

Parks



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Parks, 36 Kingfisher Court, Hambridge Road, Newbury, RG14 5SJ, UK**Fax: [+ 44] (0)1635 550230****E-mail: parks@naturebureau.co.uk****Subscription rates and advertisements**

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- maintaining and improving an effective network of protected area managers throughout the world, building on the established network of WCPA;
- serving as a leading global forum for the exchange of information on issues relating to protected area establishment and management;
- ensuring that protected areas are placed at the forefront of contemporary environmental issues such as biodiversity conservation and ecologically sustainable development.

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Cover: *Raging forest fire. The Sifaka lemur (Propithecus verreauxi coquerelli) is endemic to Madagascar and assessed as vulnerable due to the continuing loss of its habitat, dry deciduous forest (background). Photos: P. Lopez. Communal conservancies in Namibia are working out innovative ways to support AIDS orphans through conservancy activities. Photo: Judy Oglethorpe/WWF-US.*

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Editorial

DOUGLAS WILLIAMSON



IN THE COURSE of preparing this issue of Parks, lessons were learned about coping with the unexpected.

Then came the business of educating oneself about a whole new area of thought. One's ambitions were rapidly pared back. The first Google search, with query words "disaster preparedness", generated tens of millions of hits and a website headed "Disaster Preparedness" and boasting "40 Million Books In One Website." So one's best efforts would be small beer, and modest expectations from the readers of this issue would be the order of the day.

So much for levity.

The aims of this issue are to inform the reader about current thinking on preparing for the unexpected and to illustrate the kind of preparations that can be and have been made in the context of protected area management for specific situations.

Thinking about planning for the unexpected intuitively brought disasters and emergencies to mind, but of course one should also be prepared for the positive possibility of unexpected opportunities arising. This possibility is accordingly touched on, but disasters, emergencies and so on receive much more attention because they are more difficult to address and manage and far more thought has been given to them.

A few definitions may be useful. A disaster can be defined as "An event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society is prevented." (Tierney *et al.*: 8). A crisis is defined as "a time of danger" (OED), while an emergency is defined as "a sudden state of danger".

All of these may be of variable duration and all may require a response from protected area managers.

It is useful to recognise that protected areas are susceptible to short and long term disasters/crises/emergencies that may be unexpected in at least two different ways. On one hand, there are events, such as volcanic eruptions, that are rare and often separated by intervals of tens or hundreds of years. When they happen, many people are taken by surprise. This is almost certainly how the recent Asian Tsunami was experienced by at least some managers of coastal protected areas in the region.

In principle, it is not difficult to establish whether a given area is at risk of earthquakes, hurricanes or whatever, so there is no reason why anybody should ever be completely surprised by such events. But it seems that humans are likely to continue to be surprised. In Britain, for instance, despite police warnings that it was not a question of whether a terrorist attack would occur, it was a question of when it would occur, people were still profoundly surprised and shocked when an attack actually took place.

The second type of unexpectedness relates to crises/emergencies, hazards, threats and problems which materialise repeatedly, but at erratic and unpredictable intervals. Examples include extreme climatic events, conflicts, disease outbreaks and epidemics, illegal activities and wild fires.

This issue of Parks considers both types of unexpectedness, from the perspective of those who have an obligation to respond to them, including protected area managers on the ground, national

protected area agencies, and government decision makers. From the perspective of such people, crucial questions that arise include:

What types of disasters, emergencies and so on could potentially arise and how great is the risk they will arise?

What specific threats or dangers are likely to arise when the potential emergency/crisis occurs?

What precautionary measures can be put in place to manage the crisis and to prevent or mitigate likely damage or loss?

This issue of Parks also includes lessons learned in a crisis that has already arisen, namely the HIV/AIDS crisis.

When all is said and done, perhaps what is needed is an attitude which accepts that problems and setbacks are inevitable, but are often capable of being managed one way or the other. They are also subject to better and worse management, with preparation being one obvious element of better management.

Douglas Williamson PhD, Forestry Officer (Wildlife and Protected Area Management), FORC, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Lazio, Italy. Tel: +39 06 570 52332. Fax: +39 06 570 55137. E-mail: douglas.williamson@fao.org. www.fao.org/forestry/forestry.asp

Learning from disaster preparedness

DOUGLAS WILLIAMSON

Out of the experience of dealing with many thousands of disasters and more than 50 years of disaster research, many concepts and principles have emerged that are relevant and useful for any form of planning for the unexpected. This paper reviews priority actions for achieving effective disaster preparedness, and principles that facilitate systematic thinking about planning for the unexpected, such as: the hazard cycle, purposes and principles of planning, managing risk, and evaluating progress towards risk reduction. It concludes with some reflections on planning for the unexpected in the context of protected areas.

A REVIEW OF DISASTER PREPAREDNESS presented at the World Conference on Disaster Reduction found that:

“In the decade 1994–2004 there were about 7,100 disasters resulting from natural hazards around the world. They killed more than 300,000 people and caused more than US\$ 800 billion in losses. Some estimates suggest that well over 200 million people have been affected every year by ‘natural’ disasters since 1991. Two-thirds of the recorded disasters since 1994 were floods and storms. These included record rainfall episodes, extraordinary floods and unprecedented storms distributed across each of the five continents. The severity of Hurricane Mitch alone eliminated more than 10 years of development gain in some parts of Central America.”

So there is copious recent experience with disasters.

So much work has been done on how to prepare for these events that, in terms of preparing for the unexpected, it is useful and important to learn from it.

Experience of planning for the unexpected

Disaster research in the United States of America has recently been reviewed in detail by Kierney *et al.* (2001). It began more than 50 years ago (*op. cit.*: 247) and originated in questions that the US military had about maintaining social order in wartime situations – for example, whether community residents would panic when faced with a potential or actual nuclear attack (*op. cit.*: 8).

One is struck by the fact that, after more than 50 years of research, the problems in New Orleans after Hurricane Katrina showed that disaster preparedness in the world’s most powerful and technologically advanced society was still vulnerable to the glitches and failings that afflict all human activities. It is a powerful reminder that no amount of preparation reduces the need for timely action when disaster actually strikes.

It also vindicates the observation that: “It is possible to lack a formal disaster plan and yet be prepared for a disaster because all responding personnel have the knowledge, skills, and equipment for responding to the demands of an incident. Conversely, it is possible to have a written plan yet be unprepared for emergencies because those who are assigned roles by the emergency operations plan are unaware of them, are insufficiently trained, or lack the resources to perform those roles.” (*op. cit.*: 74–75).

In the contemporary world, disaster and emergency planning occurs literally at all levels from the household to the global, but it is patchy and obviously far from universal. It is common in the private sector, where it is taken very seriously because of potential financial losses due to unpreparedness. So, for example, after the bombings in London on 7 July 2005, which virtually closed down the city’s public transport system, the Financial Times (8 July 2005) reported that some companies were so well prepared that they felt no need to activate their emergency plans.

At the international level, there has been marked activity in recent years. The United Nations has an International Strategy for Disaster Reduction, with a secretariat to promote the strategy, and an Inter-Agency Task Force on Disaster Reduction. In January 2005 the World Conference



Doomed wildebeest calf left behind by herds migrating to water during drought. Photo: Pascal Lopez.

on Disaster Reduction, which took place in Hyogo, Japan, produced the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters.

This framework captures a great deal of experience and expertise in its five priorities for action. These priorities, their underlying rationale, and key action elements *in italics* are as follows:

1. *Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation*

Countries that develop policy, legislative and institutional frameworks for disaster risk reduction and that are able to develop and track progress through specific and measurable indicators have greater capacity to manage risks and to achieve widespread consensus for, engagement in and compliance with, disaster risk reduction measures across all sectors of society.

- (i) *National institutional, policy and legal frameworks.*
- (ii) *Resources.*
- (iii) *Community participation.*

2. *Identify, assess and monitor disaster risks and enhance early warning*

The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerability to disasters that most societies face, and of the ways in which hazards and vulnerability are changing in the short and long term, followed by action taken on the basis of that knowledge.

- (i) *National and local risk assessments.*
- (ii) *Early warning.*
- (iii) *Capacity.*
- (iv) *Analysing and documenting regional and emerging risks.*

Wildebeest calf attacked by dogs while trying to get to water near Lake Xau, Botswana, during drought. Photo: Pascal Lopez.



3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerability and capacities.

- (i) *Information management and exchange.*
- (ii) *Education and training.*
- (iii) *Research.*
- (iv) *Public awareness.*

4. Reduce the underlying risk factors

Disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.

- (i) *Sustainable environmental and natural resource management.*
- (ii) *Sustainable social and economic development practices.*
- (iii) *Land-use planning and other technical measures.*

5. Strengthen disaster preparedness for effective response at all levels

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard-prone areas are well prepared and ready to act and are equipped with the knowledge and capacities for effective disaster management.

- (i) *Policy, institutional and capacity strengthening.*
- (ii) *Information exchange.*
- (iii) *Updating emergency plans.*
- (iv) *Establishing emergency funds as needed.*
- (v) *Stakeholder engagement.*

The Hyogo Framework's five priorities for action provide a useful starting point for thinking about how to plan for the unexpected. Obviously these prescriptions are very general and have to be interpreted and adapted to meet the particular needs of each of the many different contexts in which they can potentially be used.

The value of the Hyogo Framework is also recognised by Wisner and Walker. In their review of the World Summit on Disaster Reduction (2005: 8), they conclude that: "The Hyogo Framework scores high over previous similar statements in that it is not an *ad hoc* wish list. It is well organised and is internally consistent. It lays down some key public markers:

- disasters are linked to development;
- good development reduces them, bad development causes them;
- sound knowledge and good data are the basis of effective disaster reduction planning; and
- partnerships and multi-lateral action are more effective than individual action, especially when dealing with global threats such as climate change." (2005: 8).

They also draw attention to increased disaster vulnerability: "Over the last two decades disaster deaths per year have gone down by around 30%, whereas the number of people affected by disaster has gone up by 59%. It is largely the technical fix of warning systems, better communication and cyclone shelters that has reduced the death toll, taken the extreme worst off disasters, but it is the lack of human rights, economic opportunity and global process fixes that are allowing the numbers affected by disaster to rise so." (*op cit.*: 1).



Bushmeat everywhere – take-away crocodile at Brazzaville fish market. Photo: Pascal Lopez.

They identify four root causes of increased disaster vulnerability, all of which can also have negative implications for protected area management. The four root causes are:

- *economic globalisation* – which affects biodiversity conservation, for instance, when Amazonian rainforest is cleared or a protected area in Argentina is taken over to grow soy beans for export to Europe or China;
- *increasing violence* – conflicts can have major impacts on protected areas, as can be seen in the Democratic Republic of Congo;
- *accelerating urbanisation* – cities affect protected areas through, for example, the demands for bushmeat and fuel wood or charcoal; and
- *global climate and environment change* – which have many implications for protected areas.

The following are some general ideas that facilitate thinking about preparing for the unexpected.

The hazard cycle

This is commonly seen as having four temporal stages (Kierney *et al.*: 4–8):

- **Mitigation** – is primarily concerned with efforts to reduce disaster vulnerability, and can include land-use regulations and construction of protective structures.
- **Emergency preparedness** – involves taking measures that enable organisations to respond actively when an event occurs, in other words, planning for the unexpected.
- **Emergency response** consists of actions taken a short period prior to, during and after impact to reduce casualties, damage, and disruption and to respond to the immediate needs of disaster victims.
- **Post-disaster recovery** comprises actions taken to repair, rebuild and reconstruct damaged properties and to restore disrupted community social routines and economic activities.

At the organisational level preparedness activities include response planning, training staff on what to do in an emergency situation, procuring needed equipment, supplies and materials, and conducting drills and exercises.

The process of preparing “begins with hazard and vulnerability analyses that attempt to anticipate what problems are likely to occur and proceeds with the development of ways to address those problems effectively. The primary goal of emergency preparedness is ... to develop appropriate strategies for responding when disaster occurs ... (and) ensuring that resources

necessary to responding effectively are in place prior to the onset of disaster or that they can be obtained promptly when needed. ... disaster plans and training for disaster responders and the general public". (*op. cit.*: 27).

Obstacles to preparedness include: "the overall intractability of the disaster problem; the lack of clear and measurable performance objectives, insufficient resources; inadequate levels of public and official support; and the fact that higher government levels provide insufficient emergency management expertise and guidance". (*op. cit.*: 46-7).

Purposes and principles of planning

In the context of disaster preparedness, plans have two main purposes:

Firstly, they provide documentation of the allocation of response tasks, the process of activating the response, and the direction and control of the response.

Secondly, they serve as training documents for drills, exercises and simulated emergencies, and for educating and raising the awareness of those who need to know: (a) that they are at risk, (b) what hazards they face, and (c) what they must do to protect themselves.

Out of the research on disaster preparedness, 10 general principles of planning have been distilled. Namely, that planning:

1. is a continuous process;
2. entails attempts to reduce the unknowns in the anticipated disaster situation, although it is impossible to pre-plan every aspect of a response;
3. aims at evoking appropriate (not necessarily rapid) response actions;
4. should be based on what is likely to happen and what people are likely to do in disaster situations;
5. must be based on valid knowledge of how people typically behave in emergencies, knowledge of the hazard itself and knowledge concerning the resources needed to respond to the disaster event;
6. should focus on principles while maintaining flexibility;
7. is partly an educational activity;
8. must overcome resistance;
9. must be tested; and
10. is distinct from disaster management, in that it is impossible to plan for specific problems that will develop when a disaster actually occurs. (Kierney *et al.* 2001:72-76).

Managing risk

The issue of risk is central to preparing for the unexpected. It has received a great deal of attention in many different fields. A small example of clear thinking about risk is provided by the advice given to farmers by the Center for Dairy Profitability of the University of Wisconsin in Madison:

"While we cannot control the future or plan for every eventuality, exiting or entering farming is a major life decision that requires us to make provision for events which could impede or even destroy the farm transfer or the farm business.

There are five major events that can severely impact a farm family or a family business: death, disability, disaster, divorce and disagreements – the five D's. Planning a farm transfer without providing protection against the possibility of any one of these major events is gambling with your future and your family's future, whether you are entering, exiting or modifying the farming business."

Uncertainty adds to the complexity of understanding and managing risk. In the context of decision making, Hammond *et al.* (1999) propose a clear and simple way of dealing with uncertainty:

"To make sense of uncertainty, you need to find a way to simplify it – to isolate its elements and evaluate them one by one. You can do this by using risk profiles.

A risk profile captures the essential information about the way uncertainty affects an alternative. It answers four key questions:

- What are the key uncertainties?
- What are the possible outcomes of these uncertainties?
- What are the chances of occurrence of each possible outcome?
- What are the consequences of each outcome?

By providing a consistent basis for comparing the uncertainties affecting each of your alternatives, risk profiles allow you to focus in on the key factors that should influence your choice, ignoring peripheral factors.”

There is, in fact, much to be gained by seeing problems as decision situations. Hammond *et al.* (*op. cit.*: 234) go so far as to make the engagingly provocative assertion that “the only way to exercise control over your life is through your decision making. The rest just happens to you.” And they argue (*op. cit.*: 217) that “the art of good decision making lies in systematic thinking”. A systematic approach helps you to:

- address the right decision problem;
- clarify your real objectives;
- develop a range of creative alternative ways of meeting your objectives;
- understand the consequences of your decisions;
- make appropriate trade-offs among conflicting objectives;
- deal sensibly with uncertainties;
- take account of your risk-taking attitude; and
- plan ahead for decisions linked over time.

Keeney (1996) gives several examples relating to risk and hazard which illustrate the benefits of this approach. He notes (*op.cit.*: 19–20) that “The objective of risk communication is rarely explicitly stated. It is more or less assumed that the objective is to inform the public about risks facing them Often, the risk communication problem is not recognised as a decision situation: only one alternative is recognised, so no choice can be made among alternatives.” He demonstrates that risk communication can have as many as seven plausible objectives and that each of these generates a variety of alternative ways of effecting the required communication.

He describes (*op. cit.*: 20–21) how the person newly appointed to “manage and integrate all municipal activities concerning AIDS in a major metropolitan area ... recognised a major decision opportunity to articulate the strategic values that would guide all the efforts under his control.” His vision enabled him to integrate and co-ordinate previously disparate activities in medical research and practice and public AIDS education, and to include the concerns of people with AIDS, who had never previously been consulted.

In the context on nuclear plant safety, he shows (*op. cit.*: 208–9) how focusing exclusively on the prevention of an accident can reduce rather than increase the welfare of those living near a nuclear plant. He uses the hypothetical example of a nuclear plant being required to spend \$1 billion to reduce the probability of an accident in the event of a large earthquake, in order to protect the residents of a nearby town. He argues that there could be evidence that an earthquake that would severely damage the town could be withstood by the nuclear plant in its current state. It might then be the case that spending \$200 million on increasing the security and disaster resilience of the town would be more beneficial to its residents than simply spending a \$1 billion on further strengthening the nuclear plant. This widens the consideration of alternatives beyond those that work for a fail-safe situation to include those that work for a safe-fail situation.

Evaluating progress towards risk reduction

Wisner and Walker (2005: 18) advocate the use of a framework for evaluating progress towards risk reduction that was proposed by the UNDP and the Secretariat of the International Strategy for Disaster Reduction. It is composed of the following elements:

- political commitment;
- institutional aspects;
- risk assessment;
- impact assessment;
- forecasting and early warning systems;
- information management and communication;
- education and training;
- public awareness;
- environmental and natural resource management;
- social and economic development practices; and
- technical measures.

Each thematic area is broken down into components and characteristics. For example the theme “political commitment” is broken down into:

- components: policy and planning;
- legislation; and
- resources (characterised as “resource mobilisation and allocation: including financial, human, technical and material resources“, implying that resources would necessarily be mobilised if there was truly “political commitment”).

At the level of government departments or protected area agencies, this framework could be developed into a strategy for evaluating progress on risk reduction.

Protected areas context

What does one mean by ‘unexpected’?

When I asked Larry Hamilton what had really taken him by surprise in his long career, he thought for a moment, then replied “The disappearance of glaciers.”

In the early 1980s I was with a remarkable San man, on top of a sand dune in the central Kalahari, looking out over the vast flat landscape. We were puzzled by a brownish convex wall that was advancing towards us from horizon to horizon. In his more than 50 years of living in this place he had never seen such a thing. It turned out to be a Sahara-type dust storm moving across the land – the product of drought and ever intensifying livestock raising. It was unexpected.

How does one deal with the unexpected?

In April 1994 Richard Bell spent an afternoon describing to me how he had managed to reduce elephant poaching in Zambia’s Luangwa valley. The core of his efforts was an intelligence gathering network, which enabled him to identify both the most active hunters and the big men behind the scenes. His documentation included remarkable recordings of hunters recounting their exploits, including their life and death battles with law enforcement officers in Zimbabwe. For the most part he was able to use the power of the law to persuade these people to stop what they were doing.

