Guidelines for Protected Area Management Categories

Lignes directrices pour les catégories de gestion des aires protégées

Directrices para las Categorías de Manejo de Areas Protegidas

IUCN Commission on National Parks and Protected Areas with the assistance of the World Conservation Monitoring Centre

WORLD CONSERVATION MONITORING CENTRE

IUCN
The World Conservation Union

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IUCN – The World Conservation Union

Founded in 1948, The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 800 members in all, spread across some 125 countries.

As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

UICN – Union mondiale pour la nature

Fondée en 1948, l'Union mondiale pour la nature rassemble des Etats, des organismes publics et un large éventail d'organisations non gouvernementales au sein d'une alliance mondiale unique: plus de 800 membres dans 125 pays.

L'UICN, en tant qu'Union, a pour mission d'influer sur les sociétés du monde entier, de les encourager et de les aider pour qu'elles conservent l'intégrité et la diversité de la nature et veillent à ce que toute utilisation des ressources naturelles soit équitable et écologiquement durable.

Afin de sauvegarder les ressources naturelles aux plans local, régional et mondial, l'Union mondiale pour la nature s'appuie sur ses membres, réseaux et partenaires, en renforçant leurs capacités et en soutenant les alliances mondiales..

UICN – Union Mundial para la Naturaleza

La Unión Mundial para la Naturaleza, fundada en 1948, agrupa a Estados soberanos, agencias gubernamentales y una diversa gama de organizaciones no gubernamentales, en una alianza única: más de 800 miembros diseminados en 125 países.

Como Unión, la UICN busca influenciar, alentar y ayudar a los pueblos de todo el mundo a conservar la integridad y la diversidad de la naturaleza, y a asegurar que todo uso de los recursos naturales sea equitativo y ecológicamente sustentable.

La Unión Mundial para la Naturaleza fortalece el trabajo de sus miembros, redes y asociados, con el propósito de realzar sus capacidades y apoyar el establecimiento de alianzas globales para salvaguardar los recursos naturales a nivel local, regional y global.

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IUCN Commission on National Parks and Protected Areas
with the assistance of the
World Conservation Monitoring Centre

La Commission des parcs nationaux et des aires protégées
de l'UICN avec l'assistance du Centre mondial
de surveillance continue de la conservation de la nature

La Comisión de Parques Nacionales y Areas Protegidas
de la UICN con la ayuda de
el Centro Mundial de Monitoreo de la Conservación

IUCN/UICN
1994

World Conservation Monitoring Centre

The World Conservation Monitoring Centre (WCMC) is a joint venture between the three partners who developed the *World Conservation Strategy* and its successor, *Caring for the Earth*: IUCN – The World Conservation Union, UNEP – United Nations Environment Programme, and WWF – World Wide Fund For Nature (formerly World Wildlife Fund). Its mission is to support conservation and sustainable development through the provision of information on the world's biological diversity.

WCMC has developed a global overview database that includes threatened plant and animal species, habitats of conservation concern, critical sites, protected areas of the world, and the utilisation and trade in wildlife species and products. Drawing on this database, WCMC provides an information service to the conservation and development communities, governments and the United Nations agencies, scientific institutions, the business and commercial sector, and the media. WCMC produces a wide variety of specialist outputs and reports based on analyses of its data. It is also actively involved in building the capabilities of other institutions, particularly in developing countries, for promoting and planning their own biological resources.

Le WCMC - Centre mondial de surveillance continue de la conservation de la nature

Le Centre mondial de surveillance continue de la conservation de la nature (WCMC) est une entreprise commune des trois partenaires de la *Stratégie mondiale de la conservation*: l'Union mondiale pour la nature (UICN), le Fonds mondial pour la nature (WWF), et le Programme des Nations Unies pour l'environnement (PNUE). Ce centre a pour mission d'appuyer la conservation et le développement durable en recueillant et en analysant les données mondiales sur la conservation, afin que les décisions concernant les ressources biologiques reposent sur les meilleures informations possibles.

Le WCMC a établi une banque de données sur la diversité biologique mondiale, qui comprend des données sur les espèces animales et végétales menacées, les biotopes préoccupants du point de vue de la conservation, les sites critiques, les aires protégées, ainsi que l'utilisation et le commerce des espèces et produits de la faune et de la flore sauvages. S'appuyant sur cette banque de données, le WCMC fournit un service d'information aux communautés de la conservation et du développement, aux gouvernements, aux institutions des Nations Unies, aux instituts scientifiques, au monde du commerce et des affaires, et aux médias. Le WCMC publie de très nombreux rapports et documents spécialisés, fondés sur l'analyse de ses données.

Centro Mundial de Monitoreo de la Conservación

El Centro Mundial de Monitoreo de la Conservación (WCMC) es una empresa conjunta entre los tres asociados que elaboraron la *Estrategia Mundial para la Conservación* y su sucesor, *Cuidar la Tierra*: la UICN – Unión Mundial para la Naturaleza –, el PNUMA – Programa de las Naciones Unidas para el Medio Ambiente –, y el WWF – Fondo Mundial para la Naturaleza (anteriormente Fondo Mundial para la Vida Silvestre). Su misión es promover la conservación y el desarrollo sustentable a través del suministro de información sobre la diversidad biológica del mundo.

El WCMC ha creado una base de datos mundial sobre especies amenazadas de animales y plantas, habitat de interés para la conservación, sitios de importancia crítica, áreas protegidas del mundo, y sobre la utilización y comercio de especies silvestres y productos derivados. Aprovechando los recursos de esta base de datos, el WCMC proporciona servicios de información a las comunidades dedicadas a la conservación y al desarrollo, los gobiernos y organismos pertenecientes a las Naciones Unidas, a las instituciones científicas, a los sectores empresarial y comercial, y a los medios de comunicación. El WCMC hace una amplia gama de contribuciones y publica informes especializados, basados en el análisis de sus datos. También participa activamente reforzando de las capacidades de otras instituciones, particularmente en los países en vía de desarrollo, con miras a la promoción y planificación de sus propios recursos biológicos.

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Introduction

At the IV World Congress on National Parks and Protected Areas, meeting in Caracas, Venezuela in February 1992, participants concluded that more and better managed protected areas were urgently required. Participants emphasised that protected areas are about meeting people's needs: that protected areas should not be islands in a sea of development but must be part of every country's strategy for sustainable management and the wise use of its natural resources, and must be set in a regional planning context.

The Caracas Congress also declared its belief in the importance of the full range of protected areas, from those that protect the world's great natural areas to those that contain modified landscapes of outstanding scenic and cultural importance. Within this broad spectrum of uses, many names have been applied to protected areas; Australia alone uses some 45 names and the US National Park Service has 18 different types of areas under its mandate. Globally, over 140 names have been applied to protected areas of various types. Bringing some order to this diversity is clearly a very useful step.

The purpose of these guidelines, therefore, is to establish greater understanding among all concerned about the different categories of protected areas. A central principle upon which the guidelines are based is that categories should be defined by the objectives of management, not by the title of the area nor by the effectiveness of management in meeting those objectives. The matter of management effectiveness certainly needs to be addressed, but it is not seen as an issue of categorisation.

The guidelines build on work done by IUCN in this field over the past of a quarter century. In particular, they draw on the efforts of a task force established in 1984. They reflect the outcome of a wide-ranging debate over the past few years among protected area managers from around the world, including discussion and review at a workshop in Caracas. The outcome of this workshop was that the Congress adopted a recommendation urging that the IUCN Commission on National Parks and Protected Areas and the IUCN Council endorse a system of categories for protected areas according to management objectives and that the system be commended to governments and explained through guidelines. The present publication is designed to give effect to this particular recommendation.

It is hoped that these guidelines will be used widely by those planning to set up new protected areas, and by those reviewing existing ones. They are designed to form a useful basis for preparing national protected areas systems plans. It is to be emphasized that these categories must in no way be considered as a 'driving' mechanism for governments or organizations in deciding the purposes of potential protected areas. Protected areas should be established to meet objectives consistent with national, local or private goals and needs (or a mixture of these) and only then be labelled with an IUCN category according to the management objectives developed herein. These categories have been developed to facilitate communication and information, not to drive the system.

The guidelines do not stand alone, of course. Much other advice on the management of protected areas has been published by IUCN in recent years, and more is to come as the fruits of the work at Caracas emerge in print. But these guidelines have a special significance as they are intended for everyone professionally involved in protected areas, providing a common language by which managers, planners, researchers, politicians, and citizen groups in all countries can exchange information and views.

P.H.C. (Bing) Lucas
Chair, IUCN Commission on National Parks and Protected areas

Part I

Protected Area Management Categories

Chapter 1. Background

Through its Commission on National Parks and Protected Areas (CNPPA), IUCN has given international guidance on the categorisation of protected areas for nearly a quarter of a century. The purposes of this advice have been:

- to alert governments to the importance of protected areas;
- to encourage governments to develop systems of protected areas with management aims tailored to national and local circumstances;
- to reduce the confusion which has arisen from the adoption of many different terms to describe different kinds of protected areas;
- to provide international standards to help global and regional accounting and comparisons between countries;
- to provide a framework for the collection, handling and dissemination of data about protected areas; and
- generally to improve communication and understanding between all those engaged in conservation.

As a first step, the General Assembly of IUCN defined the term 'national park' in 1969. Much pioneer work was done by Dr Ray Dasmann, from which emerged a preliminary categories system published by IUCN in 1973. In 1978, IUCN published the CNPPA report on *Categories, Objectives and Criteria for Protected Areas*, which was prepared by the CNPPA Committee on Criteria and Nomenclature chaired by Dr Kenton Miller. This proposed these ten categories:

I Scientific Reserve/Strict Nature Reserve
II National Park
III Natural Monument/Natural Landmark
IV Nature Conservation Reserve/Managed Nature Reserve/Wildlife Sanctuary
V Protected Landscape
VI Resource Reserve
VII Natural Biotic Area/Anthropological Reserve
VIII Multiple Use Management Area/Managed Resource Area
IX Biosphere Reserve
X World Heritage Site (natural)

This system of categories has been widely used. It has been incorporated in some national legislation, used in dialogue between the world's protected area managers, and has formed the organisational structure of the *UN List of National Parks and Protected Areas* (which in recent editions has covered Categories I–V).

Nonetheless, experience has shown that the 1978 categories system is in need of review and updating. The differences between certain categories are not always clear, and the treatment of marine conservation needs strengthening. Categories IX and X are not discrete management categories but international designations generally overlain on other categories. Some of the criteria have been found to be in need of a rather more flexible interpretation to meet the varying conditions around the world. Finally, the language used to describe some of the concepts underlying the categorisation needs updating, reflecting new

understandings of the natural environment, and of human interactions with it, which have emerged over recent years.

In 1984, therefore, CNPPA set up a task force to review the categories system and revise it as necessary. This had to take account of several General Assembly decisions dealing with the interests of indigenous peoples, wilderness areas and protected landscapes and seascapes. The report of the task force, which was led by the then Chair of the CNPPA, Mr Harold Eidsvik, was presented to a CNPPA meeting at the time of the IUCN General Assembly in Perth, Australia, in November 1990. It proposed that the first five categories of the 1978 system should form the basis of an up-dated system; it also proposed the abandonment of categories VI–X.

The report was generally well received. It was referred to a wider review at the Fourth World Congress on National Parks and Protected Areas, at Caracas, Venezuela, February 1992. The Congress workshop to which the topic was assigned also had before it an analysis by IUCN consultant, Mr John Foster. Members of the workshop reviewed this material and recommended the early production of guidelines to replace those adopted in 1978. This was formally affirmed in Recommendation 17 of the Congress. Revised guidelines were then prepared and reviewed by the CNPPA Steering Committee and the IUCN Council in accordance with Recommendation 17. The result is these present guidelines, which incorporate general advice on protected area management categories (Part I), consider each of the categories in turn (Part II), and include a number of examples from around the world showing the application of the different categories (Part III).

These present guidelines, therefore, represent the culmination of an extensive process involving a wide-ranging review within the protected area constituency over a number of years. The opinions of those involved have been many. Some have recommended radical changes from the 1978 guidance; others no change whatsoever. Some have urged that there be regional versions of the guidelines; others that the categories be rigidly adhered to everywhere.

The conclusion is guidelines which:

- adhere to the principles set forth in 1978 and reaffirmed in the task force report in 1990;
- update the 1978 guidelines to reflect the experience gained over the years in operating the categories system;
- retain the first five categories, while simplifying the terminology and layout;
- add a new category;
- recognise that the system must be sufficiently flexible to accommodate the complexities of the real world;
- illustrate each of the six categories with a number of brief case studies to show how the categories are being applied around the world; and
- provide a tool for management, not a restrictive prescription.

Chapter 2. Basic Concepts

The starting point must be a *definition of a protected area.* The definition adopted is derived from that of the workshop on Categories held at the IVth World Congress on National Parks and Protected Areas:

> *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.*

This definition embraces the 'universe' of protected areas. All categories must fall within this definition. But although all protected areas meet the general purposes contained in this definition, in practice the precise purposes for which protected areas are managed differ greatly. The following are the main purposes of management:

- Scientific research
- Wilderness protection
- Preservation of species and genetic diversity
- Maintenance of environmental services
- Protection of specific natural and cultural features
- Tourism and recreation
- Education
- Sustainable use of resources from natural ecosystems
- Maintenance of cultural and traditional attributes

Having regard to the different mix and priorities accorded to these main management objectives, the following emerge clearly as distinct categories of protected areas:

Areas managed mainly for:

I Strict protection (i.e. Strict Nature Reserve / Wilderness Area)
II Ecosystem conservation and recreation (i.e. National Park)
III Conservation of natural features (i.e. Natural Monument)
IV Conservation through active management (i.e. Habitat/Species Management Area)
V Landscape/seascape conservation and recreation (i.e. Protected Landscape/Seascape)
VI Sustainable use of natural ecosystems (i.e. Managed Resource Protected Area)

However, most protected areas also serve a range of secondary management objectives.

