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Turning Ideas on Their Head

The New Paradigm For Protected Areas

Introduction

The ideas that this paper brings together will be individually familiar to resource managers, protected area planners and managers, and other conservation experts, but they may not have considered their combined significance. So its purpose is not so much to break new ground as to suggest that the changes that have occurred in our thinking and practice towards protected areas over the past 40 or so years amount to a revolution. But while the merits of many of these individual changes have been fiercely debated, their collective significance, which can be traced in the decisions of four world parks congresses, has largely gone unnoticed. Yet taken together they have produced a new paradigm for protected areas in the 21st century. Powerful forces have helped to bring about this new paradigm—and they will have an even greater influence on protected areas thinking and practice in future.

Protected Areas

A starting point is a definition of "protected area." IUCN adopted this in 1994:

> [An] area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (IUCN 1994).

The Convention on Biological Diversity (CBD) uses a different definition:

> [A] geographically defined area which is designated or regulated and managed to achieve specific conservation objectives (Article 2).

In practice these definitions are only marginally different. Either would suffice for the purposes of the argument in this paper. Note that both of them consider protected areas:

- To be area-based concepts that might be found anywhere;
- To require specific measures (dedication, designation, regulation) for the purposes of biodiversity conservation (i.e., protection and maintenance);
- To require management, delivered through legal or other effective means; and
- By implication, to require that some kind of management authority is in place to secure conservation.

There are some 60,000 protected areas around the world—that is, places that satisfy the IUCN definition and are held in the database kept by the United Nations Environment Program's World Conservation Monitoring Center (UNEP/WCMC) at Cam-

bridge, United Kingdom. However, fewer than a quarter of these are large enough to be included in the United Nations List of Protected Areas, whose listings are normally restricted to areas greater than 10 sq km. The U.N. list is published every few years; the last edition dates from1997 (IUCN 1998a).

Protected areas are managed for many purposes and nationally have been called by many different names. To bring some order into this complicated situation, IUCN has developed a system of protected area categories, based on primary management objectives (IUCN 1994). All categories are intended to fit within IUCN's overall definition of a protected area. These categories are summarized in Table 1.

A Classic View of Protected Areas

It is traditional (and correct) to accord to the United States the honor of pioneering protected areas in their classic form, as government-owned, government-run areas set aside for protection and enjoyment. This model was, and remains, a simple but powerful expression of peoples' concern to protect their heritage for all time. If this paper sets out to show why it is now often regarded as incomplete, and in some situations potentially counterproductive, this is not to diminish its achievements in many countries, nor to suggest that it has no role to play in the future.

Notwithstanding the leadership role of the USA, in fact the idea of for-

Table 1. IUCN categories of protected areas (IUCN 1994)

Category	Description
Ia	**Strict Nature Reserve**: Protected area managed mainly for science.
Ib	**Wilderness Area**: Protected area managed mainly for wilderness protection.
II	**National Park**: Protected area managed mainly for ecosystem protection and recreation.
III	**Natural Monument**: Protected area managed mainly for conservation of specific natural features.
IV	**Habitat/Species Management Area**: Protected area managed mainly for conservation through management intervention.
V	**Protected Landscape/Seascape**: Protected area managed mainly for landscape/seascape conservation and recreation.
VI	**Managed Resource Protected Area**: Protected area managed mainly for the sustainable use of natural ecosystems.

mally designated protected areas—national parks in particular—took root in a number of countries around the same time. The origins of Yosemite National Park go back to 1864, and Yellowstone National Park, of course, came into being in 1872. But the Portuguese colonial government of Brazil initiated what is now Tijuca National Park in 1861. The British colony of New South Wales (Australia) reserved a number of areas west of Sydney for protection and tourism in the 1860s and 1870s, some of which later became part of Blue Mountains National Park. In 1879, Royal National Park was created in the wilds south of Sydney as a natural recreation area for its burgeoning population. In 1885, Canada protected hot springs in the Bow Valley of the Rocky Mountains; part of this became Banff National Park. Several forest reserves were set up in South Africa in the last years of the nineteenth century. In 1887 in New Zealand, the Maori Chief Te Heuheu offered the Crown 2,400 ha of sacred mountain summits, which later became Tongariro National Park Act. The provincial or state tier of governments also started to create protected areas: the province of Ontario in Canada created Queen Victoria Niagara Falls Park in 1885, and Algonquin National Park (later Algonquin Provincial Park) in 1893 (Holdgate 1999).

While the modern protected areas movement had 19th-century origins mainly in the then "new" nations of North America, Australia, New Zealand, and South Africa, other countries were quick to follow. During the twentieth century, the idea spread around the world, though the driving force has been different in different regions. For example, in Africa, the emphasis was on creating large game parks; in Europe, a focus on landscape protection was more common.

The inspiration of the United States was much in evidence in this worldwide trend—creating a family of "Yellowstone's children" (Everhart 1972). Indeed, active marketing of the U.S. experience has a long history. Thus, the 1940 Washington Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere called on contracting parties to create protected areas, of which the principal model was national parks, *sensu* USA. The first two world parks congresses were held in the United States (Seattle in 1962; Yellowstone and Grand Teton national parks in 1972). Beginning in 1965, the USA (and Canada) hosted a very influential annual short course on parks for young conservation leaders from around the world. Also, the international office of the U.S. National Park Service helped many countries to establish national parks. Pride in the American achievement was evident: as the writer Wallace Stegner said, "National Parks are the best idea we ever had. Absolutely American, absolutely democratic, they reflect us at our best rather than our worst" (Stegner 1983).

As protected areas were set up in more and more countries, it became more difficult to generalize about why they were established and how they were managed. Nonetheless, for many years the classic model dominated thinking, and was at the center of

much national legislation to set up protected areas. This view was reinforced by IUCN's advisory, promotional, and training work in this field, which treated national parks as *primus inter pares* among the different kind of protected areas.[1] These ideas were delivered on the ground in many parts of the developing world through support given to national park projects by FAO (the Food and Agriculture Organization of the United Nations, in which U.S. experts played a very influential role, especially in Latin America), and (after its establishment in 1972) UNEP, as well as by some other donors. Also, many countries set up specialized agencies (national parks services) to manage these areas.