The hazards and threats that protected area managers must be prepared to face are manifold and operate on scales ranging from the global and all encompassing, such as climate change, to the local, such as those arising from human activities which conflict with the purposes for which a protected area was created. There is also diversity in the agents which create hazards.

Table 1 provides an indication of the various types of hazard that may occur.

Table 1. Indicative list of hazard types.

Hazard Type	Examples
Geo-physical	Volcanic eruptions – Mount St Helen, 1980
	Earthquakes – e.g. Mexico City 1985; Kobe 1995
	Landslides – Kashmir 2005
	Tsunamis – South-East Asia, December 2004
	Avalanches
Climatological	Hurricanes – Katrina, 2005
	Tornadoes
	Floods – excess rainfall – US mid-west floods 1993
	Droughts – low rainfall
	Unseasonal heat/cold/wet
	Climate change
Disease	Threatening humans – e.g. malaria, HIV/AIDS
	Threatening wildlife – e.g. ebola, anthrax
	Transmission wildlife – livestock, e.g. foot and mouth
	Transmission wildlife – humans, e.g. sleeping sickness
Invasive species	Plants
	Animals
Fire	Wild fire
	Arson
Technological/Infrastructural	Nuclear – Three Mile Island; Chernobyl
	Chemical – Bhopal
	Oil-spill – Exxon Valdez; Prestige – off north-west Spain in 2002, polluting 2,000 km of coastline, severe wildlife impact
	Atmospheric – acid rain
	Mining – toxic waste, e.g. Doñana National Park 1998
	Large dams – habitat loss
	Roads – can facilitate illegal activity and settlement
Economic	Globalisation
	Unsustainable development
	Urban demand for rural resources
Human-related	Governance – corruption, arbitrary and unexpected decisions
	War/conflict
	Terrorism – e.g. 1999 attack on gorilla-tracking ecotourists, Bwindi Impenetrable Forest, Uganda
	Accidents/injuries involving tourists/visitors
	Subsistence hunting
	Commercial hunting – ivory, rhino horn, bushmeat
	Illegal logging and resource harvesting
	Human/wildlife conflict
Protected area invasion for settlement or livestock grazing	

Protected area managers and staff have, of course, been coping with many of these problems for generations, and are learning to cope with newer threats like climate change and HIV/AIDS. The vast differences in the capacity and resources available to be deployed in protected areas around the world rule out any one-size-fits-all approach to planning for the unexpected. Models are available in the literature for dealing with the hazards of disease, fire, illegal activities and so on, but in the end perhaps the most constructive suggestion that can be made is that protected area managers need to cultivate a state of mind and an attribute.

The state of mind involves both regularly reminding oneself that anything can happen at any time and being motivated to never stop learning.

The attribute is resilience, the ability to recover from setbacks and disasters.

Hazards and threats as opportunities

Protected areas are often islands of capacity in a sea of need. As such they can play a highly positive role by taking the lead in addressing in a participatory way hazards, like drought or floods, to which both they and their neighbours are vulnerable. By doing this they will create much needed goodwill, while at the same time addressing their own management concerns.

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- 5 D's planning for the unexpected – what UW Madison's Center for Dairy Profitability refers to as “the 5 D's” – is a crucial aspect of “risk management”. <http://cdp.wisc.edu/pdf/5ds.pdf>

Douglas Williamson was involved with field-related projects in Botswana and the Middle East for 20 years. Since 1998 he has been responsible for Wildlife and Protected Area Management issues in the Forestry Department of FAO in Rome. Douglas Williamson PhD, Forestry Officer (Wildlife and Protected Area Management), FORC, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Lazio, Italy. Tel: +39 06 570 52332. Fax: +39 06 570 55137. E-mail: douglas.williamson@fao.org. www.fao.org/forestry/forestry.asp

The impact of HIV/AIDS: how can it be anticipated and managed?

NANCY BELL GELMAN, JUDY OGLETHORPE AND DAULOS MAUAMBETA

The HIV/AIDS epidemic is having serious impacts on conservation capacity in sub-Saharan Africa. Staff are particularly at risk when based in remote areas away from their families, and are more likely to practice risky behaviours. Protected areas are incurring heavy financial costs including sick leave, funeral costs and added recruitment and training. There is a risk that tourism may be affected. In many areas adjacent to parks, local communities often increase natural resource consumption as households lose their main breadwinners and agricultural labour. Land-use changes also occur that can affect parks, such as increased use of fire. In the longer term there is a risk of accelerated environmental degradation and insecurity as the number of AIDS orphans increases and livelihoods are eroded in a downward poverty spiral. Next-wave HIV/AIDS countries can expect similar effects unless rapid action is taken to promote awareness and prevention.

A multi-sectoral approach is needed to tackle the AIDS epidemic, and there is an important role for the conservation sector in collaboration with health, agriculture and other sectors. Protected area managers and their institutions can work to maintain capacity by mainstreaming HIV/AIDS into their strategies and programmes and developing institutional policies and practices. This includes promoting awareness among employees, dealing with stigma and discrimination, developing strategies to help prevent HIV transmission and providing medical services to affected employees. Training programmes can be adapted to reduce risk of HIV transmission during training; to train a larger number of people in a broader set of skills; and to educate trainees about AIDS impacts and mitigating strategies for their future work. Impacts on natural resources inside and near protected areas can be reduced by working with local communities to promote HIV awareness and prevention programmes, improved basic health care, low-labour agriculture and agroforestry, alternatives to unsustainable resource use, and natural-resource based enterprises suitable for orphans and the elderly. There is an urgent need to learn about impacts, pilot new mitigating approaches, share information about coping strategies and promote action across Africa and beyond.

IS HIV/AIDS¹ REALLY A CRISIS for protected area managers? Is it not just a health sector problem? Maybe AIDS could even provide conservation with a respite by reducing population growth and slowing the ever-increasing pressure on land and natural resources? These are common initial reactions. However, emerging lessons from Eastern and Southern Africa show that AIDS has many more insidious and negative impacts on the environment, and indeed is affecting every sector through its tragic and wide-reaching impacts on families, societies and economies.

There are strong linkages between HIV/AIDS and conservation capacity, natural resource management and rural livelihoods. National parks and conservation areas in Malawi, South Africa and Tanzania, for example, have already faced significant staff losses, increased use of natural resources, and changes in land use by AIDS-affected communities that border protected areas. Many protected area authorities and conservation non-governmental organisations (NGOs) in sub-Saharan Africa were not prepared for the HIV/AIDS crisis, but some are now taking action on multiple fronts to reduce impacts. The coping strategies and best practices that are evolving need to be shared across the conservation community to reduce the impacts in Africa, and forewarn next-wave regions so they can anticipate, prevent, manage and mitigate the impacts of the epidemic on protected area management.

Background on the HIV/AIDS crisis

In 2004, between 35.9 and 44.3 million people around the world were living with HIV, 24–28 million of them in sub-Saharan Africa (Figure 1.) Globally there were 2.8–3.5 million AIDS-related deaths – AIDS was the leading cause of death in Africa and the fourth cause globally.

¹ Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome.

Figure 1. Number of adults and children estimated to be living with HIV as of end 2004 (UNAIDS and WHO 2004).



HIV-prevalence rates continue to rise in many countries, especially in Africa, parts of Eastern Europe, South, South-east, Central and East Asia, and the Caribbean; approximately 4.9 million new HIV infections occurred in 2004. The most economically active age group is affected: 15–49 years. In sub-Saharan Africa, women and girls made up almost 57% of adults living with HIV (UNAIDS and WHO 2004; US Census Bureau 2004).

In the 60 countries highly affected by HIV/AIDS, there will be 344 million fewer people than in a no-AIDS scenario by 2050; most of this difference will occur in sub-Saharan Africa. However, only three countries (Swaziland, Botswana and Lesotho) are expected to experience negative population growth rates because of AIDS, and the world's population is still expected to rise from 6.5 billion in 2005 to 9.1 billion in 2050 (medium estimate) (United Nations 2005). Hence AIDS will have a relatively small impact on global population growth compared with the effect of human fertility.

AIDS will, however, have huge impacts on human population structure, because it affects 15–49 year old age classes disproportionately. Figure 2 shows how this effect will work through the age structure by 2025 in South Africa. AIDS greatly reduces life expectancy in the worst-affected countries. For example, in Botswana the 2002 life expectancy at birth was more than halved from 72 in a no-AIDS scenario, to 34. By 2010 this figure is expected to fall further to 27 (US Census Bureau 2004).

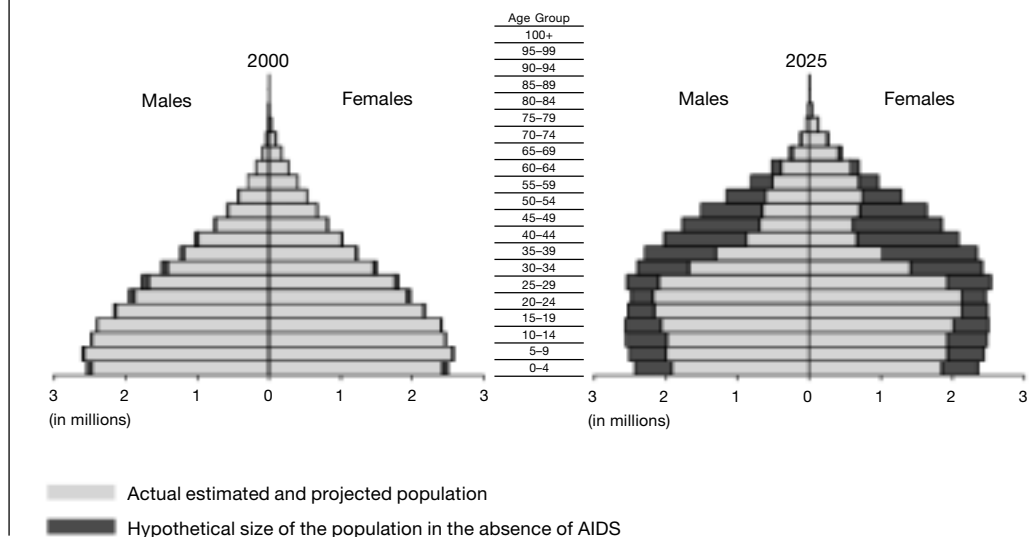
The disproportionate effects on economically active age groups are seriously affecting the workforce of the conservation sector and communities around protected areas. Impacts are outlined in more detail below.

Impacts of AIDS on protected areas and conservation

Threat to conservation capacity

The jobs of protected area personnel have become increasingly complex, dealing with both internal and external pressures facing them (Borrini-Feyerabend 1997; Hockings *et al.* 2000). Conservation requires a highly trained workforce to cover many different responsibilities including wildlife and habitat management, law enforcement, visitor services, research and

Figure 2. Population size with and without AIDS, South Africa, 2000 and 2025 (UNAIDS 2004).



monitoring, resource conservation, interpretation and education, community conservation, public relations, staff supervision, finance and accounting, and infrastructure development and maintenance. Staff must possess extensive knowledge, broad skills and open attitudes to effectively and efficiently perform their jobs (Scholte 2003; Pitkin, 1995; Stone 1997). In Africa there is a tremendous need for well-trained conservation staff, and large investments have been made in training through both formal education programmes and in-service training courses.

Yet conservation capacity in Africa faces a huge threat from AIDS. Many well-trained and experienced conservation leaders, technical and operations staff have been lost to AIDS. For example, the Wildlife and Environmental Society in Malawi has lost 14% of its 60 staff; a national fire awareness programme in southern Africa lost 10 of its 12 extensionists. Although this is a huge problem in the conservation sector it has not been adequately documented or quantified, as many organisations are reluctant to supply information due to stigma and confidentiality issues. If more statistics were openly available it would help to publicise the problem, attract financial assistance and promote action to help retain remaining capacity.

Wildlife and protected area personnel are particularly at risk when stationed in remote parks and reserves far from their families where they are more likely to engage in risky behaviour. In some countries, staff are based there for 11 months at a stretch and only get one month of annual leave to see their spouses and families. In remote parks there is often no access to HIV/AIDS information or condoms. Sexual interactions with prostitutes or women in local communities can increase due to lack of entertainment, boredom, loneliness and excessive use of alcohol.

Conservation staff who travel such as drivers, community conservation personnel, and people attending training programmes and workshops away from home may spread HIV. For staff working in rural communities, there is a risk of HIV transmission between staff and community members. If supervision and discipline of law enforcement personnel are inadequate they can sometimes force local women to engage in sex if they cannot pay fines for petty offences. The practice of rotating law enforcement staff within and between conservation areas to reduce risk of corruption and broaden their conservation experience can increase HIV transmission.

AIDS seriously affects management effectiveness of conservation areas. Park guards ill from opportunistic infections due to AIDS are often not strong enough to patrol protected areas; decline in law enforcement effort can result in increased illegal activities. Increased poaching has been attributed to AIDS-induced decrease in law enforcement in conservation areas in Malawi. Absenteeism also occurs when staff care for family members with AIDS and attend funerals of relatives, friends and colleagues. AIDS also causes a decline in morale as successive bereavements sap spirits and enthusiasm for work, affecting productivity (Simon *et al.* 2000).

AIDS affects institutional leadership and vision. Loss of staff from AIDS seriously affects institutional memory and continuity of programmes and operations, and can greatly reduce organisations' ability to achieve conservation goals. Staff with AIDS are often off work sick for extended periods, yet it may not be possible to recruit new people to cover for them while they are still on the pay roll, especially in government agencies. The workload on human resource staff is significantly increased.

In addition to protected area staff, communities practising community based natural resource management (CBNRM) near protected areas are being seriously affected by AIDS in parts of Africa. Many community champions have been lost to the disease and in some cases local institutions governing natural resources are breaking down. Healthy community members have less time for sound resource management because of caring for the sick and refocusing livelihood strategies on immediate survival. Rural women who play a large role in the management of certain natural resources are often disproportionately affected since they are major care givers, and the resources they manage are often in greater demand (e.g. water for washing the sick; wild food plants to supplement their diet; fuelwood to cook, boil water and keep invalids warm; and medicinal plants to treat side-effects of AIDS).

Financial costs of AIDS

AIDS has significant financial costs for protected area authorities that are often not anticipated nor budgeted for. There is a huge financial loss in training investment when highly qualified staff die. PhD and Master's studies in the UK and US, for example, can cost up to \$ 40,000 per year (including tuition and living expenses). Training new staff or re-training personnel to fulfil new roles is very costly. For example, The College of African Wildlife Management, Mweka, Tanzania, charges US\$ 3,125 per annum for Tanzanian students and US\$ 6,000 per annum for international students (College of African Wildlife Management 2002). A 24-day short course in protected area management at the Southern African Wildlife College in South Africa costs about US\$ 1,625 (10,800 Rand) (SAWC website 2005).

In addition, AIDS can divert limited conservation funds for medical expenses, sick leave, terminal benefits and funeral costs. Some protected area authorities have hired additional personnel such as occupational health nurses and social workers to provide increased services to staff, or have contracted health clinics to provide services.

Potential impact of HIV/AIDS on national park tourism

Tourism to African national parks has been described as one of the best African export industries since it is based on renewable natural resources. Tourism can provide substantial long-term financing for protected areas (Mulholland and Eagles 2002). However, HIV/AIDS can impact tourism. Visitors may be afraid to go to areas with high HIV prevalence, and react badly to being served by visibly sick employees. Increased absenteeism and loss of employees can reduce the quality of visitor services (B. Meier pers. com. 2003). As many national park systems and national economies depend on tourism for foreign exchange and financial viability, AIDS can pose a severe threat. Tourism is often associated with increased risk of HIV transmission including casual sex, and drug and alcohol abuse (Forsythe 2000).

Threat to conservation partnerships

Protected area authorities work with many partners, including local, national and international NGOs, local communities, various district, provincial and national government agencies, universities and research institutions, private sector, neighbouring landowners and donors. AIDS can threaten partnerships: it takes time to develop trust and sound personal working relationships and continuity of partnerships can be jeopardised if key individuals are affected by AIDS. If parks are unable to fulfil donor obligations and are not being effectively managed, they could lose funding. Jobs working on conservation partnership functions could potentially be lost due to the impacts of the disease (B. Meier pers. com. 2003).

Increased use of natural resources

The HIV/AIDS epidemic is increasing natural resource use in many areas because of changes in rural household livelihood strategies. Since the most economically active age groups are most affected, loss of employment and labour results in decreased income and family agriculture. Scarce financial resources are often spent on medicines, special food and care. Many households are forced to sell assets such as draught animals, farm implements or even land, or incur debts. This further reduces their agricultural capacity and deepens the spiral of poverty.

As a result, natural resources often play an increasingly large role in AIDS-impacted rural household economies. Activities such as hunting, fishing, wild food collection, firewood extraction and charcoal-making increase as agricultural production falls and families struggle to maintain diets and generate alternative income (e.g. Africa Biodiversity Collaborative Group 2002; Barany *et al.* 2001). Medicinal plant harvesting increases to treat opportunistic infections of AIDS, and logging accelerates to supply the growing coffin industry. These anecdotally and widely reported increases in natural resource use are often not sustainable and can put increased pressure on protected areas as neighbouring communities seek access to natural resources.

People living with AIDS from cities often return to their rural homes to seek care. This further burdens rural communities and care-takers. There is an increased demand for special foods, traditional medicines such as the African potato, and fuelwood. There is also substantial trade of resources to urban areas as HIV-positive residents seek natural, traditional and less refined food (Chibememe 2004).

Changes in land use

AIDS is causing changes in land use. In some areas land may be abandoned and natural vegetation and wildlife may recover, at least temporarily. However, long-term gains for biodiversity are unlikely due to continued population growth and land grabbing. In some societies widows and orphans cannot inherit land when the male head of a household dies because of patriarchal laws and traditions. Even if there is a legal basis for inheritance land grabbing may occur (International Center for Research on Women 2004). Newcomers may not manage land and resources as effectively.

Increased use of fire has been linked to AIDS. For example, in a pilot area in the Caprivi in Namibia the incidence of fire increased from 2003 onwards as AIDS orphans and remaining family members used fire as a cheap, labour-saving method to clear agricultural land. Uncontrolled fires destroyed natural resources such as forest foods and building materials, affecting livelihoods (M. Jurvelius pers. com.). Unplanned fires coming from outside are a challenge for many protected areas.

AIDS results in loss of traditional knowledge of natural resource management and agroforestry, because such knowledge is held by the active middle generation. Older people are no longer able to work, and AIDS orphans are often not old enough to have gained adequate knowledge from their parents, so land and resources are often used in less appropriate ways that can be more damaging to biodiversity.

