play in biodiversity conservation. However, analysis of the tracking tool results found that there is a highly significant ($p < .0001$) association between overall score and IUCN category with the most highly protected categories exhibiting more effective management¹².

IUCN category	No. of protected areas in the analysis	Mean
Ia	31	57.90
Ib	28	57.89
II	38	56.05
III	1	46.00
IV	19	45.42
V	2	20.50
VI	20	41.30



¹² Kruskal-Wallis Test: Chi-Square = 31.2179; DF = 6; P > .0001

The very low score for Category V (mean 20.5) needs to be interpreted with considerable caution as there were only 2 sites involved, and category III had only 1 site, but in the other cases the data are more robust. It appears that overall score for effectiveness declined with the extent to which people have access and activities within the protected area.

Perhaps this is not surprising; there is usually a clear and explicit trade-off between biodiversity conservation and other human values in the less strictly protected areas. These may still be far more effective ways of conserving biodiversity than other land uses, or than more strictly protected areas in areas where poor governance and capacity makes illegal degradation likely. Further work is needed to follow up this result; including more studies of Category III and V protected areas and more detailed analysis of why these differences emerged and what alternative land-use options exist. In addition, they may suggest the need for more attention on the broader categories to find ways of increasing effectiveness here.

Results should also be analysed to see if governments and other management bodies tend to put greater resources and effort into managing the higher categories.

Figure 8: A range of different management approaches are often needed within protected areas, particularly when these are large. For example the recent gazettment of the Pha Tam protected area complex in Thailand is particularly important because it forms a transboundary protected area with other sites across the Mekong River in Lao PDR, and uses a range of different IUCN categories to balance conservation with sustainable development.



International designations appear to have little impact on overall effectiveness

Over the past few decades, there has been a major effort by the international community and by individual governments to identify and then designate key areas – principally protected areas – as being of outstanding international value or of particular importance due to their management approach. These designations come at a cost: the government has to fulfil certain obligations and meet standards, to report regularly and to accept being under a certain amount of international scrutiny. It has been assumed that such designations will confer additional benefits to make up for the effort including better access to funding and support. It is also assumed that such world class “jewels” will generally be better managed than other protected areas.

We looked at three separate categories:

- UNESCO natural World Heritage sites: designated under the UNESCO World Heritage programme and listed for their unique importance and values
- UNESCO Man and the Biosphere reserves: a designation that encourages a model of conservation including a protected core zone and a large buffer zone where compatible management takes place but where there is not strict protection
- Ramsar sites: wetlands identified and listed under the Ramsar convention. Such sites are not always protected areas but are expected to meet certain conservation standards.

Both World Heritage and Ramsar also have associated “danger lists” (the World Heritage in Danger list and the Montreux List respectively) that identify those sites facing serious threats or management problems.

Based on the sample here, the analysis found no significant relationship between international designations and total effectiveness score. Many of these sites did indeed score slightly higher than others in the list but this was not statistically significant at the 0.1 level¹³.

This is not particularly surprising. The UNESCO World Heritage Centre has for instance been worried about management effectiveness for some time and has initiated work to address these problems, including the development of better monitoring and evaluation to aid adaptive management¹⁴. Our own experience is that these designations are more important for governments than for individual protected area managers, who continue to do their best efforts whatever designation is in place. However, if international designations really reflect the “best of the best” in terms of biodiversity conservation, then the lack of any significant improvement as compared with other sites may give cause for concern.

Figure 9: International designations identifying world class sites: for example natural World Heritage sites are deliberately chosen for their unique values. Yet our analysis suggests that they are not necessarily managed more effectively than other protected areas

Lamington National Park in Queensland, Australia
© Nigel Dudley



¹³ The minimum significance level was set at 0.01, which eliminates this correlation to provide a more conservative basis for assessing relationships between the items within the survey, given the ordinal nature of the data.

¹⁴ Through the *Enhancing our Heritage* project developed with funding from the United Nations Foundation.

- **Analysis of threats suggests that consumptive biological resource use (poaching, logging and non-timber forest products) is critical**

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.