At least until around the mid-1960s, the climate in which protected areas were set up favored a top-down and rather exclusive view of protected areas. Setting up large game parks without too much concern for the impact on local people fitted well with the autocratic style of colonial administration (especially in Africa), and it was equally at home in the early days of post-colonial government which followed many of the same styles of administration. Thus, modeled in part on the 1940 Western Hemisphere Convention, the 1968 Africa Convention on Nature and Natural Resources encouraged the creation of protected areas from which local people would be excluded, though tourists (and their activities such as sport fishing) would be welcome (see Table 2).

Certainly the opinions and rights of indigenous peoples were of little con-

Table 2. Extracts from the 1968 Africa Convention on Nature and Natural Resources.

Conservation area "means any protected natural resource area, whether it be a strict natural reserve, a national park, or a special reserve...."
Strict nature reserve "means an area ... under State control ... throughout which any form of hunting or fishing ... [is] strictly forbidden ... where it shall be forbidden to reside, enter, traverse or camp...."
National park "means an area ... under State control ... exclusively set aside for the propagation, protection, conservation and management of vegetation and wild animals ... in which the killing, hunting and capture of animals and the destruction or collection of plants are prohibited ... and [in which measures are taken] to enable the public to visit these parks.... [S]port fishing may be practised with the authorisation and under the control of the competent authority...."
Special reserve "means other protected areas such as: 'game reserve' ... within which the hunting, killing or capture of fauna shall be prohibited ... where settlement and other human activities shall be controlled or prohibited; 'partial reserve' or 'sanctuary' ... an area set aside to protect characteristic wildlife.... 'Soil,' 'water,' or 'forest' reserve shall denote areas set aside to protect such resources."

cern to any government before about 1970; these groups were not organized as a political force as they are now in many countries. Even in more developed countries, the prevailing view until about the 1960s was that governments knew best, and public opinion was something for officials to help shape, not to be influenced by. Moreover, the scientific foundation for protected areas was often limited: the basis upon which areas were selected, and their boundaries drawn, often involved arbitrary judgment based on superficial knowledge. More generally, the idea of inter- or multi-disciplinary working was in its infancy. The great majority of people working in their area or profession made little effort to build bridges to others employed in related topics; protected areas were no exception. In short, many protected areas came into being at a simpler time in a less complex world.

It is this context that accounts for the main features of the classic model, or paradigm,[2] of protected areas as it was before, say, 1970, and which are summarized in Table 3.

Of course, Table 3 is a bit of a caricature, and certainly a rather crude generalization that overlooks many of the detailed ways in which protected area management in one country differed from that in another. Nonetheless, it captures the prevailing values

Table 3. A classic model of protected areas (adapted from Phillips 2002).

Objectives	**Local people**
● "Set aside" for conservation, in the sense that the land (or water) is seen as taken out of productive use	● Planned and managed against the impact of people (except for visitors), and especially to exclude local people
● Established mainly for scenic protection and spectacular wildlife, with a major emphasis on how things look rather than how natural systems function	● Managed with little regard for the local community, who are rarely consulted on management intentions and might not even be informed of them
● Managed mainly for visitors and tourists, whose interests normally prevail over those of local people	**Wider context**
● Placing a high value on wilderness—that is, on areas believed to be free of human influence	● Developed separately—that is, planned one by one, in an *ad hoc* manner
● About protection of existing natural and landscape assets—not about the restoration of lost values	● Managed as "islands"—that is, managed without regard to surrounding areas
Governance	**Management skills**
● Run by central government, or at least set up at instigation only of central government	● Managed by natural scientists or natural resource experts
	● Expert-led
	Finance
	● Paid for by the taxpayer

held by protected areas professionals and political leaders at the time.

Charting the Changes in Thinking

To help chart the progress in thinking about protected areas since, an analysis has been undertaken of the topics chosen for recommendations at the four global protected areas events that have occurred since 1962. These are the first (Seattle, 1962), second (Yellowstone/Grand Teton, 1972), third (Bali, 1982), and fourth (Caracas, 1992) world parks congresses. Also included in the analysis are two other international protected area events held since 1992, and the themes selected for the fifth congress to be held in Durban, South Africa, in September 2003. Each congress was (or will be) a global gathering of protected area and other conservation experts, addressing the issues that they regard as the most pressing. The strictly limited number of recommendations adopted at each event forced a prioritization that can be quite revealing. Of course this is a crude form of analysis on its own, but detailed study of the texts of the recommendations tends to bear out the following conclusions.

The First World Conference on National Parks adopted a number of brief recommendations, but not all of them focused on protected area policy. Several addressed institutional questions (e.g., support for the newly founded World Wildlife Fund), site-specific issues (e.g., Galapagos), and species conservation issues. Table 4 includes only those recommendations that relate to protected area policy in general.

Table 4. Topics of relevant recommendations of the First World Conference on National Parks, Seattle, USA, 1962 (Adams 1962).

5: Park interpretation services
6: Research into undisturbed biotopes
7: Management to be based on scientific research
8, 9, 10: Protected areas definitions and standards
11: Exclusion of damaging development
13, 14: Inclusion of support for protected areas in aid programs
15: Marine protected areas
22: Species protection by protected areas

[Because the original recommendations were only given numbers, titles have been added by the author.]

The recommendations adopted by the Second World Conference on National Parks were much more clearly focused on what were then seen as the global priorities for protected areas. They are set out in Table 5.

The most remarkable thing about this list, fully borne out by a detailed analysis of the texts of the recommendations, is the failure to address the connections between protected areas and questions of development in general, and between protected areas and

Table 5. Topics of recommendations of the Second World Conference on National Parks, Yellowstone and Grand Teton national parks, USA, 1972 (National Parks Centennial Commission 1973).

1.	Conservation of Representative Ecosystems
2.	Conservation of Tropical Forest Ecosystems
3.	Conservation of North and Sub-Polar Ecosystems
4.	Marine National Parks and Reserves
5.	Establishment of Antarctica as a World Park under U.N. Administration
6.	International Parks
7.	Regional Systems of National Parks and Other Protected Areas
8.	Conservation of the World Heritage
9.	Wetlands Convention
10.	Standards and Nomenclature for Protected Areas
11.	Integrity of National Parks and Equivalent Reserves
12.	Usage of National Parks
13.	Detrimental Effects of Vehicles, Boats, and Aircraft in National Parks and Other Protected Areas
14.	Research on National Park Values
15.	Planning of National Parks and Other Protected Areas
16.	Exchange of Information
17.	Technical and Financial Assistance for National Parks
18.	Training
19.	Interpretation Services for National Parks
20.	Education in National Parks and Other Protected Areas

the areas around them in particular. There is also little interest shown in local communities or indigenous peoples—except as a threat to protected areas. And no direct attention is given to biodiversity and genetic resources conservation. From today's perspective, these products of the 1972 conference in Yellowstone appear to represent an inward-looking and narrow view of protected areas. They produce a much more comprehensive agenda than that adopted at Seattle, and may be said to capture the priorities of advocates of the classic paradigm in Table 3.