Future insecurity and mining of resources

AIDS affects governance and security. As mentioned above, at local levels it can result in shifts in land and resource control, as traditional governance structures break down and power relations change. As AIDS orphans grow up they often have little indigenous knowledge, weak attachment to land and resources, and poor education. In the absence of alternative livelihood opportunities they could mine natural resources, turning to unsustainable fishing, poaching, logging and charcoal-making on a large scale, with serious environmental impacts that could threaten protected areas and local communities. Compounding this, law enforcement capacity is being weakened by the epidemic, as is the ability of governments and NGOs to provide children's education and technical support for rural development and resource management. With less ability to maintain law and order, and more competition for natural resources, these factors could lead to civil unrest, with serious consequences for conservation and protected area management.

Measures to prevent or mitigate damage or loss

The need for a multi-sectoral approach

AIDS is a serious long-term crisis for many countries, particularly in sub-Saharan Africa. Often there are inadequate awareness, prevention, care and treatment services. HIV/AIDS is still highly stigmatised. In the early stages many countries lacked (and some still lack) a coherent, nationally-led AIDS response – this can profoundly influence the future course of the disease in a country (UNAIDS and WHO 2004). In the course of the epidemic it is becoming very clear that the problem is way beyond the scope of the health sector alone. A multi-sectoral approach is needed to address the underlying economic, social, cultural and environmental factors that increase individual, family, community and organisational vulnerability to HIV/AIDS. This requires partnerships among civil society, government agencies and the private sector, and across disciplines, to ensure co-ordinated and effective action (Liverpool School of Tropical Medicine and University of Natal, 2003).

Thus, while the conservation sector cannot and should not try to tackle the HIV/AIDS epidemic alone, there is a key role for it to play in collaboration with other sectors to reduce impacts on its own staff, on protected areas and on neighbouring rural communities, their land and natural resource management. A few protected area authorities and other organisations are taking a leadership role in this already. The following sections outline key actions.

Develop an HIV/AIDS policy and incorporate AIDS into strategic plans, budgets and funding proposals

Overcoming stigma and discrimination on HIV/AIDS in the workplace is an important first step in an organisation. Often it takes a brave and inspired champion to break the silence and promote discussion. There are many HIV/AIDS conservation champions in Africa who have implemented coping strategies and shared their approaches and information through open discussion, often in the face of initial opposition. Champions can be managers, human resources personnel, or peers.

It is important to assess organisational vulnerability to AIDS, in terms of staff, financial resources and management systems. This has been done for a few conservation organisations (e.g. Ezemvelo KwaZulu-Natal Wildlife in South Africa; Erskine 2005). A vulnerability assessment for Ankarafantsika National Park in Madagascar (Lopez *et al.* 2004) (see article in this issue) was done as a pilot study for the Madagascar protected area authority (ANGAP), and incorporated into a management strategy for the park.

Such vulnerability assessments are an early step in developing institutional HIV/AIDS policies. Policies provide a framework for an organisation's actions to reduce the spread of HIV/AIDS and plan for and manage its impact on the organisation and broader working environment.

They set out the organisation's commitment to take action; ensure consistency with national laws; lay down a standard of behaviour for all employees; and give guidance to supervisors and managers. Policies help employees living with HIV/AIDS to understand what support and care they will receive so they are more likely to come forward for voluntary counselling and testing; and help stop the spread of HIV through prevention programmes. They should also identify ways to document and conserve institutional memory.

Health and labour experts can provide valuable assistance to develop a sound policy: various tools are available (e.g. Academy for Educational Development 2004; Futures Group 2004; Rau 2004). Policies can be developed for government departments, NGOs, community based organisations, training and research institutions, donor agencies, and private sector companies. For example, WWF offices in Namibia and East Africa have developed HIV/AIDS policies tailored to their particular circumstances; the African Wildlife Foundation has a policy covering all of its offices in Africa and the United States. Employees should be well informed about the organisation's HIV/AIDS policy, including procedures for handling HIV/AIDS concerns, employee benefits and where to go for help.

Many organisations try to accommodate affected staff for as long as possible. For example, they may be transferred to less labour-intensive positions: park guards unable to patrol may transfer to office jobs or part-time jobs. Some national park authorities also assist personnel in estate planning, e.g. drafting wills, provisions for orphans and financial planning. They also work with insurance and pension companies where appropriate to make sure that AIDS-affected employees and their families receive benefits that are due.

Institutional AIDS audits help organisations to understand the true financial costs of HIV/AIDS, and to budget for HIV/AIDS related expenses (Simon *et al.* 2000 outline models for assessing the costs of HIV/AIDS to businesses). Ezemvelo KwaZulu-Natal Wildlife earmarks funding specifically for HIV/AIDS programmes, and has key performance indicators and deliverables on HIV/AIDS (B. Meier pers. com.). Some donors fund the integration of HIV/AIDS into conservation programmes: for example, the United States Agency for International Development is funding a programme mainstreaming HIV/AIDS into communal conservancies in Namibia. The Wildlife and Conservation Society of Malawi often includes an additional budget line for AIDS costs in its funding proposals.

WWF's organisational policy brochure for its office and programme in Namibia. WWF.

LIFEPoster used by a health/environment programme in Cameroon to promote awareness about the risk of HIV transmission along transport routes. Ministry of Health/Ministry of Water and Forests/WWF, Cameroon.





Figure 3. "HIV/AIDS corner" at NACSO office in Namibia. Photo: Judy Oglethorpe/WWF-US.

Awareness and prevention

It is important that all protected area and tourism staff understand how HIV is and is not transmitted and how to prevent transmission. This includes understanding that HIV can be contracted by having unprotected sex or sharing needles with someone who is HIV positive, and receiving blood containing the virus during a transfusion. HIV is not transmitted by sharing food and cutlery, sharing toilet facilities, shaking hands, or hugging and kissing someone who is HIV positive. Staff must know that using a condom during sexual intercourse can protect them from HIV and other sexually transmitted infections. Member organisations of the Namibian Association of CBNRM Support Organisations (NACSO) have peer educators who promote awareness of HIV/AIDS and organisational policies, and have set up 'HIV/AIDS corners' in their offices to provide information and condoms. See Figure 3.

Developing a condom distribution system is essential to reduce AIDS transmission. Condoms should be available at convenient and discreet locations at work, including in vehicles and remote stations. Supplies must be replenished as needed. They can often be obtained in bulk at little or no cost from local health organisations or AIDS programmes. Rubber gloves should be included in first-aid kits at work and in vehicles in case employees have to provide first aid. In places where there is cultural resistance to condoms it is important to work with HIV/AIDS experts on the best ways to approach the issue.

This work should be extended to people that conservation staff interact with through their jobs, particularly local communities (see below) and tourists. In Tsiseb Conservancy in Namibia information on HIV/AIDS and condoms are available to tourists at the lodge reception, handicraft shop and other tourist venues, and tourist guides are given HIV/AIDS education.

Testing and treatment

If voluntary HIV counselling and testing services are available, employees should be encouraged to have HIV tests, with pre- and post-counselling so they understand the nature of the test and its implications. People are more likely to have tests if there is access to treatment if needed. It is important that tests are voluntary. Mandatory testing as a requirement for recruitment, employment or retention is discriminatory, violates human rights principles, and is illegal in some countries.

Wellness programmes in conjunction with the health sector should be promoted at work, especially to help with nutrition and to prevent and treat opportunistic infections. HIV positive people are more susceptible to diseases such as tuberculosis and herpes because their immune system is weakened. Some large conservation organisations have hired occupational nurses to help with staff health care.

Some protected area authorities are trying to help employees get access to anti-retroviral (ARV) drugs, working through government health systems. ARVs require access to good health infrastructure to ensure monitoring and follow-up care, and are often not available in remote areas. Decisions have to be made beforehand about offering treatment to HIV-positive spouses and children of employees, and a commitment should be made to continue treatment for the life of the employee (and not just for the life of a project or funding cycle).

Provide housing so that staff can live with their families

To reduce risky behaviour by staff posted far from their families one needs to explore options for staff to live with their families. This presents challenges in many protected areas, but may be feasible for example by redesigning protected area law enforcement systems from a series of remote outposts to a more centralised, mobile system based in an area where families can live. Improvement of staff housing may be needed: for example, new park guard housing in Tarangire National Park in Tanzania was designed specifically so that staff could live with their families. Lack of education facilities for children of park personnel often results in families living elsewhere. In this case options include the provision of teachers and schools in park headquarters, and the payment of boarding school fees.

Adapt conservation training programmes and build capacity

Universities and wildlife and forestry colleges should adapt their programmes to deal with the impacts of AIDS and reduce risk of HIV transmission. They need to incorporate AIDS awareness and prevention into their programmes; ideally during orientation programmes for students with special reminder activities throughout the academic year. Training institutions must protect their students, faculty, staff and neighbouring communities. They must foster open discussion of risks, regularly remind students to protect themselves against HIV, and supply condoms.

New, innovative and cost-effective training approaches can reduce HIV transmission and keep people working while they study in order to help with capacity issues. These include distance and e-learning through e-mail, web training and correspondence courses. This enables people to study at home with their families. This type of training is often less expensive, and may be extended to a larger number of people. Distance learning also allows staff to learn while continuing to perform their jobs, thus helping to avoid capacity gaps. Training institutions should consider training more people in conservation given future losses that will occur, and broaden the skills base of individuals in case they have to take on new responsibilities when colleagues can no longer work.

Training institutions should integrate HIV/AIDS in training curricula, including curricula for natural resource managers who should learn about impacts on natural resources and land use, and mitigation strategies. For example, the Southern Africa Wildlife College has a module on HIV/AIDS for certificate and diploma students who learn how to draft HIV/AIDS

organisational policies and work with communities neighbouring protected areas on AIDS-related activities (L. Greyling, pers. com.).

Before staff go for training away from home, they should receive pre-departure training on HIV prevention and be provided with condoms. Natural resource institutions should consider paying for spouses to accompany staff on off-site training. When organising workshops away from home, management should remind staff and other participants of HIV risk (e.g. by distributing strategic leaflets) and make condoms available.

To deal with capacity gaps caused by AIDS, protected area authorities often have to promote staff rapidly. In order to prepare them for expanded responsibilities, junior staff should be trained in leadership skills. Managers should coach staff and use other on-the-job training methods such as manager-shadowing and mentoring by senior colleagues to build experience and help personnel gain the requisite knowledge, skills and problem-solving abilities to take on future challenges.

Work with local communities

HIV/AIDS work should also focus on communities neighbouring protected areas, to reduce health and livelihood impacts and help maintain capacity for natural resource management activities. It is important that programmes are planned with the communities in a participatory way to ensure they meet priority needs. Often these communities do not have good access to health services, and conservation organisations can help facilitate HIV/AIDS awareness and prevention. Community conservation officers can be trained to mainstream this in their conservation work with communities; they can also partner with HIV/AIDS and general health organisations. Around the Kiunga Marine National Reserve in Kenya, WWF collaborates with the African Medical Research Foundation to provide basic health services to remote communities through mobile health clinics by vehicle and boat, including HIV/AIDS awareness and prevention, reproductive health and family planning.

It is also important to work with communities to develop coping strategies. There are often opportunities to use the natural resource base sustainably for this. In communal conservancies in Namibia various strategies are being developed to support AIDS orphans, including revenue collection at tourist campsites, allocation of hunting quotas to feed orphans, allocation of a percentage of conservancy revenues and basket-making. In Malawi, non-labour-intensive enterprise development to assist AIDS-affected communities has included bee-keeping, guinea fowl rearing, fruit tree planting and indigenous fruit juice production. Herbal gardens cultivating medicinal plants are another option (Page 2003; World Agroforestry Centre 2003; WWF and SAfAIDS 2004).

Documentation and preservation of indigenous knowledge is important, along with youth mentoring, including orphans, to use it. Other sectors of the community may also need help, for example women managing natural resources, or the elderly who are left with the burden of bringing up grandchildren. Activities need to be flexible to allow for varying capacities and changing social structures. Often there are opportunities to partner with other sectors, e.g. agriculture and agroforestry.

Conclusion – looking to the future

The full impact of AIDS on conservation is yet to be seen – in many countries HIV rates are still increasing and death rates are predicted to climb for several years. Realising the significance of the epidemic for conservation, IUCN members passed a resolution at the World Conservation Congress in 2004 to increase understanding of impacts, promote awareness in the conservation sector and work to mitigate them, develop HIV/AIDS policies in conservation organisations, and find solutions to relieve unsustainable harvesting of natural resources.

Protected area managers, protected area authorities, decision makers and others in countries with high HIV prevalence rates and 'next-wave' AIDS countries need to recognise that AIDS can



HIV/AIDS team. In Namibia, HIV/AIDS is being mainstreamed into communal conservancies at national, NGO, conservancy and village levels. Photo: Judy Oglethorpe/WWF-US.

seriously jeopardise achievement of conservation goals and management effectiveness, and take action to protect and help employees and local communities. Existing lessons and coping strategies must be actively shared, and partnerships promoted with other disciplines to tackle the issue. And there is always the possibility that new drugs to combat HIV/AIDS will emerge from the genetic diversity protected in conservation areas.

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Nancy Bell Gelman has led the Africa Biodiversity Collaborative Group's (ABCG) HIV/AIDS and conservation work for three years. Prior to joining ABCG, she conducted research and worked on training and capacity building for international protected area personnel with the College of African Wildlife Management, Mweka, Tanzania, North Carolina State University and World Wildlife Fund's Asia Pacific Programme. E-mail: nancy.gelman@wwfus.org; www.abcg.org

Judy Oglethorpe is currently working for World Wildlife Fund-US on eco-region conservation and population/health issues, including HIV/AIDS and conservation. She was previously Executive Director of the Biodiversity Support Programme, where she worked on projects such as transboundary natural resource management and reducing impacts of armed conflict on the environment. She has fourteen years' experience of work in East and Southern Africa on biodiversity conservation, protected area planning, eco-tourism, environmental impact assessment and institutional development. E-mail: judy.oglethorpe@wwfus.org

Daulos Mauambeta, Executive Director, Wildlife and Environmental Society of Malawi (WESM) focusing on natural resource and environmental/biodiversity conservation, organisational development and strategic planning. From September 2002 to June 2003, he went through a Hubert Humphrey Fellowship Programme at the University of Washington, Seattle, USA, during which time he worked with WWF on establishing a programme on mainstreaming HIV/AIDS in conservation organisations. He is currently actively involved in increasing the understanding of the linkages of HIV/AIDS and conservation, impacts and mitigation measures, through a programme he has developed called Awareness to Action Campaign. E-mail: ddcmuambeta@africa-online.net

Linking protected area management and HIV/AIDS prevention – experiences from Ankarafantsika National Park, Madagascar

PASCAL LOPEZ, ULRIKE BERGMANN, PHILIPPE DRESRÜSSE, ALEXANDER FRÖDE, MICHAEL HOPPE AND SANDRA ROTZINGER

The far-reaching impact of HIV/AIDS on the functionality of protected areas is becoming increasingly observable in many regions that are severely hit by HIV/AIDS. How can affected protected areas respond to this challenge? How can protected areas outside these regions take preventive measures in order to anticipate these negative effects?

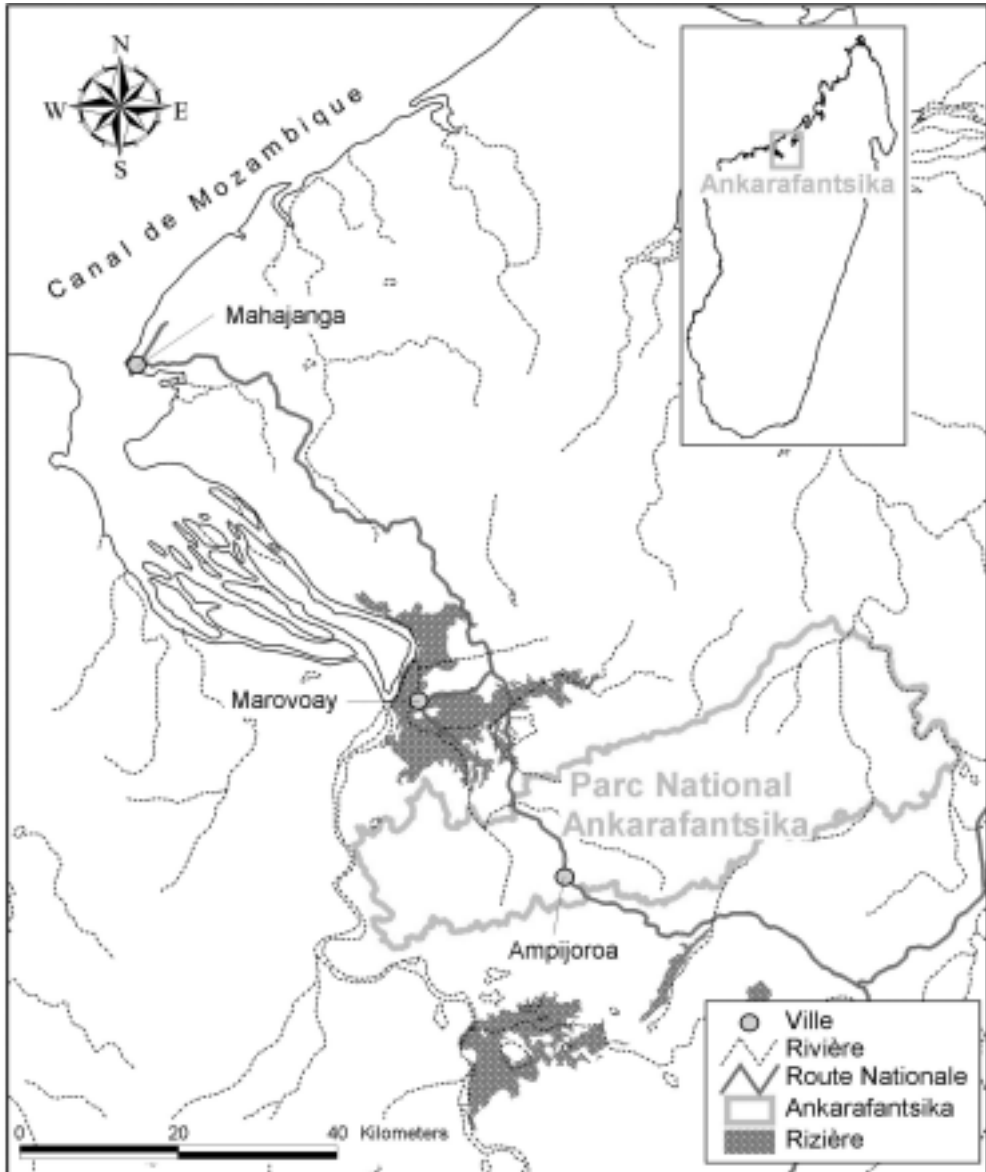
Up to now, successful examples of mainstreaming HIV/AIDS into protected area management are rare and limited to regions with a high prevalence of HIV. Pursuing a preventative approach, the Malagasy National Authority for the Management of Protected Areas (ANGAP) selected Ankarafantsika National Park as a pilot for the exemplary development of a strategy for the integration of HIV/AIDS-related measures into its management. With the support of a team of consultants an Action Plan was developed by the park management, staff, and stakeholders from its peripheral zone. The plan outlines possibilities for the park to address HIV/AIDS and contains concrete measures, which were to be implemented in early 2005. This paper describes the starting point, the process of development and the content of the Action Plan. Furthermore, it presents recommendations for mainstreaming HIV/AIDS throughout the entire Malagasy protected areas management network.