The relationship between management objectives and the categories is illustrated in matrix form in the table below. It is developed further in Part II, where each category is described, and through a range of examples presented in Part III.

This analysis is the foundation upon which the international system for categorising protected areas was developed by IUCN and which is presented in these guidelines. There are several important features to note:

- the basis of categorisation is by primary management objective;
- assignment to a category is not a commentary on management effectiveness;
- the categories system is international;

Table. Matrix of management objectives and IUCN protected area management categories

Management Objective	Ia	Ib	II	III	IV	V	VI
Scientific research	1	3	2	2	2	2	3
Wilderness protection	2	1	2	3	3	–	2
Preservation of species and genetic diversity	1	2	1	1	1	2	1
Maintenance of environmental services	2	1	1	–	1	2	1
Protection of specific natural/cultural features	–	–	2	1	3	1	3
Tourism and recreation	–	2	1	1	3	1	3
Education	–	–	2	2	2	2	3
Sustainable use of resources from natural ecosystems	–	3	3	–	2	2	1
Maintenance of cultural/traditional attributes	–	–	–	–	–	1	2

Key: 1 Primary objective
2 Secondary objective
3 Potentially applicable objective
– Not applicable

- national names for protected areas may vary;
- a new category is introduced;
- all categories are important;
- but they imply a gradation of human intervention.

These points are discussed in turn.

The Basis of Categorisation is by Primary Management Objective

In the first instance, categories should be assigned on the basis of the primary management objective as contained in the legal definitions on which it was established; site management objectives are of supplementary value. This approach ensures a solid basis to the system, and is more practical. In assigning an area to a category, therefore, national legislation (or similar effective means, such as customary agreements or the declared objectives of a non-governmental organization) will need to be examined to identify the primary objective for which the area is to be managed.

Assignment to a Category is not a Commentary on Management Effectiveness

In interpreting the 1978 system, some have tended to confuse management effectiveness with management objectives. For example, some areas which were set up under law with objectives appropriate to Category II National Parks have been reassigned to Category V Protected Landscapes because they have not been protected effectively against human encroachment. This is to confuse two separate judgements: what an area is intended to be; and how it is run. IUCN is developing a separate system for monitoring and recording management effectiveness; when complete, this will be promoted alongside the categories system, and information on management effectiveness will also be collected and recorded at the international level.

The Categories System is International

The system of categories has been developed, *inter alia*, to provide a basis for international comparison. Moreover, it is intended for use in all countries. Therefore the guidance is inevitably fairly general and will need to be interpreted with flexibility at national and regional levels. It also follows from the international nature of the system, and from the need for consistent application of the categories, that the final responsibility for determining categories should be taken at the international level. This could be IUCN, as advised by its CNPPA and/or the World Conservation Monitoring Centre (e.g., in the compilation of the *UN List*) in close collaboration with IUCN.

National Names for Protected Areas may Vary

In a perfect world, IUCN's system of categories would have been in place first, and national systems would have followed on, using standard terminology. In practice, of course, different countries have set up national systems using widely varying terminology. To take one example, 'national parks' mean quite different things in different countries. Many nationally-designated 'national parks' do not strictly meet the criteria set by Category II under the 1978 system. In the United Kingdom, for example, 'National Parks' contain human settlement and extensive resource use, and are properly assigned to Category V. In South America, a recent IUCN study found that some 84 percent of national parks have significant resident human populations; some of these might be more appropriately placed in another category.

Since so much confusion has been caused by this in the past, Part II of these guidelines identifies the categories by their main objectives of management as well as their specific titles. Reference is also made to the titles used in the 1978 system because some, at least, have become widely known.

At the national level, of course, a variety of titles will continue to be used. Because of this, it is inevitable that the same title may mean different things in different countries; and different titles in different countries may be used to describe the same category of protected area. This is all the more reason for emphasising an international system of categorisation identified by management objectives in a system which does not depend on titles.

A New Category is Introduced

The Recommendation adopted at Caracas invited IUCN to consider further the views of some experts that a category is needed to cover predominantly natural areas which "are managed to protect their biodiversity in such a way as to provide a sustainable flow of products and services for the community". Consideration of this request has led to the inclusion in these guidelines of a category where the principal purpose of management is the sustainable use of natural ecosystems. *The key point is that the area must be managed so that the long-term protection and maintenance of its biodiversity is assured.* In particular, four considerations must be met:

- the area must be able to fit within the overall definition of a protected area (see above),
- at least two-thirds of the area should be, and is planned to remain in its natural state,
- large commercial plantations are not to be included, and
- a management authority must be in place.

Only if all these requirements are satisfied, can areas qualify for inclusion in this category.

All Categories are Important

The number assigned to a category does *not* reflect its importance: all categories are needed for conservation and sustainable development. *Therefore IUCN encourages countries to develop a system of protected areas that meets its own natural and cultural heritage objectives and then apply any or all the appropriate*

categories. Since each category fills a particular 'niche' in management terms, all countries should consider the appropriateness of the full range of management categories to their needs.

. . . *But they imply a Gradation of Human Intervention*

However, it is inherent in the system that the categories represent varying degrees of human intervention. It is true that research has shown that the extent of past human modification of ecosystems has in fact been more pervasive than was previously supposed; and that no part of the globe can escape the effects of long-distance pollution and human-induced climate change. In that sense, no area on earth can be regarded as truly 'natural'. The term is therefore used here as it is defined in *Caring for the Earth:*

> *Ecosystems where since the industrial revolution (1750) human impact (a) has been no greater than that of any other native species, and (b) has not affected the ecosystem's structure. Climate change is excluded from this definition.*

Under this definition, categories I to III are mainly concerned with the protection of natural areas where direct human intervention and modification of the environment has been limited; in categories IV, V and VI significantly greater intervention and modification will be found.

Chapter 3. Applying the Categories

The application of the new categories must take place within an historical context. Over 9000 protected areas now meet the criteria for inclusion in the *UN List* and all of them have been assigned to Categories I to V of the 1978 system (the UN List does not include Categories VI–VIII, though it does list natural World Heritage sites and Biosphere Reserves, as well as Ramsar sites). The categories system has been widely applied in many parts of the world, and has been used as the basis for national legislation. Moreover, the terminology—and the thinking—associated with the categories has begun to take root and be more widely adopted. For these reasons, an evolutionary approach has been used in these guidelines rather than making a clean break from the previous system.

However, the experience of using the 1978 system has been that the criteria in particular are rather too prescriptive to meet the varied conditions which prevail in different parts of the world.

Therefore, while these guidelines have been drawn up to provide a world-wide framework, they also contain somewhat greater flexibility than previously. For example, the advice on zoning or classification, management authority and ownership of land is somewhat less prescriptive than previous guidance. In assigning areas to the categories, the emphasis must be placed on clarifying the objectives for management and ensuring that the right conditions exist for their achievement. If the guidelines are applied properly and consistently, the result should be a grouping of areas within categories that is logical and globally consistent.

Issues which have emerged in the interpretation of the 1978 system are:

- the size of protected areas
- zoning within protected areas
- management responsibility
- ownership of land
- regional variations
- multiple classifications
- the areas around protected areas
- international designations

This chapter briefly considers each of these topics in turn in relation to categories (IUCN has, of course, issued much other more detailed guidance on these topics—see, for example, *Managing Protected Areas in the Tropics, 1986* and *Marine and Coastal Protected Areas, 1985*). The definitions which follow touch further on several of these points from the perspective of each individual category.

Size of Protected Areas

The size of a protected area should reflect the extent of land or water needed to accomplish the purposes of management. Thus, for a Category I area, the size should be that needed to ensure the integrity of the area to accomplish the management objective of strict protection, either as a baseline area or research site, or for wilderness protection. Or, in a Category II area, for example, the boundaries should be drawn sufficiently widely that they contain one, or more, entire ecosystems which are not subject to material modification by human exploitation or occupation. For practical purposes, the *UN List* includes only areas

of at least 1,000ha, or 100ha in the case of entirely protected islands, but these are somewhat arbitrary figures.

It also follows that the authorities designating a protected area incur obligations to see that its management is not negated by pressures from adjacent areas. Supplementary and compatible management arrangements may be needed for these areas even if they are not designated as part of the protected area.

Zoning within Protected Areas

Though the primary purposes of management will determine the category to which an area is assigned, management plans will often contain management zones for a variety of purposes which take account of local conditions. However, in order to establish the appropriate category, at least three-quarters and preferably more of the area must be managed for the primary purpose; and the management of the remaining area must not be in conflict with that primary purpose. Cases where parts of a single management unit are classified by law as having different management objectives are discussed under the heading of multiple classifications.

Management Responsibility

Governments have a fundamental responsibility, which they cannot abdicate, for the existence and well-being of national systems of protected areas. They should regard such areas as important components of national strategies for conservation and sustainable development. However, the actual responsibility for management of individual protected areas may rest with central, regional or local government, non-governmental organizations, the private sector or the local community. These guidelines, therefore, contain considerable flexibility in the advice given on the form of managing authority for each category of protected area. The test, after all, is whether the designated authority is capable of achieving the management objectives. In practice, however, protected area categories I–III will usually be the responsibility of some form of governmental body. Responsibility for categories IV and V may rest with local administrations, albeit usually working within the framework of national legislation.

Ownership of Land

As with the question of the managing authority, the key test is whether the type of ownership is compatible with the achievement of the management objectives for the area. In many countries ownership by some form of public body (whether nationally or locally based), or an appropriately constituted non-governmental body with conservation objectives, facilitates management and is therefore to be favoured in Categories I–III in particular. However, this is not universally true, and—in the remaining categories—private ownership will be much more common, often being the predominant form of land ownership. Moreover, whatever the ownership, experience shows that the success of management depends greatly on the good will and support of local communities. In such cases, the managing authority will need to have good consultative and communications systems, and effective mechanisms which may include incentives, to secure compliance with management objectives.

Regional Variation

The categories system is intended to operate in the same way in all countries so as to facilitate the collection and handling of comparable data and to improve communication between countries. IUCN does not therefore favour different standards being applied in different parts of the world. However, the conditions for the establishment and management of protected areas vary greatly from region to region, and from country to country. For example, regions like Europe with long-settled, long-managed landscapes in multiple ownership are not, on the whole, as suited to the establishment of Category II areas as are some

other regions—but on the other hand, their circumstances are more conducive to the establishment of Category IV and V areas.

The greater flexibility which is inherent in these guidelines should help in their application to the conditions in different regions and countries. The range of examples set out in Part III shows how an international categories system can, in fact, be applied to countries with widely differing needs.

Multiple Classifications

Protected areas of different categories are often contiguous; sometimes one category 'nests' within another. Thus many Category V areas contain within them Category I and IV areas; some will adjoin Category II areas. Again, some Category II areas contain Category Ia and Ib areas. This is entirely consistent with the application of the system, providing such areas are identified separately for accounting and reporting purposes. Although there are obvious benefits in having the entire area within the responsibility of one management authority, this may not always be appropriate; in such cases, close cooperation between authorities will be essential.

Areas around Protected Areas

Protected areas are not isolated units. Ecologically, economically, politically and culturally, they are linked to the areas around them. For that reason, the planning and management of protected areas must be incorporated within regional planning, and supported by the policies adopted for wider areas. For the purposes of the application of the categories system, however, where one area is used to 'buffer' or surround another, both their categories should be separately identified and recorded.

International Designations

The 1978 system identified separate categories for World Heritage sites (natural) and Biosphere Reserves. However, these are not categories in their own right but international designations. In practice, nearly all World Heritage/Natural Sites are nationally designated and will therefore be recorded under one of the categories. The same will apply to many Biosphere Reserves, Ramsar sites, and other areas designated under regional agreements. Therefore the following principle will continue to apply: providing the area is identified under national arrangements for special protection, it should be appropriately recorded under one of the standard categories. Its special international status will be recorded, for example, in the *UN List* and in all other appropriate IUCN publications.

Part II

The Management Categories

This part of the guidelines examines each of the six categories in turn and considers them under the following headings:

- Definition
- Objectives of Management
- Guidance for Selection
- Organizational Responsibility
- Equivalent Category in 1978 System

CATEGORY I Strict Nature Reserve / Wilderness Area: protected area managed mainly for science or wilderness protection

CATEGORY Ia Strict Nature Reserve: protected area managed mainly for science

Definition

Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Objectives of Management

- to preserve habitats, ecosystems and species in as undisturbed a state as possible;
- to maintain genetic resources in a dynamic and evolutionary state;
- to maintain established ecological processes;
- to safeguard structural landscape features or rock exposures;
- to secure examples of the natural environment for scientific studies, environmental monitoring and education, including baseline areas from which all avoidable access is excluded;
- to minimise disturbance by careful planning and execution of research and other approved activities; and
- to limit public access.

Guidance for Selection

- The area should be large enough to ensure the integrity of its ecosystems and to accomplish the management objectives for which it is protected.
- The area should be significantly free of direct human intervention and capable of remaining so.
- The conservation of the area's biodiversity should be achievable through protection and not require substantial active management or habitat manipulation (c.f. Category IV).