Toward a New Paradigm

It is instructive to compare Table 5 with the topics of recommendations adopted by the Third World Parks Congress in Bali, Indonesia, ten years later (see Table 6). While some themes are the same or similar, there are a bunch of recommendations that address a wholly new agenda—see those emphasized in italics. Even familiar topics, like poaching, are considered from a much more constructive viewpoint, with as much stress on alternative sources of income for local people as on combating illegal activities. In place of education in protected areas has come the much bigger challenge of building public support for protected areas. In this way, by making the link between protected areas and development questions, and by acknowledging the key role of local and indigenous groups, Bali represented a real watershed.

Analysis of the recommendations adopted at the Fourth World Congress on National Parks and Protected

Table 6. Topics of recommendations of the Third World Congress on National Parks and Protected Areas, Bali, Indonesia, 1982 (McNeely and Miller 1984).

1.	Information on Protected Areas
2.	Global System of Representative Terrestrial Protected Areas
3.	Marine and Coastal Protected Areas
4.	Antarctica
5.	*The Role of Protected Areas in Sustainable Development*
6.	Threats to Protected Areas
7.	Combating Poaching
8.	*Environmental Planning and Protected Areas*
9.	*Protected Areas and Traditional Societies*
10.	*Conservation of Wild Genetic Resources*
11.	*Development Assistance and Protected Areas*
12.	Management of Protected Areas
13.	Protected Areas Personnel: Training and Communication
14.	Development of Public Support for Protected Areas
15.	Voluntary Assistance for Protected Areas
16.	World Heritage Convention
17.	Biosphere Reserves
18.	International Agreements and Protected Areas

Areas, Caracas, Venezuela, shows a number of further new themes emerging. This congress took place just before the United Nations Conference on Environment and Development (UNCED) and was clearly influenced by issues that were to come to the fore in Rio de Janeiro a few months later, such as global change and biodiversity conservation; see italicized recommendations in Table 7 below. It should be noted, however, that other

Table 7. Topics of recommendations of the Fourth World Congress on National Parks and Protected Areas, Caracas, Venezuela, 1992 (McNeely 1993).

1.	Strengthening the Constituency for Protected Areas
2.	*Global Change and Protected Areas*
3.	*Global Efforts to Conserve Biodiversity*
4.	Legal Regimes for Protected Areas
5.	External Forces Threatening Sustainability
6.	*People and Protected Areas*
7.	*Financial Support for Protected Areas*
8.	*Protected Areas and the Sustainable Use of Natural Resources*
9.	Tourism and Protected Areas
10.	*Partnerships for Protected Areas*
11.	Marine Protected Areas
12.	Information, Research, and Monitoring
13.	*Ecological Restoration*
14.	Water and Protected Areas
15.	Development Planning and Natural Resource Use
16.	Expanding the Global Network of Protected Areas
17.	Protected Area Categories, Management Effectiveness, and Threats
18.	Building Protected Areas Institutions
19.	Developing Protected Areas Professionalism
20.	Biosphere Reserves

new ideas, such as encouraging (supranational) regional strategies for protected areas and promoting the idea of corridors between protected areas, were included in the Caracas Action Plan but not in the recommendations adopted there (see McNeely 1993; Holdgate and Phillips 1999).

In the years since Caracas, ideas about protected areas have continued to evolve rapidly at the international level. Thus, the first Latin American Congress on National Parks and Other Protected Areas (Santa Marta, Colombia, 1997), gave priority to (a) the spiritual dimension of protected areas; (b) the emerging impacts on protected areas of an increasingly globalized free-market economy; and (c) the changing role of protected area agencies, from "managers" to "regulators" (Castaño Uribe 1997). In the same year, IUCN convened a "mid-term" meeting five years after the Caracas Congress in Albany, Australia. The theme was "From Islands to Networks," and the meeting emphasized the importance of bioregional planning as a context for protected areas management (IUCN 1998b).

It is of course too soon to say what will be decided at the forthcoming Fifth World Parks Congress to be held in Durban, South Africa, in September 2003, but the pre-congress draft list of proposed topics for recommendations is analyzed in Table 8.[3]

Table 9 attempts to synthesize this analysis by showing how various themes have emerged over the course of these five congresses while others have declined in importance. The grouping of recommendations is subjective, as is the assignment of recommendations. Moreover, the titles are far less important than the contents of the decisions. Also, it is noticeable that over time the range of issues covered

Table 8. Draft topics for recommendations at the Fifth World Parks Congress, 2003.

1.	Protected Areas and Global Change
2.	Protected Areas and The CBD
3.	*Protected Areas in Africa*
4.	Protected Areas and Extractive Industry
5.	Protected Areas and Tourism
6.	Protected Area Categories for the 21st Century
7.	Protected Area and Mountains
8.	Transboundary Protected Areas
9.	*Spiritual Values of Protected Areas*
10.	Linking Protected Areas to International Programmes
11.	*Urban Protected Areas*
12.	Protected Areas and Armed Conflict
13.	Protected Areas and Politics
14.	*Governance for Protected Areas*
15.	Capacity Building for the 21st Century
16.	Protected Areas and Information Technology
17.	Management Effectiveness of Protected Areas
18.	Financial Security for Protected Areas
19.	Building Comprehensive Protected Area Systems
20.	Communities and Equity
21.	Marine Protected Areas

Table 9. Changing priorities for world parks congresses.

