

A Research Report from IUCN The World Conservation Union for the
World Bank/WWF Alliance for Forest Conservation and Sustainable Use

Threats to Forest Protected Areas

A survey of 10 countries
Carried out in association with the
World Commission on Protected Areas

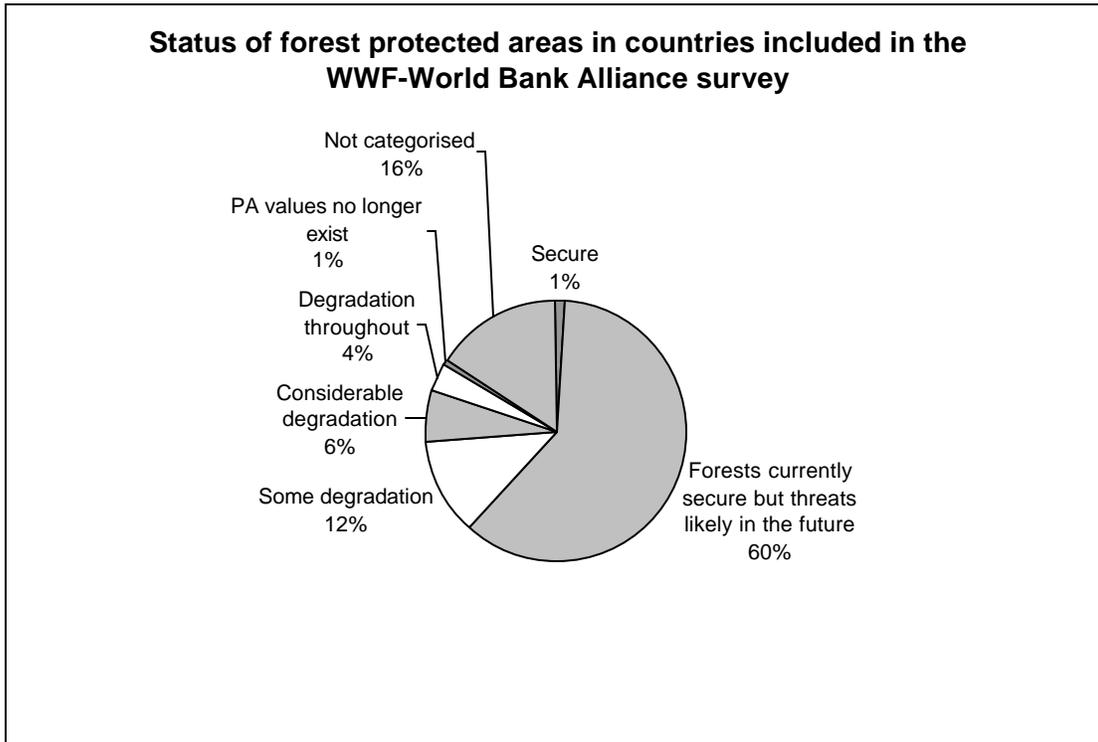
November 1999



Executive summary

Towards effective forest protected areas

A survey of 10 key forest countries showed that only 1 per cent of forest protected areas were regarded as secure and many were already suffering from serious degradation and loss.



To address this problem, a new target is suggested:

Conversion of 50 million hectares of threatened and under-managed forest protected areas to effectively managed and socially responsible protected areas by the year 2005

The following report looks at threats to forest protected areas and explains the reasons for suggesting the new target.

(The countries summarised in the table are China, Papua New Guinea, Russia, Tanzania, Gabon, Mexico, Vietnam, Indonesia, Brazil and Peru.)

Why the survey?

All protected areas are under some degree of threat. The key issues addressed by the current project were:

- Identifying the level of threat in some key World Bank client countries.
- Identifying the type and cause of the threats to help plan effective protection strategies

Information was gathered from two sources.

- A literature survey of threats
- A questionnaire completed by local experts in ten World Bank client countries containing important forest resources, looking at
 - Threats at a national level
 - More detailed assessment of the threats to some individual protected areas

Types and sources of threats were also identified. This included:

- Identifying different “**levels**” of threat, from removal of individual species to complete conversion and degradation
- Suggesting possible **trends** in quality of forest protected areas
- Identifying a range of **immediate and underlying threats**
- Discussing the concept of “**paper park**” and suggesting that an alternative terminology may be more appropriate

The results were used to suggest a target on protected area effectiveness for the WWF-World Bank Alliance. This included:

- A proposed target and rationale
- Suggestions for how the target could be measured
- A proposed action plan for achieving the target

The initial research was completed in February 1999 and was presented at an intersessional meeting of the Intergovernmental Forum on Forests in Puerto Rico in April 1999. The current version has been revised following comments from WWF and the World Bank and includes in particular further analysis of the target.

AN OVERVIEW REPORT

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Introduction

“Paper Parks” and The Nature of Threats to Forest Protected Areas

PROTECTED AREAS UNDER THREAT

Introduction – why are forest protected areas under threat?

All protected areas are under some degree of threat

Jim Thorsell of IUCN writes that:

*“...threats are only symptoms of underlying instabilities or inadequacies in current protected areas’ management strategies. What is also needed is a better understanding of the causal factors behind the threats including such things as the relationship of the protected area to local populations or government departments (...) it can be fairly stated that **all protected areas are under threat in one form or another...**”*

This pessimistic analysis is a good common-sense background to any assessment, but does not help in prioritising funding or programmatic activities. Clearly, threats that are either only of minor consequence or are still remote possibilities should receive less attention than major threats that are undermining the whole reason for protection. The aims of the current project were therefore to:

- Identify the level of threat in some key World Bank client countries
- Identify the type and cause of the threats to help plan effective strategies to relieve these threats

This analysis is complex; **the most serious threats are not necessarily the most obvious**, nor are the most serious causes necessarily those that can be identified through field visits or local interviews.

A forest that looks intact but has lost its wildlife to the bushmeat trade may be under greater overall threat from the perspective of its role in conserving biodiversity than one that has suffered erosion at the edges but maintains an intact core. Similarly causes of damage such as illegal logging may actually be driven by far more distant pressures, such as international debt or issues of land tenure.

The first section of the report therefore analyses some concepts, such as “paper parks” and levels of threat.

PAPER PARKS

Is “Paper Park” a useful concept?

The WWF-World Bank Alliance is proposing to target effort on the conversion of unmanaged protected areas – “paper parks” – to effective management. The first part of the study looks at this concept as a basis for conservation effort.

The Alliance gives the term “paper park” a particular and quite specific definition:

A legally established protected area where experts believe current protection activities are insufficient to halt degradation.

However, it has been suggested that “paper park” may not be the best term to use, because it is more generally understood as an “unimplemented protected area” or “under-managed protected area”.

Used in this way, the term has caused resentment amongst some protected area managers, who have often worked hard to obtain legal protection for areas and consider the term “paper park” as demeaning of their efforts. In these cases, designation alone often gives some protection (e.g. preventing incursion into the protected area by large companies). In addition, some “paper parks” are fairly secure because of their remoteness or as a result of strong national laws) and managed protected areas may sometimes be at greater risk.

Focusing on ***threatened protected areas*** may be a more useful approach. However, it is difficult to assess degree of threat to protected areas, because:

- All protected areas are under some degree of threat
- Data are often poor or absent
- Any criterion of threat only gives partial information
- Experts often disagree on the degree of threat
- Threats change over time

Nonetheless, in most countries there is a general understanding about which protected areas are likely to be most at threat. There is also clearly likely to be an **overlap** between under-managed and threatened protected areas. **It is therefore suggested that the WWF-World Bank Alliance focus its attention on the *conversion of threatened or under-managed protected areas to effectively managed protected areas***

TRENDS IN PROTECTED AREA STATUS

Are protected areas likely to decline in quality over time?

Establishment of a protected area does not necessarily guarantee protection for the biodiversity, environmental or cultural features that it contains.

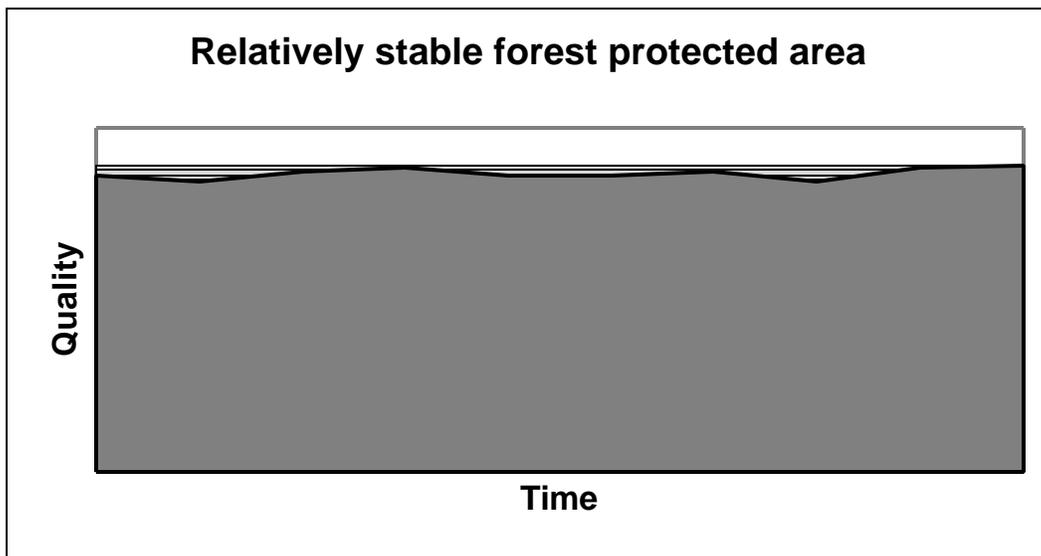
Nor is the act that the protected area has undergone damage necessarily a reason to assume that the loss of quality is permanent. Many different trends – ranging from recovery to continued decline – can follow protection.

For the purposes of the current study, we have identified a range of generalised “***trend scenarios***” that are outlined below.

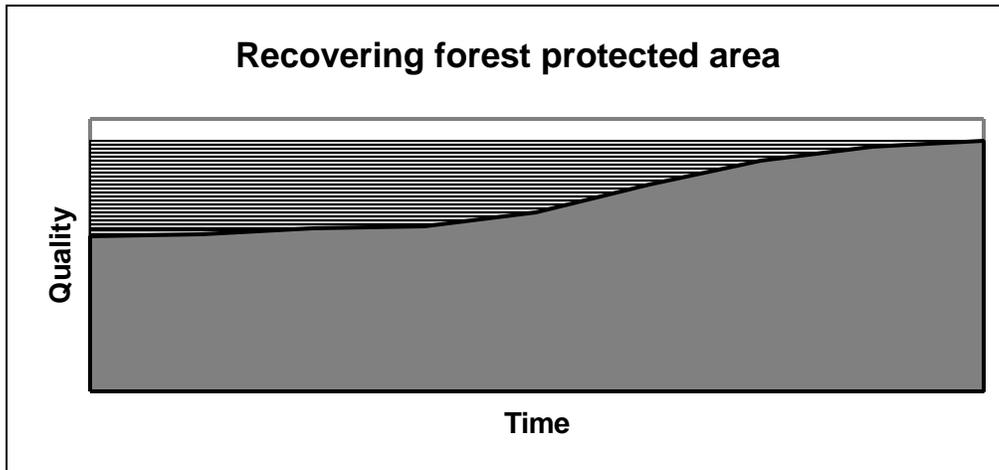
Identifying trends in quality can help pinpoint those protected areas that would benefit most from increased resources and/or special projects to improve management capability.