Respondents were simply asked to list threats, which meant that slight changes of wording made analysis more difficult, so results were collated into a series of fields as shown below in descending order of importance:

Threat	No. of sites reporting
Consumptive biological resource use	139
Modification of natural processes / ecological drivers / disturbance regimes	52
Habitat conversion	40
Other	26
Abiotic resource use	17
Non-consumptive biological resource use	10
Invasive species (alien and native)	5
Transportation/Energy infrastructure	4
Pollution	4

These were analysed for their overall impact on protected area effectiveness. The most interesting correlation from a management perspective is that protected areas that list some kind of consumptive biological resource use as a threat score lower overall on management effectiveness – or conversely perhaps protected areas that are more effectively managed are able to control consumptive biological resource use so that it is not a threat.

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 – featured relatively few times. This may need further analysis. For example 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”¹⁵. Yet alien species hardly featured in the analysis. There are a number of possible reasons: the threat may remain unrecognised by many managers; the analysis may have under-represented places where aliens are the greatest threat (e.g. small islands); aliens may be less of a threat to forest than for instance freshwater protected areas; or maybe the threats from invasive species have been exaggerated. The database on threats is an extremely valuable source of information and opinion and will require further assessment to extract useful lessons to apply to management.

Future refinements to the tracking tool could help by giving a list of options for threats and also by clarifying whether threats identified are immediate or underlying: most respondents identified immediate threats (e.g. poaching or logging) while some identified underlying threats (e.g. poverty amongst local people) and a few threats that might lie between these (e.g. encroachment to the edge of a reserve). Better advice in the instructions and clearer questions could help avoid these problems.

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.

¹⁵ *Aliens 13*: 3

- **A few critical management activities stand out as being perceived as the most important**

As in the case of threats, respondents were asked to identify critical management activities, and again these were later grouped into a number of distinct fields and their scores totalled. The results are given in full below in order of importance.

Law enforcement and surveillance was by far the most important identified, followed by working with **regional authorities** and with **local communities**, **management planning**, building institutional and governance **capacity** and **ecotourism**.

Critical management activity	Number of protected areas	Percentage
Law enforcement and surveillance	76	37
Working with regional authorities	37	18
Working with local communities	29	14
Management planning	29	14
Building institutional and governance capacity	29	14
Ecotourism	23	11
Education and awareness	19	9
Fundraising	17	8
Other	17	8
Research	15	7
Demarcation and zoning	13	6
Infrastructure development	8	4
Species (re)introduction / control / breeding	8	4
Promoting sustainable resource use	7	3
Restoration	7	3
Monitoring	6	3
External communication and publicity	6	3
Fire management	4	2
Resolving tenure problems	4	2
Improving habitat	4	2
Alien species control	3	2
Equipment & facilities	2	1
Species management	1	1
Human-wildlife conflict management	1	1

Furthermore, analysis showed that there were links between identification of management priorities and overall effectiveness as related to the total score. For example, those reserves nominating demarcation and zoning and management planning as critical have significantly lower scores. This makes intuitive sense: if a protected area is still at the stage of planning and marking out its perimeter it is likely to have a relatively lower overall performance and this further supports the identification of increased average effectiveness over time as discussed above.

Enforcement dominated the responses to need for management activities and this is discussed in greater detail overleaf.

- **Overall management effectiveness is closely correlated with the elements of management assessed separately**

We tried to assess the extent to which the effectiveness of individual management actions correlated with other actions and with overall score: i.e. whether protected area effectiveness tended to be across the board or highly variable.

Analysis of correlation coefficients suggests a high degree of matching between elements. Overall **staff numbers** is most highly correlated with the largest number of other items, followed by **resource management** and **education and awareness**. Other important elements include **monitoring and evaluation**, **personnel management** and **visitor facilities**. Some of these have already been discussed on preceding pages.

Budget was quite closely correlated with overall management effectiveness. 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.

Surprisingly **equipment** ranked third in terms of overall correlation with management effectiveness (although protected area managers always stress the key importance of investing in equipment). It may be that a well-equipped protected area is also likely to have other attributes that contribute to effectiveness.

It is interesting that the **work plan** generally scored higher than the **management plan**, and in fact only 31 protected areas answered that they had an approved management plan which is being implemented. But it should also be noted that the existence of a work plan correlates better with good biodiversity condition than a management plan. More research is needed on the issue of when and if management plans are essential and what can be done to improve their development, implementation and usefulness.

Elements which did not correlate well included input and participation of local and indigenous people in management decisions, legal status¹⁶ and protected area design. As before, the impact of the interaction of the protected area with local and indigenous communities remains ambiguous.