Topic	Recommendations adopted at (or proposed for):				
	1st (1962)	2nd (1972)	3rd (1982)	4th (1992)	5th (2003)
Ecosystem coverage (including marine)	15	1, 2, 3, 4, 5	2, 3, 4	11, 14, 16	7, 19, 21
Standards, definitions, information	8, 9, 10	10, 16	1	12, 17	6, 16, 17
Threats, pressures, global change	11	11, 12, 13	6, 7	2, 5, 9	1, 4, 5, 12
Technical assistance, finance	13, 14	17		7	18
Interpretation, education	5	19, 20	14		
Species, genetic resources, biodiversity	22		10	3, 8	
Research, science	6, 7	14			
Law, planning, and management		15	12	4	
Training, capacity building		18	13	18, 19	15
Conventions, transboundary, etc.		6, 7, 8, 9	16, 17, 18	20	2, 8
Building support, partnerships			15	1, 10	13
Development, bio-regional scale, etc.			5, 8, 11	15	10
People (including indigenous peoples)			9	6	20
Ecological restoration				13	
Governance					14
Spiritual values					9
Urban links					11

N.B.: the proposed region-specific recommendation on Africa at the Vth Congress has been excluded from this analysis.

under the topic headings has increased greatly, so titles alone can be misleading. Nonetheless, this analysis serves to illustrate what has been seen as important at different ten-year stages over the past 40 years, and to that extent the broad trends are clear.

This analysis of the topics chosen for recommendations at the world parks congresses between 1962 and 2003, albeit a subjective one, reveals how much ideas about protected areas changed in quite a short time. A number of critical external events were responsible for moving the agenda of the world parks congresses over this period. At the international level, the most important were:

- The 1972 United Nations Conference on the Human Environment held in Stockholm (which may be seen as signaling the end of a colo-

nial period of conservation);
- The development around the same time of the biosphere reserve concept as part of the Man and Biosphere program of the U.N. Educational, Scientific, and Cultural Organization, with its idea of a core area for strict protection surrounded by buffer and transitional zones, and its integration of conversation and development;
- The publication of the World Conservation Strategy in 1980, which expressed new thinking on conservation and its relationship to development (IUCN 1980); and
- The adoption of Agenda 21 and the CBD at the 1992 UNCED.

These same events influenced (and reflected) thinking about people and nature in general over the same period—see Table 10.

Table 10. Summary of people—nature problematics in international conservation, 1960-1999 (Jeanrenaud 2002)

Variable	*1960+*	*1980+*	*1990+*
Perception of nature	Wilderness	Ecosystem; biodiversity; ecoregions	Culture in nature and nature in culture
Environmental values	Theocentric and anthropocentric	Anthropocentric and cosmocentric	Anthropocentric and cosmocentric
Diagnosis of environmental problems	Overpopulation; exceeding the land's carrying capacity	poverty; overpopulation	Power relations; North–South inequalities; what *counts* as a problem and to *whom*?
Representations of local people	People are the threat	People can't be ignored; people are a resource	Align with rural people
Solutions and technologies	Exclusionary protected areas	Buffer zones, integrated conservation and development programs; sustainable use; community-based conservation	Alternative protected areas; participatory natural resource management; human rights
Power relations	Alliances with elites	Technocratic alliances	Alliances with grassroots
Key influences	Colonial conservation; elitist interests	Sustainable development debate; growing concern for livelihoods	Democracy/human rights movement; participatory development; post-modern influence on natural and social sciences

Author's note: Whereas the 1980+ column corresponds very well with the message in the World Conservation Strategy of 1980, the 1990+ column seems to go beyond UNCED and Agenda 21. Perhaps this most recent group of ideas challenges governments too much to find expression in an international agreement. Nonetheless, the ideas in the right-hand column are beginning to influence thinking profoundly, especially the idea of linking human rights and environmental protection. Indeed, what seems to be emerging is the idea of an environmental human right as against, or as well as, a theory of rights of nature.

The Modern Paradigm for Protected Areas

The result is the emergence of a new paradigm for protected areas, one which contrasts in almost every respect with that which prevailed 40 or even 30 years ago. The essential elements of the paradigm at the outset of the 21st century are listed in Table 11. The contrasts with the classic model (Table 3) are summarized in Table 12.

None of the ideas in Table 11 (summarized in the right-hand column of Table 12) is particularly novel. They are becoming the standard ways of working among professionals in the protected areas business in many countries, although progress with some issues is more rapid than with others. The contrast with the classic model is very striking. In almost every respect, established ideas that pre-

Table 11. The main elements of the modern paradigm for protected areas.

Objectives
- Run also with social and economic objectives as well as conservation and recreation ones
- Often set up for scientific, economic and cultural reasons— the rationale for establishing protected areas therefore becoming much more sophisticated
- Managed to help meet the needs of local people, who are increasingly seen as essential beneficiaries of protected area policy, economically and culturally
- Recognizes that so-called wilderness areas are often culturally important places
- About restoration and rehabilitation as well as protection, so that lost or eroded values can be recovered

Governance
- Run by many partners, thus different tiers of government, local communities, indigenous groups, the private sector, NGOs, and others are all engaged in protected areas management

Management technique
- Managed adaptively in a long-term perspective, with management being a learning process
- Selection, planning, and management viewed as essentially a political exercise, requiring sensitivity, consultations, and astute judgment

Finance
- Paid for through a variety of means to supplement—or replace—government subsidy

Local people
- Run with, for, and in some cases by local people—that is, local people are no longer seen as passive recipients of protected areas policy but as active partners, even initiators and leaders in some cases
- Managed to help meet the needs of local people, who are increasingly seen as essential beneficiaries of protected area policy, economically and culturally

Wider context
- Planned as part of national, regional, and international systems, with protected areas developed as part of a family of sites. The CBD makes the development of national protected area systems a requirement (Article 8a)
- Developed as "networks," that is, with strictly protected areas, which are buffered and linked by green corridors, and integrated into surrounding land that is managed sustainably by communities

Perceptions
- Viewed as a community asset, balancing the idea of a *national* heritage
- Management guided by international responsibilities and duties as well as national and local concerns. Result: transboundary protected areas and international protected area systems

Management skills
- Managed by people with a range of skills, especially people-related skills
- Valuing and drawing on the knowledge of local people

Table 12. Contrasting paradigms: a summary of Tables 3 and 11 (adapted from Phillips 2002).