Some generalised trends in protected area quality

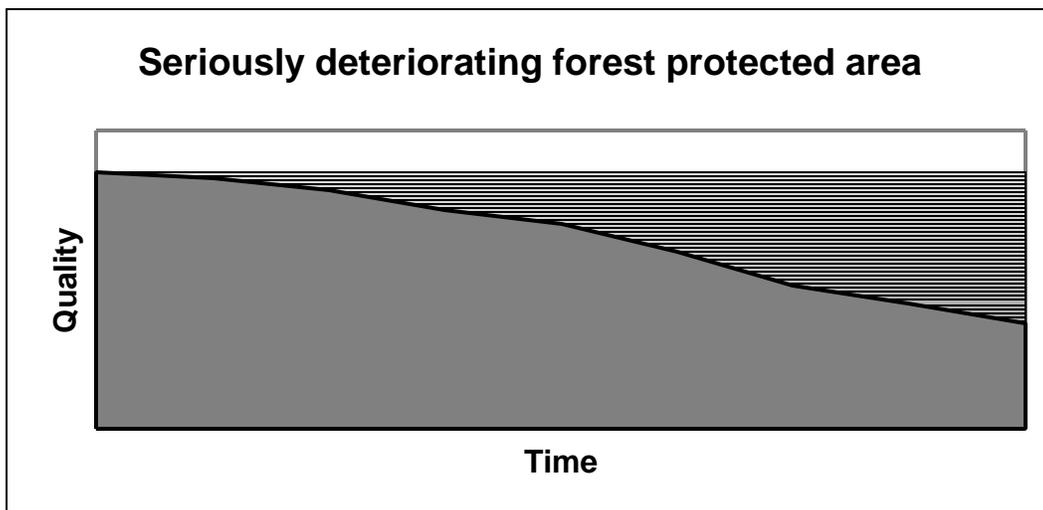
Scenario 1: Stable forest protected area: often seen in large protected areas remote from human habitation, or in protected areas that attract priority funding and have a high political status.



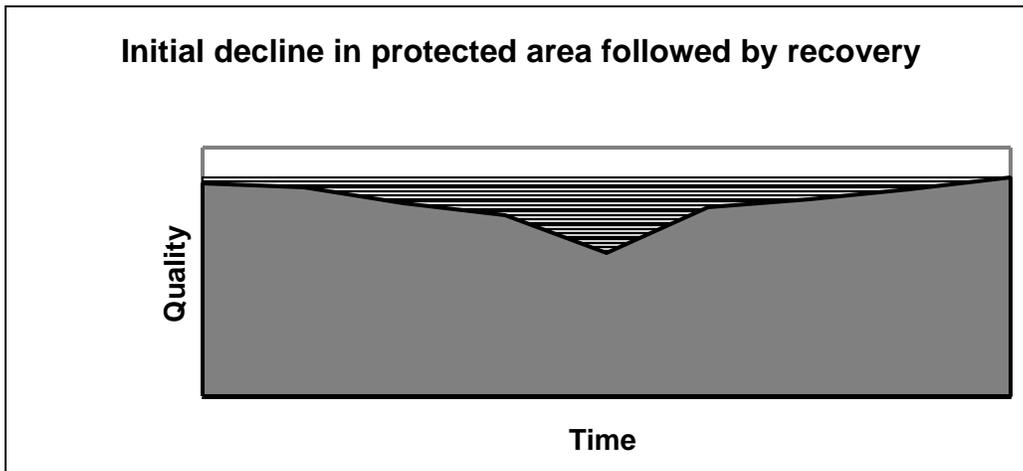
Scenario 2: Recovering forest protected area: generally associated with (1) smaller protected areas in cultural landscapes, where protection can quickly result in partial recovery, or (2) protection in badly degraded landscapes that is supported by the majority of the population for e.g. recovery of environmental services.



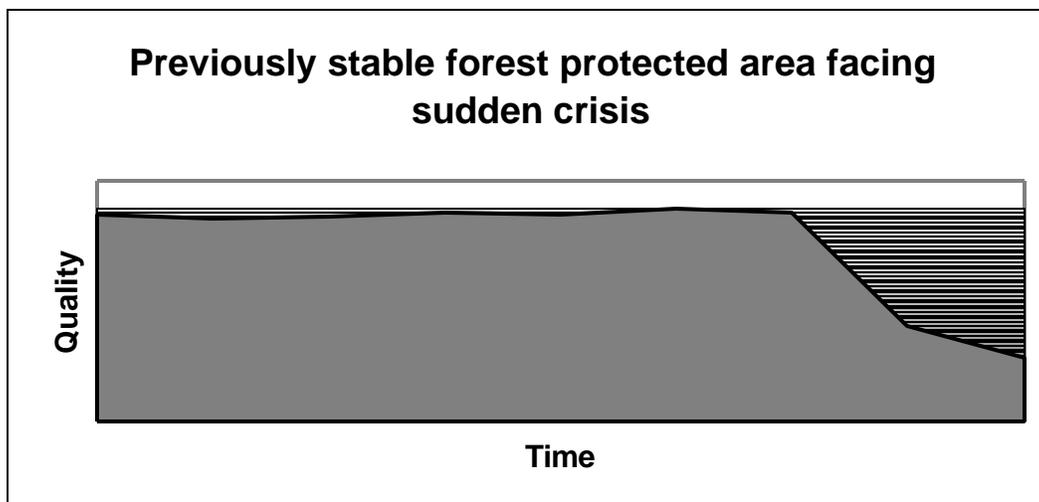
Scenario 3: Declining protected area: where protection status does not halt a decline in quality. This is often associated with protected areas in heavily populated areas and can be the result of lack of capacity or under-management (paper parks) or extreme pressure for example from human populations or illegal commercial operations.



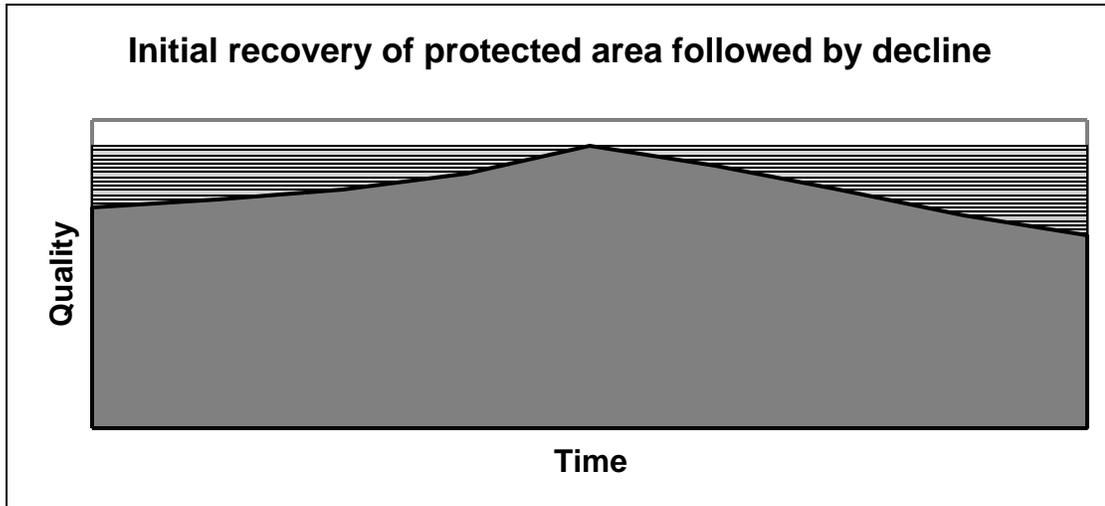
Scenario 4: Initial decline followed by recovery: this trend is perhaps more common than often recognised. Protection status in itself does not guarantee actual protection and in some cases can accelerate decline; for example if local inhabitants feel disenfranchised from the land and traditional sustainable management practices are abandoned. However, with the provision of proper support, alternative livelihoods (such as ecotourism) and perhaps a gradual acceptance of the protected area, overall quality starts to increase again.



Scenario 5: Previously stable forest protected area facing a sudden crisis: in this case apparently secure protected areas (for example those summarised in scenario 1) face a sudden decline due to a particular change, for example an unexpected influx in population or new industrial activity, or some wider environmental change. Such a change creates a crisis for protected area managers who have to adapt protection strategies to meet the new circumstances.



Scenario 6: Initial recovery of forest protected area followed by decline: a possibly increasing trend in the future. This could be caused either because initial support for the protected area among local populations started to decline (for example if hoped-for tourist revenue did not materialise) or because of external factors such as air pollution or climate change.



From the perspective of the WWF-World Bank Alliance target, **the greatest impact could probably be made in:**

- **Converting scenario 3 declining forest protected areas into scenario 4 protected areas where initial decline is replaced by recovery.**
- Introducing management capacity to under-managed protected areas.
- Using the Bank's political and financial influence to address sudden crises, as in those outlined in scenario 5.
- Providing increased capacity to avoid the "mid period decline" outlined in scenario 6.

TYPES OF DEGRADATION AND NATURE OF THREATS

What are the main types of damage to forest protected areas and how are these caused?

Not all threats result in impacts that are immediately visible and conversely the most obvious signs of damage are not necessarily the most significant. Three “categories” of threats to forest protected areas have been identified as part of the current assessment:

- **Individual elements of the protected area are removed without alteration to the overall vegetation structure** (e.g. animal species used as bushmeat, valuable timber trees, exotic plants)
- **Overall impoverishment of the ecology of the protected area** through e.g. encroachment, long-term air pollution damage or persistent poaching pressure
- **Major conversion and degradation** through e.g. removal of forest cover, driving roads through the protected area, major settlements or mining

A range of types of threat has also been identified and these are outlined in the table on the following page. Key external threats that *directly* impact on forest protected areas include (not listed in order of importance):

- ***Agriculture and overgrazing:*** research on threats to high biodiversity forests identified agriculture and grazing as the number one impact in IUCN’s Centre of Plant Diversity and in WWF’s 87 focal forest ecoregions. Research by the Indian Institute for Public Administration found that average density of livestock inside national parks is *higher* than outside.
- ***Forestry operations:*** research by WWF has to date uncovered evidence of illegal logging operations within protected areas in over 50 countries around the world; indeed in many countries protected forests are being particularly targeted by illegal loggers. The Nature Conservancy identified logging threats in 60 per cent of protected areas studied in Latin America.
- ***Encroachment by human settlements:*** most of the world’s protected areas contain human communities and many of these are currently expanding in numbers and in their use of the land. Whilst this is not necessarily a negative state of affairs, research by IUCN identified for example that encroachment by illegal miners and loggers as a key threat to many national parks in South America.
- ***Mining and fossil fuel extraction:*** a study undertaken by WWF and IUCN found that at least ten major World Heritage sites are currently being impacted by mining and many protected areas have clauses allowing mining operations to continue.