Organizational Responsibility

Ownership and control should be by the national or other level of government, acting through a professionally qualified agency, or by a private foundation, university or institution which has an established research or conservation function, or by owners working in cooperation with any of the foregoing government or private institutions. Adequate safeguards and controls relating to long-term protection should be secured before designation. International agreements over areas subject to disputed national sovereignty can provide exceptions (e.g. Antarctica).

Equivalent Category in 1978 System

Scientific Reserve / Strict Nature Reserve

CATEGORY Ib Wilderness Area: protected area managed mainly for wilderness protection

Definition

Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

Objectives of Management

- to ensure that future generations have the opportunity to experience understanding and enjoyment of areas that have been largely undisturbed by human action over a long period of time;
- to maintain the essential natural attributes and qualities of the environment over the long term;
- to provide for public access at levels and of a type which will serve best the physical and spiritual well-being of visitors and maintain the wilderness qualities of the area for present and future generations; and
- to enable indigenous human communities living at low density and in balance with the available resources to maintain their lifestyle.

Guidance for Selection

- The area should possess high natural quality, be governed primarily by the forces of nature, with human disturbance substantially absent, and be likely to continue to display those attributes if managed as proposed.
- The area should contain significant ecological, geological, physiogeographic, or other features of scientific, educational, scenic or historic value.
- The area should offer outstanding opportunities for solitude, enjoyed once the area has been reached, by simple, quiet, non-polluting and non-intrusive means of travel (i.e. non-motorised).
- The area should be of sufficient size to make practical such preservation and use.

Organizational Responsibility

As for Sub-Category Ia.

Equivalent Category in 1978 System

This sub-category did not appear in the 1978 system, but has been introduced following the IUCN General Assembly Resolution (16/34) on Protection of Wilderness Resources and Values, adopted at the 1984 General Assembly in Madrid, Spain.

CATEGORY II National Park: protected area managed mainly for ecosystem protection and recreation

Definition

Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Objectives of Management

- to protect natural and scenic areas of national and international significance for spiritual, scientific, educational, recreational or tourist purposes;
- to perpetuate, in as natural a state as possible, representative examples of physiographic regions, biotic communities, genetic resources, and species, to provide ecological stability and diversity;
- to manage visitor use for inspirational, educational, cultural and recreational purposes at a level which will maintain the area in a natural or near natural state;
- to eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation;
- to maintain respect for the ecological, geomorphologic, sacred or aesthetic attributes which warranted designation; and
- to take into account the needs of indigenous people, including subsistence resource use, in so far as these will not adversely affect the other objectives of management.

Guidance for Selection

- The area should contain a representative sample of major natural regions, features or scenery, where plant and animal species, habitats and geomorphological sites are of special spiritual, scientific, educational, recreational and tourist significance.
- The area should be large enough to contain one or more entire ecosystems not materially altered by current human occupation or exploitation.

Organizational Responsibility

Ownership and management should normally be by the highest competent authority of the nation having jurisdiction over it. However, they may also be vested in another level of government, council of indigenous people, foundation or other legally established body which has dedicated the area to long-term conservation.

Equivalent Category in 1978 System

National Park

CATEGORY III Natural Monument: protected area managed mainly for conservation of specific natural features

Definition

Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

Objectives of Management

- to protect or preserve in perpetuity specific outstanding natural features because of their natural significance, unique or representational quality, and/or spiritual connotations;
- to an extent consistent with the foregoing objective, to provide opportunities for research, education, interpretation and public appreciation;
- to eliminate and thereafter prevent exploitation or occupation inimical to the purpose of designation; and
- to deliver to any resident population such benefits as are consistent with the other objectives of management.

Guidance for Selection

- The area should contain one or more features of outstanding significance (appropriate natural features include spectacular waterfalls, caves, craters, fossil beds, sand dunes and marine features, along with unique or representative fauna and flora; associated cultural features might include cave dwellings, cliff-top forts, archaeological sites, or natural sites which have heritage significance to indigenous peoples).
- The area should be large enough to protect the integrity of the feature and its immediately related surroundings.

Organizational Responsibility

Ownership and management should be by the national government or, with appropriate safeguards and controls, by another level of government, council of indigenous people, non-profit trust, corporation or, exceptionally, by a private body, provided the long-term protection of the inherent character of the area is assured before designation.

Equivalent Category in 1978 System

Natural Monument / Natural Landmark

CATEGORY IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

Definition

Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

Objectives of Management

- to secure and maintain the habitat conditions necessary to protect significant species, groups of species, biotic communities or physical features of the environment where these require specific human manipulation for optimum management;
- to facilitate scientific research and environmental monitoring as primary activities associated with sustainable resource management;
- to develop limited areas for public education and appreciation of the characteristics of the habitats concerned and of the work of wildlife management;
- to eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation; and
- to deliver such benefits to people living within the designated area as are consistent with the other objectives of management.

Guidance for Selection

- The area should play an important role in the protection of nature and the survival of species, (incorporating, as appropriate, breeding areas, wetlands, coral reefs, estuaries, grasslands, forests or spawning areas, including marine feeding beds).
- The area should be one where the protection of the habitat is essential to the well-being of nationally or locally-important flora, or to resident or migratory fauna.
- Conservation of these habitats and species should depend upon active intervention by the management authority, if necessary through habitat manipulation (c.f. Category Ia).
- The size of the area should depend on the habitat requirements of the species to be protected and may range from relatively small to very extensive.

Organizational Responsibility

Ownership and management should be by the national government or, with appropriate safeguards and controls, by another level of government, non-profit trust, corporation, private group or individual.

Equivalent Category in 1978 System

Nature Conservation Reserve / Managed Nature Reserve / Wildlife Sanctuary

CATEGORY V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

Definition

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.

Objectives of Management

- to maintain the harmonious interaction of nature and culture through the protection of landscape and/or seascape and the continuation of traditional land uses, building practices and social and cultural manifestations;
- to support lifestyles and economic activities which are in harmony with nature and the preservation of the social and cultural fabric of the communities concerned;
- to maintain the diversity of landscape and habitat, and of associated species and ecosystems;
- to eliminate where necessary, and thereafter prevent, land uses and activities which are inappropriate in scale and/or character;
- to provide opportunities for public enjoyment through recreation and tourism appropriate in type and scale to the essential qualities of the areas;
- to encourage scientific and educational activities which will contribute to the long term well-being of resident populations and to the development of public support for the environmental protection of such areas; and
- to bring benefits to, and to contribute to the welfare of, the local community through the provision of natural products (such as forest and fisheries products) and services (such as clean water or income derived from sustainable forms of tourism).

Guidance for Selection

- The area should possess a landscape and/or coastal and island seascape of high scenic quality, with diverse associated habitats, flora and fauna along with manifestations of unique or traditional land-use patterns and social organisations as evidenced in human settlements and local customs, livelihoods, and beliefs.
- The area should provide opportunities for public enjoyment through recreation and tourism within its normal lifestyle and economic activities.

Organizational Responsibility

The area may be owned by a public authority, but is more likely to comprise a mosaic of private and public ownerships operating a variety of management regimes. These regimes should be subject to a degree of planning or other control and supported, where appropriate, by public funding and other incentives, to ensure that the quality of the landscape/seascape and the relevant local customs and beliefs are maintained in the long term.

Equivalent Category in 1978 System

Protected Landscape

CATEGORY VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

Definition

Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Objectives of Management

- to protect and maintain the biological diversity and other natural values of the area in the long term;
- to promote sound management practices for sustainable production purposes;
- to protect the natural resource base from being alienated for other land-use purposes that would be detrimental to the area's biological diversity; and
- to contribute to regional and national development.

Guidance for Selection

- The area should be at least two-thirds in a natural condition, although it may also contain limited areas of modified ecosystems; large commercial plantations would *not* be appropriate for inclusion.
- The area should be large enough to absorb sustainable resource uses without detriment to its overall long-term natural values.

Organizational Responsibility

Management should be undertaken by public bodies with a unambiguous remit for conservation, and carried out in partnership with the local community; or management may be provided through local custom supported and advised by governmental or non-governmental agencies. Ownership may be by the national or other level of government, the community, private individuals, or a combination of these.

Equivalent Category in 1978 System

This category does not correspond directly with any of those in the 1978 system, although it is likely to include some areas previously classified as 'Resource Reserves', 'Natural Biotic Areas / Anthropological Reserves' and 'Multiple Use Management Areas / Managed Resource Areas'.

Part III

Examples of Applying the Management Categories

This part of the guidelines provides some examples of protected areas to illustrate how to apply the new category system. The examples are intended to be representative of the different regions and they include both terrestrial and marine sites. Locations of the examples are shown in the map overleaf.

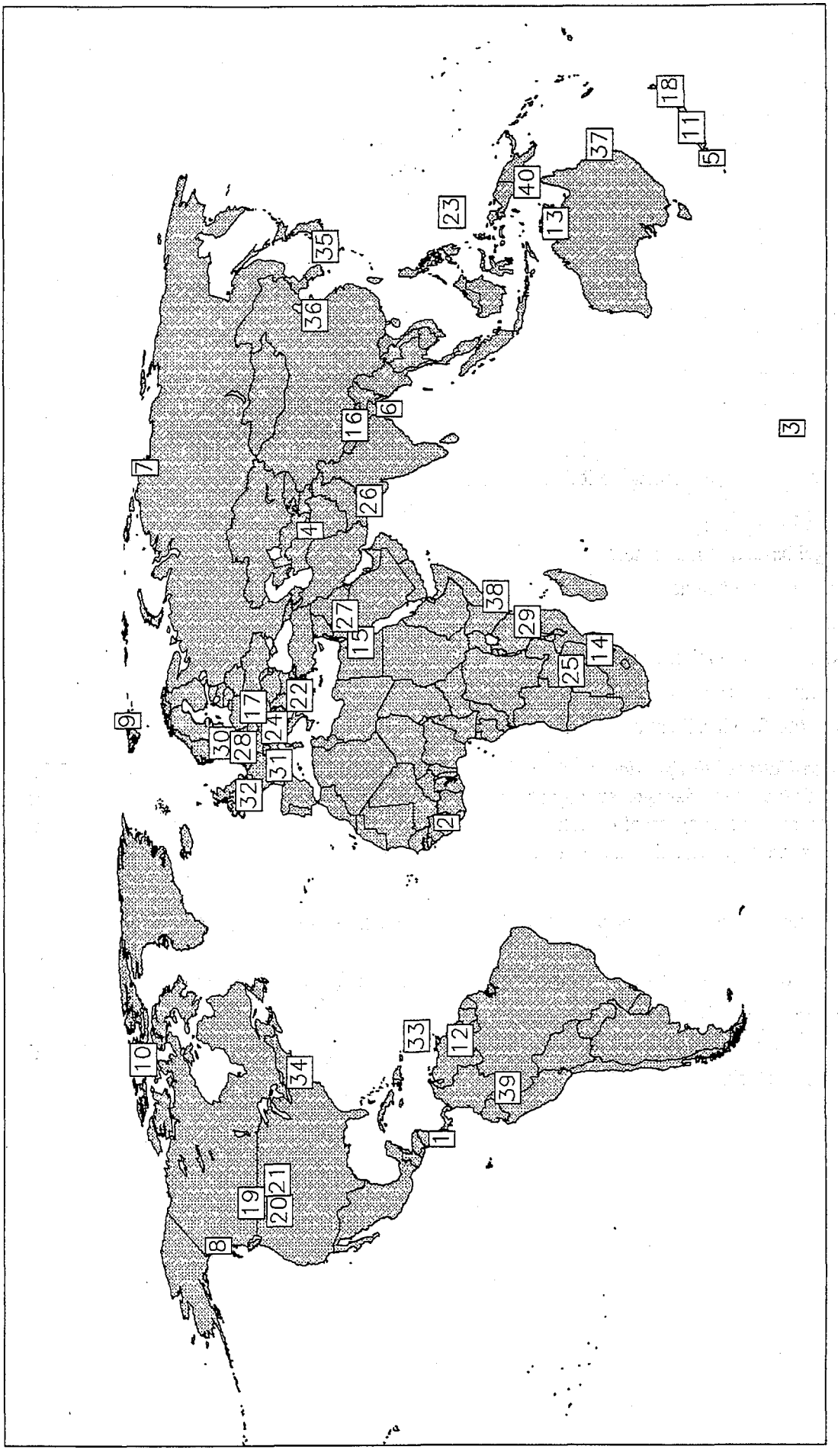
Main examples are presented under the following headings:

- National designation
- Legal basis of management
- *In situ* management
- Geography
- Nature conservation values
- Cultural and social values
- Reasons for classification as . . .

The sections on *National designation* and *Legal basis of management* indicate the legal status of the protected area and its primary management objectives as provided in law; the section on *In situ management* identifies supplementary management objectives specific to the site, often provided in the management plan. These three sections provide the basis of categorisation in line with the approach specified in Chapter 2 (Part I).

The main features of the site are described in the subsequent three sections on *Geography*, *Nature conservation values* and *Cultural and social values*. The final section on *Reasons for classification as ...* justifies the allocation of the site to a particular category, based on the definition of the category and on the criteria listed under *Guidance for selection.*

Other examples are also presented in a more concise format, focusing on the main features of the site and its management objectives.