However, these results need to be approached with some caution. The tracking tool is undoubtedly weakest in assessing biodiversity outcomes (which is in any case usually the hardest data to collect) as it relies in the most part on the opinions of park staff. It may be that the long-term implications of design for instance are simply not being recognised, or that the questions in the current version are not stated well enough to capture this information.

Figure 10: 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



¹⁶ Legal status did not correlate well because the overwhelming majority of protected areas already had full legal status, making it a poor way of differentiating between sites.

- **The overall score generated by the tracking tool is apparently not a bad reflection of individual elements of effectiveness**

Many of the assessments undertaken above have compared individual elements with the total score and have used the latter as a surrogate for “effectiveness”¹⁷. In earlier analyses¹⁸ we have been extremely cautious about the use of the overall “score” generated by filling in the various questions in the tracking tool. There were several reasons for this:

- Concern that the assessment be seen by protected area staff as a judgement rather than a management tool
- Recognition of the difficulty in comparing between protected areas when reporting is done by different people (who may have very different attitudes to and responses toward self assessment for instance)
- Caution about the accuracy of the tracking tool as anything more than a quick assessment of strengths and weaknesses

However, analysis suggests that perhaps we were too cautious in this respect. Most individual questions correlate fairly highly with the total score, the exceptions being those relating to legal status, protected area design, local communities and indigenous people¹⁹. This means that total score apparently correlates reasonably well with most individual scores and thus can serve as a reasonably good indicator of overall management effectiveness.

¹⁷ It should be noted that the score was corrected to reflect the number of questions answered: not all questions were relevant to all protected areas.

¹⁸ Papers prepared for the WWF Programme Committee in November 2003 and for the Convention on Biological Diversity in February 2004

¹⁹ These conclusions result from a Cronbach Coefficient Alpha analysis

Key Implications and Recommendations

The global network of protected areas is an effective means of conserving biodiversity, and an essential tool in implementing conservation strategies.

But protected areas are clearly under pressure and therefore efforts to identify and to gazette new protected areas should go together with a drive to increase the strength and effectiveness of the existing network. The survey reported here is perhaps most significant in identifying what managers believe to be the key threats and responses. These data provide a very powerful tool in helping governments, conservation organisations and donors to focus their activities. The wide differences between individual protected areas mean that strategic interventions need to be decided on a case-by-case basis but nonetheless, some general trends have become apparent:

Capacity building is still critical for many protected areas, particularly those that have only recently been designated but unfortunately also in others that have been established for many years. Trends towards increasing effectiveness show that such efforts, if well planned and implemented, need not be wasted.

- **Recommendation 1:** WWF and partners should put in place some "learning portfolios" on the critical factors highly correlated to management effectiveness that were identified in this report (e.g., enforcement; education/awareness; resource management – bushmeat and logging; monitoring & evaluation); with the aim of: distilling best practices; identifying existing and developing new tools that lead to their improvement; building capacity in a targeted fashion among the protected areas in the current portfolio that most need help; and disseminating lessons learned through appropriate bodies such as the World Commission on Protected Areas, the CBD and national protected areas authorities.

The key role of management plans, and the very patchy nature of planning amongst our sample, suggests that working with protected areas to develop plans may be a useful investment. This is significant: management plans have become much derided as paper exercises that gather dust on the bookshelves of donor organisations but our survey reveals both a use and a need for better planning.

- **Recommendation 2:** WWF could establish a specific target for improving the level of planning across its portfolio; identifying the funding required and developing such management plans in priority protected areas. The experience could be used in advocacy to promote adoption of better management planning throughout the world's protected areas.

The overwhelming importance of threats from consumptive resource use (poaching, illegal logging, collection of non-timber forest products) suggest that these need to be a more major focus in efforts to address threats. The issue of bushmeat hunting, for instance, is one that might repay more attention.

- **Recommendation 3:** WWF should continue to support regional work aimed at reducing illegal logging and consider seriously the development of a more global effort aimed at the unsustainable bushmeat trade.

Education and awareness-raising is identified as a critical success factor that is often missing. There are already a mass of excellent educational materials and techniques available and this is also often a relatively low cost or fundable option which is frequently missed or under-valued in project design.

- **Recommendation 4:** At the international level, WWF should work collaboratively with IUCN and other NGOs to increase awareness about the importance of protected areas beyond their role in biodiversity protection including development of further "arguments for protection" to complement work on the role of forest protected areas in providing safe drinking water. At specific sites, WWF could promote broader adoption of education programmes in new project submissions.