- **Bushmeat hunting:** over-hunting of wild game for commercial sale has been identified as one of the major threats to forest protected areas in the Congo basin in a study carried out by WWF and the World Conservation Monitoring Centre. Hunting and poaching was reported as the commonest threat to protected areas in national parks studied in Latin America by The Nature Conservancy, affecting 70 per cent of the protected areas studied.
- **Collection of exotic species for sale:** commercial plant collectors, who remove valuable plants for resale, have impacts on many protected areas. For example collection of wild cyclamen species is threatening biodiversity in many protected areas in Turkey.
- **Fire:** arson has been responsible for the degradation of several protected areas in Indonesia, including such severe damage to the Kutai National Park in Kalimantan that it lost protected area status.
- **Pollution and climate change:** research by WWF, based on modelling data from the Institute for Applied Systems Analysis in Austria, found that 70 per cent of protected areas analysed remain “at risk” of air pollution levels exceeding critical loads and thus damaging biodiversity. A study by WWF-US found that in 7 or more of 9 possible climate change scenarios, 106 important protected areas in the lower 48 states faced major impacts.
- **Invasive species:** Exotic species have an impact on protected areas in many parts of the world. The New Zealand government’s *State of the Environment* report for 1997 says that “alien plants and animals have turned many of our protected areas into war zones” and estimates that a third of the protected forests would be suffering significant biodiversity losses from invasive mammals without continual control programmes.
- **War:** for example the aftermath of the civil war in Uganda resulted in most of the mammals being killed in many of the national parks on the borders with Rwanda and Burundi, resulting in population losses that can still be detected almost twenty years later. The more recent civil war in Rwanda has also had important detrimental impacts on many gorilla reserves within the country.
- **Tourism and recreational pressure:** tourism is an important source of damage to many protected areas in Europe and North America, particularly in terms of disturbance of breeding birds and path erosion.

Sources for this section: Mark Aldrich and Emma Underwood (1998): *Report from Mapping Workshop in Yaoundé*, WWF. Katrina Brandon, Kent H Redford and Steven E Sanderson [editors] (1998); *Parks in Peril: People, politics and protected areas*, The Nature Conservancy with Island Press. Nigel Dudley (1997); *The Year the World Caught Fire*, WWF, Gland. Nigel Dudley (draft); *Illegal Timber Trade*, WWF and IUCN, Gland. Andréa Finger (1998); *Metals from the Forest*, IUCN and WWF, Gland. J A McNeely, J Harrison and P Dingwall [editors] (1994); *Protecting Nature: Regional Reviews of Protected Areas*, IUCN, Gland. Jay R Malcolm and Adam Markham (1997); *Climate Change Threats to the National Parks and Protected Areas of the United States and Canada*, WWF US. Rowan Taylor and Ian Smith (1998); *The State of New Zealand’s Environment 1997*, GP Publications, Wellington. Andrew Tickle *et al* (1995); *Acid Rain and Nature Conservation in Europe*, WWF International.

UNDERLYING CAUSES

What are the underlying causes of declines in forest protected areas?

The immediate threats to forest protected areas are in turn the result of several underlying causes – understanding the nature and importance of these causes is essential for effective action to reduce the problems.

Key underlying causes include:

- **High consumption levels amongst the richest quarter of the world's population** stimulating agro-industrial, tourism, logging and mining developments that in turn impact on protected areas and on land around protected areas
- **Poverty amongst the poorest proportion of the world's population** leading to increased pressure on protected areas to supply land and resources

These in turn are related to other causes, including:

- International debt and the flow of resources from poor to rich
- Pressure for trade and development
- Land tenure
- Population
- Social relations, including gender relations
- Corruption
- Inequality
- Lack of capacity
- Lack of education
- War and conflict

These issues provide a *backdrop* for any actions aimed at addressing threats to protected areas. From the perspective of the Alliance target, **it is important that both the types of damage and the nature of the threats to forest protected areas are correctly identified.**

Some of the key impacts are summarised in the table overleaf.

Level of threat	Types of threat	Examples of PAs under threat
Individual elements of the protected area are removed without alteration to the overall vegetation structure	Bushmeat hunting	Manovo-Gounda-St Floris NP, C.A.R.
	Excessive collection of species for food or medicine	Air et Ténéré Natural Reserve, Niger
	Collection for the pet and ornamental plant trade	Orang utans in protected areas in Indonesia
	Illegal logging (of high value tree species)	Mahogany from NPs in Brazil
	Extraction of timber for local needs (e.g. fuelwood, building)	Mount Mulanje Reserve, Malawi
	Small-scale mining	Okapi Faunal Reserve, DR Congo
Overall impoverishment of the ecology of the protected area	Pollution (e.g. air, agrochemical, soil pollution)	Acid rain in Tatra Mountains NP in Slovakia
	Overgrazing	Oak woods in Snowdonia NP in Wales, UK
	Excessive recreational pressure	Mt Everest Heritage Area, Nepal
	Selective logging of valuable tree species	Canaima NP, Venezuela
	Introduction of exotic species	<i>Pinus contorta</i> in Tongariro NP, New Zealand
	Mining	Canaima NP, Venezuela
	Military action and impact of refugees	Manas Sanctuary, Assam, India
Major conversion and degradation	Encroachment and settlement	Doi Inthanon National Park, Thailand
	Development of major infrastructure (e.g. roads, rail, canals)	Mangroves in Monterrico NP, Guatemala
	Major extractive industries (e.g. mining, HEP)	Oil drilling in Ecuador's protected areas
	Major energy systems (e.g. hydropower)	Iguacu NP, Brazil
	Clearance (e.g. by logging and/or fire)	Kutai National Park, Indonesia
	Climate change	Everglades NP, USA

CONTRIBUTORY FACTORS

What contributes to these threats?

External threats are, for the foreseeable future, an inevitable factor in protected area management. However, in many cases these threats are exacerbated by lack of money and capacity amongst protected area authorities. Protected areas currently cover 8.9 per cent of the world's land surface but most are managed on a shoestring: these are the "paper parks" or under-managed protected areas where provision of extra resources can be effective. The survey identified a range of problems:

- Lack of financial resources
- Lack of staff and of staff training
- Inadequate institutional capacity
- Lack of political/legislative support
- Lack of communication with local residents
- Lack of involvement of local residents in implementing management plans
- Lack of co-ordination among managing organisations
- A poor legal framework and lack of adequate enforcement tools
- Lack of involvement of local residents in preparing management plan
- Absence of comprehensive land-use plans
- Poor definition of protected area boundaries

Most of these factors are outside the control of protected area managers, who often find themselves in the position of trying to balance a range of opposing demands and pressures with little or no money, insufficient staff and the legacy of poor initial planning and negotiation of the protected area.

These are the key policy issues that should form the main focus for efforts at improving protected areas management.

A Survey of Threats To Forest Protected Areas

There has never been a comprehensive attempt to assess global threats to forest protected areas. The current study is a very preliminary attempt to fill this gap, using selected countries.

Two approaches were taken:

- A literature survey of existing information
- A specially designed survey of threats to forest protected areas in key World Bank client countries

Details of both these studies are given in volume 2 of this report. In the following pages a summary of key findings is given.

Previous attempts to survey threats to protected areas

Using published information, **threats to forest protected areas were identified in 76 countries.**

Threats ranged from problems created by conflict, through issues of poaching, mining, logging, poor infrastructure and invasive species. Details are listed in a country-by-country review in volume 2.

However, this information is both partial and sometimes of poor quality for a number of reasons.

- **Data are often poor or absent:** The *1997 United Nations List of Protected Areas* lists 12,754 protected areas and refers to 17,596 more that fall below the 1000 ha minimum limit for inclusion, making a global total of over 30,000 protected areas covering 8.81 per cent of the land area. The current survey suggests that **considerably less than 10 per cent of protected areas have been subject to any kind of analysis of threat**, and far less have been subject to a detailed assessment.
- **Any given criterion of threat only gives partial information and is open to different interpretations:** all the specialists interviewed for the survey stressed the problems of assessing threats by using set criteria. For example, many successful protected areas have no written management plan and few staff, although both these factors are usually assumed to indicate the likelihood of problems. Whilst more thorough assessments are possible, these are expensive.
- **Threats change over time :** so that information is almost bound to be out of date. This is certainly the case for some of the published information that still remains the best or only source of information on protected area status.

On the following page, the main literature sources are summarised in a table.

Some surveys of protected areas under threat

Institution	Details	Source	Date
IUCN and its Commission on National Parks and Protected Areas	Listed 43 threatened protected areas and 13 threat categories.	The Commission on National Parks and Protected Areas: <i>Threatened Protected Areas of the World</i>	1984
Academic survey	Surveys 135 protected areas in 50 countries – based on perceptions of managers and conservation officers. 1,534 threats are categorised into 7 major groups: water, air, soil, vegetation, animal life, management and “other”.	Gary E Machlis and David L Tichnell: <i>The State of the World's Parks: International Assessment for Resource Management, Policy and Research</i> , Westview Press	1985
IUCN and its Commission on National Parks and Protected Areas	Identifies 91 protected areas under threat in 50 countries.	Jim Thorsell: <i>The IUCN Register of Threatened Protected Areas of the World</i>	1990
The Ramsar Convention	The report describes threatened Ramsar (i.e. wetland) sites throughout the world.	<i>Implementation Problems at Selected Ramsar Sites</i>	1990
IUCN	An extended report drawing on information from the IV World Congress on National Parks and Protected Areas: identifies main threats in each region	Jeff McNeely, Jerry Harrison and P Dingwall: <i>Protecting Nature – Regional Reviews of Protected Areas</i>	1994
IUCN, UNESCO and the World Conservation Monitoring Centre	Although mainly an overview of existing sites, the review includes a listing of forest protected areas inscribed on the list of World Heritage Sites in danger	Jim Thorsell and Todd Sigaty: <i>A Global Overview of Forest Protected Areas on the World Heritage List</i>	1997
The World Bank	A review carried out by consultants into protected areas in the Indo-Malayan realm.	John MacKinnon: <i>Protected Areas System Review of the Indo-Malayan Realm</i> , Asian Bureau for Conservation.	1995
The Nature Conservancy	Assesses threats to a range of protected areas in Latin America, using TNC's own scoring system	Katrina Brandon, Kent Redford and Steven Sanderson: <i>Parks in Peril: People, politics and protected areas</i>	1998
WWF	Survey of Global 200 ecoregions	David M Olson and Eric Dinerstein: <i>The Global 200: A representation approach to conserving the Earth's distinctive ecoregions</i>	1998
Indian Institute of Public Administration	Four surveys of protected areas undertaken in India since 1984	Reports available	1984-1999
WWF and WCMC	Country and regional surveys, e.g. in Brazil, Central America and Central Africa	Reports from WWF Brazil, Central America, Peru and the Congo Basin	1999

Experts' survey of threats to forest protected areas

Because of the lack of information, the project organised a special survey of forest protected areas, focusing on key World Bank client countries with a high forest cover:

- Brazil
- China
- Gabon
- Indonesia
- Mexico
- Papua New Guinea
- Peru
- Russia
- Tanzania
- Vietnam

The survey used country experts to assess protected areas with respect to three key issues:

- **Identification of “paper parks” or under-managed protected areas**
- **Identification of protected areas under threat**
- **Identification of key threats to protected areas**

Experts answered a standard questionnaire (reproduced in full in appendix 2) that summarised information on a national scale and with respect to 4-5 protected areas within each country. The results were then analysed to draw general conclusions about protected area status for the countries in question.