Locations of protected areas described in Part III

No.	Name	National Designation	Country
IUCN Category Ia			
1	Cabo Blanco	Biological Reserve	Costa Rica
2	Mount Nimba	Strict Nature Reserve	Guinea
3	North-east Bailey Peninsula	Site of Special Scientific Interest	Antarctic Treaty Territory
4	Repetekskiy	State Nature Reserve	Turkmenistan
5	Snares Islands	Nature Reserve	New Zealand
6	Sundarbans	National Park	India
IUCN Category Ib			
7	Bolshoi Arkticheskiy	State Nature Reserve	Russia
8	Kootznoowoo	Wilderness	USA
9	North-east Svalbard	Nature Reserve	Norway
10	Polar Bear Pass	National Wildlife Area	Canada
11	Tasman	Wilderness Area	New Zealand
IUCN Category II			
12	Canaima	National Park	Venezuela
13	Kakadu	National Park	Australia
14	Kruger	National Park	South Africa
15	Ras Mohammed	National Park	Egypt
16	Sagarmatha	National Park	Nepal
17	Tatransky	National Park	Slovakia
18	Tongariro	National Park	New Zealand
19	Waterton Lakes	National Park	Canada
20	Yellowstone	National Park	USA
IUCN Category III			
21	Devil's Tower	National Monument	USA
22	Meteora		Greece
23	Ngerukewid Islands	Wildlife Reserve	Palau
24	Skocjanske Jame	Natural Monument	Slovenia
25	Victoria Falls	National Park	Zimbabwe
IUCN Category IV			
26	Haleji Lake	Wildlife Sanctuary	Pakistan
27	Harrat al Harrah	Northern Wildlife Management Area	Saudi Arabia
28	Lüneburger Heide	Nature Reserve	Germany
29	Selous	Game Reserve	Tanzania
30	Stavns Fjord	Bird Reserve	Denmark
IUCN Category V			
31	Cévennes	National Park	France
32	Dartmoor	National Park	UK
33	Martinique	Regional Nature Park	Martinique (France)
34	Pinelands	National Reserve	USA
35	Setonaikai	National Park	Japan
36	Taishan	Scenic Beauty & Historic Interest Zone	China
IUCN Category VI			
37	Bustard	Fish Habitat Reserve	Australia
38	Kiunga	Marine National Reserve	Kenya
39	Tamshiyacu-Tahuayo	Communal Reserve	Peru
40	Tonda	Wildlife Management Area	Papua New Guinea

SNARES ISLANDS NATURE RESERVE, New Zealand

National designation Originally declared a "reserve for lighthouse purposes", the Snares Islands were subsequently reserved for the preservation of their flora and fauna in 1961. The islands were automatically classified as a nature reserve when the *Reserves Act* of 1977 became operative in 1978. The total area of the reserve is 328ha, covering the islands and their forshores.

Legal basis of management Under the *Reserves Act*, the purpose of a nature reserve is to protect and preserve in perpetuity indigenous flora and fauna or natural features that are of such rarity, scientific interest or importance or so unique that their protection and preservation are in the public interest.

***In situ* management** Objectives outlined in the management plan conform to the statutory requirements of the *Reserves Act*. The desired goals are to perpetuate the natural values and features of the reserve, while reconciling necessary management activities and uses of the reserve within the context of the national and international protected areas system. Research is permitted provided it has no permanent detrimental effects on plant or animal populations or community relationships. Collection of scientific specimens is generally prohibited. Entry is permitted primarily for scientific research and management purposes, and controlled by a permit system. Tourists may not land on the islands. There is a limited number of moorings for fishermen, but this will be phased out to minimise risks of introducing rodents to the islands. The management authority cooperates with the Ministry of Defence in surveillance, enforcement and support aspects of reserve management.

Geography The Snares Islands lie 209km south-west of Bluff on South Island. There is a main group of islands, of which the 280ha North East Island is the largest, and a subsidiary chain of rocks to the south-east that is known as the Western Chain. All of the islands are bordered by steep cliffs, except along their eastern coastlines.

Nature conservation values The Snares are of immense scientific value, being among the world's most important island sanctuaries. The vegetation is virtually unmodified by human activity, and the Snares are among the few islands anywhere in the world still without any introduced mammals. The islands have an estimated population of 6 million breeding seabirds. Seabirds include the endemic Snares crested penguin, and there are three endemic species of land birds.

Cultural and social values There has been no permanent human occupation of the islands, even by prehistoric peoples. A sealing gang of four men was marooned on the islands between 1810 and 1818.

Reasons for classification as Ia (Strict Nature Reserve) The Snares are immensely important subantarctic islands, being virtually pristine and free of introduced mammals. They are strictly protected to safeguard plant and animal populations, and natural processes. Research and monitoring is permitted to better understand these processes, provided they do not have any long-term detrimental effects. There is no access for tourists.

(a)

(b)

(c)

Figure/Figure/Figura 1

(a) Mangrove and (b) associated wildlife, such as estuarine crocodile, are strictly protected within Sundarbans National Park, the core zone of the Sundarbans Tiger Reserve. (c) Traditional activities, including fishing, are allowed on a permit basis in the peripheral zone buffering the park.

(a) La mangrove et (b) la faune associée, dont le crocodile marin, sont strictement protégées dans le Parc national des Sundarbans, zone centrale de la Réserve de tigres des Sundarbans. (c) Les activités traditionnelles, notamment la pêche, sont autorisées aux détenteurs d' un permis dans la zone tampon entourant le parc.

(a) Los manglares y (b) la vida silvestre asociada, tal como el cocodrilo de estuario, son estrictamente protegidos en el Parque Naciona Sundarbans, el cual es la zona núcleo de la Reserva 'Sundarbans Tiger'. (c) Mediante un sisterna de permisos, en la zona periférica que amortigua el parque, están permitidas las actividades tradicionales, incluyendo la pesca.

Photos/Photos/Fotografías: M.J.B. Green

SUNDARBANS NATIONAL PARK, India[1]

National designation Sundarbans was established as a national park in 1984 under the *Wildlife (Protection) Act, 1972*. It covers 133,010ha of land and sea owned by the state government of West Bengal.

Legal basis of management As an area of ecological importance under the *Wild Life (Protection) Act, 1972*, the wildlife and environment is protected, with all rights vested in the state government. Destruction, exploitation or removal of any wildlife or its habitat is prohibited, unless authorised and provided it is in the interests of the wildlife

***In situ* management** The park comprises the strictly protected core zone of the Sundarbans Tiger Reserve (258,500ha), and is completely closed to all forms of activity including tourism. The surrounding buffer zone is used for multiple purposes under a permit system.

Geography The Sundarbans covers one million hectares of mangrove, of which 40% is in India and the rest in Bangladesh. It is part of the world's largest delta (eight million hectares) formed from sediments deposited by three great rivers (Ganges, Brahmaputra and Meghna). The entire area is intersected by an intricate network of waterways. The Indian Sundarbans has become virtually cut off from the main freshwater sources over the last 600 years. Its waterways are maintained largely by the diurnal tidal flow.

Nature conservation values The Sundarbans is among the most extensive remaining areas of mangrove in the world, with a rich and unique biota. Its population of 270 tigers is the largest in India. The mangroves buffer inland areas from the ravages of cyclones in the Bay of Bengal, and provide the main nursery for shrimps along the entire eastern coast of India, as well spawning grounds for of fish and crustaceans. They are the only habitat remaining in the lower Bengal Basin for a variety of faunal species. Some faunal diversity has been lost in the last century due to land reclamation for agriculture, and higher salinity levels caused by irrigation schemes in the upper reaches of the Ganges.

Cultural and social values Baghmara Forest Block contains the ruins of a city built by a merchant community in 200-300 AD. Much later, the Sundarbans provided a refuge from the advancing armies of the Moghul King Akbar. The tiger reserve today is completely uninhabited, but over 35,000 people annually collect timber, fuel-wood, honey and other forest products, and fish from the area buffering the park.

Reasons for classification as Ia (Strict Nature Reserve) The National Park constitutes a large, strictly protected core area of unmodified mangrove representative of the vast Sundarbans ecosystem. It is free of human intervention and public access is prohibited. Scientific research may be permitted.

[1] Most Indian national parks provide for tourism and, therefore, qualify for inclusion in IUCN Management Category II. Sundarbans National Park is one of a few exceptions.

CABO BLANCO BIOLOGICAL RESERVE, Costa Rica

Lying at the southernmost tip of the Nicoya Peninsula and including the offshore island of Cabo Blanco, this reserve protects 1172ha of important primary forest and island ecosystems on the Pacific coast. Under the *1990 Reform of the Forestry Law*, it provides for conservation and research on wildlife and habitats. It is totally protected from all human activities, other than scientific research.

MOUNT NIMBA STRICT NATURE RESERVE, Guinea

Comprising 13,000ha of the '*Guinean Backbone*', a geological feature which rises 1000m above the surrounding landscape, Mount Nimba is internationally important for its rare and endemic flora and fauna. *Ordonnance No.007/République de Guinée/SGG/90* provides for the complete protection of the site as a strict nature reserve and its maintenance in an undisturbed state. Scientific research is permitted. The strict nature reserve constitutes the core zone of the Réserve de la biosphére des Monts Nimba.

NORTH-EAST BAILEY PENINSULA SITE OF SPECIAL SCIENTIFIC INTEREST, Antarctic Treaty Territory

North-east Bailey is a small (100ha) rocky area within the Australian Antarctic Territory, rich in moss, liverwort and lichen communities. Notified as an Site of Special Scientific Interest under the *Agreed Measures for Conservation of the Antarctic Flora and Fauna* of the *Antarctic Treaty (1960)*, it is strictly protected for scientific research. According to the management plan, access to the site is only for scientific research and restricted to existing access routes. No helicopter landing is permitted. Storage or disposal of any products is prohibited.

REPETEKSKIY STATE NATURE RESERVE, Turkmenistan

Covering 34,600ha of desert, Repetekskiy is representative of the eastern Kara Kums, with a flora and fauna that includes some highly specialized endemics adapted to moving sands. Repetekskiy is strictly protected to safeguard its desert ecosystems and associated wildlife, and to provide for scientific research under the *Principles of Land Legislation*. It is zoned into a completely undisturbed core of 15,000ha and an experimental buffer of 19,600ha where pastoral activities are permitted for experimental purposes. Public access is prohibited. The Repetekskiy Sand Desert Research Station has been in operation since 1928.

KOOTZNOOWOO WILDERNESS, United States of America

National designation Most (95%) of Admiralty Island is a national monument under *Presidential Proclamation No. 4611, 1978.* In 1980, approximately 97% of the national monument was designated as wilderness under the *Alaska National Interest Lands Conservation Act,* the other 3% remaining monument non-wilderness to allow for development of a large mine. The name of the site was changed from Admiralty Island Wilderness to Kootznoowoo Wilderness under the *Admiralty Island National Monument Land Management Act, 1990.* The national monument comprises 379,376ha, of which 370,068ha is Kootznoowoo Wilderness. Land is owned by the federal government.

Legal basis of management Management as a national monument, with its emphasis on research and interpretation of notable resources, is subject to the more restrictive mandates prescribed under the *Wilderness Act, 1964* and *Alaska National Interest Lands Conservation Act.* The former Act provides for the enjoyment of the American people in such manner as to leave wilderness unimpaired for future use, and for the protection of wilderness and preservation of its wilderness character. The latter, more lenient legislation provides for continuation of traditional human uses and lifestyles which would otherwise be prohibited under the *Wilderness Act.*

***In situ* management** The overall objective is to retain an environment that, principally, is without human influence. Administration is the responsibility of the US Forest Service. Use of the wilderness is restricted only where a specific activity is not in accordance with the applicable law or where such activity would significantly damage the site. In accordance with the management plan, the site is zoned into four classes of recreation area, ranging from *primitive* (remote, undeveloped and inaccessible areas) to *semi-primitive* (developed areas providing a convenience-oriented wilderness experience). Management of human activities is specified for all biological and cultural resources.

Geography Admiralty Island lies in south-east Alaska. The Admiralty Lakes occupy the centre of the island. To the north and south the terrain is mountainous.

Nature conservation values The island supports cool, moist rain forest that extends along the Pacific coast. Most of the forest is old-growth evergreen conifer of western hemlock and sitka spruce, mixed with muskeg bog communities. Alpine tundra occurs above 1000m and includes several unique species. The island has 900 breeding pairs of bald eagle, the highest density in North America, and the largest population of Alaskan brown bear.

Cultural and social values There is only one native Indian village in Kootznoowoo, inhabited by some 800 Tlingits.

Reasons for classification as Ib (Wilderness Area) Kootznoowoo is a vast, largely uninhabited and protected wilderness of mountains, forest and coastal habitats, providing outstanding opportunities for solitude or primitive and unconfined types of recreation. Activities are restricted to those which do not impair the wilderness qualities of the site. Kootznoowoo is of sufficient size to make practicable its preservation (minimum legal requirement under the *Wilderness Act* is 5000 acres).

Figure/Figure/Figura 2

The archipelago of Svalbard is a vast wilderness of mountains and tundra, glaciers and fjords which offer outstanding opportunities for solitude and appreciation of the high Arctic. Svalbard is becoming an increasingly popular place to visit, being uniquely accessible for its high latitude. Almost two-thirds of the archipelago is now protected to ensure that parts remain undisturbed. Visitors are advised by the local authorities to be armed to protect themselves from polar bears.

L'archipel du Svalbard est une vaste aire sauvage de montagnes et de toundra, de glaciers et de fjords, où l'on peut apprécier le calme et la solitude dans le cadre exceptionnel du haut Arctique. D'accès unique à une latitude aussi septentrionale, le Svalbard est une destination de plus en plus prisée. Près des deux tiers de l'archipel sont maintenant protégés afin que certaines parties de la région ne soient pas perturbées. Les autorités locales conseillent aux visiteurs de s'armer pour se protéger des ours polaires.