	As it was: protected areas were…	*As it is becoming: protected areas are…*
Objectives	• Set aside for conservation • Established mainly for spectacular wildlife and scenic protection • Managed mainly for visitors and tourists • Valued as wilderness • About protection	• Run also with social and economic objectives • Often set up for scientific, economic, and cultural reasons • Managed with local people more in mind • Valued for the cultural importance of so-called wilderness • Also about restoration and rehabilitation
Governance	• Run by central government	• Run by many partners
Local people	• Planned and managed against people • Managed without regard to local opinions	• Run with, for, and in some cases by local people • Managed to meet the needs of local people
Wider context	• Developed separately • Managed as "islands"	• Planned as part of national, regional, and international systems • Developed as "networks" (strictly protected areas, buffered and linked by green corridors)
Perceptions	• Viewed primarily as a national asset • Viewed only as a national concern	• Viewed also as a community asset • Viewed also as an international concern
Management techniques	• Managed reactively within short timescale • Managed in a technocratic way	• Managed adaptively in long-term perspective • Managed with political considerations
Finance	• Paid for by taxpayer	• Paid for from many sources
Management skills	• Managed by scientists and natural resource experts • Expert-led	• Managed by multi-skilled individuals • Drawing on local knowledge

vailed only 30 years ago have been turned on their heads. The result is a revolution in our approach to protected areas.

Putting this new paradigm into action calls for a new, more people-focused protected areas legislation, such as that adopted in Peru or Brazil (though existing laws can often be stretched to accommodate many of the new approaches); the "re-engineering" of protected areas people; the re-education of politicians and the public so that they understand the new model of protected areas; and the re-orientation of development assistance

policies so as to integrate protected areas into poverty reduction projects and strategies. Bringing about such a revolution has not been easy. There are many people who—for good reasons or bad—do not wish to hear that the values and policies associated with protected areas are now very different from those that prevailed in the past. And indeed there may be some in the profession who still yearn for the old certainties.

The Forces Behind the Changes

The forces that have driven these changes are increasingly powerful. It is not the aim of this paper to analyze them in detail: the implications are very broad, since they touch on many aspects of the way that society operates and how nature functions. But it is possible to identify the main factors that have brought about a very different way of looking at conservation issues, and the management of natural resources in general and of protected areas in particular. These relate to scientific understanding, cultural and social awareness, the acknowledgment of human rights, political developments, general developments in management practice, technological advances, and economic forces.

Scientific understanding has taught us, for example, that many protected areas are too small to function effectively and need to be joined up with others, or set in an ecologically friendly landscape, if the species within them are to survive. It has also shown us that the human impacts on what were previously thought of as pristine environments, from the Amazon forest to the Australian outback, have often been significant—thereby to some extent undermining the power of the wilderness argument. It has revealed many new frontiers for conservation, especially in the marine environment, including the high seas, and many new challenges, such as climate change. It has also shown that techniques exist for ecological restoration.

Cultural and social awareness encourages greater respect for local communities and traditional and indigenous peoples, an understanding of the true character of their relationship with nature, and an appreciation of the sustainable practices that many of them have followed. This too has led people to question the value of the wilderness concept, since many so-called wilderness areas are in fact the homelands of indigenous peoples. The views and experience of women are acknowledged now to be of special importance, and there is concern that ethnic minorities should not be marginalized; this too affects views of the relationship between protected areas and the people living in or near them. More generally, greater understanding of the values held by different sectors of society has made it incumbent on protected area managers to listen to the views of local people and to respond to their concerns. The current pre-occupation with stakeholder analysis is an expression of this.

Linked to this has been the emergence in recent decades of an international doctrine and law on human rights, especially the rights of indigenous peoples, particularly in relation to the environment. This is evident in the International Labor Organization's Convention 169, the draft Dec-

laration on the Rights of Indigenous Peoples, and the Inter-America Declaration on the Rights of Indigenous Peoples. In response, governments have been obliged to make big changes in how they approach protected areas in indigenous territories. In Latin America, the Arctic, New Zealand, and Australia, for example, governments are transferring responsibility for management, and even for initiating protected areas, to local communities. Respect of indigenous rights and awareness of the values of indigenous knowledge have been reinforced through the implementation of international conservation agreements. Thus the CBD includes article 8(j), which specifically calls on countries to work with indigenous and local communities. And even though conventions dating from the early 1970s, notably Ramsar (wetlands) and World Heritage, do not include such measures, their implementation (and that of UNESCO's Man and Biosphere Program) has been increasingly guided by the need to be sensitive to cultural diversity and the values of indigenous groups.

It is impossible to generalize about political developments, but several broad trends do seem to be underway in many parts of the world, in Africa, Latin America, Eastern Europe, India, China, and so on. For example, greater democratization and the devolution of power from the center to regional and local tiers of government (including indigenous peoples) means that central government is no longer the only government agency that creates or manages protected areas: provincial, municipal, and local governments are also more and more involved. The enhanced role of civil society favors non-governmental organizations (NGOs) playing an increasingly important role in protected areas. Greater use of market mechanisms to effect change, deliver services, or manage processes impact in many ways on protected areas and how they are managed. For example, private individuals are creating their own reserves, commercial ventures are more involved in delivering aspects of protected area management, and protected area managers have to approach their job in a more business-like way. At the other end of the scale, governments increasingly recognize that protected areas are in part an international responsibility. This is sometimes very precise, for example where a site is designated under the World Heritage or Ramsar conventions (or regional agreements such as those in Europe), and sometimes it is a more general sense of responsibility encouraged particularly by the requirements of the CBD to conserve biodiversity *in situ.*

General developments in management practice have affected protected area management in a number of ways. For example, in the latter part of the 20th century it has become clear that making connections across professional and institutional boundaries is one of the biggest challenges facing governments and managers of all kinds. For protected areas, this means making connections to the areas around and adopting a multi-disciplinary approach. Another broad trend in management in general is away from detailed master plans and towards the adoption of a strategy of clearly

defined objectives coupled with adaptive forms of response; this too finds an echo in protected areas practice.

Technological advances also have their impact on protected areas management. It is not just that IT or GIS make possible the handling and sharing of vast amounts of data and information, but that they create a different set of understandings and expectations among all concerned. In particular, they encourage a belief that the boundaries to what are possible are not so often technical as they are human and political.

Finally there are economic forces, ranging from the global to local, but all putting pressure on protected areas planners and managers. As these pressures have grown, so the management of protected areas has been 'invaded' by economic theory. Managers have had to master the language of values and benefits that protected areas represent, and to adopt more business-like approaches to the care of these places, including the requirement to develop business plans. Increasingly, this has included the idea of generating income to supplement government subventions.