Results of the survey: Protected areas are under threat – but many continue to retain conservation values

The survey was limited in both time and resources and results should be treated speculatively. They refer to a limited number of countries, albeit covering a wide range of conditions and holding a large proportion of the world's remaining natural forests.

Despite the limitations, the research draws upon the experience of some of the world's leading experts in protected areas and provide a valuable "first cut" at assessing management status and levels of risk.

Two key issues were identified:

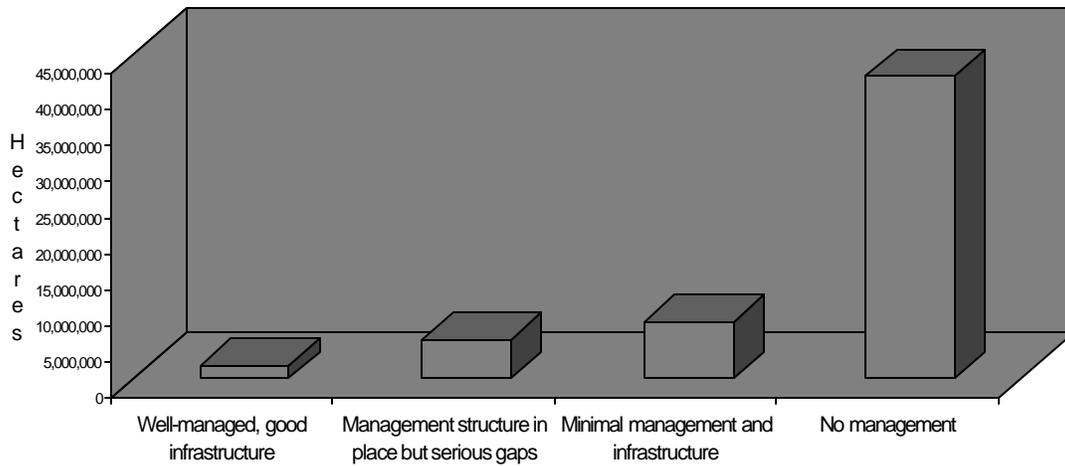
- **Management:** Less than a quarter (0 to 24 per cent) of forest protected areas were considered to be "well-managed with a good infrastructure" in the countries assessed, and 17 to 69 per cent of forest protected areas in these countries had no management.
- **Security:** Only 1 per cent of forest protected areas were regarded as secure in the long term. A further 1 per cent had been so badly degraded that they had lost the values for which protection was given. Some 22 per cent were suffering various levels of degradation and 60 per cent were currently safe but faced possible future threats. A further 16 per cent had not been categorised.

These figures give grounds for both alarm and hope. There are clearly many protected areas without adequate management and this is in some cases leading to degradation. However, a very small proportion were thought to have been ruined and many under-managed protected areas have retained many of their values, suggesting that protection status alone is helping provide some security.

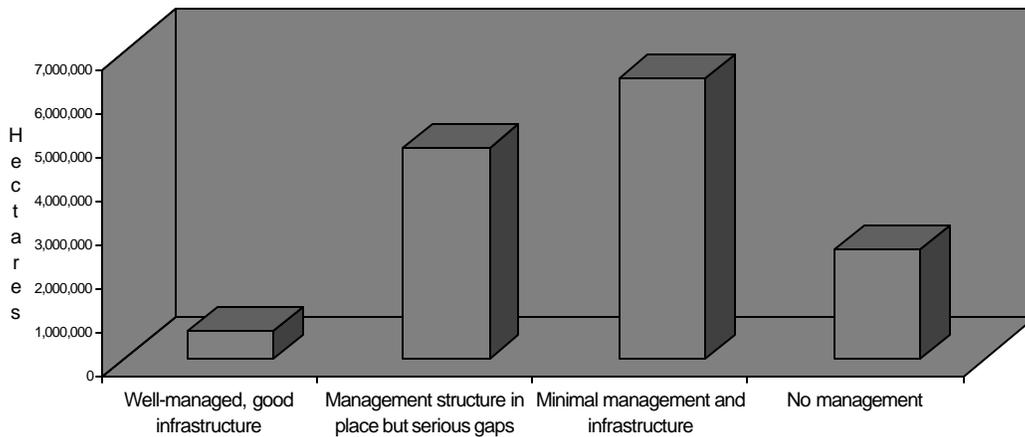
This suggests that any target from the WWF-World Bank Alliance should be carefully directed at the most appropriate areas to achieve maximum results.

Detailed country statistics are summarised on the following pages. Full details are given in volume 2.

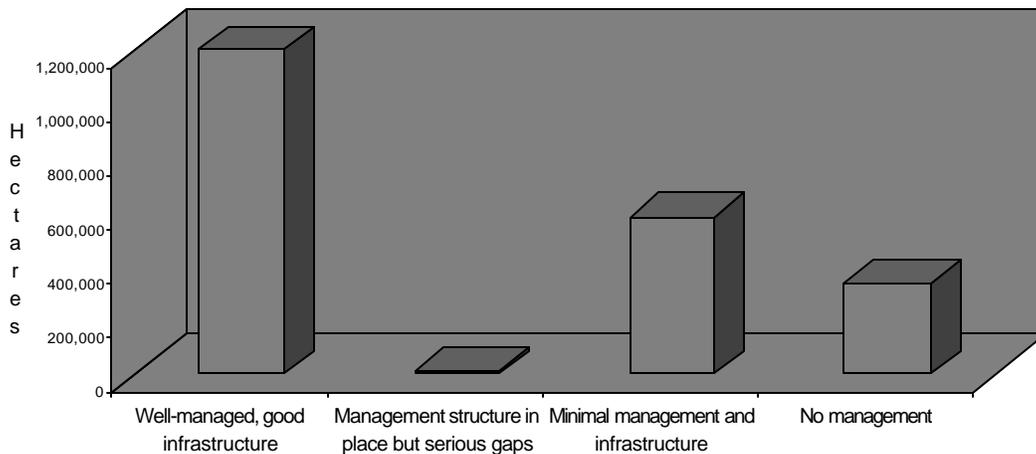
Summary of Management Status in Hectares: Brazil

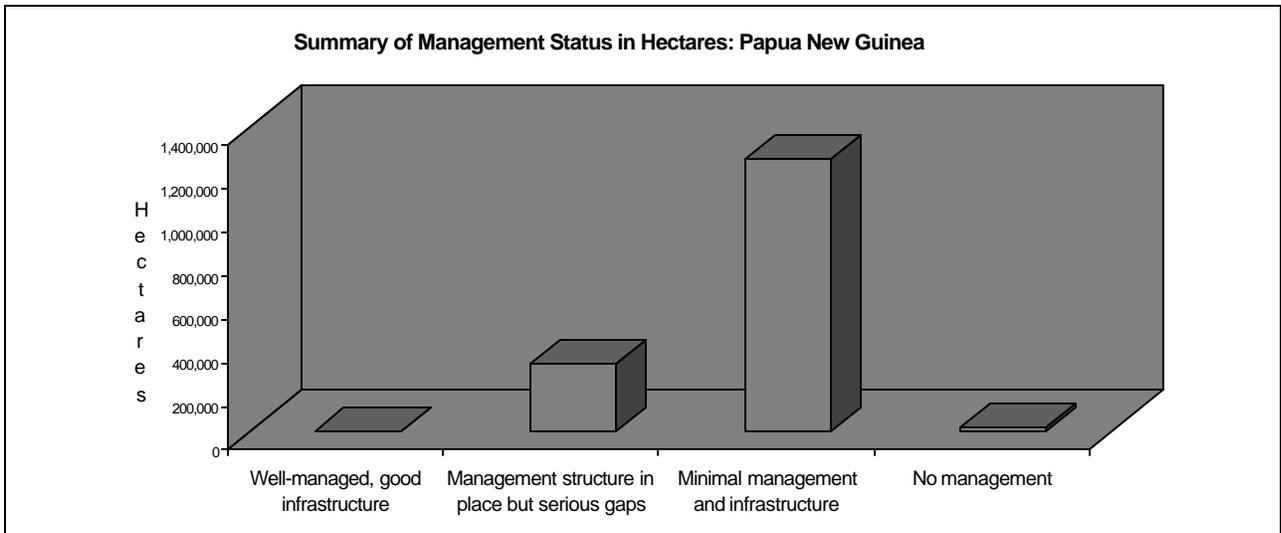
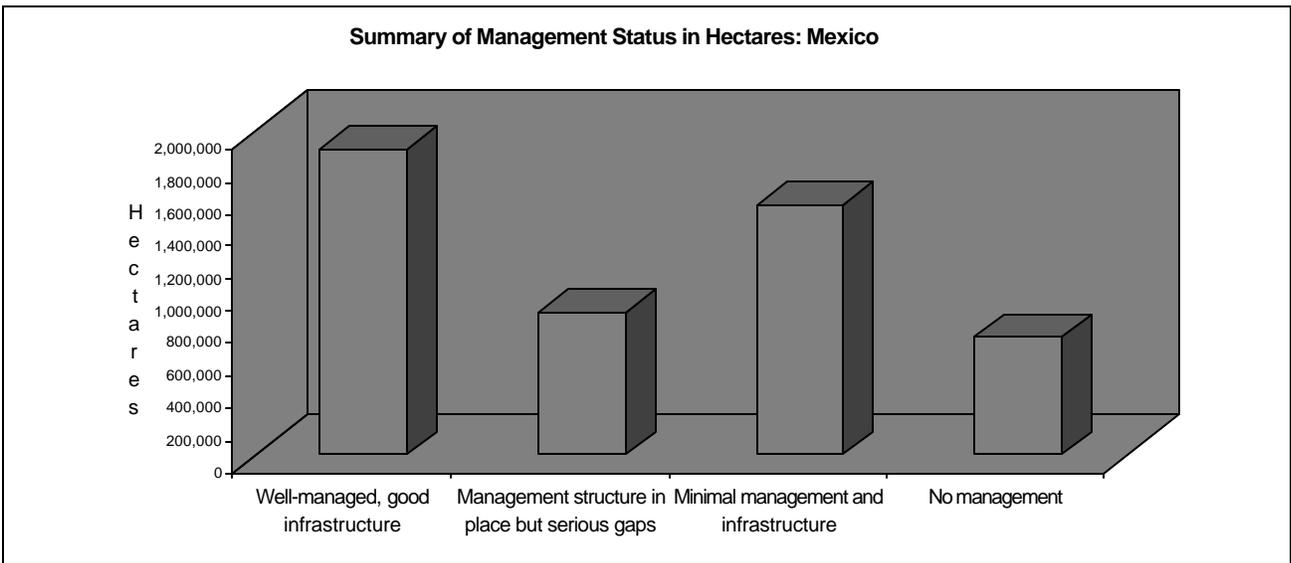
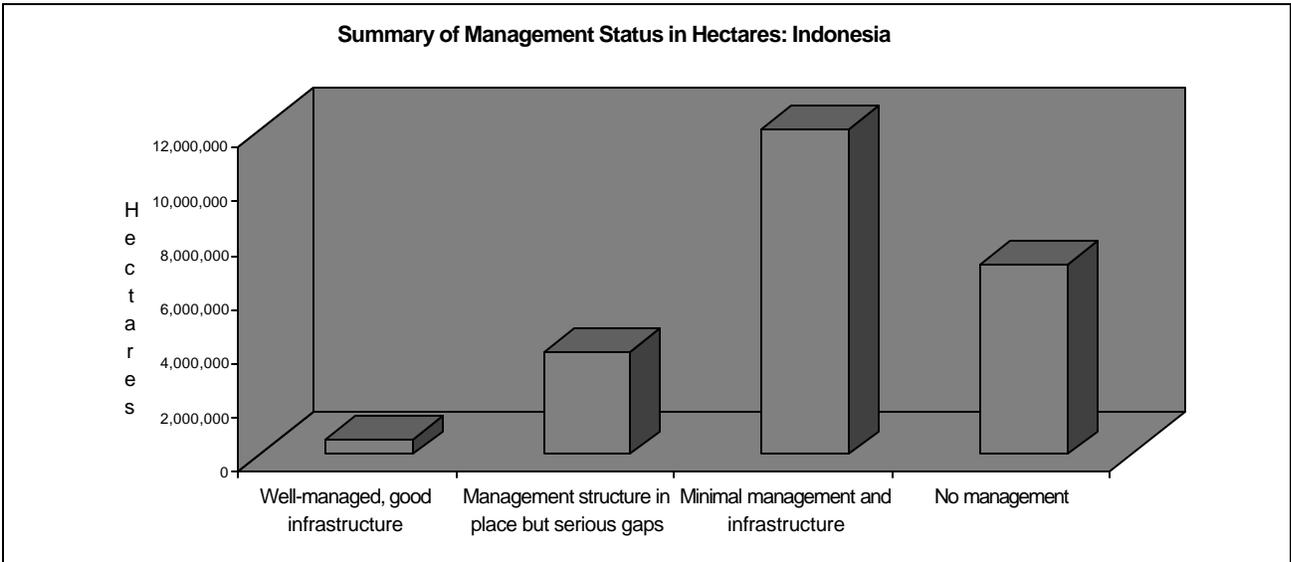