El archipiélago Svalbard es una gran zona silvestre de montañas y tundra, de glaciares y fiord que provee oportunidades excepcionales para el alejamiento de la civilización y para el disfrute del alto Artico. Svalbard se está convirtiendo en un lugar muy popular para visitar por su accesibilidad única dentro de las zonas de alta altitud. Casi dos tercios del archipiélago son protegidos en la actualidad para asegurar que algunas partes permanezcan inalteradas. Las autoridades aconsejan a los visitantes estar armados para protegerse de los osos polares.

Photo/Photo/Fotografía: K. Lindgård

NORTH-EAST SVALBARD NATURE RESERVE, Norway

National designation North-East Svalbard was established as a nature reserve in 1973 by *Royal Decree* in accordance with provisions under the *Svalbard Act, 1925*. The land and sea, totalling 1.9 million hectares, is owned by the Norwegian government.

Legal basis of management Under the provisions of the *Royal Decrees* of 1 June and 11 October 1973 concerning the *Establishment of Bird Sanctuaries and Large Nature Conservation Areas in Svalbard*, hunting, seabed trawling, construction, mining and other activities which interfere with the terrain or disturb the natural environment are prohibited. Use of cross-country vehicles and landing of aircraft are not permitted. When considered necessary, all land and sea traffic may be prohibited to preserve plant or animal life. All species are protected and the introduction of species is not permitted. Scientific research may be allowed, provided it does not conflict with the purpose of the reserve.

***In situ* management** The nature reserve is so remote that little active protection is necessary, but regulations have been issued as a precaution against possible future impacts. A ban on all traffic was introduced in Kong Karls Land under regulations issued by the Governor of Svalbard in 1985.

Geography North-east Svalbard includes the islands of Nordaustlandet, Kvitoya and Kong Karls Land, together with surrounding territorial waters, in the north-east of the archipelago. A branch of the North Atlantic Drift keeps the coastal waters unfrozen during the summer months.

Nature conservation values The vegetation is typical of the high Arctic tundra, with a number of plant species at their northernmost distribution in Europe. The reserve is valued for its wilderness qualities and associated assemblage of large mammals, notably polar bear, walrus and reindeer. It provides the main denning area in the archipelago for the polar bear.

Cultural and social values Human occupation dates back at least 400 years. The reserve is largely uninhabited. Due to its remoteness, there is little human influence. Shrimp trawling occurs in the territorial waters but is restricted to waters deeper than 100m.

Reasons for classification as Ib (Wilderness Area) North-east Svalbard is a large, ecologically discrete and protected wilderness within the Arctic ecosystem. It is predominantly free from direct human intervention due to its remoteness. Provisions include non-intrusive access for purpose of scientific research or recreation, provided these activities do not spoil the natural environment.

TASMAN WILDERNESS AREA, New Zealand

National designation Tasman was established as a wilderness area in 1988 under the *Conservation Act, 1987* and is owned by the government. The 86,946ha site is buffered by the remainder of the 421,000ha North-West Nelson Forest Park.

Legal basis of management The *Conservation Act, 1987*, the *National Parks Act, 1980* and the *Reserves Act, 1977* provide for the protection of wilderness areas in a primitive state, devoid of all commercial or recreational development, including roads, shelters and bridges or access by off-road vehicles, motorised boats and aircraft. All native wildlife is strictly protected. Access for the public is restricted to appropriate recreational activities.

***In situ* management** Tasman is managed according to the New Zealand government's wilderness policy. Prescriptions are outlined in the management plan for North-West Nelson Forest Park. The Department of Conservation is permitted to use helicopters for search and rescue operations and to control exotic species should they threaten the native flora or fauna. Specimens may be removed for scientific purposes.

Geography Tasman Wilderness comprises an area of rugged, granite mountains in the north-west of South Island, ranging in altitude from 1500m to 1700m. They are deeply incised with streams and gorges, making travel difficult. There is an unusually sharp treeline at 1300m, delimiting the maximum altitude to the silver and mountain beech montane forest. Extensive subalpine snow tussock grasslands and meadows are found above the treeline. The area is snow-free in summer, but above the treeline it is under snow for most of winter and spring.

Nature conservation values The site is located in one of New Zealand's main centres of geological and biological biodiversity, with many endemic plants and invertebrates. The latter include giant land snails and giant wetas (crickets). Endemic birds, extirpated in the lowlands, include great spotted kiwi, kaka, New Zealand falcon, rock wren, yellowhead and blue duck.

Social values As the largest area of wilderness in the north of South Island, Tasman plays and important role in providing for the challenge of adventure and exploration required by visitors from the region and overseas. The fringes of the wilderness attract rafters on the Karamea River, as well as hunters and fishers of exotic deer and trout, respectively. Some walking parties mount two-week expeditions to cross the untracked wilderness.

Reasons for classification as Ib (Wilderness Area) Tasman is an extensive wilderness centred on the rugged Tasman Mountains. It is protected and maintained in a wild, undeveloped state. Public access is permitted for appropriate forms of recreation.

BOLSHOI ARKTICHESKIY STATE NATURE RESERVE, Russia

Bolshoi Arkticheskiy (Great Arctic) is regarded as one of the largest wildernesses on Earth, covering 4.2 million hectares of tundra in the north Siberian Taymyr peninsula. It is inhabited by 4000 indigenous Dolgans and Nganasans who subsist from hunting, fishing and herding reindeer. It is anticipated that tourism will become part of the local economy. Notified as a state nature reserve under the *Law on Wildlife Protection and Use, 1981*, Bolshoi Arkticheskiy is to be maintained in its natural condition unchanged by man. Development, including vehicular access, is prohibited. Scientific research and low-density tourism are permitted. The traditional practice of reindeer husbandry is also allowed.

POLAR BEAR PASS NATIONAL WILDLIFE AREA, Canada

Polar Bear Pass encompasses 81,000ha of the Canadian High Arctic. Located on Bathurst Island, it is relatively inaccessible and undisturbed. Polar Bear Pass is renowned as an Arctic oasis because of its high concentrations of birds and mammals, and floristic diversity. Established as a national wildlife area under the *Canadian Wildlife Act, 1973*, it provides for passive recreation and education. The site is managed on a collaborative basis by the Canadian Wildlife Service and indigenous authorities.

CANAIMA NATIONAL PARK, Venezuela

National designation Canaima was established as a national park in 1962 under the *Forest Law of Lands and Water, 1943*. It presently covers 3,000,000ha of the Gran Sabana and the mid-Río Caroní. Land is owned by the Venezuelan government, although the traditional occupants, the Pemón, have claimed land rights.

Legal basis for management Provisions for a national park under the 1983 *Organic Law of Territorial Planning* include protection of Canaima as a natural area unaffected by human disturbance, and encouragement of recreation, educational activities and research. Hunting and collection of wildlife is forbidden.

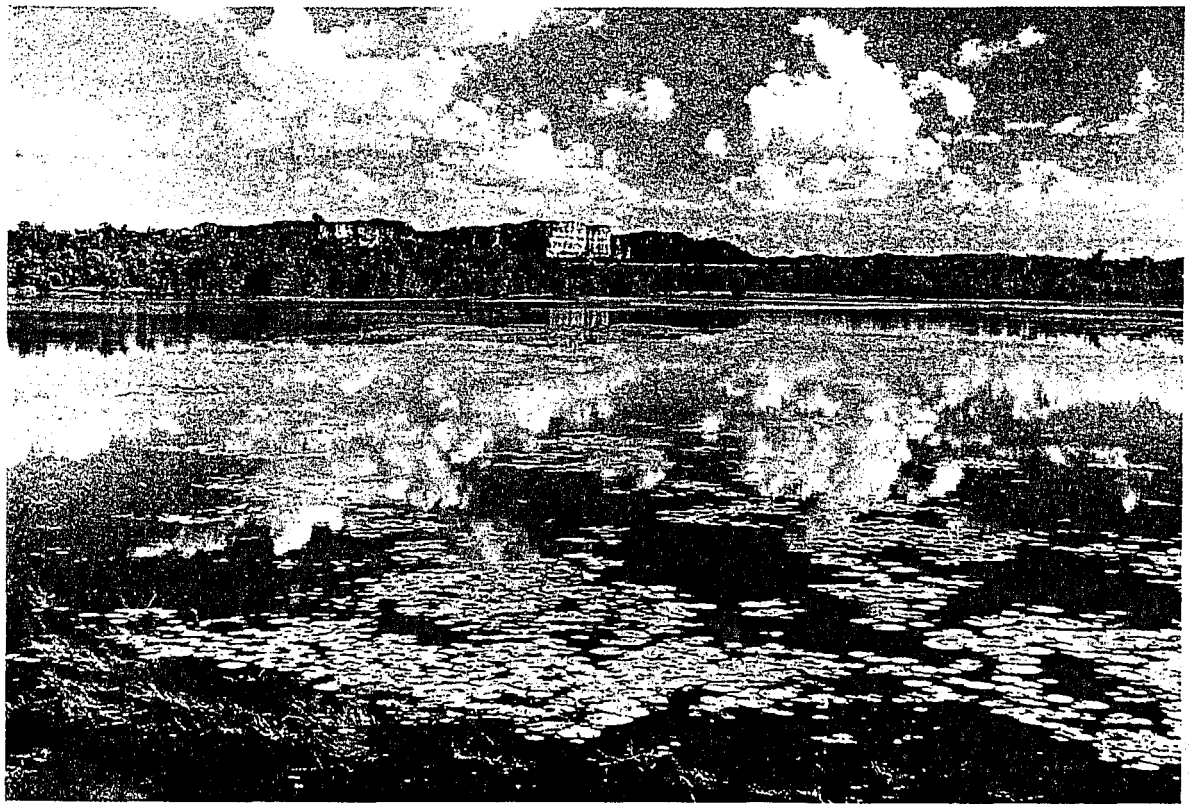
***In situ* management** Objectives formulated in the management plan include provisions for indigenous agricultural production under strict regulation. Tourism is encouraged but restricted to designated areas.

Geography Canaima includes the uplands of the Gran Sabana and the eastern tepuis (table mountains) of the Roraima Range, as well as the sandstone plateau of Chimantá and Auyán-Tepui and the north-western Canaima lowlands. A main road from Ciudad Bolívar runs along the eastern border of the park, bisecting its south-east corner. There are no other metalled roads within the park, the western section being accessible only by air.

Nature conservation values The Guayana Shield, formed some 600 million years ago, exhibits an extraordinary geomorphology produced by weathering processes. The Gran Sabana is an undulating plateau between 800m and 1500m, from which rise the tepuis up to 2000m above the plateau. The tepuis are flat-topped mountains with almost 90° slopes. There are numerous waterfalls, including Angel Falls, the world's highest with a free fall of 1002m. The high degree of endemism found on the summits of the tepuis has led to the recognition of *Pantepui* as a unique biogeographical entity. For example, *Pantepui* is home to 35–40 endemic bird species, most of which occur within the park.

Cultural and social values The park protects the headwaters of the Caroní River which supplies Guri, the country's largest hydroelectric power station and source of 60% of the nation's energy. The park is sparsely inhabited, mostly by indigenous people and with less than one person per km. The forests and savannas have been occupied for centuries by various groups of Amerindians of the Carib family, collectively known as the Pemón. Many Pemón maintain traditional lifestyles of swidden agriculture, hunting and gathering. They also trade tools and artifacts. The park currently receives 100,000 visitors per year.

Reasons for classification as II (National Park) Canaima is an exceptionally beautiful natural landscape, centred on the Guayana Shield, with its unique and fragile geological, biological and cultural features. As one of the largest national parks in the Neotropics, it is of sufficient size to conserve ecosystems representative of the Guayana Shield. It is protected, with legal provisions for research, education and recreation, and rights granted to the indigenous inhabitants.



Figure/Figure/Figura 3

Evidence of Australia's former land connections with New Guinea and Asia is protected within Kakadu National Park. Its wetlands provide important wintering habitat for Asiatic waders.

De nombreux éléments témoignant des liens géologiques qui unissaient autrefois l'Australie à la Nouvelle-Guinée et à l'Asie, sont protégés dans le Parc national du Kakadu. Les zones humides du parc offrent d'importantes zones d'hivernage aux oiseaux d'eau d'Asie.

Las evidencias de las antiguas conexiones de Australia con Nueva Guinea y Asia están protegidas en el Parque Nacional Kakadu. Sus humedales proveen a las aves zancudas asiáticas de un importante habitat para invernación.

Photo/Photo/Fotografía: IUCN / Jim Thorsell

KAKADU NATIONAL PARK, Australia

National designation Kakadu was established as a national park in three successive stages from 1979 to 1987, with additions in 1989 and 1991, under the *National Parks and Wildlife Conservation Act, 1975.* Approximately one-third of the 2,027,710ha is owned by two Aboriginal Land Trusts, although this is leased to the Australian Nature Conservation Agency for management as a national park. The rest of the park is owned by the Federal Government.

Legal basis of management The *National Parks and Wildlife Conservation Act* provides the primary legal basis for the protection of natural regions, scenery, flora and fauna for scientific, educational and recreational purposes, although six other legal instruments are relevant to the park.

***In situ* management** Management is overseen by the Australian Nature Conservation Agency and a Board of Management with an Aboriginal majority. Consultation with the traditional Aboriginal landowners is extensive. The general management principles are: to allow the Aboriginal landowners to exercise their rights; to conserve natural and cultural features; to provide for public appreciation without conflicting with the first two principles; and to promote the park's values to visitors.