THE LINK BETWEEN HIV/AIDS AND CONSERVATION is on the agenda. Recently, two major international meetings on biodiversity conservation and protected area management put the threat of the HIV/AIDS pandemic on the discussion agenda. The Vth World Parks Congress in Durban in September 2003 identified the topic “HIV/AIDS pandemic in relation to conservation” as an “emerging issue”. Later the IIIrd IUCN World Conservation Congress in Bangkok in November 2004, passed a resolution “HIV/AIDS pandemic and conservation” (Resolution 013). In the resolution, the Congress recommends “that the conservation community takes actions in collaboration with other sectors that promote HIV/AIDS policies and procedures” (IUCN 2004). How can conservation organisations be prepared for this challenge which, in some regions, has not yet made its mark but is bound to have a severely detrimental effect on conservation activities in the future?

The current situation shows the need for urgent action (figures from UNAIDS 2004):

- Worldwide, about 38 million people are infected by HIV, of whom 8,000 die every day of HIV/AIDS-related diseases.
- With 25 million people infected by HIV in sub-Saharan Africa alone, this region is the hardest hit.
- Southern Africa remains the worst affected sub-region in the world, with several countries having an HIV-prevalence¹ of more than 20%. In the countries of the Congo Basin, with their important protected areas, the prevalence ranges from 4.2% to 13.5%.
- In general, the most productive population, those aged 15 to 49, is affected by HIV/AIDS, and women are more vulnerable to HIV infection than men.
- There is neither a vaccine against HIV/AIDS nor any remedy to combat the virus in the human body. Consequently preventing HIV is much more than a medical issue.

1 HIV-prevalence – estimated percentage of the adult population aged 15–49 living with HIV. To calculate the adult HIV prevalence rate, the estimated number of adults aged 15–49 living with HIV at the end of the year is divided by the adult population aged 15–49 of that year (UNAIDS 2004).



Ankarafantsika National Park. Source: WWF Programme Office Madagascar/Indian Ocean.

A closer study of HIV/AIDS awareness and prevention by conservation organisations shows that the urgent need to respond comprehensively to the high incidence of HIV/AIDS in ecologically vulnerable areas is not yet met. The actions recommended in the previously mentioned international conferences have not yet been taken.

In affected regions, a complex situation arises in which the HIV/AIDS epidemic attacks protected areas both externally and internally. Studies in Southern Africa reveal that high HIV prevalence effectively leads to changes in land use patterns, e.g.:

- AIDS-affected households lose work forces and tend to practice less labour intensive – and often less sustainable – farming methods;
- demand for native medicinal plants and wood for coffins rises;

- the need for fast and easy cash forces people to “transform” trees into timber and charcoal, beyond a sustainable level; and
- bushmeat becomes a more attractive source of free protein for households in difficulty.

When these developments occur on the edge of protected areas it often leads to further overuse of resources, not only on the peripheral zone but also on the protected area itself.

While these kinds of impacts on protected areas are considered external, all HIV/AIDS-related losses of staff in protected area management institutions are considered internal effects. Loss of human resources due to AIDS-driven sick-leave or deaths, and absence due to palliative care of victims in the family, mourning etc. have a direct impact on conservation efforts. In addition to the loss of skilled labour, all these factors impact on the budgets of the organisations and their economic performance.

There are specific conditions that partly favour the role of conservation organisations as active stakeholders in the fight against HIV/AIDS – other conditions increase their vulnerability to HIV/AIDS:

- International conservation organisations and their local partners often dispose of communication and transportation infrastructures and resources that can facilitate the work of local organisations, which fight against HIV/AIDS. This is of significance in remote areas, where public services and private initiatives are limited.
- They often have well-established contacts with local communities and organisations that can facilitate the work of local organisations, active in the fight against HIV/AIDS.
- The staff of protected areas and related institutions are often temporarily separated from their families due to field missions or isolated posts. This facilitates extramarital sexual relations that may spread the virus if no protection measures are taken.

Entrance to the Ankarafantsika National Park, Madagascar. Photo: Pascal Lopez.



The Malagasy Protected Area Network and its HIV/AIDS activities

Madagascar is known for its extraordinary but also threatened biodiversity. The majority of its floral and faunal species is endemic. Major international conservation organisations as well as bilateral and multilateral development agencies support the efforts of the government to implement the Environmental Action Plan (1991–2008). The estimated total amount of this funding is more than US\$ 200 million. The efforts of the Malagasy government to protect the natural heritage of the country was once more in the public eye when, during the World Parks Congress in Durban in 2003, the Malagasy President announced the increase of the area under protection from 1.7 million to roughly 6 million ha. Currently 46 national protected areas² are under the administrative authority of ANGAP (Association Nationale pour la Gestion des Aires Protégées/National Association for the Management of Protected Areas). This body also manages most of the areas itself and some of them have been temporarily handed over to international conservation and development organisations for management.

ANGAP responded proactively to HIV/AIDS: it took first steps to actively participate in the national response to HIV/AIDS in Madagascar in 2003/04. The national response, co-ordinated by the national committee for the fight against HIV/AIDS (CNLS), aims to stabilise the HIV-prevalence at its relatively low level of 1.7 % (in 2004). In order to accomplish this objective, the Malagasy government has taken a multisectoral approach to fight HIV/AIDS. Organisations and institutions working in all sectors are encouraged to participate in the response to HIV/AIDS through sectoral strategies. ANGAP is an active member of the sector “Rural Development”³. Apart from appointing an HIV/AIDS co-ordinator at the headquarters, ANGAP is currently focusing its HIV/AIDS-related activities on Ankarafantsika National Park (ANP), considered as a pilot park in this regard.

Ankarafantsika National Park – the Malagasy pilot case

With the experience gained in the integration of HIV/AIDS-related measures into the work of ANP, it will be possible to subsequently strengthen HIV/AIDS-related activities in the entire protected area network of Madagascar. Ankarafantsika National Park has been assigned this pilot role because of its relatively stable financial position and the Park management’s previous commitment to address HIV/AIDS. This had already led to practical action in the past.

Ankarafantsika National Park is situated in Mahajanga Province in the north-west of the country. It is accessible from the provincial capital Mahajanga (120 km) and the national capital Antananarivo (450 km) by a tarred national road, which is adjacent to the park’s visitor’s centre. The national park covers an area of about 130,000 ha, mainly dominated by dry deciduous forest.

With regard to its richness in terms of endemic biodiversity and the high degree of anthropogenic pressure threatening the whole region, ANGAP considers ANP to be of the highest conservation priority. Given the reasonable accessibility of its visitors centre, tourism in the ANP is at a moderate level, with 6,300 visitors per year, of which 1,200 count for international visitors, primarily birdwatchers and individual nature tourists.⁴

The forests of ANP also play an important role in preventing erosion and in safeguarding the hydrological balance of the Maravoay plains, the second largest rice producing area in the country. The park and its sphere of intervention are exposed to considerable anthropogenic pressures, which are further increased by migration into the plains. The plains are partly situated in the peripheral zone of the park. The peripheral zone contains a total of 160 villages and hamlets

2 The network comprises four Strict Nature Reserves according to IUCN category Ia (including one UNESCO World Heritage Site) and 18 National Parks according to IUCN category II. The remaining protected areas are classified IV, V and VI.

3 One of ANGAP’s strategic objectives is to “ensure that the National Network is a significant factor regarding economic development at local, regional and national levels” (ANGAP 200). This is sought to be achieved through development interventions in the peripheral zones around protected areas.

4 In 2003, the total number of visitors to Malagasy national parks has been almost reaching 99,840. (*pers. com. ANGAP*)



The Ankarafantsika National Park (130,000 ha) offers one of the remaining areas of natural dry deciduous forests in the western eco-region in Madagascar. It is home to 128 bird species, of which 74 are endemic. Photo: Pascal Lopez.

– often very remote – on ca. 76,000 ha. Whereas in the core zone (Noyau Dur) and the buffer zone (Zone Tampon) inside the park area, human settlement is restricted to native communities (counting in total 2,100 inhabitants), the peripheral zone outside the park area has about 40,000 inhabitants, the majority of which are living in precarious socio-economic conditions. Anthropogenic pressure on the park increases correspondingly.

ANP employs 55 staff members headed by the Park Director, who is supported by an international Technical Advisor. The management of the park is co-financed by KfW Entwicklungsbank⁵, the German financial co-operation agency, which is funding a total amount of EUR 3.6 million for 2002 to 2006. In the same period, the Malagasy government is contributing a total of EUR 0.9 million. The park maintains a network of 12 field stations in its peripheral zone, each of them staffed by two or three park staff. By their mandate, they are also in charge of development activities in the peripheral zone. The majority of the field stations are situated in remote areas, which are difficult to access.

The initial HIV/AIDS activities of Ankarafantsika National Park

In 2003, a park agent of ANP was trained as HIV/AIDS Focal Point by GTZ (German Agency for Technical Co-operation). An HIV/AIDS Focal Point is a member of the project staff, who implements and co-ordinates activities related to HIV/AIDS in the project sphere. In the first months of his activities, the Focal Point:

- informed the park staff on HIV/AIDS in an awareness session;
- distributed free condoms to staff members, in the visitors' centre and in each field station; and
- held HIV/AIDS information events in villages and hamlets in the park's peripheral zone.

5 KfW Entwicklungsbank is a branch of the KfW (Kreditanstalt für Wiederaufbau) Banking Group.

Furthermore, funded by a World Bank-financed multisectoral project, ANP took up distribution of transistor radios for HIV/AIDS-related broadcasts in remote settlements. A local Technical Co-operation Project trained 12 park agents as peer educators on HIV/AIDS. Some park agents periodically conducted information sessions on HIV/AIDS with the local population on their own initiative.

Despite the commitment and motivation to address the challenges posed by HIV/AIDS in the park, a coherent concept, a set of methods and a clear mandate for the Focal Point was found to be lacking.

The analyses of HIV/AIDS-related conditions in and around Ankarafantsika National Park

ANGAP and KfW sought the support of the Centre for Advanced Training in Rural Development (SLE) of the Humboldt University in Berlin, to develop a comprehensive response to the rising threat of HIV/AIDS. The aim was to develop an Action Plan which could be implemented immediately. The KfW financed the major proportion of the work of the university team, which comprised six consultants.

Along with analyses of Best Practices for addressing HIV/AIDS in Natural Resource Management institutions and interviews with national and international experts, an extensive analysis of the situation in ANP served as a foundation for the development of the Action Plan. Three partial analyses were employed:

Community-based HIV/AIDS activities are common in the region but mainly restricted to areas with good road infrastructures, as along the national road that crosses the park. Photo: Pascal Lopez.



- an organisational analysis brought out both opportunities and limitations for conducting HIV/AIDS mainstreaming in the park and for integrating HIV/AIDS-related measures into its work;
- an analysis of factors contributing to the vulnerability of staff to HIV/AIDS clarified general conditions for the prevention of the epidemic in the project area, providing a starting point for preventive action; and
- a stakeholder analysis served to determine potential partners for the park in its work on HIV/AIDS.

During interviews for the **organisational analysis**, most of the ANP's employees reiterated the value of the park management getting further involved in the response to HIV/AIDS. They stressed the comparative advantages the park had in joining the national, regional and local strategies to fight the epidemic. These are:

1. the direct contact of the park staff with the local community;
2. the close relationship of the park with village committees and community-based organisations;
3. the experience of the park staff with methods of information, education and communication, which can also be used with regard to HIV/AIDS; and
4. the access to distant places.

However, some reservations and critical views from staff members were also noted. There has been fear that the park will lose its focus on conservation efforts if finances and personnel are diverted to HIV/AIDS prevention. Numerous suggestions were put forward for the improvement of the HIV/AIDS related measures, which had already been started. There was a criticism that the Focal Point was simultaneously a full-time park manager and responsible for HIV/AIDS prevention. Furthermore, personal need for information on HIV/AIDS was mentioned and many materials and concepts were found faulty. Further, new measures and activities were proposed, e.g. the establishment of an anonymous HIV-testing opportunity for staff members. Staff members mentioned that it was promising to link HIV/AIDS-related information with environmental education and to co-operate with other stakeholders who are active in fighting HIV/AIDS.

The **vulnerability analysis** underlined that the factors that influence the vulnerability of the local population in the peripheral zones of ANP to HIV/AIDS, are often closely related to the widespread poverty in the region.⁶ Lack of education and limited access to information about HIV/AIDS pose challenges in addressing the issue in local communities. Resources for HIV testing are lacking and hygiene in medical establishments is not ensured. Curable STDs (sexually transmitted diseases) like syphilis, whose incidence is high, are often left untreated. This increases the physiological risk of contracting HIV. Additionally, high rates of unprotected sex and multiple sexual partners bear the potential of HIV-infections. Other factors that complicate prevention and increase vulnerability include a taboo on discussing sexual issues openly, e.g. among different generations or different genders, the stigma against HIV positive people, widespread prostitution and high rates of mobility and migration.

It became obvious that the majority of the population is not yet aware of the magnitude of the consequences of HIV/AIDS; some people even expressed doubts over its existence.

The **stakeholder analysis** underlined that there were already a high number of organisations active in the fight against HIV/AIDS in the area of ANP. They include:

- community-based organisations;
- local non-governmental organisations (NGOs);
- international donors and NGOs; and

6 Almost 70% of the population in Madagascar lives below the poverty line (République de Madagascar 2003).

- the public health sector, and groups such as local HIV/AIDS committees that form part of the official response to HIV/AIDS.

The current strategy of financial support to the “local response” was supporting the establishment of a high number of local projects and organisations. The organisations show very different structures and objectives. This highly dynamic spectrum of stakeholders complicates their co-ordination and limits the transparency of activities. Until now, HIV/AIDS activities in the area are focused in large villages and along roads, which means that prevention work is lacking in the more remote areas, which form a large part of the peripheral zone of ANP.

Development and content of the Action Plan

The complex results of these analyses and the stakeholders’ propositions were discussed at a workshop in the ANP. This helped in developing an ambitious but realistic strategy for ANP to address HIV/AIDS. Key elements of the Action Plan were developed in the workshop, which were then formalised in agreement with park management and partners and with other key stakeholders, as part of a participatory process. Local structures in the national HIV/AIDS programme (the Comité Local de la Lutte contre le VIH/SIDA; Local Committee to Fight HIV/AIDS) were extensively integrated into the formulation process, in order to ensure co-ordination at local, regional and national levels.

At its beginning, the final Action Plan puts the profile and the future tasks of the Focal Points in a more concrete form. In the future, engagement of ANP and its role is being strengthened by firmly anchoring the Focal Point in the institutional set-up of the organisation. The Focal Point will be clearly responsible for HIV/AIDS, will carry out most of the proposed activities and will co-ordinate the implementation of the Action Plan as a whole.

The HIV/AIDS initiatives to be carried out by Ankarafantsika National Park in the future consist of activities in five action areas:

1. A *Workplace Policy on HIV/AIDS* will be elaborated, discussed, adopted in the ANP and integrated into its work. It will define the position and principles of the park regarding prevention of HIV/AIDS and treatment for HIV positive employees in a general but reliable manner.
2. An *internal programme on the response to HIV/AIDS* will promote understanding for HIV/AIDS among employees. This will be facilitated through information provision, education and communication, and formalising care and support for staff affected by HIV/AIDS. For instance, it is planned to create an information point on HIV/AIDS, to conduct training sessions for staff members on HIV/AIDS and Sexually Transmitted Diseases. It is also proposed to anonymously distribute condoms. The programme takes information deficits mentioned by personnel into account, and tries to limit high risk behaviour by staff members. The reduction of the risk of the staff getting infected by HIV contributes to the safeguarding of the functionality of the institution of ANP.
3. Measures within the *external programme on the response to HIV/AIDS* refer to informing and mobilising communities in the ANP’s area of work, building in particular on those local structures with which the park already collaborates successfully. Furthermore, it is planned to inform pupils about HIV/AIDS during school visits to the park with ‘environmental education days’ in ‘green classrooms’. Through these measures, the park uses its comparative advantages to join in the fight against HIV/AIDS. Indirectly, it prevents the increased pressure on natural resources which occurs through a higher prevalence of HIV/AIDS.
4. *Monitoring and evaluation* activities shall ensure control of the implementation of the Action Plan and adaptation of activities in future years. Given the challenge of objectively monitoring and evaluating the measures, support is sought from the Local Committee for Fighting HIV/AIDS and a local GTZ project working on HIV/AIDS.



Dry forest canopy, Ankarafantsika National Park. Photo: Pascal Lopez.

5. Finally, HIV/AIDS is to be *considered in all of the park's activities*. Potential negative consequences of activities in the park on the HIV prevalence shall be identified as part of the planning and evaluation process. Ways to combat those consequences shall be developed.

Altogether, 28 specific measures were developed within the five action areas. In the Action Plan, each of them is described with its objective, its relation to the national and local HIV/AIDS strategies, the expected beneficiaries and the persons that will be responsible for the implementation. The SLE team also calculated the duration and cost of each measure.

The total costs for 2005 add up to a sum equivalent to €6,340, which is available in the park's budget. The budget line for HIV/AIDS-related measures approved by KfW in 2003, had not been used sufficiently until then.

As a result of the analysis, ANP's visitors (e.g. tourists) have not been regarded as a target group for HIV/AIDS-related measures. This is because sexual contacts between staff and visitors have not been confirmed and seem to be unlikely. Thus, none of the actions proposed in the Action Plan is directed exclusively at the information and education of tourists. However, to the extent that it does not lead to an extensive increase of costs, tourists can easily be included in the measures carried out by the park. Additionally, tourists can be informed about the pilot engagement of Ankarafantsika National Park.

After the completion of the Plan at the end of 2004, the measures were included in the annual planning for 2005 and finance for the full-time Focal Point was awarded and the stepwise implementation of the plan started almost immediately.

Further involvement of ANGAP

Accepting ANGAP's resolution, the team also developed recommendations for the National Authority for the Administration of Protected Areas while formulating the Action Plan. These recommendations were presented at a workshop that brought together ANGAP management, representatives of governmental and non-governmental organisations active in Natural Resource Management and HIV/AIDS-related issues.

Although the above-mentioned first steps for engagement of ANGAP on HIV/AIDS have been taken, it was stated that the roles that the ANGAP headquarters and individual protected areas ought to play, need to be clarified.