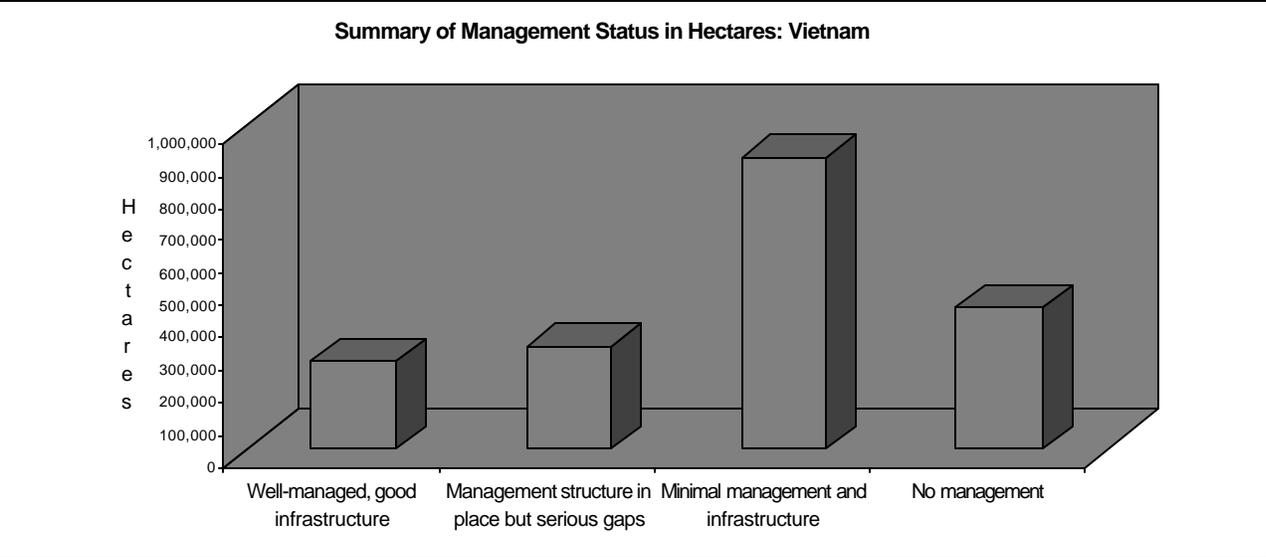
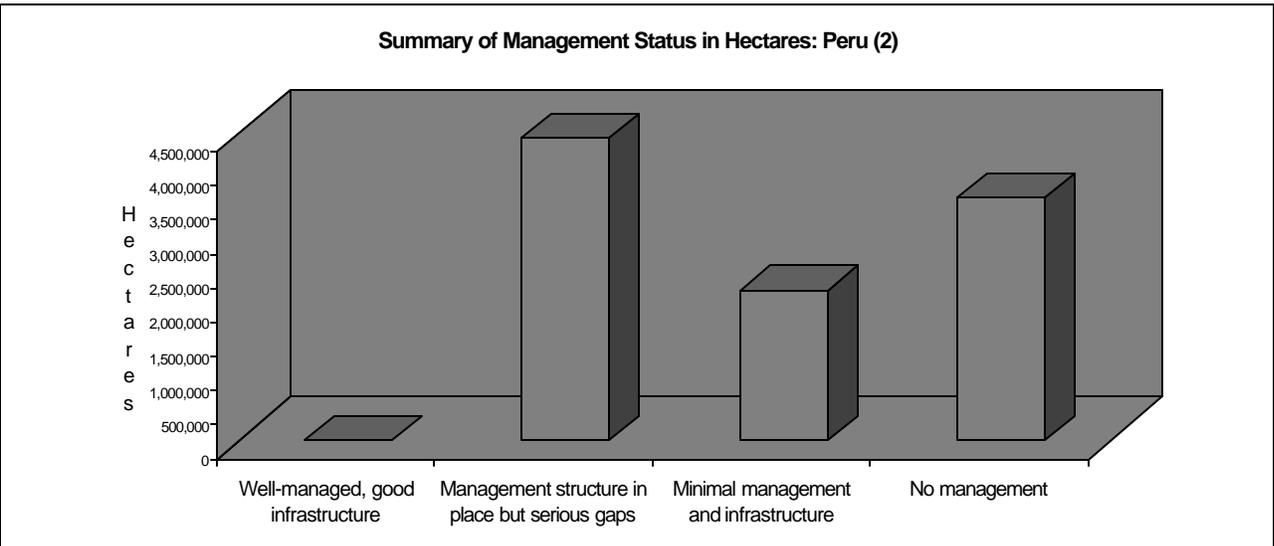
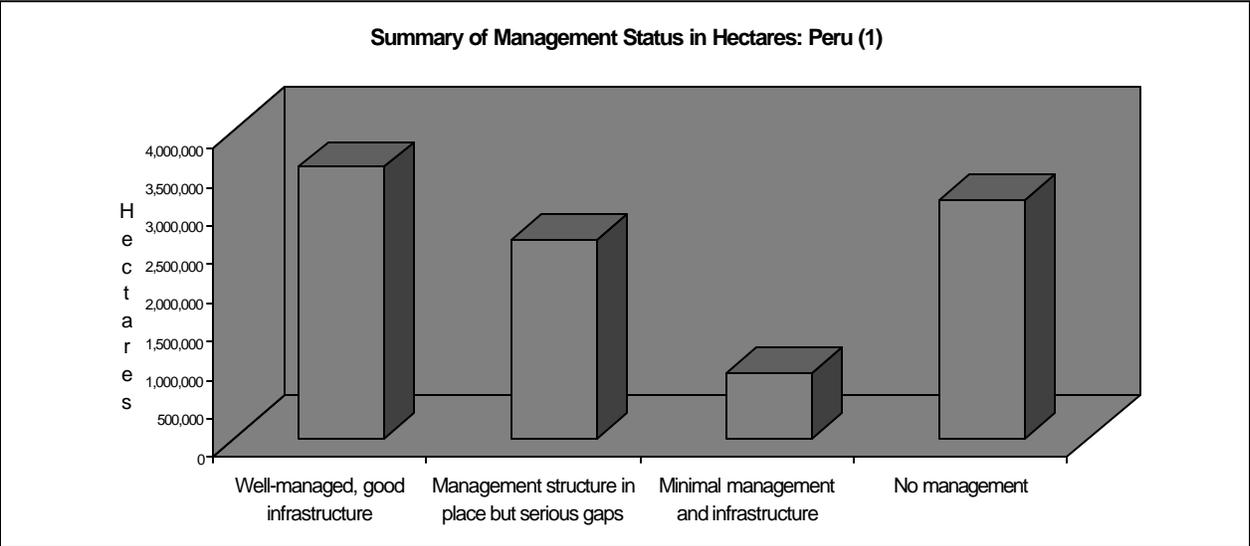
Summary of Management Status in Hectares: China



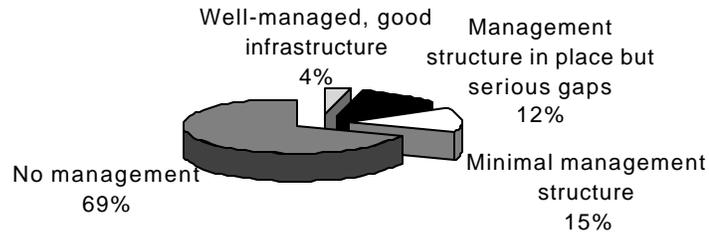
Summary of Management Status in Hectares: Gabon