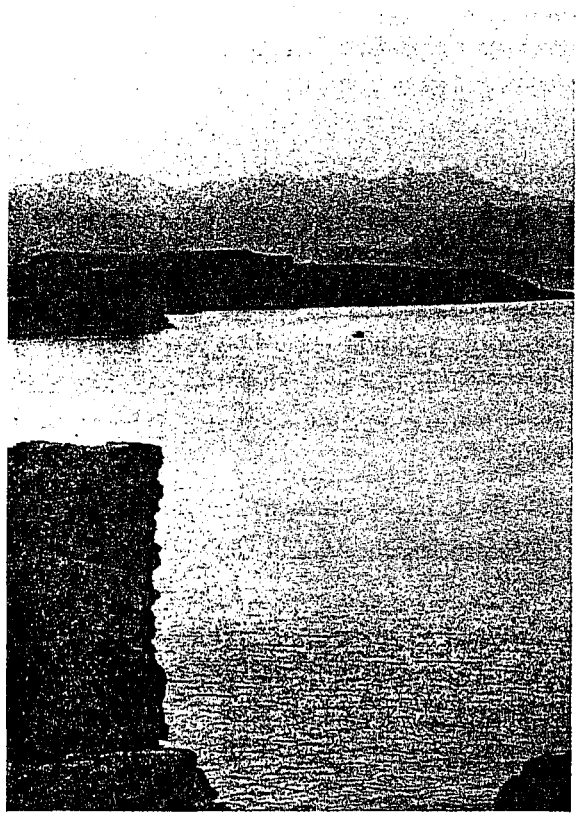
Geography Situated between Wildman and East Alligator rivers in the Northern Territory, Kakadu lies 200km east of Darwin. Conditions range from a wet coastal belt facing the Van Diemen Gulf to a drier interior.

Nature conservation values Kakadu supports a significant fraction of Australia's flora and fauna, with more than 51 mammal, 275 bird, 75 reptile, 25 frog and over 55 freshwater and estuarine fish species. This extremely rich fauna includes 33% of Australia's bird species and 25% of its fish species. The wetlands are an important wintering habitat for non-breeding Asiatic waders. Over 1000 species of plants, representing 13 communities, have been recorded in preliminary surveys.

Cultural and social values The area is outstanding in the antiquity and quality of its 1000 archaeological sites, some dating back 25,000 years. Approximately 3000 rock art sites have been located so far, but it is estimated that there are double this number of such sites in the park. Excavated sites have revealed evidence of the earliest human settlement in Australia and the world's oldest evidence for the technology of edge-ground axes; occupation appears to date back some 69,000 years. Many sites continue to hold religious significance for the Aboriginal people. Visitors may exceed 40,000 in peak months.

Reasons for classification as II (National park) Kakadu's spectacular landscape reflects Australia's historic interactions with New Guinea and Asia, resulting in an exceptionally diverse flora and fauna. The area is relatively pristine and includes a complete river system and representative landforms, habitats and associated species, all of which are protected for scientific, educational and recreational purposes. Kakadu is an important Aboriginal site; provision is made for Aboriginal landowners to continue to exercise their rights.

(a)



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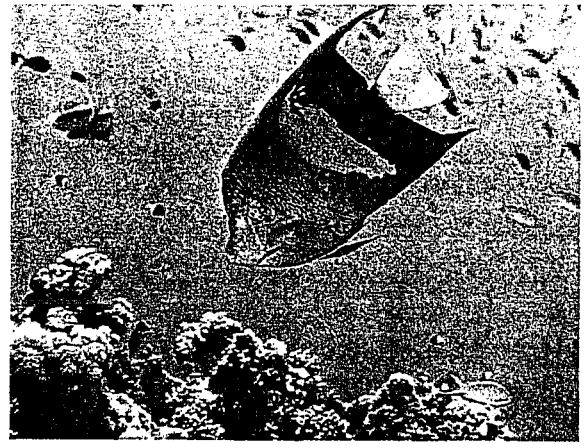
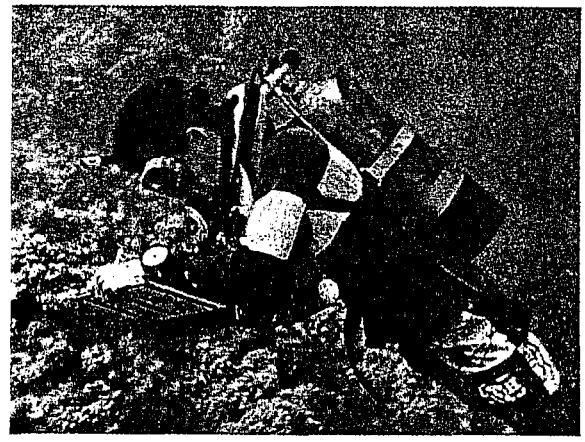




(c)

Figure/Figure/Figura 4

(a) Ras Mohammed is the largest marine national park in the Gulf of Suez. (b) Its coral and fish communities are of particular scientific interest, and (c) subject to a long-term programme to monitor their status.

(a) Ras Mohammed est le plus vaste parc national marin du golfe de Suez. (b) Ses communautés de coraux et de poissons présentent un intérêt scientifique particulier; (c) elles sont suivies dans le cadre d' un programme à long terme.

(a) Ras Mohammed es el parque nacional marino mas grande del Golfo de Suéz. (b) Sus comunidades de peces y de coral son de especial interés científico, y (c) y están sujetas a un programa de largo plazo para monitorizar su status.

Photos/Photos/Fotografías: (a) M.D. Spalding (b) C. Wrinch (c) S. Crellin

RAS MOHAMMED NATIONAL PARK, Egypt

National designation Ras Mohammed was notified as a national marine park under *Decree No. 1067* in 1983. Subsequently, in 1989, it was classified as a national park and extended to 61,500ha to encompass Tiran Island, becoming the largest marine park in the region.

Legal basis of management The site is protected under *Presidential Law concerning Natural Protectorates No. 102, 1983* and *Decree No. 1067, 1983*. Hunting and fishing are prohibited, as is the removal of any material from the park, or the construction of buildings or roads.

***In situ* management** has increased in intensity and effectiveness since 1988, based on a series of management plans. Parts of the park are closed to the public, while areas accessible by road or close to boat moorings are designated for intensive visitor use. Following considerable initial investments, the park is now becoming self-financing through a system of entrance fees. There are a number of full-time, highly qualified rangers, equipped with vehicles and boats. Camping is restricted to one small site.

Geography Ras Mohammed lies at the southernmost tip of the Sinai Peninsula. The terrestrial area is dominated by raised fossil reefs ranging in age from 20 million to 75,000 years. Offshore are the shallow waters (95m) of the Gulf of Suez to the west and the 1800m deep Gulf of Aqaba to the north-east. Fringing coral reefs encircle most of the site, and in a number of places the reef front is vertical or overhangs for at least 100m. Tiran Island is dominated by arid mountains, with small areas of salt marsh on the coastline. Fringe reefs again dominate the coastline, with four large patch reefs in the Tiran Straits. Tides and strong currents occur in the 70–1000m wide channels between the reefs and islands.

Nature conservation values Ras Mohammed is a rich and vulnerable marine environment, representing one of the few protected coral reefs and mangrove forests in the region. An interesting and unusual feature is the relationship between pelagic fish communities and typical northern Red Sea coral reef communities in the deep offshore waters. Tiran and it neighbouring islands possess the world's second largest colony of osprey.

Cultural and social values For centuries the Bedouins have used the area for fishing although few, if any, still fish within the confines of the park. The park is uninhabited and now being developed for tourism, particularly diving activities. Tens of thousands of tourists visit the park annually from nearby towns, most of whom snorkel or dive to see the coral reefs.

Reasons for classification as II (National Park) Ras Mohammed is an important coastal site, incorporating large areas of diverse fringing coral reefs typical of the northern Red Sea. It also features one of the most northerly mangrove communities in the western Indo-Pacific. Large and uninhabited, the park is legally protected and provides for recreation.

TONGARIRO NATIONAL PARK, New Zealand

National designation The summits of Tongariro, Ngauruhoe and Ruapehu were constituted as New Zealand's first national park in 1894, the central volcano area having previously been gifted to the government in 1887. The *Tongariro National Park Act, 1922* provides for the establishment of the park, which currently covers 79,596ha of government-owned land.

Legal basis of management Under the *National Parks Act, 1980* Tongariro is to be preserved in as natural a state as possible, but with provision for public access.

***In situ* management** The principal management goals are: to preserve the natural scenery and resources; to promote an appreciation of nature and cultural and historic values; and to provide for recreation. The park is zoned into natural environment, two wilderness zones, three service areas and some 18 sites of unique biological or geological interest. Ski-field development has been restricted by zoning. Maori interests are represented by a permanent seat on the Tongariro/Taupo National Parks & Reserves Board. Native flora have been reduced or eliminated by exotic herbivores such as red deer and possum. Invasive lodgepole pine threatened to convert native plant communities into forest but control measures have been taken.

Geography Tongariro occupies the central volcanic plateau of North Island in the Tongariro and Wanganui regions. The park boundary encircles the Ruapehu, Ngauruhoe and Tongariro mountain massif at an altitude of 500-1550m. An outlier, 3km north of the main park area and separated from it by Lake Rotoaira, includes Lake Rotopounamu, Mount Pihanga and Mount Kakaramea.

Nature conservation values The crater lake on Ruapehu is unique due to its high frequency of eruption and glacial setting. It is an excellent example of the interaction of magma and lake water. The park also protects deposits from the Taupo eruption 1800 years ago, the most powerful volcanic eruption ever known. Habitats are diverse, ranging from remnants of rain forest to nearly barren icefields. Podocarp-broadleaf rain forest, beech forest, scrub and tussock are the predominant communities. The vertebrate fauna is restricted to mainly birds, some threatened. Native mammals are represented by two bat species.

Cultural and social values The area has been occupied by Maoris since they first arrived from Polynesia. Ethnic mythology identifies the mountains in the park with 'tupuna' or god-like ancestors. Until the land was given to the nation in 1887, the area was occupied by the Tu Wharetoa. European attempts to introduce sheep farming ceased by the 1920s. Recreation is important to the local economy.

Reasons for classification as II (National Park) Tongariro is one of the most spectacular volcanic sites in the South-West Pacific, with the most frequently active composite volcanoes in the world. The park is protected to preserve its natural scenery and resources, and to provide for recreation.

WATERTON LAKES NATIONAL PARK, Canada

National designation Waterton Lakes was established as a national park in 1911. It is protected under the *National Parks Act, 1930*. Land (totalling 50,000ha) is federally owned and under the jurisdiction of Parks Canada, apart from 1648ha of timber reserve managed by the Blood Indian Band. In 1932, Waterton Lakes was combined with Glacier National Park, Montana to become the world's first 'International Peace Park'.

Legal basis of management Under the *National Parks Act*, Waterton Lakes protects significant biological and archaeological features, while encouraging tourism, local employment opportunities, and scientific research. Industrial activities are prohibited.

***In situ* management** The park is zoned[2] in accordance with the 1978 management plan. Class I zones comprise the most unique sites, afforded the highest degree of protection. Class II and III zones provide for the preservation of wilderness and natural environments, respectively. Class IV and V zones are reserved for recreation and visitor service centres, respectively. Grazing of livestock, logging and commercial fishing are not allowed in the park.

Geography The park lies on the eastern margin of the Rocky Mountains, Clark and Border ranges, in the south-western corner of Alberta Province. An obvious feature of the park is the sudden transition from prairie to mountain landscape: a contrast which is emphasised by the virtual absence of intervening foothills. The dominant landforms are of glacial origin.

Nature conservation values Waterton Lakes represents a species-rich locale, lying at the intersection of several important floristic regions. Some 870 species of vascular plants, 182 bryophytes and 218 lichens have been recorded. The small area of grasslands is one of only a few good examples protected in the Canadian national parks system. Waterton Lakes is noted for its abundance of wildlife, and features seasonal migrations of large ungulates.

Cultural and social values Waterton Lakes is one of the most significant archaeological areas in Alberta, with over 200 sites identified. A heavily-used resort town lies within the park. In 1986, more than 500,000 people visited the park.

Reasons for classification as II (National Park) Together with the contiguous Glacier National Park in Montana, U.S.A., Waterton Lakes protects an important ecological unit while providing for tourism.

[2] These zones (Class I-V) bear no relation to the IUCN Protected Area Management Categories described in these guidelines.

KRUGER NATIONAL PARK, South Africa

Kruger is a vast area of arid and semi-arid habitat types, covering 1,948,528ha. Under the *National Parks Act No. 57, 1976,* the natural environment of the park is protected from disturbance. The park supports an active research programme, with excellent facilities, and provides for recreation on a large scale. The management plan provides for conservation, education, and recreation services within zoned areas. To minimise threats from outside the park, fences are maintained along the boundary.

SAGARMATHA NATIONAL PARK, Nepal

Sagarmatha is a large (114,800ha), ecologically discrete unit of geological, biological and cultural importance. Geologically one of the most interesting regions in the world, with outstanding scenic and wilderness qualities, it includes the world's highest peak, Mt Everest. Under the *National Parks and Wildlife Conservation Act, 1973*, Sagarmatha is designated for conservation, management and utilisation of its plants, animals and landscape. Prohibited activities include damage to plants or animals, residence and livestock grazing. Management is directed towards watershed protection to safeguard the wildlife and the interests of the resident Sherpas, as well as those communities living further downstream. The park is zoned into undisturbed cores and other areas, which provide for tourism and sustainable resource use by the indigenous Sherpas. The 63 Sherpa enclaves within the park are exempt from park regulations. Agro-pastoralism is still practised, but goats have been removed from the park to minimise overgrazing. Tourism is now an integral part of the local economy. A Park Advisory Committee provides a mechanism for residents to participate in the park's management.