It was recommended that other protected areas could develop their own Action Plans based on the experience from ANP. Many measures might equally be well adopted, both in the process of developing an Action Plan and its contents, adapting them to the specific conditions of each protected area. Such new developments may lead to other ways and ideas to respond to HIV/AIDS. In particular, the tourism topic may need to be addressed differently by other protected areas that show a higher number of visitors or are situated close to informal destinations of sexual tourism.

Additionally, the following are among the recommendations made to ANGAP headquarters. These pertain to the integration of a response to HIV/AIDS into the Malagasy network of protected areas:

- to play the role of co-ordinator, catalyser and to provide assistance to individual protected areas;
- to share experience from various protected areas on HIV/AIDS;
- to help those responsible for HIV/AIDS in protected areas and to finance their activities;
- to accelerate the introduction of a monitoring and evaluation system on HIV/AIDS-related activities;
- to develop a Workplace Policy on HIV/AIDS applicable to the entire ANGAP network; and
- to continue to actively participate in the development and implementation of a strategy for the 'Rural Development' sector as part of the national multisectoral HIV/AIDS policy.

Thus, ANGAP could also support Madagascar's national multisectoral HIV/AIDS policy and become an international example of good practice for a coherent mainstreaming of HIV/AIDS in the activities of the organisation. A technical co-operation project on HIV/AIDS ("Support to the implementation of the multi-sectoral HIV/AIDS strategy" CNLS-GTZ) has pledged to technically support ANGAP in its mainstreaming process.

Conclusions

The initial experiences from ANP and the Malagasy PA Network led to conclusions for the integration of HIV/AIDS-related activities into the work of protected area management institutions.

Framework conditions for addressing and integrating HIV/AIDS activities

The work of the SLE team with ANGAP and ANP has revealed three working conditions that have contributed to the auspicious integration of HIV/AIDS activities into the management of the protected area network in Madagascar:

- superiors in the ANGAP hierarchy, from the park management level up to the national ANGAP directors, were committed to the development and implementation of the Action Plan;
- there was intensive participation by the ANP staff that has considerably shaped the outcome of the HIV/AIDS Action Plan and created stakeholder participation with a sense of ownership; and
- the initiative to develop an Action Plan was backed up by a major financial donor of ANGAP and the Ankarafantsika National Park, who also provided financial resources for the implementation of the action plan.

These three working conditions can create a generally positive attitude among stakeholders. This is necessary to address a new and sometimes intimate issue like HIV/AIDS within an

institution or a sector that does not consider itself or its activities to be touched by a “health issue”. Given this general attitude, it becomes easier to address the themes of HIV/AIDS in an open manner and may decrease concerns among conservative staff once the stakeholders participate in the whole exercise.

The HIV/AIDS epidemic is linked to conservation, as there is a risk of loss of labour and natural resources

The different analyses that were carried out have revealed that in some cases park staff show a specific risk of contracting HIV due to particular working conditions, such as being posted in remote workplaces, which favours extramarital sexual liaisons. The temporary or permanent loss of labour due to HIV/AIDS related illnesses may be a result of that.

Furthermore, examples indicate that natural resources may be severely strained in the case of a far-reaching propagation of HIV, e.g. if larger numbers of HIV/AIDS-affected households are forced to manage their stressed situation by over-use of natural resources. Protected areas enjoy their status because of a comparatively higher spread of biodiversity resources. But if HIV/AIDS propagates in these regions then there might be a visible increase in the anthropogenic pressure on resources, e.g. an increase in encroachment and/or need for increased conservation efforts.

The integration of HIV/AIDS measures into the work of a protected area management institution

The HIV/AIDS Action Plan of ANP that was presented shows that it is feasible to integrate sound HIV/AIDS measures into the conservation activities of a protected area. The experience from ANP and ANGAP demonstrates that HIV/AIDS-related activities can be expeditiously planned and executed by protected area management. Besides, the professional support from HIV/AIDS-organisations is often locally or regionally available to assist in those efforts.

Other protected area management institutions could consider the possibility of supporting other stakeholders who are active in the fight against HIV/AIDS. For instance, it is possible to make available their infrastructure and specific (local) knowledge. There are plenty of complementary resources within HIV/AIDS institutions and protected area management institutions that can be used for the benefit of both parties. This support to the fight against HIV/AIDS does not require the staff of the protected area to be experienced in the domain of HIV/AIDS.

The necessity for more HIV/AIDS action in the conservation sector

Due to the negative impact of the HIV/AIDS epidemic, institutions in protected area management ought to invest in their own future by carefully assessing – from the perspective of an HIV/AIDS menace – the specific risks for their staff. They should also take into account the link revealed between natural resource management by the local population and the (ecological) situation of a protected area in regions of high prevalence of HIV.

It seems to be of fundamental importance that conservation agencies do not consider HIV/AIDS-related activities to be an additional burden. Instead they must consider it a necessary investment to safeguard their own future existence. It will payoff as a contribution to the sustainable protection of habitats and the human development of the country in which they work. In many cases, the extra-costs in terms of finance and labour time are overestimated.

In many regions of the world, the continuing spread of HIV/AIDS may, in the very near future, put at stake the functionality and the existence of protected areas. In order to anticipate this development, it is the responsibility of conservation agencies, and indeed it is in their own interests, to make known their willingness to join in the fight against the epidemic. We hope that the comprehensive engagement of ANGAP and Ankarafantsika National Park may serve as a guiding example and may foster the international discussion on the relationship between HIV/AIDS and natural resource management.

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Dr Pascal Lopez was team leader of the consulting team in Madagascar. He holds a PhD in Tropical Forestry and is Consultant on community-based natural resource management with a focus on Africa. He is working for the ECO Consulting Group, Germany. E-mail: pascal.lopez@eco-consult.com

Ulrike Bergmann holds degrees in Ethnology and Geography and specialises in Rural Development and issues at the interface of social and natural sciences. She is also working on questions of gender, sustainable agriculture and nature conservation. E-mail: bergfrau3@gmx.de

Philippe Dresrüsse studied Law and European Studies with a focus on human rights issues. Additionally, he acquired a qualification in civil conflict prevention and peace-making. Currently, he works for German Agro Action in Sri Lanka. E-mail: dresruesse@yahoo.de

Alexander Fröde is an Ecologist with a specialisation in International Nature Conservation. He is focusing on political and institutional aspects of nature conservation, public-private partnerships and environmental conflicts. He currently works for the German Development Service in Zimbabwe. E-mail: alexander.froede@gmx.net

Michael Hoppe is a Geographer specialising in migration, social integration, regional rural development, natural resource management and management of protected areas. At the moment, he works in Indonesia for German Agro Action. E-mail: m.w.hoppe@gmx.de

Sandra Rotzinger is a Psychologist with a focus on social, intercultural and organisational psychology. Inter alia, she specialised on health psychology, prevention issues, trauma and intercultural learning. She is currently working at the GTZ headquarters. E-mail: s-rotzinger@web.de

Corresponding author: Dr Pascal Lopez, ECO Consulting Group, Hersfelder Str. 17, D-36280 Oberaula. Phone: ++49 - 6628 - 9150912. Fax: ++49 - 6628 - 8016. E-mail: pascal.lopez@eco-consult.com

Fires – are they really unexpected?

PETER MOORE

Fire in natural systems is not unexpected. Most landscapes worldwide are not fire free, and many fires are not emergencies and can be thought of as part of land management. To assess and anticipate the fire emergency/crisis potential for a protected area the manager requires some key information. The basic knowledge includes information relevant to fire and also data that is critical and provides the context within which fire and protected areas are managed. This information is analysed and then built on for the planning and implementation of a balanced strategy that includes; analysis, prevention, response and restoration (recovery). These elements are parts of a package and must be utilised together. Fires first ignite, then spread through fuels and then impact on ecosystems and built assets. In order to have any success in “managing” fire there must be an in-depth understanding and knowledge of fire within the landscape being managed. Protected area and other land managers should be systematic in applying the steps identified to fire management in and for their local landscapes and ecosystems. There are no easy solutions or simple fixes for fire management problems. The most important specific action managers can take is to think a while on what is known and analyse the fire ‘problem’ before they react.

FIRE IN NATURAL SYSTEMS is not unexpected. Almost no landscapes worldwide are fire free (TNC 2004). Most fires are not emergencies and can be thought of as part of land management and a factor that may be beneficial or have negative impacts to the objectives of management. In the past decade the combination of some very dramatic fire events, long and severe fire seasons and heavy public and media interest in the loss of homes and the assets of people has created stronger visibility of fire management for landscapes and protected areas. In many cases this increased attention has not yet evolved into clear and effectively supported approaches for protected area and other land managers to consider or implement.

It is useful to put fires into the context of the ‘unexpected’. Fires clearly constitute a crisis at times, may be an emergency and are often termed a ‘natural disaster’. Further reflection suggests that, with a few exceptions, ‘crisis’, ‘emergency’ or ‘natural disaster’ are terms couched from a human perspective and only occasionally informed by data, analysis, ecology or history. While for earthquakes, tsunamis and fires this may be a powerful initial lens, fire unlike the other two and similarly to drought and flood, has influences and factors that are not ‘natural’ alone. For fires the crisis can be anticipated, emergencies have been seen many times before (FAO 2001, Rowell and Moore 2000), and the ‘disaster’ has human influenced aspects. We probably should be uncoupling the terms natural and disaster where fires are concerned, though recognising the connection.

The position of fires in terms of disasters, crises and emergencies is also worth brief review. In Australia between 1945 and 2000 the top five disasters in terms of deaths and losses were:

- deaths – heat wave (two), maritime, train crash, bushfire (forest and rural fires);
- losses – drought (three), earthquake, cyclone.

In 55 years of reasonable records, fires were ranked fifth in terms of loss of life and not in the top five for economic losses. This has implications for the opportunity available to protected area managers and agencies to make the case for effective fire management where increasingly the responsibility for crises, emergencies and disasters is concentrated with institutions specialising in response to emergencies. In Australia, the dominant institutions in shaping wildland fire policy are ‘fire/emergency response’ agencies and policy has become increasingly focused on suppression. Land management institutions have comparatively less influence in the policy arena and are getting weaker. Land managers of all types are becoming isolated from the resources and the influence generated by the profile that bad or large fires create.

The dangers from fires are dramatically portrayed, and can impact on all aspects of the ecology and infrastructure of a protected area. The impacts are varied and include all sectors and aspects of local, national and international scales. The aspects identified include (Moore 1998):

- area burned;
- fire-fighting costs;
- short-term health costs;
- fire and smoke related production losses;
- tourism losses;
- airline and airport losses;
- timber;
- agriculture;
- direct forest services – including non-timber forest products such as food, local medicines, raw materials and recreation;
- indirect forest services – including storm protection, water supply and regulation, erosion control, soil formation, nutrient cycling and waste treatment;
- biodiversity losses; and
- carbon release.

Fires and ecosystems

There are at least two ends to the fire spectrum. One where fire is a seasonal factor in ecosystem processes and a mechanism that creates annual or regular removal, renewal and stimulation. The other where infrequent fires, often of very high intensity, provide a means of replacing the vegetation by removing most of that which is there and initiating regeneration which is usually a specific response to these fire events (Dennis *et al.* 2001). In tropical dry forest, boreal forests and some types of conifer forests, a certain amount of fire is an essential factor in the maintenance of forest structure, function, and plant and animal composition. Conversely, in tropical moist forest, fire is usually always detrimental.

Fire regimes can and do change over time, through natural causes and from human intervention. In many forest areas fire regimes have been altered substantially by hundreds, and in some cases thousands, of years of human use. For example, aboriginal fire regimes in Australia over thousands of years have had a major influence on the “natural” extent and distribution of eucalyptus forests, dry woodlands and rainforests. Understanding a fire regime for any given landscape is essential to the development of sound forest and fire management strategies (Moore *et al.* 2003).

Threats to ecosystems arise where fire is outside the parameters that would normally frame it, the fire regime. Too many or not enough fires, fires at the wrong season or time of year, and fires that burn too fiercely or not hot enough can each create pressures, changes or negative impacts on an ecosystem and its processes. The landscape may be threatened by a change in the fire regime that is beyond the capacity of the ecosystem to absorb it.

What would that mean on the ground for a protected area manager? This can be illustrated by examples of different parts of Australia where the fire regime has been altered and the change has led to significant differences in fire across the landscape. Initially however, fires need to be better analysed and understood.

The Basic Fire Nodes

To assess and anticipate the fire emergency/crisis potential for a PA, the manager requires some key information. Much of the information needed is scientific, ecological and physical and should ideally have been collected systematically, regularly and coherently (PFFSEA 2001). To make some sense of the information by having it arranged appropriately is also useful, if not essential. Both the data and information needs of land managers for fire have been identified and structured.

A diagram of the Basic Fire Nodes for fire management information is set out in Figure 1. Data and information is separated into the *base knowledge* and the *technical knowledge* for fire management along with the strategies that might be used to apply it to the landscape.

The *base knowledge* includes not only information obviously relevant to fire but also social, cultural, economic, tenure and historical information, which are also critical and provide the context within which fire and protected areas are managed. These influences are also relevant to other important aspects and goals of landscape and protected area management. The technical knowledge is often associated most strongly with the ‘business’ of fire fighting but also has relevance to the management of land and fires, especially prescribed fires. The two sets of information are combined and applied to fire management through the development, adoption and implementation of *strategies*. These include education, training and the implementation of two of the fire elements – suppression and prevention. The fire management framework is set out in Figure 2.

The Basic Fire Nodes allow a rapid characterisation of the fire-related information and strategies in place by protected area managers, and a clear identification of the needs for immediate and future work on information and strategies. They can be used as an *aide memoire* for rapid assessment and initial evaluation of the building blocks of fire management.

Figure 1. The Basic Fire Nodes of Information (after Metis Associates).

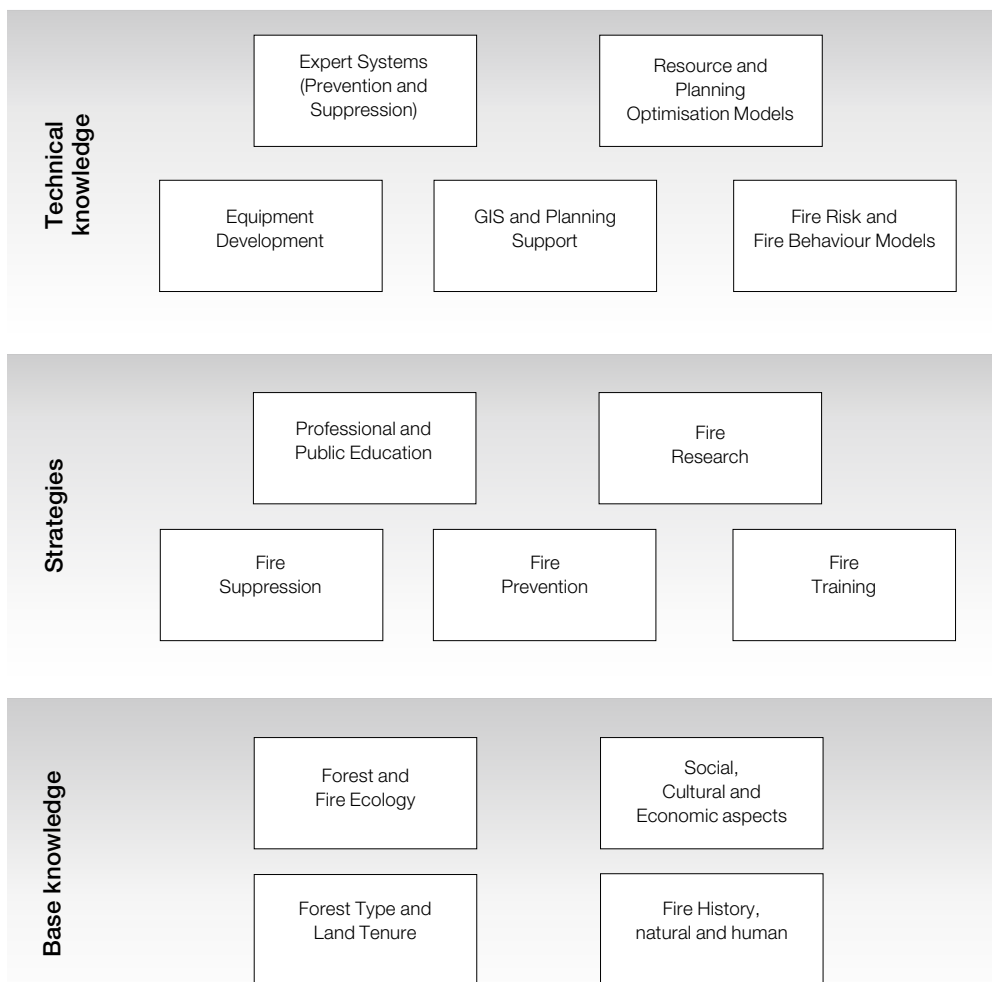


Figure 2. Fire management on a page (from Moore et al. 2001).

System Tools	System/Process/Components	
<ul style="list-style-type: none"> • Maps (vegetation type, topography, land tenure, assets, roads, landscape features, ignition distribution, etc.) • Fire behaviour prediction tools • Spatial databases • Demographic information • Cultural and social context of fire • Ecological response to fire (fire histories, fire effects information, fire regimes, conceptual models). 	<p>Analysis of the fire problem</p> <p>1. Fire likelihood – ignition history</p> <p>2. Consequence of Fire on Assets</p> <p style="margin-left: 100px;">↓ ↓ ↓</p> <p style="margin-left: 100px;">Economic Intensity Value</p> <p style="margin-left: 100px;">Social Spread Rate</p> <p style="margin-left: 100px;">Environmental Duration Vulnerability</p> <p>3. Ecological context of fire</p>	System
<ul style="list-style-type: none"> • Fire use laws/regulations, enforcement programmes • Planning controls • Education programmes • Fire behaviour guides, ignition and control resources, planning and reporting tools • Firebreak construction guides • Building construction codes • Ecological fire training • Fire use education 	<p>Prevention</p> <p>Ignition reduction strategies</p> <ul style="list-style-type: none"> • Regulate fire use, educate fire users, technology improvements, development planning controls <p>Impact mitigation strategies</p> <ul style="list-style-type: none"> • Fuel reduction (e.g. by burning, grazing and other means) • Reduce asset vulnerability (e.g. through building construction standards) • Establish/maintain containment features (e.g. roads, firebreaks, fuel breaks etc.) <p>Fire-use strategies</p> <ul style="list-style-type: none"> • Ecosystem maintenance • Fire regime restoration 	Improvement
<ul style="list-style-type: none"> • Climate and weather monitoring and prediction • Fire Danger Rating system • FDR public notification means • Detection and suppression resource needs assessment • Fire detection, suppression and communications resources • Fire training systems and tools • Response mobilisation plans • Operational responsibilities and procedures • Strategic information access tools • Decision support tools • Operational management systems • Damage assessment tools • Recovery assistance plans and infrastructure 	<p>Preparedness</p> <p>Strategies</p> <ul style="list-style-type: none"> • Early warning/predictive systems • Community warning mechanisms • Detection and response infrastructure • Communications systems • Mobilisation and co-ordination plans • Response triggers and levels • Competent fire control staff <p>Response – fire-fighting operations</p> <ol style="list-style-type: none"> 1. Detection and reporting 2. First response 3. Containment and control 4. Mop-up and patrol 5. Command and control <p>Recovery</p> <ol style="list-style-type: none"> 1. Community welfare assistance 2. Economic loss reduction (e.g. salvage logging and replanting, infrastructure repair) 3. Environmental repair 	Monitoring and Review

The Fire Management Framework

The Fire Management Framework was developed to illustrate the elements of fire management, and the way they interact, to protected area and other land managers who were participants in a professional development programme undertaken in Indonesia and proposed for Thailand and Portugal.