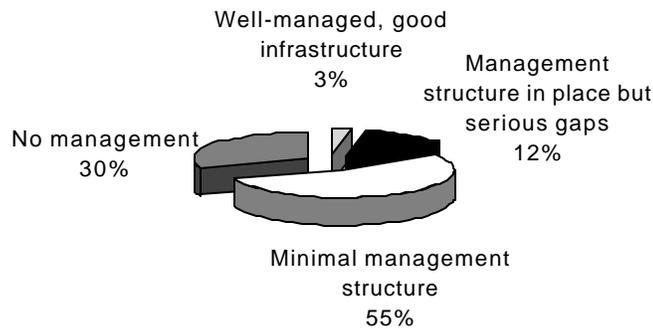




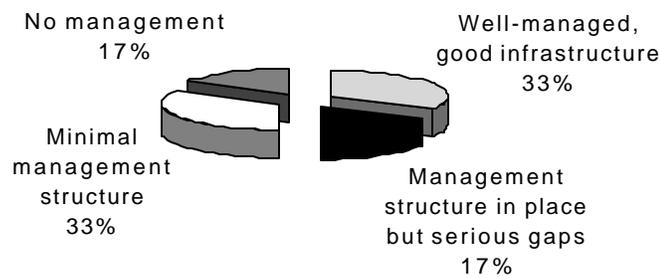
Summary of Management Status: Brazil



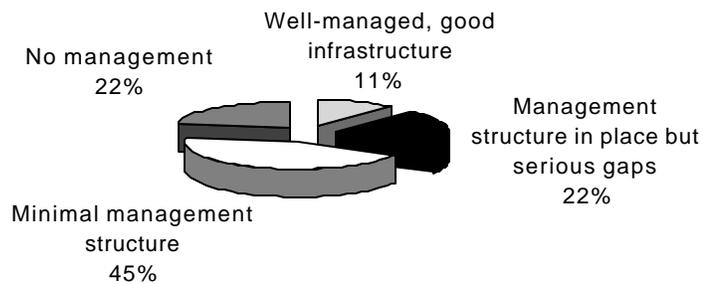
Summary of Management Status: China



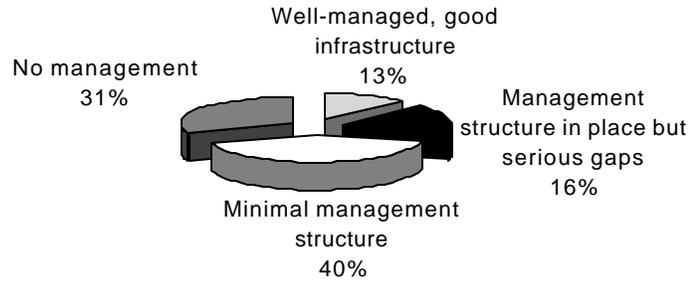
Summary of Management Status: Gabon



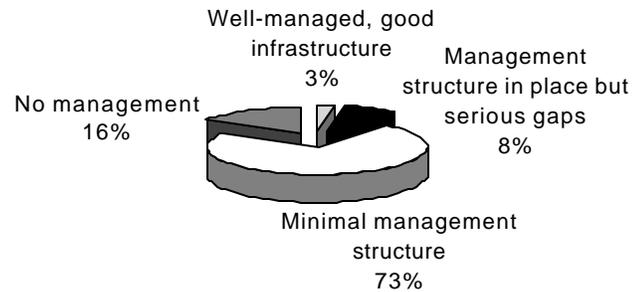
Summary of Management Status: Indonesia



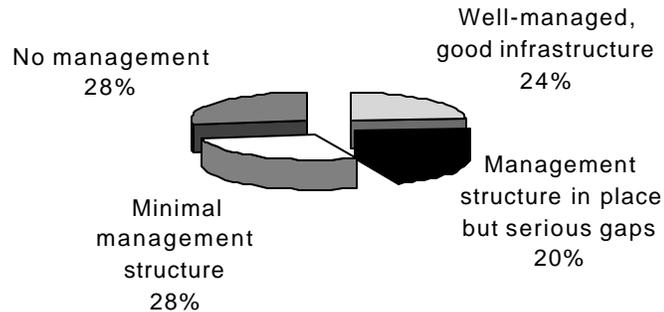
Summary of Management Status: Mexico



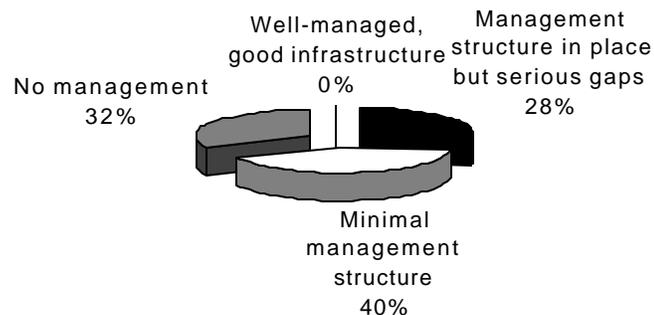
Summary of Management Status: Papua New Guinea



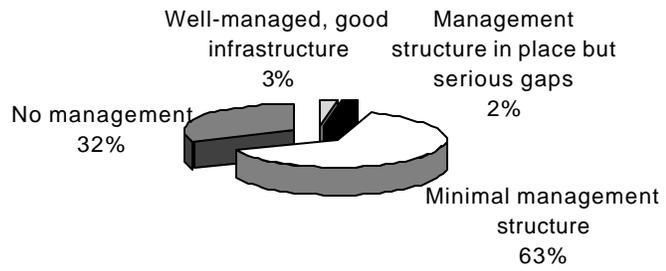
Summary of Management Status: Peru (1)



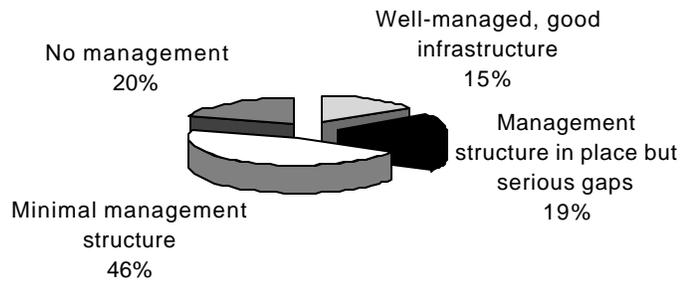
Summary of Management Status: Peru (2)



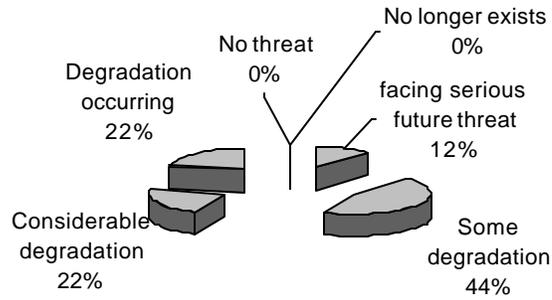
Summary of Management Status: Russia



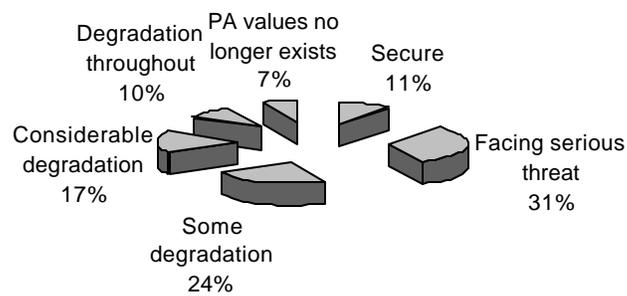
Summary of Management Status: Vietnam



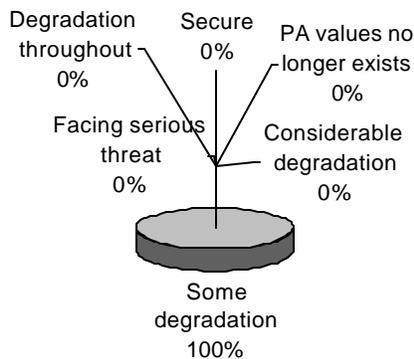
Degree of threat to PA: Brazil



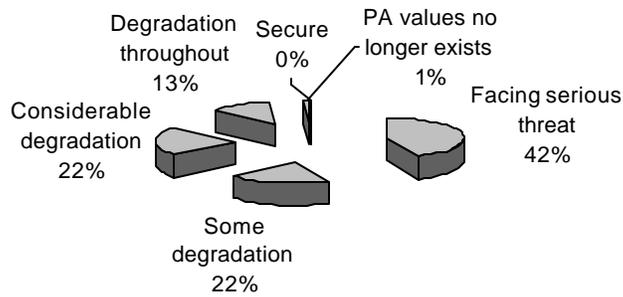
Degree of threat to PA: China



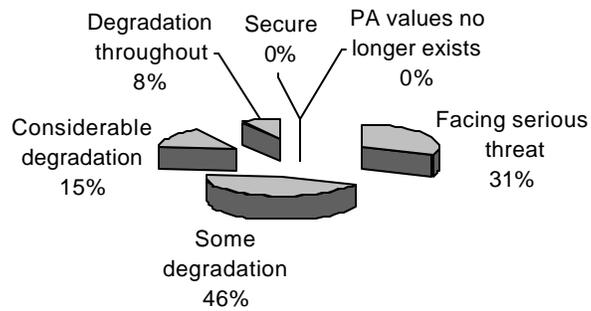
Degree of threat to PA: Gabon



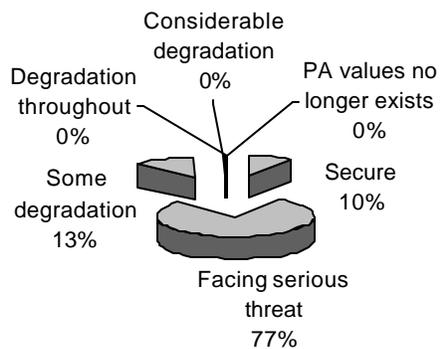
Degree of threat to PA: Indonesia



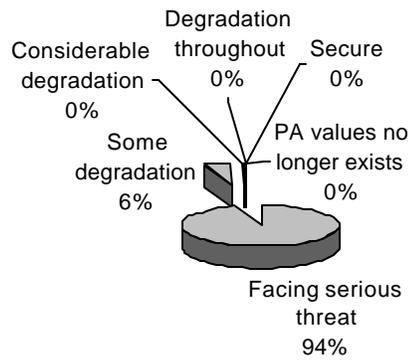
Degree of threat to PA: Mexico



Degree of threat to PA: Peru 1



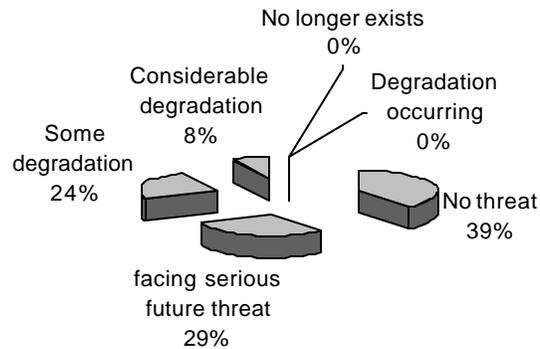
Degree of threat to PA: Peru 2



Degree of threat to PA: Russia



Degree of threat to PA: Vietnam



ANALYSIS OF THE SURVEY

Accuracy of the survey

The “Delphi Method” is the term used to describe expert assessments of the sort attempted here. They have the advantage of speed, low cost and the rapid provision of information in situations where previous data and analyses are lacking.

However they have their limitations: it is perhaps worth remembering that the original oracles at Delphi, after whom the system is named, were religious prophets who cried out unintelligibly and had their mutterings “interpreted” by self-proclaimed experts...

A short survey of this type is therefore inevitably speculative and partial. In countries where there are sometimes hundreds of protected areas and limited travel options, a comprehensive understanding is virtually impossible. Many protected areas remain virtually unexplored. The data presented here should therefore be taken as experts’ qualitative opinion rather than quantifiable fact.