Some Critical Reflections on the Modern Paradigm

As noted at the outset of this paper, the current approach to protected areas is now widely shared. It accords well with prevailing political, economic, and scientific conditions. But it is not without major problems and the reality is that it is not always easy to operate the modern paradigm. Here are several of the criticisms that are sometimes heard:

- *Devolution of political power from the center has led to the break-up of some protected area agencies with unfortunate results*. An extreme case is Indonesia, where the parks system in a country of globally important biodiversity has, to a large extent, been undermined by the breakdown of central control and widespread corruption. Several vital sites (such as Gunung Leuser National Park in Sumatra) face wholesale destruction from a range of threats; Jakarta has neither the will nor the ability to do much to defend the area in a political climate that encourages the ruthless extraction of natural resources.
- *Stakeholder participation and community involvement may be essential but they can make great demands of resources (staff, time, and money) from over-stretched protected areas agencies*. Also, they call for fine political judgments about who stakeholders are and how conflicting interests can be determined and reconciled. Sometimes it is all too difficult and managers complain of "analysis paralysis" and "stakeholder fatigue."
- *We should not be naïve about the willingness or ability of all local communities to support conservation and sustainable use*. Not every community has responsible traditions in its use of natural resources; modern hunting technology (e.g., high-velocity rifles) can change the balance between hunters and wildlife; and a community with a fast-growing population has a different impact on natural resources than one with a stable population.

How to build partnerships with local people in the context of such challenges poses major dilemmas for many protected area managers.

- *In our enthusiasm for people-based conservation, we are in danger of diminishing the achievements of government-managed, strictly protected areas.* That is not the intention; in fact, government-owned and -managed parks that are strictly protected against all kinds of exploitative use will remain the cornerstone of many countries' systems of protected areas. The new paradigm is not intended to undermine the value of such places but to show how their management has changed (or should change) radically, and to stress that the contribution that other kinds of protected areas can make is equally important. It also a reminder that all governments try to meet the demands of many different groups and therefore find it hard to support protected areas at the expense of other interests. The relevance of new paradigm is that it offers more scope for negotiation.
- *We are in danger of making the manager's job undoable.* The demands of stakeholder analysis are only one part of the protected area manager's ever-expanding set of responsibilities. He or she is expected to master (or at least employ experts in) many new and complex areas of expertise (business skills and fundraising, economics, conflict resolution, public relations, and so on) on top of natural resource and visitor management. Now the manager is being urged to think beyond the protected area's boundaries, to engage in bioregional planning initiatives (see below), and even to address wider social problems faced by ethnic minorities in nearby cities.

There are many more such difficult questions, and no easy answers to them. The modern paradigm may indeed represent the outcome of a revolution in protected areas management, but it greatly complicates the task of management. Nonetheless, as the last part of this paper shows, it is fast becoming a reality.

The Modern Paradigm in Action

Three examples of the application of the new approach to protected areas planning and management are briefly explored, with references to on-the-ground action: community-conserved areas, bioregional planning/ecological networks, and protected landscapes and seascapes (IUCN protected area management category V). They all suggest that the cutting edge of protected area work has moved into very different fields from those that received most attention 30 years ago.

Community-conserved Areas[4]

Community-conserved areas (CCAs) may be thought of as natural ecosystems containing significant biodiversity value that are conserved by communities that depend on these resources, either culturally, for their livelihoods, or both. While conservation efforts may or may not include outside support, the three key features are that the local communities:

- Are concerned about the ecosys-

tem though their relation to it;
- Take effective action to maintain or enhance biodiversity; and
- Are major players (usually *the* major players) in decision-making and implementing decisions.

It is becoming clear that while such areas provide a potentially important new tool in the conservation armory, they have often gone unrecognized. There are several reasons for this. Many government conservation agencies are just too busy running their own protected areas, and hard pressed financially, to reach out to support community initiatives. Some conservation experts do not believe that local people can live alongside nature and conserve it. In some countries, legal and policy frameworks do not recognize the role of local people in conservation. Finally there are many countries where indigenous peoples and rural communities have yet to secure their full legal rights to the territories and resources that they have occupied or used in the past.

Yet the importance of CCAs is considerable, for they are far more common than was previously appreciated. In South Asia, for example, it is estimated that there are many such areas under community protection (Kothari, Pathak, and Vania, 2000). They exist too in the form of sacred groves in Africa, as "tapu" areas in the South Pacific, or as "hemas" reserves in pastoral communities of western Asia. They are common also in many parts of the world, ranging from the Arctic to tropical rainforests, where indigenous peoples have long lived close to nature. So where the efforts of local people to conserve their own environments go unrecognized and unsupported, it means that a major contribution to conservation (and a ready-made tool for building local support for conservation) is being neglected. Nonetheless, there are encouraging signs that some governments are coming to see the value of treating local and indigenous communities as partners (see Table 13).

It is important to keep a sense of proportion. Not all community-based resource use is sustainable and not every local group will manage nature in a responsible way. But there is enough hard evidence now, from many parts of the world, to show that the idea of CCAs needs to be recognized as a fourth arm of conservation, alongside the efforts of governments, NGOs, and the private sector. There are important lessons being learned too about why such approaches work better in some countries than in others. For example, CCAs will thrive where power is devolved to local people, human rights are respected, and decision-making is transparent and equitable. Where this happens, CCAs contribute to conserving biodiversity and landscapes but also demonstrate the integration of conservation and development, contribute to national protected area systems, and are part of ecological networks and bioregional planning (see next section).