TATRANSKY NATIONAL PARK, Slovakia

The park lies in the Tatra Mountains, relatively young (late-Tertiary) and part of the Carpathian Range. It features a mix of species, some endemic, from northern and southern Europe. Covering 74,111ha and established as a national park under the *Slovak National Council Act, 1948*. Tatransky is protected under the *State Nature Conservancy Act, Law 1/SNR 1955* as an area valued for its natural resources and recreational importance, and little influenced by human activities. The legislation provides for zoning, with recreational development restricted to a controlled area. Hunting is prohibited. Over 50% of the land is owned by the government, the rest is under municipal, private and church ownership. About 4,000 people reside within three villages inside the park. Part of the core area was traditionally used for pastoralism. The main pressure today is from the four million annual visitors. Park management has developed strong research and public education programmes.

YELLOWSTONE NATIONAL PARK, United States of America

Lying in the Rocky Mountains, Yellowstone is a volcanic plateau and contains the world's largest and most spectacular collection of 3000 thermal features. Established by an act of Congress in 1872 as the world's first national park, it presently covers an area of 898,349ha, most of which is pristine wilderness. Under the *National Park Service Act, 1916*, Yellowstone's outstanding scenery and natural resources are conserved, while providing for public access and enjoyment. The park is divided into natural, historic and development zones. A fire management plan was adopted in 1976, policy being to allow natural fires to burn throughout 70% of the park. Some 3 million people visit Yellowstone each year. The 300 people involved in scientific research and park management reside within the park.

SKOCJANSKE JAME NATURAL MONUMENT, Slovenia

National designation Skocjanske Jame was established as a 200ha natural monument in 1980. It is protected under the *Law of Protection of Natural and Cultural Features, 1/1981.* Land is mostly under private ownership, but the underground cave system is owned by the government.

Legal basis of management Objectives under the *Law of Protection of Natural and Cultural Heritage* are to protect the outstanding geological features, together with the flora and fauna in the caves. All forms of construction and pollution are prohibited. In the peripheral zone, pollution is prohibited and it is not permitted to build beyond existing village boundaries. Scientific research and agricultural work must be authorised, and development for tourism is subject to certain conditions.

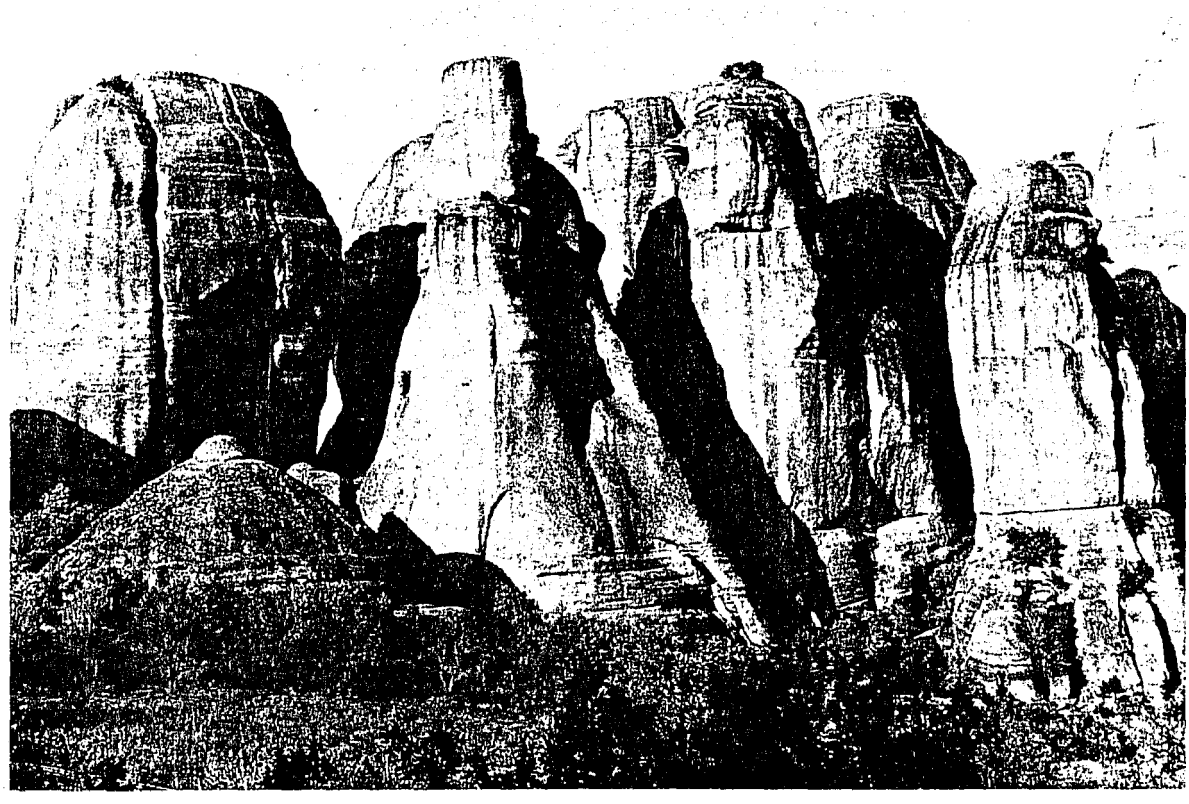
***In situ* management** The Commune of Sezana has transferred the legal rights of management to the Office of Tourism, Portoroz. Management is concerned mainly with controlling the high number of visitors and catering for their needs, especially through provision of safety walkways and bridges. Management of the site is integrated with the social and spatial plans for the commune in accordance with the decrees protecting the caves.

Geography Skocjan is a shallow limestone canyon, with an associated underground river and cave system that features four deep and picturesque chasms. The Mahorcic cave includes several underground lakes and five cascades. The site exhibits classic karst drainage channels formed by the River Reka, with one underground passage 2km in length. This passage, one of the largest underground canyons in the world, is up to 148m high and 100m wide.

Nature conservation values The canyon supports vegetation formations which, due to the microclimate in the river valley, are representative of the floras of Central Europe, Mediterranean, Ilyria and Alps. These unique conditions result in Mediterranean species growing next to Alpine species. The system of caves has a typical speleofauna, including an endemic amphibian. Five species of bat winter in the underground galleries.

Cultural and social values Archaeological finds point to a continuous period of 10,000 years of settlement from the Middle Stone Age. The Romans erected a fortification in the village, and a fortified settlement was established during the Middle Ages. The three villages of Skocjan pri Divaci, Matavan and Betanja have a total population of 200 residents.

Reasons for classification as III (Natural Monument) Skocjan's cave systems, with their unique flora and fauna, are of outstanding significance. The site is protected, the emphasis of management being to accommodate large numbers of visitors without detriment to this small natural monument.



Figure/Figure/Figura 5

Rock pinnacles at Metéora are protected under local legislation.
Les pics rocheux de Metéora sont protégés par la législation locale.
Los pináculos de roca en Meteora están protegidos bajo la legislación local.
Photo/Photo/Fotografía: Bob Gibbons / Natural Image

VICTORIA FALLS NATIONAL MONUMENT, Zimbabwe

National designation Victoria Falls was proclaimed a national monument in 1935 and again in 1970 under the *Monuments and Relicts Act, 1970*. The land, totalling 1900ha, is owned by government.

Legal basis of management The integrity of Victoria Falls as a national monument is assured under the *Monuments and Relics Act*. Killing, disturbance, or damage to wildlife or its removal is prohibited. Entry of livestock and domestic animals is also forbidden.

***In situ* management** Plant and animal monitoring programmes are carried out to assist management. Public access is not restricted, necessitating considerable investments to mitigate the impacts of trampling and erosion caused by the intense visitor use. Eroded areas have been rehabilitated and paths constructed to alleviate trampling impacts.

Geography Victoria Falls lies on the Zambezi River. Since the uplifting of the Makgadikgadi Pan about two million years ago, the Zambezi River has been cutting through the basalt, exploiting weak fissures and forming a series of retreating gorges below the present falls.

Nature conservation values The Falls is the largest curtain of falling water in the world, with over 500 million litres of water falling per minute when the Zambezi is in full flood (February or March). The riverine 'rain forest' within the waterfall splash zone is a fragile ecosystem, containing many unique plant species. A wide variety of waterbirds frequent the river above the Falls.

Cultural and social values The site in uninhabited but it receives a large number of visitors each year.

Reasons for classification as III (Natural Monument) Victoria Falls is one of the natural wonders of the world. A sufficiently large area is protected to ensure that the integrity of the site is maintained. Management is directed towards providing for a high level of visitor appreciation of the site.

DEVIL'S TOWER NATIONAL MONUMENT, United States of America

Devil's Tower has great geological significance as a 300m monolith of igneous rock columns, the tallest rock formation of its kind in the USA. Its plant and animal communities provide a complete succession from rock to mixed pine forest associates. Established as the first national monument in the USA under the *Antiquities Act, 1906* and subsequently under the *National Park Service Act, 1916*, Devil's Tower is protected with respect to its geological and associated natural features which must remain undisturbed for public enjoyment. The site covers 545ha and is divided into natural environment, development and outstanding natural features zones for management purposes.

METEORA, Greece

Metéora provides a unique example of man's interaction with his natural environment, based on its outstanding geological formations, associated cliff fauna and flora, and its medieval monasteries. Dramatic sandstone rock pinnacles of deltaic origin rise over 400m above the Thessalian Plain. They are topped by cave refugia and a group of medieval monasteries. The site holds 50 pairs of Egyptian vulture, the largest population in Greece. Metéora is protected under local legislation. Construction and rock extraction is prohibited or limited. The site covers 375ha and is managed primarily for conservation of the monasteries and the natural surroundings. Largely due to the inaccessibility of the cliffs, the relict flora and fauna have remained relatively undisturbed.

NGERUKEWID ISLANDS WILDLIFE PRESERVE, Palau

The site comprises a deeply embayed archipelago of high limestone islands sharing a common reef platform. It covers 1200ha, of which 90ha is terrestrial and the rest is marine. These high limestone islands are outstanding marine features. Habitats are virtually pristine, the islands never having been inhabited, and support many endemic and threatened species. The Ngerukewid Islands are protected as a wildlife preserve under the *Palau National Code, Koror State Zoning Law* and other legal instruments. The enabling legislation states that the preserve is to be retained "in its present primitive condition where the natural plant and animal life should be permitted to develop undisturbed." Land is recognised as belonging to Koror State. Management is focused on protecting the flora and fauna, physical features and ecological processes as a representative example of Palau's rock islands, and on promoting scientific study of tropical pacific ecosystems and public awareness. The islands are visited regularly by tourists but there are no facilities.

HALEJI LAKE WILDLIFE SANCTUARY, Pakistan

National designation Haleji Lake was created a wildlife sanctuary in 1977 under the *Sind Wildlife Protection Ordinance, 1972*. It comprises 1704ha of lake, surrounded by a legally notified buffer zone of 5km radius. Land is owned by the provincial government of Sind.

Legal basis of management As a wildlife sanctuary under the *Sind Wildlife Protection Ordinance, 1972*, Haleji provides an undisturbed breeding ground for waterfowl. The primary objective is to protect wildlife including all natural resources, such as soil, water and vegetation. Access to the public or livestock, residence, damage to plants or animals, and pollution of water are prohibited. Certain activities may be authorised by the provincial government for scientific or aesthetic purposes.

***In situ* management** objectives are to protect the habitat for resident and migratory birds, particularly waterfowl, and to provide facilities for naturalists and the public to study and enjoy the wildlife. The lake is dredged occasionally to keep the main channel free from silt, and the extensive reed beds are cut annually. Uncontrolled growth of certain waterweeds is a management problem.

Geography Haleji is a freshwater lake, with associated marshes and adjacent brackish seepage lagoons, set in a stony desert of limestone and sandstone bedrock. It was converted in the 1930s from a saline lagoon, formed by seasonal rainwater collecting in a shallow depression, to a reservoir to provide an additional water supply for Karachi. It is now fed by a canal from Kinjhar Lake.

Nature conservation values The lake supports an abundance of aquatic vegetation and provides breeding and wintering grounds for a variety of waterfowl. Maximum counts of wintering birds have exceeded 100,000. Some 222 species of birds have been recorded from Haleji and its immediate vicinity.

Cultural and social values The lake supplies Karachi with freshwater for about 15 days each year when Kinjhar is being maintained. There are four small villages and several nomadic settlements within the buffer zone. The sanctuary provides excellent opportunities for conservation, education and research. Visitor facilities include an information centre and observation tower.

Reasons for classification as IV (Habitat/Species Management Area) Haleji and its surrounding seepage lagoons are protected as important staging and wintering grounds for waterfowl. Active intervention is necessary to keep water channels clear and to maintain the habitat suitable for waterfowl.

NORTHERN WILDLIFE MANAGEMENT AREA, Saudi Arabia

National designation The Northern Wildlife Management Area, occupying 15,000,000ha of government-owned land, includes three protected areas: Harrat al Harrah and Al Khunfah designated in 1987, and At Tubayq added in 1989.

Legal basis of management *Royal Decree No. M/22* of June 1986 provides the National Commission for Wildlife Conservation and Development with a remit to conserve wildlife, and to establish and manage protected areas in accordance with the laws of Saudi Arabia. The Northern Wildlife Management Area is established within this legal mandate of the Commission.

***In situ* management** objectives are the exclusion of hunting and grazing to allow rehabilitation of the flora and fauna, and the reintroduction of extirpated and depleted species. Active steps are taken to improve the habitat, through irrigation, tree planting and other measures, for the benefit of wildlife populations. A programme of management-oriented ecological research is underway, including an in-depth study of houbara bustard. The Bedouin are permitted to reside with their livestock in a peripheral controlled zone, but elsewhere settlement and pastoralism are banned. All hunting, including traditional forms, tree felling and land use conflicting with conservation objectives are prohibited. Tourism is not permitted at present, but will be an option once the necessary facilities have been developed.