Despite its exploratory nature, the survey represents the most up-to-date assessment of protected area status in key forest countries.

To act as a first test of the methodology, two responses were collected from Peru. These showed substantial differences in opinion about the *quality* of management although much closer agreement about the areas where there was no management at all.

Management status of protected areas in Peru	Number of PAs in category estimated by Consultant 1	Number of PAs in category estimated by Consultant 2
Well-managed, good infrastructure	0	6
Management structure in place but serious gaps	7	5
Minimal management and infrastructure	10	7
No management	8	7

WWF Brazil and the WWF Russian Programme office also expressed doubts about the accuracy of some of the assessments. With respect to the current method, the results suggest that several “expert opinions” may be needed to provide an average and minimise recorder error. More generally, one important result of this work, and of previous studies, is recognition of the need for better methodologies for assessing management effectiveness in protected areas: this issue is returned to below.

Proposal for a WWF-World Bank Alliance Target on Improving Management Effectiveness in Forest Protected Areas

Increasing management effectiveness in protected areas – a proposed target

Setting a target for “conversion” of under-managed protected areas needs to encompass issues of:

- Degree of threat
- Chances of improvement
- Biological values
- Human social and cultural values
- Responsible management

It is suggested that a suitable target might be as follows:

**Conversion of 50 million hectares of
threatened and under-managed forest
protected areas to effectively managed and
socially responsible protected areas by the
year 2005**

The following section addresses the following issues:

- Why 50 million hectares?
- How should the Alliance plan to improve management efficiency in 50 million hectares?
- How should the right protected areas be selected for action?
- How will success be measured?
- What steps will be needed to achieve the target?

Why 50 million hectares?

50 million hectares would be a convenient target in that it balances the existing target for creation of new protected areas. However, care needs to be taken to ensure that it is also a realistic figure and has the chance of being achieved.

50 million hectares is equivalent to approximately a quarter of the world's current forest protected areas, according to a survey undertaken in 1996 by the World Conservation Monitoring Centre (reported in the WWF World Forest Map). However, distribution of these protected areas is extremely unevenly distributed and the Alliance could in theory address its target by focusing on one large protected area in each of the countries discussed in the current report.

For example, Brazil, China, Indonesia, Mexico, Peru, the Russian Federation and Tanzania all contain single protected areas exceeding 1 million hectares in size, as shown in the diagram below. (This is not a complete list and not all protected areas listed are entirely forested.)

Country	Examples of large protected areas	Area in hectares
Brazil	Jaú National Park (1980)	2,272,000
	Juruena Forest Reserve (1961)	1,800,000
	Pico da Neblina National Park (1979)	2,200,000
China	A Er Jin Shan Nature Reserve (1985)	4,500,000
Indonesia	Gunung Lorentz National Park (1997)	2,505,000
	Kayan Mentarang	1,360,500
Mexico	Sierras de Hansen y Mesa Pina Forest Reserve (1923)	1,249,000
Peru	Manú National Park (173)	1,532,806
Russian Federation	Konandorskiy Zapovednik (1993)	3,648,679
	Tunkinskiy National Park (1991)	1,183,700
Tanzania	Ngonongoro (1974)	1,500,000

Research shows that many of these areas are currently inadequately managed; the same is doubtless true for other World Bank client countries.

There is, therefore, no problem with identifying sufficient areas to fulfil the target.

The question is more one of capacity and the amount that needs to be carried out to achieve “effective management” in these areas.

How should the Alliance plan to improve management efficiency in 50 million hectares?

The proposed target is ambitious both in the extent of forest and the short time for implementation. If it were achieved, in any measure, it would be making a substantial contribution to the conservation of the world's forests.

Achievement of the plan will rely upon identification of key protected areas and development of plans for improving management effectiveness. **It is suggested that a small number of large protected areas be included amongst those chosen by the Alliance.**

In the following section, a plan of action is proposed to build up to the launch of the new target.



This assumes that Alliance staff and consultants will work quite quickly to identify key countries to be included in the proposals – at least to the extent of a working list. Following this, country representatives from both organisations will identify key protected areas for consideration in the project during early 2000 and – in at least a few cases – will draw up plans for *how* management effectiveness can be improved over the next five years. The new target can then be launched in May 2000, at the conference planned in Mozambique.

How should the right protected areas be selected for action?

Selection should lie with the people directly involved with implementation – i.e. country teams and field staff. Protected areas to be targeted in this phase of the Alliance campaign should ideally be selected for their biological value, degree of threat and with regard to the possibility of making some improvement in the time available. Identification should involve use of several overlays of different kinds of information, followed by a series of expert assessment, as summarised out in the following table.

Step	Details
Development of overlays to identify the most urgent needs, including maps of:	<p>Extinction-prone zones or other threat assessments</p> <p>High biodiversity areas (through use of e.g. Global 200 information, IUCN Centres of Plant Diversity information, Birdlife International <i>Endemic Bird Areas of the World</i>, Conservation International's biodiversity hotspots and regional studies such as the biodiversity hotspots in the Russian Federation)</p> <p>Existence of protected areas</p> <p>Threats to protected areas</p> <p>World Bank client countries</p> <p>Presence of WWF field programmes</p>
Expert analysis at a global level	Considering choices from a biological, social and political aspect to identify the most likely countries
Expert analysis at national, regional and local level	Refining choices to particular protected areas and including expertise in social, biological and strategic considerations

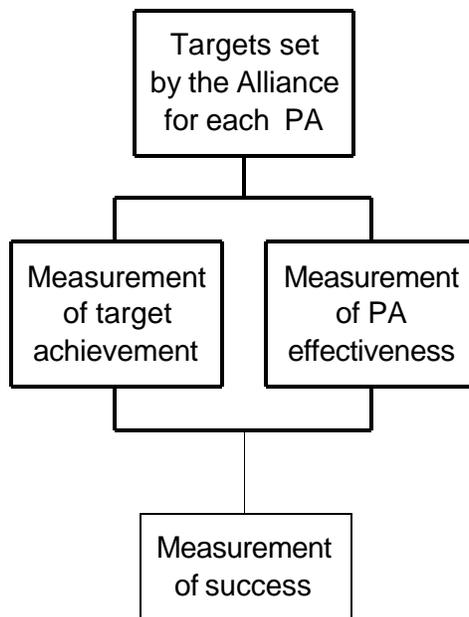
The exercise should identify a range of target protected areas.

How will success be measured?

“Management effectiveness” is a nebulous term that is probably impossible to achieve completely and is difficult to measure. However, it is imperative that the Alliance be able to measure *progress* towards management efficiency in order to be able to report on the target. There are three options for doing this:

- Use of existing **assessment** systems
- Development of a simple system of measurement or **scoring** of management effectiveness, to the extent that progress can be measured as an increased “score”
- Agreement on defined management **targets** for each protected area included in the initiative, with success being measured against these targets

Some combination of the two methods will probably be required. Success should then be measured against the targets set at the start of the process, but checked with a more general assessment of changes in effectiveness within the protected area. This will also help tell whether the actions undertaken by the Alliance have had a real impact on effectiveness.



In both cases it is possible, and desirable, that success be judged against conditions within the protected area itself at the start of the process; i.e. the Alliance should be measuring amount of progress rather than final achievement.

Assessing success in these efforts is itself complex. A project supported by the WWF-World Bank Alliance is currently investigating the options for an international approach to assessment of management effectiveness protected areas, including the agreement of *principles and criteria* of good management and perhaps eventually of accreditation of assessment systems.

It is being developed jointly by the World Commission on Protected Areas, IUCN The World Conservation Union and WWF The World Wide Fund for Nature, with active and financial support from the World Bank – WWF Forest Alliance and co-operation from the World Conservation Monitoring Centre. This approach would embody a set of principles and criteria that parallel or complement those developed by the IFF for forest management. A target for achieving this could be, for example, that such an approach be developed and launched in spring 2000.

The project draws on existing experience in assessing protected areas. Some existing systems, or systems under development, are summarised on the following page and the results of a recent workshop are given in an appendix to volume 2 of this report.

There is currently also a project underway to develop a simple global system for measuring management effectiveness under the auspices of the Alliance and the WWF Forests for Life campaign. This would draw on existing systems but be tailored to the particular requirements of the target. Part of the remit of this research should be to look at *where* success should be measured in the short term. It will probably be difficult to measure concrete biological changes over a five-year period, although changes in degree of threat may be measurable and changes in management capacity should certainly be discernible. Some first thoughts on the type of indicators required are outlined in the table below, drawing on proposals developed by Marc Hockings of WCPA (this is indicative and by no means a complete list).

Main elements	Type of evaluation	Suggestions for indicators
Planning	Design	Evidence of gap analysis or similar
		Existence and quality of management plan
		Participation by local communities
Resources available	Input	Staff members
		Equipment available
		Training levels
Implementation	Process	Implementation of management plans
		Monitoring and evaluation exercises
		Staff evaluations
Outputs	Output	Results of management plans
		Reports of management actions
Impacts	Outcome	Changes in status of vegetation
		Changes in status of threatened species
		Perceptions of local inhabitants
Threats	Threat	Logging and mining concessions/activity
		Presence of illegal activity
		Settlement in the protected area

Examples of other systems for assessing the management effectiveness in protected areas

Assessment method	Examples
Detailed assessment	WWF Central America , in association with the research centre CATIE , has devised and tested assessment guidelines for protected areas over the past 8 years; including field tests in Costa Rica, Mexico and the Galapagos Islands. Researchers in Mexico have developed a protected area assessment system in connection with Mexico's National Biodiversity Strategy . IUCN has also collaborated on a project to look at management effectiveness in UNESCO biosphere reserves . A recent paper from the World Bank , <i>Making Protected Area Systems Effective</i> , also explores these issues.
Rapid assessment of management effectiveness	WWF has produced a short study on rapid assessment methods for the WWF/World Bank Alliance .
Scorecards	The Nature Conservancy , an NGO in the USA with a large international conservation programme, has a scorecard system for testing management effectiveness in protected areas that it is using with its own projects. WWF Brazil and WWF Peru have also developed national scorecard systems for protected areas in their countries.
Report cards	WWF-Canada's Endangered Spaces Campaign has a system of annual support cards that assess government progress in completing the national system. WWF Australia and other national and state environment groups have a similar annual report card to assess the performance of government in five key areas.
Rating systems	The WWF European Forest Team is developing some criteria for rating quality of protected areas in association with its Pan Parks project, which aims to link protected areas in different countries. Several IUCN offices use their own system of rating protected areas.
Criteria and guidelines	Private protected areas are increasingly establishing networks with agreed criteria for membership and extractive reserves in Brazil have guidelines for their creation and legalisation, from the government agency IBAMA , that are in effect a set of criteria for the reserve.
Associated certification systems	Certification under the auspices of the Forest Stewardship Council requires forest managers to set aside some of their land into protected areas and compliance is subject to regular independent assessment.
A database on management effectiveness	The World Conservation Monitoring Centre (WCMC) is developing a monitoring system for use with its protected area database.

What steps are needed to achieve the target?