Bioregional Planning/ Ecological Networks

IUCN has recently published a review of ecological networks (Bennett and Wit 2001). It draws in part on earlier unpublished work by Miller and Hamilton (1997). What these

Table 13. Some examples of the successful partnerships between government and CCAs (source: personal communications as shown)

Country	Initiative	Brief description	Significance
Australia	indigenous protected areas (IPAs)	IPAs allow indigenous landowners to declare that they will manage their lands mainly for protection of natural and associated cultural resources	IPAs account for nearly 17% of total protected areas estate in Australia *Source: Steve Szabo*
Mexico (state of Oaxaca)	community protected natural areas	laws recognize community land and resources, community land-use planning, and local decision-making	local communities in Oaxaca (the most biodiverse rich region of Mexico) protect nearly 200,000 ha *Source: Gonzalo Oviedo*
Ecuador (Cofan de Bermejo)	negotiations over rights of indigenous groups	transfer of responsibility of ecological reserve from government to local federation of indigenous groups	50,000 ha of land will be managed by local people with outside support *Source: Gonzalo Oviedo*
Colombia (Indiwasi National Park)	negotiations over rights of indigenous groups	transfer of responsibility of national park from government to indigenous groups (first of 47 in Colombia)	70,000 ha of land will be managed by local people with outside support *Source: Gonzalo Oviedo*
Samoa (Safata and Aleipata Marine Protected Areas)	establishment of marine protected areas for sustainable fisheries	local communities have taken the initiative to define and establish MPAs (including "no-take zones") in the waters and coastal areas of the District Communities of Safata and Aleipata	30,000 ha + of land/sea will be protected and managed by customary laws and regulations, approved by government in community-prepared management plans *Source: Pedro Rosabal*
Isle of Eigg, Scotland, U.K.	community-based purchase of the island	small island community, in partnership with Scottish conservation NGO and regional agency, bought island for conservation and sustainable development	7,500 hectares of high biodiversity and scenic value now conserved by local people who have developed sustainable forms of tourism *Source: Web site*

overviews show is that there are initiatives now underway in many parts of the world to promote large-scale planning for conservation and sustainable resource use, which involve developing networks of protected areas linked with other land and water zones, all managed in an integrated way. Such initiatives go by several different names that relate to similar concepts (e.g., ecological networks, bioregional planning, landscape-scale or ecoregion-based planning).

Bennett and Wit found 150 such schemes in all, and studied 38 in detail. Of these, over a third were being implemented. Their examples are found in all parts of the developed and developing worlds. As the examples in Table 14 show, ecological networks vary greatly in size, from county to continental scale, and the aims

sometimes differ too. Several of them involve two or more countries. Roughly half of such initiatives are government-led, with the rest inspired by NGOs. Many form parts of international programs (e.g., biosphere reserves); others are stand-alone schemes. But while the initiatives differ widely in many respects, they have certain features in common:

- They focus on conserving biodiversity at the ecosystem, landscape, or regional scale, rather than in single protected areas;
- They emphasize the idea of ecological coherence through encouraging connectivity;
- They involve buffering of highly protected areas with eco-friendly land management areas;
- They include programs for the restoration of eroded or destroyed ecosystems; and
- They seek to integrate economic land use and biodiversity conservation.

All these schemes have important implications for the established protected areas within them. National parks and other protected areas become the "anchors" of the network, the core areas around which buffers are created and between which corridors are established; they also set the standards toward which restoration schemes can aspire. Such projects, therefore, have the effect of linking the protected areas to the surrounding land and water areas, and to the regional economy. They also provide a framework within which privately, publicly, and communally owned land can be managed through voluntary agreements for a common cause. While early indications of the benefits of bioregional planning are encourag-

Table 14. Some ecological network/bioregional planning initiatives (Bennett and Wit 2001).

Title of initiative	Areas involved	Leading organizations	Main objectives	Main components
Mesoamerican Biological Corridor	eight Meso-american countries (multi-national)	inter-governmental leadership	halt biodiversity loss, ecosystem fragmentation; integrate with regional development, including integrated coastal zone management and MPAs	• core areas • corridors • buffer zones (multiple use areas)
Yellowstone–Yukon	Canadian and U.S. Rockies (bi-national)	NGO alliance	ensure that wilderness, wildlife, native plants, and natural processes continue to support natural and human communities	• wildlife cores • connecting movement corridors • transition areas
Netherlands Ecological Network	The Netherlands (national)	Dutch Ministry of Agriculture, Nature Management and Fisheries	create coherent network for species and habitats; stimulate self-sustaining natural processes; develop/restore connectivity	• core areas • ecological corridors • buffer zones • nature development areas
Cheshire Econet	Cheshire County, U.K. (local)	Cheshire County Council/E.U. LIFE program	manage landscape for people and wildlife, and improve the connections between surviving wildlife habitats	• core areas • restoring and re-connecting landscape features

ing, a major challenge over the next few years will be to assess the true value of these initiatives for biodiversity conservation and sustainable development. A particular challenge will be to establish how effective such large-scale initiatives are in linking with local people on the ground. (For a thoughtful analysis of the relationship between local participation and one of the largest bioregional projects, the Mesoamerican Biological Corridor, see Rivera et al. 2003.)

The institutional and capacity-building implications of bioregional or ecological network planning are indeed formidable. Three kinds of challenges arise:

- To build the capacity to plan and manage at a scale that is unfamiliar to most protected area managers;
- To foster stakeholder participation for a wide range of partners, which can be very challenging given the complex social and economic implications of working at a large geographic scale; and
- To establish cooperative institutions to ensure the delivery of results, where previously agencies were typically more narrowly focused (Miller 1996).

While it is not suggested that protected area managers—with their limited responsibilities and geographically circumscribed powers—should lead such initiatives on their own, their full involvement in them is essential. Nothing illustrates more the need for protected area management to be outward-looking and connecting with the world around than the development of such initiatives.

IUCN Protected Area Management Category V: Protected Landscapes and Seascapes

Table 1 summarizes the IUCN management categories for protected areas. While IUCN insists that *all* categories are important, traditionally the focus of most conservation attention has been on categories I–IV, the so-called strictly protected areas. These are areas in which the human presence—though it often exists—is kept at a minimal level. The need for them is greater than ever if much biodiversity is to be protected. However, there is now also a growing interest in protected areas which are lived-in landscapes, that is categories V and VI, the so-called multiple-use protected areas.[5] To promote interest in the approach, IUCN has just published guidelines on the management of Category V protected areas: Protected Landscapes and Seascapes (Phillips 2002). This section draws on that advice.

In the IUCN *Guidelines for Protected Area Management Categories* (IUCN 1994), category V, protected landscape/seascape, is defined thus:

> [An] area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

With more than 50 years of experience in Europe, and a growing body of experience from elsewhere, it is now

possible to identify with confidence the main features of the category V approach. Thus it is concerned with both people *and* their environment, and with a range of natural and cultural values. It focuses on areas where people–nature relationships have produced a landscape with high aesthetic, ecological, biodiversity, or cultural values, and which retains integrity. It views communities, and their traditions, as fundamental to the success of the approach; therefore, stakeholder and partnership approaches are needed. The approach recognizes the need to support the stewardship role of the private landowner or manager (including that of land trusts or similar bodies). It usually involves management arrangements that are resolved through decision-making at local government or community levels. It can bring social, economic, and cultural benefits to local communities, along with environmental, cultural, educational, and other benefits to a wider public. It requires that management activities are integrated, promote sustainability, and help to resolve conflicts. Properly run, such areas can offer models of sustainability for wider application elsewhere in rural areas. But as with all protected areas, category V protected areas require effective management systems, including objective setting, planning, resource allocation, implementation, monitoring, review, and feedback.