Monitoring and evaluation is also extremely important in long-term success, highlighting the need for adaptability in management and the unlikelihood of getting everything right at the first attempt. Again, M&E systems tend to be hard to fund or sustain and are often seen as optional, although funding agencies are starting to change their attitudes towards this.

- **Recommendation 5:** WWF must continue to support countries to implement assessments of their protected areas systems (through the implementation of RAPPAM - Rapid Assessment and Prioritization of Protected Area Management), and work with them to implement recommendations. The necessary funding should be raised by identifying bilateral and multilateral agencies willing to support the broader dissemination of such assessments worldwide, as part of meeting commitments of the Parties to the CBD. Collective results of assessments should be analysed and a report on the global assessment of protected areas produced in time for the Eighth Conference of Parties of the CBD in 2006. Its results should be used to advise on prioritisation of activities and funding for protected areas worldwide. Regarding its own portfolio, WWF should institutionalise the tracking tool as a required monitoring tool to be applied every two years for measuring and reporting on progress. If possible, its use should be extended to protected areas on other biomes, with the necessary adaptations. WWF should also work to disseminate further the adoption of the Tracking Tool by other organisations and identify an appropriate institution that could host a global database and carry out periodic global analyses of results – possibly the World Database on Protected Areas. Finally, WWF should promote the adoption of more detailed, site-level monitoring and evaluation tools in the protected areas that it supports.

The role of communities in protected areas remains complex and confused and this survey has failed to dispel the confusion. It is clear that new initiatives and new approaches are needed here and this is well recognised by protected area staff.

- **Recommendation 6:** WWF should work with the World Bank and WCPA to improve the Tracking Tool to better address the issue of communities and protected areas. This should help to ensure compliance to WWF's and the CBD Programme on Work on Protected Areas policies on indigenous peoples and local communities. Part of this effort needs to promote greater synergy between country and aid agency-level Poverty Reduction Strategies and communities living in or around protected areas.

The different levels of effectiveness within IUCN categories is disturbing, as is the fact that international designations appear on this analysis to do little to improve average effectiveness. Both of these results would repay further investigation and development of strategies to improve the situation.

- **Recommendation 7:** WWF could consider greater involvement in those IUCN protected area categories where it now has little involvement: principally categories III and V. This could involve in the short term research to look more carefully at the effectiveness of these areas, particularly with respect to livelihood protection and biodiversity conservation.

The Programme of Work on Protected Areas adopted at the Seventh Conference of Parties of the Convention on Biological Diversity gives an excellent opportunity to address these issues within the international community. This should remain a key framework for implementation of the recommendations outlined above.

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”²⁰ 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*²¹. 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’s RAPPAM methodology used to assess protected area system to detailed monitoring systems such as those being developed for UNESCO natural World Heritage sites²². 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

²⁰ 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

²¹ 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

²² The Alliance also supported the development of both the WCPA framework and the development of the WWF RAPPAM methodology

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.

- **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
- 7b. *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
- 23b. *additional questions about* open communications and programmes to enhance community welfare
24. Visitor facilities
25. Commercial tourism
26. Fees
27. Condition assessment
- 27b. *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 management²³ 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.

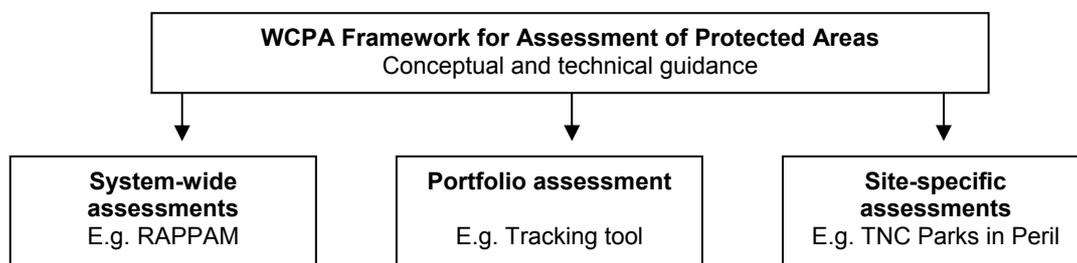
Results should be viewed with these caveats in mind. On the other hand, the system also has some advantages. It is a fast way to establish a baseline against which to measure progress, can be undertaken with minimal resources and provides a quick checklist for future priorities. For many managers, filling 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



²³ For example using the system-wide WWF's RAPPAM methodology, 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



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