Implementing such a target should be planned on a national and regional level, through liaison between WWF and Bank staff, and other interested parties. It will require a portfolio of actions, including some or all of the following:

- Development of participatory management plans
- Support for capacity building
- Securing long-term, adequate funding
- Support for co-management approaches in protected areas
- Development of a good management effectiveness assessment system
- Provision of incentives for local communities to support protected areas
- Education of protected area staff, local people, governments and the general public
- Enforcement of the rule of law with respect to protection
- Facilitation of community regulation
- Support for restoration where necessary

These issues cannot be addressed by simplistic targets (such as “development of management plans” or “increase in funding”). Rather, a range of responses will be needed according to local conditions.

The proposed target could play a major role in defining the success of forest protected areas in the 21st century. It will, however, require concerted action by a range of people in WWF and the World Bank and in partners and collaborators from governments, other NGOs and probably also from industry. Its eventual success will depend upon the willingness of all these actors to make the necessary commitments towards the protection of the world’s forests.

ACKNOWLEDGEMENTS

The survey summarised above has been carried out by 11 experts, many associated with or members of the World Commission on Protected Areas. Because of the sensitive political nature of many of the findings, consultants were promised anonymity.

The survey was co-ordinated by Sue Stolton, and Sue Stolton and Nigel Dudley wrote the report, incorporating a literature survey by Andréa Finger.

The project was carried out under the auspices of the IUCN/WWF Forest Innovations project, managed by Bill Jackson and Jean-Paul Jeanrenaud. Financial management was carried out by IUCN and this organisation is the contractee.

Michael Kiernan and Bruce Cabarle managed liaison with the WWF-World Bank Alliance. David Shephard and Pedro Rosabal co-ordinated work with the World Commission on Protected Areas and played a large part in getting the project underway. Marc Hockings of the WCPA Task Force of Protected Areas Effectiveness provided valuable advice. We are very grateful to the consultants, who worked to a tight timetable and who provided all and more than was requested.

We are grateful to the many people who took the time to comment on the draft report, including Bruce Cabarle, Rosa Lemos de Sá, Kathleen McNamara, Don Masterson, Kenton Miller, Adrian Phillips, Andrei Ptichnikov, John Spears, Rod Taylor, Tony Whitten and participants in a workshop in Costa Rica in June 1999.

Appendix 1: Summary of country correspondents assessments of selected protected areas

Name	Size (ha)	Management body	Management Status	Degree of threat	Legal institution	Management Plan	Funding	Staffing	Local involvement	Main threats	Status of wildlife
Brazil											
APA	1,589,072	State government	No management	Degradation throughout	Yes	None	Low	Poor	None	Hunting, tourism encroachment, + logging & mining	Degraded
Serra de Ricardo Franco	158,620	State government	Minimal	Considerable degradation	Yes	Minimal	Low	Poor	None	Mainly logging & encroachment, + mining and hunting & some tourism	Fairly intact
Jacupiranga	~150,000	State government	Minimal	Considerable degradation	Yes but insufficient	None	Low	Poor	None	Encroachment, + logging, hunting, tourism	Degraded
Rio Cautário	142,000	State government	Minimal	Some degradation	Partial	Acceptable	Low	Poor	Yes	Logging, hunting & encroachment	Fairly intact
Mata do Rio Vermelho	1,500	State government	None	Some degradation	Partial	None	None	None	None	Logging, hunting + tourism & some mining and encroachment	Degraded
Pico da Neblina	2,200,000	Federal government	None	Facing serious threat	Partial	None	Low	None	None	Hunting, + some mining, + some logging, encroachment & tourism	Fairly intact
Morro do Diabo	36,000	State government	Minimal	Some degradation	Yes	Minimal	Low	Average	Some	Tourism – other threats at low level	Fairly intact
Gurupi	341,650	Federal government	Minimal	Considerable degradation	Yes	None	Low	None	None	Mining, hunting, encroachment + some logging	Degraded
Serra do Conduru	7,000	State government	Minimal	Some degradation	Yes	None	Well funded	Poor	Some	Logging, hunting, encroachment & some tourism	Fairly intact

Name	Size (ha)	Management body	Management Status	Degree of threat	Legal institution	Management Plan	Funding	Staffing	Local involvement	Main threats	Status of wildlife
China											
Wolong	200,000	National government	Serious gaps	Some degradation	Yes	Acceptable	Well funded	Good capacity	Some	Some logging, hunting, encroachment & tourism	Fairly intact
Xishuang-banna	241,800	Government – at all levels	Serious gaps	Facing serious threats	Yes	Acceptable	Well funded	Good capacity	Some	Some logging, mining, hunting, encroachment & tourism	Fairly intact
Dong-zaigang	3,300	Government: national & local	Serious gaps	Considerable degradation	Yes	None	Low	Poor	None	Hunting & some encroachment & tourism	Degraded
Bawangling	5,600	Government: national & provincial	Serious gaps	Facing serious threats	Yes	None	Low	Poor	None	Some hunting	Intact
Gabon											
Moukalaba	100,000	Government	Minimal	Some degradation	Yes	None	Low	Poor	None	Some hunting/trade	Degraded
Mpassa	100,000	Government	Partial	Some degradation	Yes	None	Low	Poor	None	Some hunting/encroachment	Degraded
Wonga-Wongue	480,000	Government	Minimal	Some degradation	Yes	None	N/A	Poor	None	Some logging/mining & hunting	Fairly intact
Monts Doudou	332,000	Government	None	Some degradation	Yes	None	Low	No staff	None	Some logging & hunting	Fairly intact
Indonesia											
Kayan Mentarang	1,360,500	Government	None	Facing serious threats	Yes	None	In NGO project only	Poor	Some	Logging + some mining, hunting, encroachment and tourism	Intact

Name	Size (ha)	Management body	Management Status	Degree of threat	Legal institution	Management Plan	Funding	Staffing	Local involvement	Main threats	Status of wildlife
Tanjung Putting	415,000	Government	Serious gaps	Some degradation	Yes	Minimal	Low	Poor	None	Mining & encroachment, + some logging and hunting.	Degraded
Ujung Kulon	123,000	Government	Serious gaps	Some degradation	Yes	Acceptable	Enough	Good	Limited	Tourism, + hunting & encroachment, + some logging and mining.	Degraded
Mexico											
El Chico	2,739	Federal government	Minimal	Some degradation	Yes	None	Low	Poor	None	Encroachment and tourism, + some logging, mining and hunting	Degraded
El Tepozteco	24,000	Federal government	None	Degradation throughout	Yes	None	None	None	Some	Encroachment and tourism, + logging & mining & hunting	Degraded
Papua New Guinea											
Kamiali	47,000	Customary tenure	Serious gaps	Facing serious threat	Yes	Acceptable	Low	Average	Some	Hunting, settlement + low level logging, mining, tourism	Fairly intact
Garu	8,700	Government	Minimal	Some degradation	Yes	Minimal	None	Poor	Co-managed	Hunting + low level logging, mining, encroachment & tourism	Fairly intact
Variarata	1,063	Government	Minimal	Facing serious threat	Yes	Minimal	Low	Poor	Some	Tourism + low level logging, mining, hunting & encroachment	Intact
Lakekamu Basin (proposed)	250,000	NGO	Serious gaps	Facing serious threat	No	Acceptable	Enough	Poor	Some	Hunting + low level logging, mining, encroachment & tourism	Intact
Crater Mountain	270,000	?	Serious gaps	Facing serious threat	Yes	Acceptable	Enough	Average	Co-managed	Low level logging, mining, hunting, encroachment & tourism	Intact

Name	Size (ha)	Management body	Management Status	Degree of threat	Legal institution	Management Plan	Funding	Staffing	Local involvement	Main threats	Status of wildlife
Peru											
Machu Picchu	32,592	Government	Minimal	Some degradation	Yes	Good	Enough	Poor	Some	Logging, encroachment & tourism	Degraded
Tambopata Candamo	1,043,998	Government	Minimal	Some degradation	Yes	None	Low	Poor	Some	Mining, tourism, + some logging, encroachment & hunting	Fairly intact
Rio Abiseo	274,520	Government	Minimal	Facing serious threat	Yes	Minimal	Low	Poor	Some	Mining + low level logging, hunting, encroachment, tourism	Fairly intact
Tingo Maria	18,000	Government	Minimal	Considerable degradation	Yes	(Minimal/None)	Low	Poor	None	Different areas of threat identified by consultants	Degraded
Cutervo	2,500	Government	Minimal	Facing serious threat	Yes	Minimal	Low	Poor	None	Logging & encroachment	Fairly intact
Yanachaga-Chemillen	122,000	Government	Serious gaps	Facing serious threat	Yes	Acceptable	Enough	Average	None	Some logging, hunting & encroachment	Fairly intact
Tumbes	2,972	Government	Serious gaps	Facing serious threat	Yes	Acceptable	Enough	Good	Some	Some logging & tourism	Fairly intact
Bahuaja Sonene	557,053	Government	Minimal	Facing serious threat	Yes	Minimal	Low	Average	Some	Logging & hunting, low encroachment & tourism	Fairly intact
Pacaya Samiria	2,150,000	Government	Serious gaps	Facing serious threat	Yes	Minimal	Low	Average	Some	Mining & hunting, + some logging, encroachment & tourism	Fairly intact

Name	Size (ha)	Management body	Management Status	Degree of threat	Legal institution	Management Plan	Funding	Staffing	Local involvement	Main threats	Status of wildlife
Russia											
Caucasian	280,335	Federal government	Good	Facing threats	Yes	Good	Low	Good	Some	Logging, hunting, encroachment, + tourism and mining	Fairly intact
Zhuravlinaya	11,000	Regional government	Minimal	Some degradation	Yes	Good	Low	Poor	Some	Mining + logging, hunting & encroachment	Fairly intact
Verh ne-Kondinsky	241,600	Federal government	Good	Facing serious threat	Yes	Acceptable	Low	Average	None	Hunting + low level logging, mining, encroachment & tourism	Degraded
Source of Kerzhenets	2,969	Regional government	None	Some degradation	Yes	None (?)	None	None	N/A	Logging & hunting, + low level mining, encroachment & tourism	Degraded
Valdaisky	158,461	N/A	Serious gaps	Some degradation	Yes	Good	Low	Average	Some	Some logging & encroachment + low level mining & hunting	Fairly intact
Vietnam											
Bien Lac-Nui Ong	35,377	Provincial government	Partial	Some degradation	Yes	Acceptable	Enough	Average	Some	Logging, hunting and encroachment	Degraded
Cat Loc	30,635	Provincial government	Minimal	Considerable degradation	Yes	Minimal	Low	Poor	Some	Logging and encroachment	Badly degraded
Krong Trai	22,290	Provincial government	Minimal	Degradation throughout	Yes	Acceptable	Low	Poor	Some	Some logging, hunting & encroachment	Degraded
Pu Mat	91,703	Provincial government	Serious gaps	Some degradation	Yes	Acceptable	Low	Poor	Some	Encroachment, + some logging & hunting	Intact
Yen Tu	3,040	Provincial government	Serious gaps	Considerable degradation	Yes	Minimal	Low	Poor	Some	Mining, + logging & some tourism	Degraded