Fire management is built on the nodes of fire-related data and information, and requires planning and implementation of a balanced strategy that includes:

- **analysis** – a strong insight into the aspects and perspectives of fire management in the local, provincial and national context. The basic data and information to enable analysis and definition of the nature, issues and elements of fire are often not clearly identified or systematically collected;
- **prevention** – development and implementation of programmes to modify the way people use fire, equipping protected area managers with the appropriate skills and resources for fire management and ensuring that local communities have a role in the management of fire in their area;
- **response** – having plans and resources in place prior to fires occurring, and mechanisms for monitoring fire danger, identifying fires which require action, and clear responsibilities and co-ordination mechanisms for putting unwanted fires out when necessary; and
- **restoration** – after unwanted fires there is a need to prevent more fires and further degradation, re-establish biodiversity and ecosystem function and consider appropriate recovery strategies for people affected by fire.

These elements are parts of a package and must be utilised together. They are closely inter-related and to attempt to focus on just one element will generally be inadequate and lead to failure. To provide for improved fire management a careful and systematic approach is necessary dealing with all fire management elements.

What fires do: start, spread and impact

Recently, for the Australian Capital Territory further clarification of fires was identified during the preparation of a Strategic Bushfire Management Plan (ACT Government 2004) and subsequently the Canadian Wildfire Strategy that are important in fire management efforts. Fires ignite, *then* spread through fuels, *then* impact. This suggests that we have opportunities to:

1. prevent/reduce ignitions;
2. prevent/reduce the chance for fires to spread; and
3. prevent/reduce the negative impacts on assets.

The mix of these options, and the balance between them, will vary with circumstance. The ignition is often called the 'cause'. Cause is more complex than simply 'ignition' and needs to be explained. The concept of 'fire cause' is not generally well understood, nor has it been clearly documented. Three elements make up 'fire cause', that is, why fires start:

1. the ignition (e.g. accidental ignition or intentional fire lighting);
2. the underlying cause – the events that lead to the ignition, (e.g. failure to maintain equipment properly, or the need for fire for farm production when no other option is available, often due to poverty); and
3. motivation (e.g. accidental, misguided, deliberate).

Fires have to be analysed so that the balance of prevention, preparedness, response and recovery can be assessed and any conclusions implemented. Identifying the means of ignition, the fuels through which the fires spread and the impacts they have provides a sharper focus on specific aspects of the fires and their management requiring attention. By considering the elements

influential in ignition, spread and impact, priorities for planning and action across the full spectrum from analysis to recovery can be identified.

Fire in northern Australia

The northern half of Australia is characterised by very large areas, very few people and very little infrastructure, buildings and other human assets. The fuels that fires burn in are simpler being mainly tropical savannah and grassland. The rural industry (grazing) relies on the grassland, and aspects of Aboriginal fire-use remain present in the landscape to the current day and are being re-invigorated (de Mar 2004). People actively use fire as it is one of the few options available that is viable.

Fire is applied across the landscape to reduce wildfire fuel hazard, reduce the scale and impact of high-intensity fires (notably on human assets) and manage grassland for grazing. This has required increased use of prescribed burning and has had benefits for 'fire maintained' ecosystems (Ellis *et al.* 2005).

The protected area manager in northern Australia has to keep the monitoring maintained and analysed to refine fire management practice and processes. In general the use of fire, the recognition of traditional indigenous burning practices and the study of ecology has been progressing for some years. The risks that civil society, political or institutional pressures will arise is real. Clear documentation of the benefits, impacts and their balance is important for protected area managers to continue the management of fire in the ecosystems where they work.

Fire in south-eastern Australia

In south-eastern Australia, the area subject to fire annually has significantly reduced since European settlement, due to changed land use patterns, fire suppression activity and the cessation of Aboriginal burning. This is leading to changing forest structures, emerging forest health problems, including dieback, and an increase in landscape-scale, high-intensity fires.

Burnt landscape – Southern Great Dividing Range – State Forests of New South Wales, Australia. Photo: Peter Moore.





Prescribed burning. Photo: Peter Moore.

Deliberate fire use, i.e. prescribed burning, is under pressure in south-eastern Australia and declining. In the state of New South Wales approximately 100,000 ha was subject to prescribed fire per year since 2000, less than 1% of all public lands in a state that is 80 million ha in size (de Mar 2004).

Fires are seen as human induced and ‘bad’ by many people, groups and civil society, with fires considered as a threat to ecological values. Consequently, increased prescribed fire-use is assumed to exacerbate impacts. Civil society protection is focused at the interface between settlements, towns and cities (homes in some Australian cities are regularly threatened) with random fire regimes beyond this interface on public land (Ellis *et al.* 2005).

Precautionary measures for protected area managers can be identified through assessing the state of information by the Basic Fire Nodes; assessing what fires do – ignition, what they burn and what fires impact – and then identifying the balance or re-balancing necessary and selecting the system tools required. These tools, as identified in Figure 2, are readily available, well documented with a range of options and techniques for most of them.

In contrast to the northern half, south-eastern Australia sees the perception of fire management, the issues of people and infrastructure impacts, and the management of protected areas as being in tension. This has been the case for some years, while the cycle of damaging fires persists (Moore 2005).

A focus of protected area managers is to find, collate and verify the building blocks of fire management. The fire management reality needs setting out, anchored in the ecology of the landscape and the species it contains, or perhaps should contain. Clear assessment of fires starting, burning and impacting will enable analysis of which fire management element requires strengthening and which are already effective and need no further focus or investment.

An over-riding obligation of the protected area manager and other land managers will also be the communication of what they analyse and conclude to civil society, interest groups and decision makers – a protracted and complex task no matter which continent they are on.

Summary

Fires are events that have taken place across landscapes for millennia. They will continue to do so. People have direct and indirect influence on the incidence, impacts and nature of fire crises and emergencies, and are affected by them. A brief look identifies that fire is not unexpected and should never be – rather a case of ‘when’ not ‘if’.

In order to have any success in “managing” fire there must be a strong understanding and knowledge of fire within the landscape being managed (Moore 2001). If the knowledge that exists or is available consists of a very broad understanding based on consideration and knowledge of fire-issues at a national scale, or only in theory, then particular aspects that are important to a specific landscape of the country, in a particular land use type, protected area or fuel type, may not be properly considered or even overlooked. Conversely, if the knowledge that is used and relied upon relates only to a relatively small geographic area and is not identified as part of a wider landscape, then a very narrow and potentially ineffective consideration of fire is the likely outcome.

The measures to be put in place are those of sound management, informed by local ecology, shaped by history and constrained by current reality (including political, economic, ecological and social reality). The Basic Fire Nodes identify what we know and what we do not know. Reflecting on what fires *do* sharpens the focus on where the fire crises start, how fire emergencies develop and where they impact. This informs consideration of the balance of fire management elements and the identification of the system tools to apply, strengthen or develop.

Protected area and other land managers should be systematic in applying these steps to fire management in and for their local landscapes and ecosystems. There are no easy solutions of simple fixes for fire management problems. The most important specific action managers can take is to think a while on what is known and analyse the fire ‘problem’ before they react.

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Dr Peter F. Moore has 25 years of fire management and forestry experience. He completed a Masters Degree at the University of Montana with the US Forest Service, and a PhD on the implementation of prescribed burning policy at the Australian National University. He co-ordinated management of fires during the 1994 NSW bushfire emergency before directing Strategic Planning for State Forests. As Principal Policy Officer and then Director of Policy Development he worked on natural resource policy issues and established the Forestry Policy Office of the Ministry for Forests. From 1998 Peter was the Co-ordinator of Project FireFight South-East Asia and then a Fire Management and Policy Specialist working for WWF, IUCN, TNC, GTZ, South African Department of Water and Forests, DFID, ASEAN and CARE International. He is Programme Co-ordinator for IUCN Viet Nam in Hanoi.

Converting unseen and unexpected barriers to park plan implementation into manageable and expected challenges

JON KOHL

Unexpected barriers often emerge to frustrate implementation of strategic park plans. Park managers, donors and planning consultants unwittingly create many of these barriers during the planning process. Barriers grow out of the assumptions that these players hold about the park planning process, the nature of park plans, the format of plans and the role of consultants and learning in the process. If park planning proponents examine their own mental models for planning, then they can make many of these barriers visible and manageable. Unexpected barriers then become expected challenges during the planning process. A new mental model about park planning assumes that plan implementation depends on the park's capacity to use and regard plans as sophisticated management tools. In order to build such technical management capacity, managers, donors and facilitators must integrate systemic learning as a necessary process for the development of capacity. This article illustrates with causal loop diagrams both the traditional and new mental models and identifies barriers to plan implementation, their underlying assumptions and response strategies to them. Ultimately for a new mental model to emerge, park planners must overthrow assumptions not only fundamental to planning but fundamental to western civilization.

PARK MANAGERS, DONORS AND PLANNING CONSULTANTS believe deeply in the power of a strategic park plan to transform landscapes. Park planning ranks among the most common park management functions. Yet something haunts that long hallway between the initial intention to create a plan and its implementation. The strategic plan can take any form, whether a general management plan, tourism plan, financial plan, protection plan or other types of plan. Park managers, of course, embark on this planning process wholly expecting the plan's implementation. No manager would ever spend tens of thousands of dollars and countless hours only to shelve a plan, underneath layers of dust and old, unfunded proposals.

Still, during the very act of setting up the planning process, managers often *and unwittingly* set up implementation barriers that scuttle the very product they labour to create. In the background of their awareness, social processes hum along like quiet machines. Yet instead of plans, they build barriers. If managers were to stop and cast light on these mental machines, then they could re-tool them to diminish the likelihood that certain barriers will halt a plan's implementation.

There have been few studies to document the extent of plan implementation failure (Burby 2003, Lachapelle *et al.* 2003, Lane 2003). Any park manager, nevertheless, can name handfuls of abandoned plans at her or others' parks. When I worked in international conservation and park planning in Mesoamerica in the early 2000s, I regularly told people about the series of public use plans in the Dominican Republic that had disappeared. In Guatemala, the Cerro San Gil Reserve had an eco-tourism plan that sat idle. In Mexico, Sian Ka'an and Cerro Grande Manantlan both had abandoned public use plans. In Honduras, La Tigra National Park had both an interpretative plan and a management plan that, like a falling star, glowed bright before fading away. Even the venerable Galapagos National Park had an interpretation and environmental education plan on the shelf.

This paper then illuminates the dark mental models – the assumptions – of managers, donors, and planning consultants that conspire to thwart plans from ever becoming implemented – of ever becoming *implementable*.

Box 1. The story of strategic park planning failure.

1. Park and donor retain expensive outside consultant to develop a strategic plan.
2. Consultant runs workshops with stakeholders.
3. Consultant compiles the results and analyses them.
4. Away from the park office, consultant then produces a nicely bound plan replete with appendices. Usually the plan will not have operational elements such as budgets and chronograms indicating which person will do what when. The “plan” may have recommendations (indicating that it is a study, not a plan) instead of commitments.
5. Consultant delivers finished plan and departs. Contract over.
6. There is much fanfare and celebration. The park calls together the media. It passes out published and polished copies of the plan.
7. If the park is lucky the government approves the plan within the year (depends on country), quite likely approved after the implementation should have already begun.
8. The park then cherry-picks for implementation those actions it probably would have done anyway even without a plan – those actions the managers truly wanted to do.
9. The park did not learn to use the plan during its development and harbours no intentions of learning how to use it now. Learning has little to do with plan implementation. Managers are often different folks than the planners.
10. Within six months, implementation has been delayed one or more times; the plan is going out of date. Because it is nicely bound, with professional page layout and photos, no one can imagine updating it for years to come.
11. Stakeholder attention shifts to new issues that arise on the radar. Park managers lay the plan on the shelf, only momentarily, until they have a chance to kick start its implementation.
12. The plan remains on the shelf. The park claims it does not have the money, time, or personnel to implement it.
13. Dust falls. The plan sinks into a pile of documents like just another layer of sedimentary rock.
14. Several years pass. Stakeholder confidence in planning erodes.
15. A new donor comes along and decides the park needs a strategic plan. It dangles money. The park bites.
16. And the story begins anew.

Park managers’ mental models erect unexpected barriers

Many implementation barriers grow out of park managers’ mental models. Numerous fields and writers address the power of mental models. Plato described the limits of perception and understanding in the Myth of the Cave. Thomas Kuhn wrote about paradigm change in science in his famous *The Structure of Scientific Revolutions* (1962). Psychologists describe such models using schema theory, political scientists use frame theory, and systems thinkers call them “mental models.”

In all cases, every person and every culture understands the world through a series of lenses, biases and perspectives. Assumptions (and their offspring expectations) temper those lenses. Peter Senge, renowned MIT business management and organisational learning guru, notes in his book *The Fifth Discipline: The Art and Practice of the Learning Organisation* (1990), “Contemporary research shows that most of our mental models are systematically flawed. They miss critical

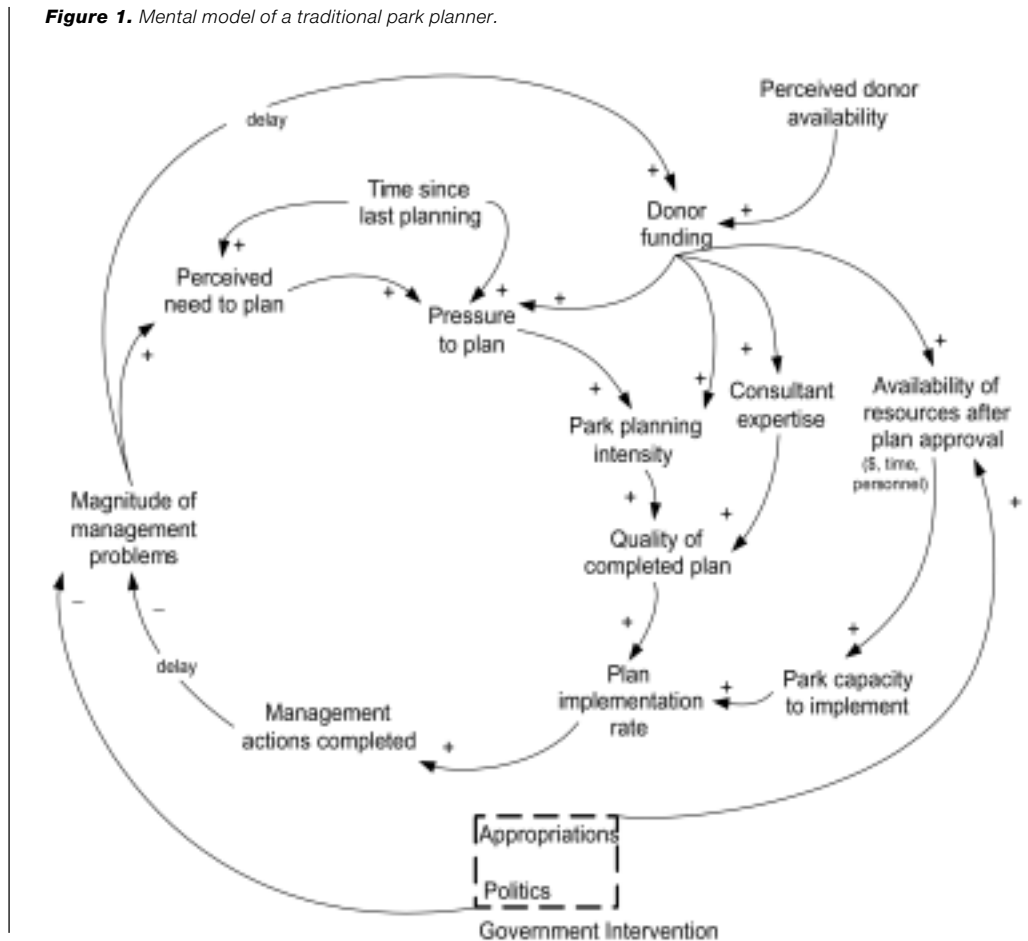
feedback relationships, misjudge time delays, and often focus on variables that are visible or salient, not necessarily high leverage.” (p. 203).

A person requires training to cast light on his or her own deep assumptions. When assumptions remain obscured, the holder tends to repeat the same patterns of behaviour over and over (see the “Story of a Strategic Park Planning Failure”). But once a manager perceives her own mental model, she soon discovers that her assumptions are just that, assumptions, not truths. Once she strips them of truth status, she can much more easily mould the assumptions and replace them with a new interpretation of reality.

With the drawbridge to the traditional park planning mind lowered, we find a variety of assumptions that shape how the planning process unfolds. We can group them into four general categories: Learning and Consultants, Planning Process, Plan Nature, and Plan Format. This grouping, somewhat arbitrary and overlapping, aids the reader in setting up his or her own mental model about “mental models that explain park planning implementation barriers.”

The following causal loop diagram¹ (Figure 1) illustrates a generalised traditional park planning model that focuses heavily on management resources and consultant expertise and not

Figure 1. Mental model of a traditional park planner.



¹ Tool commonly used by systems modellers when they are first tracing out the relationships of different factors. It may stand alone or serve as precursor to a dynamic computer model.

at all on learning. Since this kind of model does not show how strong or influential relationships are, strength can be inferred by the presence or absence of variables. “Learning” does not appear in this model, not because traditional park managers never think about learning, but because the concept does not play a strong role in their mental model. The art of effective modelling is to include the least number of elements possible while explaining the system behaviour that answers the problem question. This model answers the following question through the eyes of a traditional park planner: “What is the relationship between strategic park planning and management issues?”

The correct way to read each arrow is: “as perceived donor availability increases, donor funding increases.” The plus and minus indicate direction of relationship. The same plus sign could also be read “as perceived donor availability decreases, donor funding decreases.” For a negative sign, one can read the inverse relationship: “as management efficiency increases, the magnitude of management problems decreases.”