Several reasons explain why so little international interest was shown in category V protected areas in the past. It was seen (wrongly) as an essentially Euro-centric idea which had little application elsewhere, and as a superficial concern with how places *look*. Also most scientists argued that the global priority should be the remaining core "natural" areas. Such views prevailed also because of the dominance of biologists, zoologists, and other natural scientists in the conservation movement. Finally, there was the power of the essentially North American model of a national park: a simple concept that stood in marked contrast to the complex idea of protecting environments that people had occupied and shaped for perhaps thousands of years. The contrast is illustrated by Table 15.

The focus is now being placed more on outstanding, lived-in landscapes because of important conceptual and operational advances in conservation and protected areas. Thus, conservation biology has shown the need to work at the ecosystem scale and across the wider landscape, through bioregional planning (see above) in which lived-in landscapes must form a part. It is accepted too that protected areas cannot be treated as islands, but must be seen in their larger context. The existence of "paper parks"—areas protected in name only—shows that reliance on regulation and enforcement is costly and too often fails. Also, there is a new understanding of the link between nature and culture. Thus healthy landscapes are shaped by human culture as well as by the forces of nature; rich biological diversity often coincides with cultural diversity; and conservation cannot be undertaken without the involvement of those people closest to the resources (Brown and Mitchell 2000).

Table 15. Categories II and V contrasted.

Characteristic	Typical situation in Category II National Parks	Typical situation in Category V Protected Landscape/seascape
natural environment	apparently "natural" ecosystems	greatly modified ecosystems
management objectives	ecosystem conservation and tourism	landscape protection, tourism, local economy and culture, sustainable use
principal economic land uses	tourism	farming, forestry, tourism
land/water ownership	mainly publicly owned	mainly privately owned
management agency	central/provincial government	provincial/local government
human settlement	limited (sometimes illegal)	long established, "part of the scene"

Although the greatest concentration of category V protected areas is to be found in Europe, under names such as regional nature park (France), nature park (Spain), protected landscape area (Czech Republic), and national park (U.K.), there are category V protected areas in many other parts of the world. Examples are:

- The small island developing states in the Caribbean and the Pacific;
- The traditional farming lands of the Andes;
- The traditional coffee-growing areas of Mexico and Central America;
- The long-settled landscapes of eastern parts of the USA and Canada;
- The growth, within the U.S. national park system, of new protected areas relying on partnerships with local communities;
- Wildlife dispersal areas of East Africa;
- The ancient "hemas" reserve and irrigation systems of Saudi Arabia;
- The mountain communities of the Himalayas, e.g., the Annapurna Conservation Area, Nepal;
- Japan, where many national parks are managed as Category V protected areas; and
- The rice terraces of the Philippines.

In 1997, WCMC recorded 3,178 category V protected areas in its database, covering in total 676,892 sq km—that is, 23.8% in terms of the number of all protected areas and 11% in terms of area covered (IUCN 1998a). The publication of IUCN's guidelines for category V protected areas (see above) is an indication that this is becoming a growth sector for new protected areas.

Conclusion

It is not the purpose of this paper to diminish in any way the value of strictly protected areas, nor to disparage the achievements of this kind of conservation. Well-managed protected areas of all categories are needed more than ever. Indeed, in many places biodiversity conservation will not be secured

without a still greater effort to protect large parts of the planet against exploitation of any kind. But it is essential to adopt new ways of managing these, and in any case strictly government-owned and -managed protected areas alone are no longer enough. What is called for in the 21st century, and what is now emerging in the new paradigm, is a broader way of looking at protected areas.

It is broader in three senses:

- By including a wider range of actors among those who initiate and manage protected areas, of which CCAs are an example;
- By working at a far broader scale than hitherto, as exemplified by ecological networks and bioregional planning; and
- By broadening our understanding of the range of possibilities encompassed in the definition of a protected area and the IUCN protected area categories, so that we can embrace parts of the lived-in landscape, for example as category V protected areas.

There have in fact been huge conceptual advances in thinking about protected areas over the past 30–40 years, as this paper has shown. In theory, at least, we know now what needs to be done to achieve successful protected areas. The challenge, as always, is to apply the theory. This requires that we develop support among people and their political leaders for protected areas. This in turn depends upon us being able to show the benefits that they can bring to society. That is the theme —Benefits Beyond Boundaries—of the Fifth World Parks Congress to be held in Durban this coming September.

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Endnotes

1 Thus, the first title of what is now the *United Nations List of Protected Areas* was *United Nations List of National Parks and Equivalent Reserves.* The first title of the IUCN commission on the topic was the International Commission on National Parks (later Commission on National Parks and Protected Areas, now World Commission on Protected Areas). The title of the 1962 and 1972 congresses were "International Conference on National Parks," the 1982 event was called the "Third World Congress on National Parks" that in 1992 was entitled "Fourth World Congress on National Parks and Protected Areas," while that which is planned for 2003 will be the "World Congress on Protected Areas."

2 "Paradigm" is used here to mean a prevailing pattern of concepts and attitudes which together constitute an ideal for the planning and management of protected areas.

3 The author added the titles as the originals were only numbered.

4 See the IUCN/WCPA web site: http://wcpa.iucn.org/.

5 This section draws in particular from material provided by Grazia Borrini-Feyerabend, Ashish Kothari, and Gonzalo Oviedo, to whom I am therefore indebted.

6 Though category V is unique among the categories in its emphasis on *interaction* between

people and nature, it shares with category VI the idea of multiple use. Many of the reasons for a growing interest in category V apply to category VI as well, for example the emphasis on sustainable use of natural resources. But there is an important difference. While category V protected areas are lived-in landscapes that have been extensively modified by people over time, the definition of category VI speaks of an "area of predominantly unmodified natural systems," which is to be managed so that at least two-thirds of it remains that way.

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