In a systems model, there is no true starting point, but for simplicity, the reader may begin with “perceived need to plan.” This need increases pressure to plan which increases the intensity or scale of the planning effort (once it launches). The greater the effort is, the better the plan’s quality. The better the plan, the faster the park should implement it (rate). The faster the implementation, the more actions the park will complete which reduces the magnitude of its management problems (biodiversity threats, political wrangles, budgetary shortfalls, etc.). With mitigated problems, there will be less perceived need to mount another planning campaign and donors will likely spend their money in other places where greater urgency looms.

When donors contribute more money, nevertheless, that increases planning intensity (for example, the number of workshops and participants), improves the consultant quality the park can hire (according to his CV), and fills coffers necessary to implement the plan. The consultant’s expertise has a major impact on the quality of the plan. The park’s ability to implement the plan depends most of all on the money, personnel and time (all dependent on funds) available. Despite the relationship between park and donor, government has a heavy influence, both through its appropriations for the park and the politicking and bureaucracy (especially the plan approval process) that cause problems for a park. Obviously for a private park that receives no governmental funding, the managers may substitute donors for government appropriations.

Notice that “learning” does not appear in the model, and “barriers” too are so reduced that a manager might point only to a lack of resources. All other barriers are unexpected, assumed not to exist.

This blindness of park barriers plays a major role in implementation failure. Until barriers become visible, a cadre of professionals cannot evolve to help parks to deal with them. Thus, in the early stages of recognising barriers, assistance proves rare. This phenomenon happens in many fields. For example, until early American doctors began to regard mental illness as a treatable disease of the mind, rather than possession by witchcraft, a patient could hope for scant succour. In the case of park planning barriers, one programme did evolve to diagnose and treat them. That was the RARE Center for Tropical Conservation’s Public Use Planning Programme.

RARE Center created the Public Use Planning Programme to address these obstacles

In 1999, Honduras’s Pico Bonito National Park had money for a public use plan. It asked its partner RARE Center for Tropical Conservation (now just called “RARE”) to locate a park planning consultant. After searching Latin America for successful plans and methodologies and discovering precious few of either, RARE offered to develop a planning methodology on the condition that Pico Bonito, not RARE staff, write its own plan. RARE’s president issued a mandate to staff that this programme should avoid problems for implementation often

Box 2. E.F. Schumacher on development in: *Small Is Beautiful: Economics as if People Mattered*.

“Development does not start with goods; it starts with people and their education, organisation, and discipline. Without these three, all resources remain latent, untapped, potential. There are prosperous societies with but the scantiest basis of natural wealth, and we have had a high level of education, organisation, and discipline, produced an ‘economic miracle.’ In fact, these were miracles only for people whose attention is focused on the tip of the iceberg. The tip had been smashed to pieces, but the base, which is education, organisation, and discipline, was still there.

“Here, then, lies the central problem of development. If the primary causes of poverty are deficiencies in these three respects, then the alleviation of poverty depends primarily on the removal of these deficiencies. Here lies the reason why development cannot be an act of creation, why it cannot be ordered, bought, comprehensively planned; why it requires a process of evolution. Education does not ‘jump;’ it is a gradual process of great subtlety. Organisation does not ‘jump;’ it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must be to speed this evolution...” (p. 169).

encountered in traditional planning. To do this required that the programme identify and classify those barriers.

Six months later, the park publicly presented the prototype public use plan, written by its own board of directors. It was the first in Honduras and the first in RARE’s history. A year and a half later, with improved methodology, the park and RARE used its updated methodology and developed the second prototype. In 2001, RARE launched the World Heritage Partnership under whose funding the planning programme expanded to other sites in Mesoamerica and Indonesia. Since that time Komodo and Ujung Kulon National Parks in Indonesia completed the first official drafts of their public use plans; the programme also contributed the public use section of Guatemala’s Tikal National Park Master Plan.

The Public Use Planning Programme soon coupled its search for barriers with the work of renowned economist E.F. Schumacher, who wrote in *Small Is Beautiful* that real building of capacity depends on developing education, organisation and discipline (see Box 1.). RARE integrated this observation into its programme philosophy, the basis for its combating implementation barriers. The entire approach then boiled down to one message that all park managers must understand: *Strategic park planning will not yield benefits for conservation unless parks learn the skills necessary to create and implement their own strategic plans.*

The implications of this message precipitate a radical new way of conducting park planning. The approach converts unexpected barriers into regular challenges faced throughout any strategic planning process. It does this by understanding the mental model park managers use to inadvertently erect those barriers.

The Public Use Planning Programme developed a new planning model that illuminated dark assumptions and turned unexpected implementation barriers into expected challenges, addressable during the planning process.

In the following diagram, managers have made barriers and learning-explicit considerations in how to approach park planning. Begin with “quality of plan.” As the plan’s quality goes up, the park can implement faster (better plans are easier to implement). Over time as the park implements more they will find more ways to improve the plan (experimentation, feedback). That is, they will learn faster which increases implementation. Also over time, as the park learns,

it will institutionalise its lessons into park management capacity (operating manuals, culture of organisational learning, personnel capable of learning, people applying planning lessons to other management functions, rules mandating the identification and application of lessons, etc.).

Increased park capacity helps parks to identify previously unexpected barriers and circumvent them. Also greater capacity leads to higher quality plans in the first place. Presumably higher quality plans will lead to higher quality management decisions reducing magnitude of problems which then reduces the need and pressure to start new planning efforts. In this model, managers are continuously planning as part of normal management processes (management and planning are integrated functions, not separate), so they do not need large new infusions of money and consultants all the time (hence these resources do not appear in the model). Also note there are multiple delays in this model, underscoring that building capacity takes a long time and does not happen during the contract duration of a traditional consultant.

The following table (Table 1) helps managers see the consequences of their assumptions. The table describes implementation barriers, the underlying assumptions, and actions managers can take to circumvent or mitigate the barrier. Many assumptions derive from the traditional park planning model (see Figure 2).

That there are so many questionable planning assumptions cannot be simply coincidence

The existence of so many assumptions (Table 1 is not exhaustive) begs the question *why so many?* Coincidence would be short-sighted. Another explanation argues that all mental models rest on still deeper assumptions. In fact, we can trace the above planning assumptions all the way back to the foundation of western civilisation itself. Consider the lineage of assumptions that tie today's planning assumptions to several of civilisation's fundamental assumptions originating 300–400 years ago (Figure 3).

What might an alternative paradigm be to this reductionist foundation of planning? Modern systems thinking (as per Senge's quote above) sees the world not as separate parts related in linear cause-and-effect chains, but as a complex system with multiple feedbacks and delays. This world is ever-changing, unpredictable and messy. But it follows the rules of systems dynamics.

To survive in such a world, organisations must continually learn to keep up with the changing context and to find high-leverage solutions to dynamic, complex problems. Seen this way, planning becomes an integral part of changing the world or tackling problems that challenge park managers (see Figure 4).

Since learning is integral to solving problems in a holistic world, managers would not separate planning and managing. This cycle essentially describes adaptive management². There would be no need for one-time major planning campaigns run by outsiders that produce polished and published plans.

Rebuilding mental models

Managers must rebuild their mental models to see planning as integral to continuous learning and problem solving in a complex, messy world.

Managers, donors and even consultants can all work together to change mental models of planning. To do so, however, requires a new holistic mental model that places planning firmly at the centre of learning and capacity building, rather than on the periphery. In *The Fifth Discipline*, Senge offers five core disciplines necessary for effective change (see page 57):

² Adaptive Management: a process that integrates project design, management and monitoring to provide a framework for testing assumptions, adaptation and learning. It was originally developed to manage natural resources in large-scale ecosystems (Margolius and Salafsky 1998).

Table 1. Helping managers see the consequences of their assumptions.

Parks assume ...	Planning barrier	Exemplary response strategies
Learning and consultants		
<p>Given the appropriate resources, parks already have all the management capacity necessary to implement a strategic plan.</p> <p>Implementation failure comes from a lack of resources and other exogenous factors (not an inward lack in their own capacity).</p>	<p>Parks do not have the management capacity to create and implement a strategic plan.</p> <p>Creating and implementing strategic plans is not an innate ability. Strategic tools are sophisticated tools that, like any other, require training and experience to use effectively.</p>	<p>Facilitators should make significant efforts before planning to identify capacity levels of a park so the park does not proceed overconfident and blind to its limitations.</p>
<p>The locus of knowledge should be with the consultants.</p> <p>Learning is not a component of organisational performance.</p> <p>Technical assistance of a consultant need only be short term, because parks need no help to implement.</p>	<p>Parks do not learn how to create and implement the strategic plan.</p> <p>Learning is not an explicit objective of the planning or implementation process.</p>	<p>Facilitators should build learning tools into the process such as systematic discovery and application of lessons learned, periodic evaluations, explicit training, etc.</p> <p>Donors should pay for medium-term technical assistance to help parks learn to use their strategic plans.</p>
<p>The consultant has all the answers and skills. If something goes wrong it is the consultant's fault.</p>	<p>Parks task consultants to do most of the planning work, thus robbing opportunities for parks to learn and create their own management capacity.</p>	<p>Parks should hire facilitators experienced in participation and organisational learning.</p> <p>The terms of reference for the facilitator should limit facilitation to organising and running meetings. The bulk of analysis and writing should be carried out by stakeholders (under the facilitator's guidance).</p>
<p>Expert knowledge, even if it originates outside the community, is critical to success.</p>	<p>Outside planning consultants can reduce stakeholder ownership, leading to lower levels of implementation.</p> <p>A side effect of traditional planning consultants is that stakeholders do little if any of the work. The plan then does not represent their labour and probably not their ideas.</p>	<p>There is a balance between acquiring skilled facilitators and choosing facilitators that have trust of stakeholders and understand them. Skilled outsiders using participatory methodologies can make stakeholders feel owners of the document, but it is more challenging the more outside facilitators are.</p>
<p>Experts making recommendations will yield better results than stakeholders making commitments.</p>	<p>Outside consultants make recommendations which are not implemented.</p> <p>Parks confuse studies and plans. Documents with recommendations are studies, true strategic plans do not make recommendations, they record commitments.</p>	<p>Facilitators need to clarify if they are facilitating a study or a plan. If it is a plan, then they need to make clear that stakeholders are agreeing to binding commitments, not recommendations.</p>
The Planning Process		
<p>Expert, scientifically derived knowledge is more important than personal experience and values in the planning process. Thus expert planners are more important than subjective, quarrelsome, untrained stakeholders.</p> <p>The plan is ultimately both property and responsibility of the park management authority, rather than a collective work of park stakeholders. Park managers must maintain control over the plan in order for it to be properly implemented.</p>	<p>Parks do not adequately involve stakeholders in the planning process. As a result stakeholders impede or actively sabotage the process.</p> <p>Burby's study indicates that the more stakeholders are involved in a planning process, the more likely a state government plan will be implemented. This assumes true and well facilitated participation.</p>	<p>Facilitators should have experience in participatory methodologies and stakeholder analysis.</p> <p>Facilitators should explain that values and people's working together ultimately increases the chances of implementation and longevity of solutions.</p> <p>Facilitators forge a shared vision of a plan as a collective work for which the park authority is just one stakeholder.</p>
<p>Parks can and will transform strategies defined in the plan into operations.</p> <p>The time between the completion of a strategic plan and the start of operational planning does not diminish motivation, knowledge, and momentum created by the planning process.</p>	<p>Parks are unable to transform strategies into operational mechanisms for implementation.</p> <p>Strategic plans are often created in a different time and place than the subsequent operational plans (budgets, implementation plans, logistics).</p>	<p>Facilitators should build operational planning into strategic planning, not be separated from strategic planning in time and place. Hence, a strategic plan should budget time and money for a three or five-year term.</p>

Table 1. continued, *Helping managers see the consequences of their assumptions.*

Parks assume ...	Planning barrier	Exemplary response strategies
Once vision is clear, implementation comes easily.		
Parks will deal with the approval process when they get to it. Approval processes are immutable.	Strategic plans get bogged down in the approval process and then are never implemented. Lane reports that 80% of protected area directors interviewed in Honduras stated that the plan approval process hinders their ability to implement plans.	Facilitators should include as a pre-planning step research of the approval process. Parks need to know exactly how it works and how to develop a plan that will move more quickly through the process.
Research is a necessary part of strategic planning. Scientific research yields much higher quality data than participatory research based on people's knowledge. Strategic plans must contain databases and inventories even though those who would use the plan already have access to that information.	Research during planning takes so long that stakeholders lose interest.	If research is unavoidable, the research component should be separated from the planning. Parks should consider using participatory research when possible rather than field research. That is, in a workshop, participants name tourist attractions (1 day) instead of field inventory (days to weeks).
The standard planning process is sufficient to generate a plan focused on park priority concerns and needs.	Parks do not adequately define planning process goals at the outset, which can lead the plan astray. This barrier is discussed in Lachapelle, <i>et al.</i> 2003.	Facilitators should help parks tailor the planning process to meet their specific needs. This tailoring becomes formalised in goals for the planning process.
All major issues will arise through an expert-driven process. No special steps are necessary to deal with park's major conflicts.	Inflexible methodologies increase the chance that the strategic plan does not reveal and deal with the park's major issues. This barrier is discussed in Lachapelle, <i>et al.</i> 2003.	Facilitators should have experience in adapting methodology on the fly to address major issues. Facilitators should also have skill in bringing conflicts out into the open where they can be discussed and resolved.
Planning can occur simultaneously with other urgent issues that arise at the same time as the planning.	Parks can lose attention and commitment as new programmes and problems distract them from planning. Traditionally, the planning field regards park readiness as an ability to concentrate on and invest significant energy in planning. When the park grapples with other major problems whether budget, management, or administrative, it is not ready to commit to planning.	Donors should determine a park's readiness before beginning to plan. Planning requires complete attention. If other issues are emerging on a park's radar, planning may best be postponed.
The Nature of the Plan		
Credibility in one area (e.g., long-time park planning advocate) qualifies a consultant to facilitate a quality strategic planning process.	A plan's poor technical quality derails implementation.	Parks should research and choose a methodology and facilitator that has demonstrated success in strategic planning.
Plans require nothing more than sufficient resources to implement. Resource deficiencies are root causes for non-implementation. Parks should plan for everything they want in the park, regardless of resource availability.	Parks do not implement, and they blame insufficient resources. Resources usually refer to money, time and personnel.	Facilitators should measure the likelihood of available resources and take that into account during planning. If the plan has an operational component (budget, implementation plan), then the park often has a much more reasonable projection of what can be achieved with given resources. Donor should include funds for implementation, not just planning.

Table 1. continued, Helping managers see the consequences of their assumptions.

Parks assume ...	Planning barrier	Exemplary response strategies
A strategic plan should be updated only when it is re-planned or its long-term planning horizon (three, five, or 10 years) expires.	<p>Plan is not updated and once out of date, no longer addresses current challenges. Then it is not implemented.</p> <p>Governments often mandate that a plan can only be updated upon expiration of its formal term.</p>	Facilitator should build in discrete update moments during the implementation plan, more frequent in the first year or two than later on.
Strategic plans will solve all major issues.	<p>Parks have high expectations for plans and when their expectations are not met, they lose confidence in the plan, resulting in non-implementation.</p>	Facilitators need to emphasise that plans will grow and change as the park learns. Problems will always crop up and even solved problems often do not stay solved. Planning goals should be realistic and attainable, not pipe dreams.
Format of Plan		
A plan must be large and filled with methodological, cartographical, technical, and inventorial information and appendices and charts to earn respectability.	<p>Plan is not user-friendly, discouraging staff and stakeholders from participating in the document's use, leaving only very few people who know and understand its content.</p>	Facilitators need to agree with parks in advance about a format that promotes visual communication and quality writing.
Visual communication is less important for the plan's implementation.		
A polished, published, and bound volume can still be a "living document."		
Political Context		
A strategic planning process is not the place for conflict resolution.	<p>Power-struggles among stakeholders essentially paralyse and scuttle planning or else water it down so much that it no longer can effect change.</p> <p>Lachapelle <i>et al.</i> (2003) discussed the barrier of power in terms of the park itself wanting to control the process.</p>	<p>One of the best responses to power-struggles is to have a facilitated forum where both sides speak their position and reach a conclusion. This should be the role of a facilitator.</p> <p>Facilitators should also identify problems very early on through interviews or any site assessment that might have accompanied the process.</p>
The park authority is responsible for implementing the plan.	<p>When governments change, existing plans can be tossed. Sometimes the planners (and their bosses) are also tossed. Institutional memory also leaves with lost personnel.</p> <p>Lane reports that 87% of interviewed protected area directors in Honduras stated that government changes hinder their ability to implement plans.</p>	<p>If nothing else can be said about government change, its timing and consequences are predictable.</p> <p>Donor and park should not start a planning process within a couple of years of an expected change of park director or key staff.</p>
Physical Barriers		
It can't happen to them.	<p>Plans can be physically lost due to computer crashes, office fires, theft or negligence.</p> <p>Disasters, either political or natural, can interfere or stop the planning or implementation process: such as earthquakes, volcanoes, rebellions, violence, employee strikes, severe budget cuts or the death of the park director.</p>	<p>Facilitators should back up plans both on and off site.</p> <p>Parks should not begin planning when facing imminent disaster.</p>



The author plays a board game with future park planning facilitators that demonstrates the importance of learning and co-operation in park tourism development. Photo: Wiwien Tribuwani.

Figure 2. Mental model of a planner focused on developing capacity. By examining his own mental model, a manager can see how his assumptions lead to unexpected barriers.



Figure 3. Reductionist assumptions imbue park planning assumptions.

These many assumptions point to a deeper assumption that planning (*thinking*) and managing (*doing*) are separate.



Why are planning and managing separate?



Planning is a bureaucratic requirement. Since planning time competes with managing time, managers reduce their involvement in planning by the two functions. This allows non-managers to fulfil the planning requirement.



Why is planning a bureaucratic requirement?



Donors and government require parks to plan in order to receive funding and be allowed to operate. *Doing* solves problems, not *planning*.



Why doesn't planning contribute to problem solving?



The world is stable, predictable and linear. Problems and solutions are generally understood. The major barrier to their resolution, therefore, is a lack of resources.



Why is the world stable, predictable and linear?



Sir Isaac Newton described objects as discrete and physical, interacting only through a change of position and motion; cause and effect is clear (materialism). René Descartes said that these parts can be broken down into smaller parts, studied and put back together (reductionism). These ideas underlie modern park planning and civilisation.

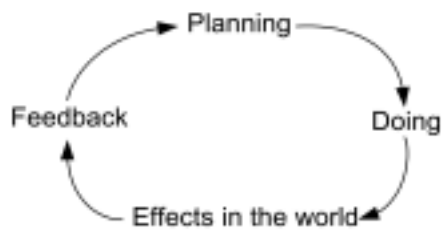


The entire Pico Bonito staff (director pointing, two board members sitting) participated in developing and writing its public use plan. Photo: Jon Kohl.



Park planning facilitator who is also staff (lower right) recruits wide staff participation in the development of the public use plan of Ujung Kulon National Park in Indonesia. Photo: Wiwien Tribuwani.

Figure 4. *Planning as an integral part of adaptive management.*



1. **Personal mastery** includes integrating reason and intuition; continually seeing more of our connectedness to the world; compassion; and commitment to the whole.
2. Managing **mental models** involves identifying, clarifying, and changing one's mental model and its component assumptions.
3. Building a **shared vision** motivates participants toward a common future.
4. **Team learning** consists of three essential criteria: need to think insightfully about complex issues; need for innovative, co-ordinated action; a role of team members on other teams.
5. **Systems thinking** allows managers to understand reality enough to create strategies to reach their shared visions.

Thus, the most important capacity a park can develop is learning. Through learning, it can examine and modify its mental models, it can test hypotheses and continuously adapt and improve. Once the mind is shut, assumptions grow hard and immobile and a changing context will pass them by. Unfortunately, those park managers who already know how to solve their problems – if only they commanded greater resources – are unlikely to ever read this paper.

You can give a park a strategic plan and the managers will shine for a day (when the media show up), or you can help managers learn how to learn and their park will shine for life.

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Jon Kohl, Apartado Postal 12-2250, Tres Rios, Cartago, Costa Rica. Tel: +01-202-470-0817. Independent protected area specialist and conservation writer. After having worked with Rare for nearly seven years developing park manager and interpretive guide capacity-building programmes, Kohl became an independent consultant and freelance writer, spending time with Fermata, Inc., a sustainable tourism planning company in the USA and also collaborating with UNESCO's World Heritage Centre to follow up this systems-thinking approach initially explored at Rare. Kohl presented this paper at a World Heritage Centre-sponsored seminar in Spain on tourism planning for World Heritage archeological sites. For more information on his work and writings, please visit: www.jonkohl.com.

Résumés

Se préparer aux catastrophes : Leçons à retenir

DOUGLAS WILLIAMSON

Grâce à l'expérience d'avoir eu affaire à plusieurs milliers de désastres et à plus de cinquante années de recherche dans cette discipline, de nombreux concepts et principes pertinents et utiles pour n'importe quelle forme de planification pour faire face à l'imprévu ont émergé. Ce document examine les actions de priorité pour atteindre une prévention efficace contre les désastres et les concepts et principes facilitant la synthèse de planification pour l'imprévu, tels que : le cycle du danger, les buts et principes de planification, gérer le risque, et évaluer le progrès vers la réduction du risque. Ce document se termine avec quelques réflexions sur l'imprévu dans le contexte des zones protégées.

L'impact du VIH/SIDA : comment peut-il être prévu et géré ?

NANCY BELL GELMAN, JUDY OGLETHORPE ET DAULOS MAUAMBETA

L'épidémie du VIH/SIDA a de graves impacts sur la capacité de protection de la nature dans l'Afrique sub-saharienne. Le personnel basé dans les secteurs isolés, loin de leurs familles, est particulièrement à risque, et plus favorable à pratiquer des comportements à risque. Les zones protégées contractent des coûts financiers lourds, y compris les congés maladie, les coûts de funérailles, et le recrutement et formations supplémentaires. Il y a un risque que le tourisme soit affecté. Dans beaucoup de zones adjacentes aux parcs, les communautés locales augmentent souvent la consommation de ressources naturelles car les ménages perdent leurs principaux soutiens de famille et leur labour agricole. Les changements d'utilisation des terres peuvent aussi affecter des parcs, tel que l'augmentation de l'utilisation du feu. A long terme il y a un risque d'accélération de la dégradation environnementale et de l'insécurité, étant donné que le nombre d'orphelins dû au SIDA augmente, et que le gagne-pain est érodé dans une spirale de pauvreté ascendante. Les pays atteints par les prochaines vagues du VIH/SIDA peuvent s'attendre à des effets similaires, à moins d'agir rapidement pour promouvoir la prise de conscience et la prévention.

Une approche plurisectorielle est nécessaire pour lutter contre l'épidémie du SIDA, ainsi qu'une mise en avant de la collaboration entre le secteur de protection de la nature dans la collaboration avec les domaines de la santé, l'agriculture et autre. Les directeurs de zones protégées et leurs institutions peuvent travailler dans le but de maintenir leur capacité par assurer l'inclusion du VIH/SIDA dans leurs stratégies et leurs programmes, et par développer des lois institutionnelles et leurs pratiques. Ceci inclut encourager la prise de conscience parmi les employés, traiter les problèmes tels que le stigmatisme et la discrimination, développer des stratégies pour aider à prévenir la transmission du VIH, et fournir des services médicaux aux employés infectés. Les programmes de formation peuvent être adaptés dans le but de réduire le risque de transmission du VIH pendant l'apprentissage ; former un plus grand nombre de personnes pour acquérir des compétences plus variées ; et instruire les stagiaires sur les impacts du SIDA et les stratégies de mitigation pour leur travail futur. Les impacts sur les ressources naturelles à l'intérieur et aux alentours des zones protégées peuvent être réduits en travaillant avec les communautés locales pour promouvoir la prise de conscience du VIH et les programmes de prévention, l'amélioration de l'hygiène, l'agriculture et la foresterie à main d'œuvre économique, les moyens alternatifs pour remplacer l'usage de ressources non durables, et les entreprises basées sur les ressources naturelles convenant aux orphelins et aux personnes âgées. Il y a un besoin urgent d'approfondir les connaissances sur ces impacts, tester de nouvelles approches conciliatrices, partager l'information à propos des stratégies pour faire face à ce fléau, et promouvoir l'action à travers l'Afrique et au delà.

Faire le lien entre la gestion de zones protégées et la prévention du VIH/SIDA – les expériences du Parc National d'Ankarafantsika, Madagascar

PASCAL LOPEZ, ULRIKE BERGMANN, PHILIPPE DRESRÜSSE, ALEXANDER FRÖDE, MICHAEL HOPPE ET SANDRA ROTZINGER

L'impact très étendu du VIH/SIDA sur le fonctionnement des zones protégées devient de plus en plus observable dans beaucoup de régions sévèrement touchées par le VIH/SIDA. Comment les zones protégées peuvent-elles répondre à ce défi ? Comment les zones protégées et isolées peuvent-elles prendre des mesures préventives dans le but d'anticiper ces effets négatifs ?

Jusqu'à maintenant, les exemples réussis d'intégration du VIH/SIDA dans la gestion de zones protégées sont rares, et limités aux régions avec une haute prédominance de VIH. Poursuivant une approche préventive, l'Autorité Nationale malgache pour la Gestion d'Aires Protégées (ANGAP) a choisi le Parc National d'Ankarafantsika pour tester le développement exemplaire d'une stratégie d'intégration des mesures apparentées au VIH/SIDA dans sa gestion. Avec le soutien d'une équipe de consultants, un Projet d'Action a été développé par la direction du parc, les membres du personnel, et les parties prenantes de sa zone périphérique. Le projet esquisse différentes façons pour le parc d'aborder le problème du VIH/SIDA, et contient des mesures concrètes qui auraient dûes être appliquées au début de l'année 2005. Cet article décrit le point de départ, le procédé de développement et le contenu du Projet d'Action. De plus, il présente des recommandations pour assurer l'intégration du VIH/SIDA dans le réseau entier de gestion des zones protégées malgaches.

Incendies – sont-ils vraiment imprévisibles ?

PETER MOORE

Les incendies dans les systèmes naturels ne sont pas imprévus. La plupart des paysages mondiaux ne sont pas dépourvus d'incendies, et beaucoup d'entre eux ne nécessitent pas d'état d'urgence, et peuvent être considérés comme une partie de l'aménagement du territoire. Pour évaluer et prévoir un éventuel incendie dans une zone protégée, le directeur exige certaines informations clé. La connaissance de base inclut l'information appliquée aux incendies, ainsi que les données critiques, et fournit le contexte dans le quel les incendies et les zones protégées sont gérés. Cette information est analysée, et est ensuite mise à profit pour l'aménagement et la mise en place d'une stratégie équilibrée qui inclut : analyse, prévention, réponse et restauration. Ces éléments font partie d'un ensemble et doivent être utilisés harmonieusement. Les incendies commencent par s'allumer, ensuite se propagent grâce aux carburants et enfin frappent les écosystèmes et les biens immobiliers. Afin d'avoir un quelconque succès dans la "gestion" des incendies, il doit y avoir une forte compréhension et connaissance du risque d'incendies dans le domaine géré. Les directeurs de zones protégées et d'autres domaines doivent être rigoureux dans l'application des phases déterminées dans la gestion des incendies sur leurs paysages et écosystèmes locaux. Il n'y a pas de solutions faciles ou de simples réparations pour résoudre les problèmes de gestion d'incendies. L'action la plus importante que les directeurs puissent prendre est de réfléchir un moment sur ce qui est connu, et d'analyser le « problème » de l'incendie avant d'agir.

Convertir les impondérables rencontrés lors de la mise en place d'un programme dans un parc en des défis gérables et prévus

JON KOHL

Des obstacles imprévus émergent souvent pour entraver la mise en place de projets stratégiques dans un parc. Les directeurs, donateurs et les consultants en matière d'aménagement de zone protégée créent involontairement beaucoup de ces barrières pendant le procédé de planification. Elles surgissent en conséquence des suppositions tenues par ces intervenants en relation avec le procédé de gestion du parc, la nature de ces dispositifs, le format des programmes, et le rôle des consultants et leur connaissance dans la même foulée. Si les partisans gérant le parc examinent leurs propres idées de planification, ils peuvent alors rendre visible et franchissable la plupart de ces barrières. Ces obstacles imprévus deviennent alors des défis prévus pendant le procédé de planification. Un nouveau courant de pensée dans la gestion de parc part du principe que cette implémentation de programme dépend de la capacité du parc d'utiliser et de considérer des projets comme des outils de direction sophistiqués. Afin de construire de telles capacités techniques de gestion, les directeurs, les donateurs, et les aides multilatérales doivent intégrer les connaissances du système comme un procédé nécessaire pour le développement de compétence. Cet article illustre, avec des diagrammes de boucle causale, les idées traditionnelles et nouvelles, et identifie les obstacles rencontrés lors de la mise en place de programmes, leurs assomptions implicites, et leurs stratégies de réponse. Finalement, pour que de nouvelles idées émergent, les gérants de parcs doivent renverser les suppositions non seulement fondamentales à la planification mais aussi fondamentales à la civilisation de l'ouest.

Resúmenes

Aprendiendo de la preparación para los desastres

DOUGLAS WILLIAMSON

A raíz de la experiencia en la gestión de millares de desastres y más de cincuenta años investigándolos, han surgido muchos conceptos y principios que son relevantes y útiles para cualquier forma de planificación de lo imprevisto. Este artículo reseña las acciones prioritarias que aseguran una eficaz preparación frente a los desastres. También identifica aquellos principios que facilitan el pensamiento sistemático de la planificación de lo imprevisto, tales como el ciclo del peligro, los motivos y principios de la planificación, la gestión del riesgo y la evaluación del proceso de reducción del riesgo. El artículo concluye con algunas reflexiones sobre la planificación frente a lo imprevisto en el contexto de las áreas protegidas.

El impacto de VIH/SIDA : ¿Cómo se puede anticipar y administrar?

NANCY BELL GELMAN, JUDY OGLETHORPE Y DAULOS MAUAMBETA

La epidemia de VIH/SIDA impacta seriamente sobre la capacidad de conservación medioambiental en el África subsahariana. Los empleados, en particular, corren riesgos cuando están en bases situadas en áreas remotas alejados de sus familias y tienden a comportarse de manera más arriesgada. Las áreas protegidas sufren graves costes financieros, incluyendo aquellos debidos a las ausencias causadas por enfermedad, los costes de los funerales y de la contratación y formación de nuevos empleados. Existe el peligro de que el turismo se vea afectado. En muchas áreas adyacentes a los parques, las comunidades locales suelen aumentar su consumo de los recursos naturales a medida que los hogares pierden al que más contribuye al mantenimiento de la familia y a la mano de obra agricultora. También ocurren cambios en el uso de la tierra y éstos pueden afectar los parques como, por ejemplo, un aumento en el uso del fuego. A largo plazo, se corre el riesgo de una degradación acelerada del medio ambiente y de una situación de inseguridad a medida que aumenta el número de huérfanos del SIDA y que los sustentos son erosionados en una espiral descendiente de pobreza. La próxima ola de países con VIH/SIDA puede esperar efectos similares a menos que se tomen medidas rápidas para promover la toma de conciencia y la prevención.

Es necesario un enfoque multisectorial para atacar la epidemia de SIDA y el sector de la conservación tiene un papel muy importante en este aspecto, en colaboración con los sectores de la salud, agricultura y otros campos. Los administradores de las áreas protegidas y sus instituciones pueden esforzarse para mantener la capacidad productiva de estas incorporando el VIH/SIDA en sus estrategias y programas y desarrollando prácticas y políticas institucionales. Esto incluye promover la sensibilización entre los empleados, tratar los problemas de estigma y discriminación, desarrollar estrategias que ayuden en la prevención de la transmisión de VIH y prestar cuidados médicos a los empleados afectados. Los programas de formación pueden adaptarse con el fin de reducir el riesgo de la transmisión de VIH ampliándolos de tal manera que eduquen a un gran número de aprendices sobre los impactos del SIDA y las estrategias mitigantes en relación a su futuro trabajo. Los impactos sobre los recursos naturales que yacen dentro y cerca de las áreas protegidas se pueden reducir mediante la colaboración con las comunidades locales con el objetivo de promover el conocimiento de VIH y los programas de prevención, la asistencia sanitaria básica, la agricultura y agro silvicultura a escala baja, las alternativas al uso de recursos no sostenibles y aquellas empresas que se basan en los recursos naturales y son adecuados para huérfanos y personas de edad. Existe una necesidad urgente de entender los impactos del VIH/SIDA, experimentar nuevos mecanismos de atenuación, compartir información sobre las estrategias de enfrentamiento y promover tales acciones en África y otros continentes.

Uniendo la gestión de las áreas protegidas y la prevención del VIH/SIDA – experiencias del Parque Nacional Ankarafantsika, Madagascar

PASCAL LOPEZ, ULRIKE BERGMANN, PHILIPPE DRESRÜSSE, ALEXANDER FRÖDE, MICHAEL HOPPE Y SANDRA ROTZINGER

Cada vez es más claro el impacto de largo alcance que el VIH/SIDA tiene sobre la funcionalidad de las áreas protegidas en muchas regiones que han sido atacadas gravemente por esta enfermedad. ¿Cómo pueden las áreas protegidas afectadas afrontar este desafío? ¿Cómo pueden las áreas protegidas fuera de estas regiones tomar medidas preventivas con el propósito de anticipar estos efectos negativos?

Hasta ahora, las áreas protegidas que han conseguido integrar con éxito el VIH/SIDA en sus programas de gestión se limitan a aquellas de regiones con una alta prevalencia de VIH. Siguiendo un programa preventivo, la Autoridad Nacional Malgache para la Gestión de Áreas Protegidas (ANGAP) seleccionó el Parque Nacional Ankarafantsika como piloto para el desarrollo ejemplar de una estrategia en la cual se integran medidas relacionadas con el VIH/SIDA dentro del programa de gestión del área protegida. Los gestores del parque, junto a otros grupos interesados de las zonas periféricas, desarrollaron un Plan de Acción contando con el apoyo de un equipo de consultores. El plan esboza las opciones que el parque tiene a su disposición para tratar el VIH/SIDA y contiene medidas concretas para ser implementadas a principios del 2005. Este artículo describe el punto de partida, el proceso de desarrollo y el contenido del Plan de Acción. Además, presenta recomendaciones para integrar el VIH/SIDA en la red de gestión de todas las áreas protegidas en Madagascar.

Incendios: ¿realmente inesperados?

PETER MOORE

Los incendios en los sistemas naturales no son inesperados. Muchos de los paisajes del mundo no son libres de los incendios, siendo estos a menudo considerados parte de la ordenación territorial en vez que una emergencia. El gestor de un área protegida requiere cierta información clave para poder evaluar y anticipar el potencial de emergencias de incendio. El conocimiento básico incluye información pertinente a los incendios y también datos imprescindibles que proporcionan el contexto dentro del cual se gestionan los incendios y las áreas protegidas. Esta información es analizada y luego ampliada para planificar e implementar una estrategia equilibrada que incluye: el análisis, la prevención, la respuesta y la restauración (recuperación). Son elementos que deben usarse conjuntamente. Los incendios primero se encienden, luego se propagan a través de combustibles y luego impactan sobre los ecosistemas y los bienes construidos. Para tener éxito en la gestión de incendios se requiere un profundo entendimiento y conocimiento del fuego en relación al paisaje en cuestión. Los gestores de áreas protegidas y territoriales deberían ser sistemáticos en su aplicación de las medidas identificadas para la gestión de incendios en sus paisajes locales y ecosistemas. No existen soluciones fáciles o arreglos simples en la gestión de los problemas relacionados con los incendios. La acción específica más importante que pueden tomar los gestores es ser consciente de lo que se sabe sobre los incendios y analizar el problema del fuego antes de reaccionar.

Convirtiendo las barreras invisibles e imprevistas de los planes de implementación de parques en desafíos anticipados y manejables

JON KOHL

Los obstáculos inesperados a menudo surgen frustrando la implementación de los planes estratégicos de los parques. Sin querer, los gestores de parques, los donantes y los asesores de planificación crean muchas de estos obstáculos durante el proceso de planificación. Las barreras surgen como resultado de las suposiciones que mantienen estos actores en relación al proceso de planificación de los parques, al carácter y formato de los planes de los parques y al papel de los asesores y del aprendizaje en este proceso. Si los que proponen la planificación de parques examinan sus propios modelos mentales cuando planifican, pueden hacer que muchos de estos obstáculos se vuelvan visibles y manejables. De tal manera, las barreras imprevistas se transforman en desafíos anticipados durante el período de planificación. Un nuevo modelo mental con respecto a la planificación de parques supone que la implementación del plan depende de la capacidad del parque de usar y considerar los planes como herramientas sofisticadas de administración. Para construir tal capacidad de administración técnica, los gestores, donantes y facilitadores deben considerar el aprendizaje sistemático como un proceso necesario para el desarrollo de su capacidad. Este artículo muestra ambos modelos, el tradicional y el nuevo, a través de esquemas de ciclos causales e identifica las barreras que obstaculizan la implementación de planes, sus suposiciones fundamentales y las estrategias necesarias para responder a tales barreras. Al final, para que surja un nuevo modelo mental, los planificadores de parques deben derrocar aquellas suposiciones que no sólo han sido fundamentales en el proceso de planificación sino también en el pensamiento de la civilización occidental.

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IUCN, Rue Mauverney 28, CH-1196 Gland, Switzerland

Tel: ++ 41 22 999 0001, fax: ++ 41 22 999 0002,

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