Geography The site lies in north-west Saudi Arabia, near the Jordanian border. It is an undulating basaltic plateau of desert steppe and volcanic rock jebels, about 850m above sea level. Land forms include volcanic hills and craters, lava flows, sands and playas.

Nature conservation values A beautiful area of harsh but spectacular desert, the major biotype in Saudi Arabia, the Northern Wildlife Management Area contains examples of seven vegetation types. The site is chiefly of interest for its larger fauna, including significant populations of sand gazelle, Nubian ibex and houbara bustard. Mountain gazelle, striped hyaena, Rüppell's sand fox, grey wolf, and lappet-faced vulture are also present. The area was formerly part of the range of Arabian oryx, ostrich and cheetah. Plans to re-establishment the original fauna are underway.

Cultural and social values The Northern Wildlife Management Area was traditionally used by the local Bedouin for grazing their domestic livestock, but this practice has since been discontinued in 88% of the area to facilitate recovery of the natural vegetation. The remaining 12% represents a controlled area which is still occupied by Bedouin pastoralists.

Reasons for classification as IV (Habitat/Species Management Area) The large and remote Northern Wildlife Management Area is representative of a variety of desert habitats, and associated flora and fauna. Management is aimed primarily at protecting the habitat, re-establishing the original fauna and eliminating habitat damage by domestic livestock. Active measures are taken to improve the habitat.

Figure/Figure/Figura 6

Early burning is necessary in the Selous Game Reserve in order both to maintain miombo woodland and to prevent damage to forests by severe wild fires.

Le brûlage préventif est nécessaire dans la Réserve de gibier de Selous afin d'entretenir les bois à miombos et d'empêcher la destruction de la forêt par des feux de brousse.

Las quemas previas a la época de sequía son necesarias en la Reserva de Caza Selous tanto para conservar el bosque de miombo como para prevenir el daño ocasionado a los bosques por fuertes incendios forestales.

Photo/Photo/Fotografía: N. Stronach

SELOUS GAME RESERVE, Tanzania

National designation The Selous was established as a 5,000,000ha game reserve in 1922. Land is owned by the government.

Legal basis of management The enabling legislation is the *Wildlife Conservation Act, 1974*, which provides for the protection, conservation and utilisation of wildlife within game reserves. Access, utilisation of wildlife (including hunting), and grazing of livestock is subject to authorisation by the Director.

***In situ* management** A comprehensive conservation policy and management plan was prepared in 1990. There is a scientifically-based fire management policy, although its implementation has been sporadic in recent years. The main focus of management activity is anti-poaching. The Selous lost an estimated 70% of its elephant population between 1980 and 1990, and the black rhinoceros was nearly driven to extinction. Other activities include an ecological monitoring and research programme on which hunting quotas are based. The main use of the reserve is for sport hunting, which is permitted under license in all but three of the 45 management blocks.

Geography Situated in southern Tanzania, the reserve is one of the largest protected areas in Africa. It is part of the Selous ecosystem which includes the contiguous Mikumi National Park and Kilombero Game Controlled Area. A large portion of the reserve is drained by the Rufiji River and tributaries. Altitude ranges from 100m to 1200m.

Nature conservation values The Selous contains the largest and best example in the world of miombo woodland, which is probably a product of past human activity since it is a fire-dependent climax formation. The other main vegetation type is wooded *Terminalia* grassland. The reserve harbours sizeable populations of many large animals, including the largest concentrations in the world of elephant, hippopotamus, and crocodile. The Selous has remained relatively undisturbed in the past 70 years due to its isolation from roads and railways, and infestation by tsetse fly.

Cultural and social values The local inhabitants were evacuated when the reserve was created, since when human activity has been minimal. There are some tourist facilities, but visitor numbers are severely limited by the reserve's inaccessibility.

Reasons for classification as IV (Habitat/Species Management Area) The Selous protects the world's most important area of miombo woodland. This habitat can only be maintained under a particular burning regime, and its preservation requires an active fire-management programme. The reserve is vast and supports large faunal populations, including significant numbers of many threatened species.

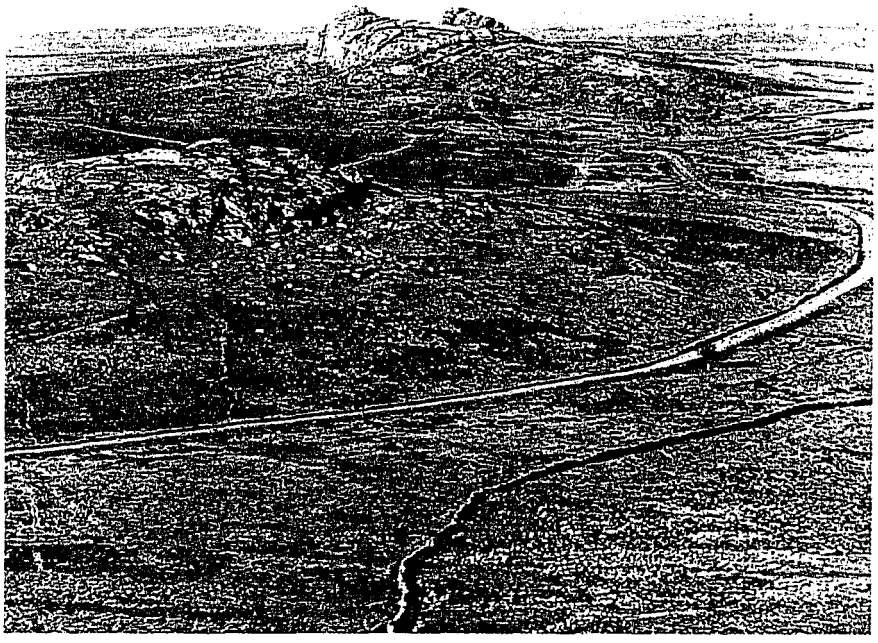
LÜENEBURGER HEIDE NATURE RESERVE, Germany

Lüeneburger Heide in Lower Saxony is among the best remaining examples of lowland heath in western Europe, one of the most threatened human-modified ecosystems. The reserve consists of 19,720ha of human-modified landscape, believed to have originated about five thousand years ago. Lüeneburger Heide is protected under the *Nature Conservation Ordinance, 1921*. Activities that could alter or eliminate heath are prohibited. Much of the land has been privately acquired by the nature conservation society, Verein Naturschutzpark, which manages the site. Local groups and the public are actively involved in management. The heathland is actively maintained by a comprehensive system of controlled grazing, use of chemicals and scything. Fire is not used as a management tool because it would damage the juniper. The reserve is zoned to minimise ecological damage, by containing the annual three million visitors to 14% of the site, and to maintain the seral vegetation communities.

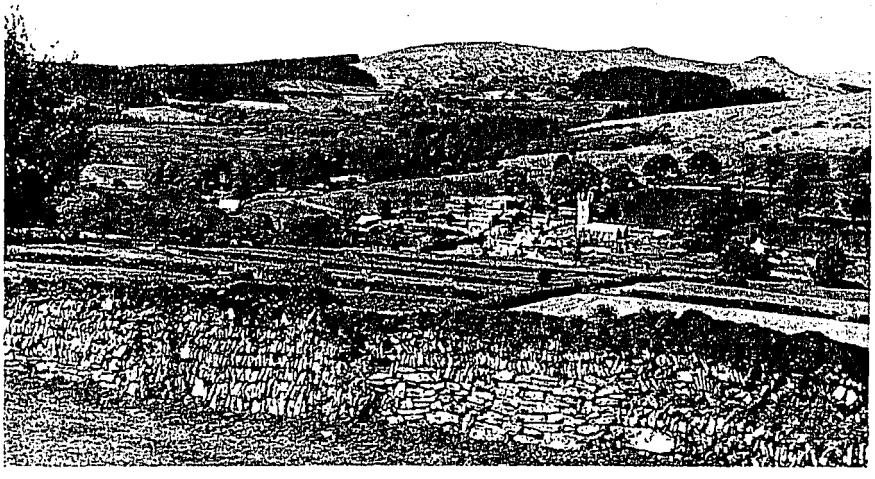
STAVNS FJORD BIRD RESERVE, Denmark

Stavns Fjord is a 16,320ha bird reserve established by *Ministerial Order* in 1984, under the *Hunting and Wildlife Adminstration Act, 1967*, to conserve the avifauna and marine environment. Lying in the northeast of Samso, the area is an important resting and feeding area for waterfowl, and one of Europe's most important breeding areas for eider duck. The legislation provides for the preservation of the wildlife, including migratory species, and for enforcement by the management authorities to control hunting, access and traffic movements. Small-scale farming and livestock grazing is permitted on a few of the islands. Full compensation is payable for any restrictions in ownership. The reserve is zoned. Public access to certain areas is restricted during the bird breeding season. Active intervention to improve the habitat is undertaken to increase the nesting bird population.

(a)



(b)



Figure/Figure/Figura 7

Landscape within Dartmoor National Park has been modified over centuries of human habitation, producing a unique blend of natural and cultural features. (a) Upland moors, featuring granite tors, are grazed by sheep, cattle and ponies. (b) Lowland farming area, with woodlands, plantations and small villages.

Le paysage du Parc national de Dartmoor a été modifié par l'homme au cours des siècles; il offre un mélange unique d'aspects naturels et culturels. (a) Les ovins, les bovins et les poneys paissent en liberté dans les landes des hautes terres où l'on peut voir les tors de granite. (b) Région agricole de plaine, avec ses bois, ses cultures et ses villages.

El paisaje del Parque Nacional Dartmoor ha sido modificado a través de siglos de ocupación humana, produciendo una mezcla única de rasgos naturales y culturales. (a) Brezales de tierras altas que exhiben colinas de granito, en los cuales se lleva a cabo el pastoreo de ovejas, ganado y ponys. (b) Areas bajas para la agricultura, con bosques, plantaciones y pequeños poblados.

Photos/photos/Fotografias: Courtesy of Dartmoor National Park Authority/Mises à disposition gracieusement par les autorités du Parc national de Dartmoor/Cortesía de las autoridades del Parque Nacional Dartmoor

DARTMOOR NATIONAL PARK, United Kingdom

National designation Dartmoor was established as a national park in 1951 under the *National Parks and Access to the Countryside Act, 1949*. It covers 91,300ha, most of which is privately owned. Public access rights exist *de jure* over 37,000ha and by agreement or *de facto* over a further 13,150ha. There are three national nature reserves, two forest nature reserves and 25 sites of special scientific interest in the park, covering 29% of its area.

Legal basis of management Under the *National Parks and Access to the Countryside Act* the objective is to preserve the characteristic landscape beauty, to provide access and facilities for open-air enjoyment, and to protect wildlife and places of architectural and historic interest. The 37,000ha of common land is subject to specific protection under the *Dartmoor Commons Act, 1985*. Planning controls are strict, but aim to protect the area and also to support sustainable forms of rural development.

***In situ* management** is the responsibility of the Dartmoor National Park Committee of Devon County Council, advised by the government agency, the Countryside Commission. The Committee has planning powers to control land use and management powers for conservation and recreation, which it often exercises in agreement with private owners. The moorland and rough land are grazed by free-ranging ponies, cattle and sheep. Traditional hill farming practices are actively promoted. Park management also aims to manage visitor pressures, raise conservation awareness among visitors and support the local community.

Geography Dartmoor consists of an exposed granite mass, forming a broad, rolling upland drained by the headwaters of radiating rivers. Tors of exposed granite are characteristic. The softer Devonian and Carboniferous rocks surrounding the granite have been eroded, with steeper slopes and deeply-incised valleys.

Nature conservation values Dartmoor is one of the largest areas of semi-natural habitat in southern Britain, with a diverse fauna and flora. The park contains: lowland farming areas of meadow and pasture, with small villages and woodland; deep valleys with wooded slopes; and upland moors of grassland, bracken, gorse, bilberry, heather and bogs. In the heart of the moor are several isolated woods of stunted oak which, together with the granite tors, support valuable lichen communities.

Cultural and social values Bronze Age stone huts (the densest collection in NW Europe) and other prehistoric remains occur throughout the moor. There are also medieval longhouses and many attractive villages dominated by medieval churches. Some 31,000 people live in the park, and about ten million day-visits are made annually for recreation.

Reasons for classification as V (Protected Landscape/Seascape) Dartmoor is a landscape of great scenic beauty and significant biological diversity that owes its origins largely to traditional hill farming practises. The semi-natural habitat continues to be used extensively for traditional agricultural practises, while becoming increasingly important for recreation. The landscape is protected, with strict controls on planning to ensure that the unique blend of natural and cultural heritage evolved over centuries of human habitation is maintained.

MARTINIQUE REGIONAL NATURE PARK, Martinique (France)

National designation Martinique was established as a 70,150ha regional nature park in 1975 under the French *Decree* of 24 October 1975 and subsequent *Ministerial Act* of 24 August 1976. The montane areas and most of the coastal strip are under private ownership, the rest is under public ownership.

Legal basis for management Under *Decree 67–158* of 1967, regional nature parks are managed for environmental protection, recreation and research.

***In situ* management** Martinique is managed primarily to protect its natural and cultural heritage, including the maintenance and development of the local economy. Areas are zoned to safeguard land uses. Support is given to rural development through help to establish small rural enterprises. Management is coordinated by an advisory board, comprising representatives of municipalities, local administrations and communes. Major natural habitats are managed by the National Office of Forests. Hunting is prohibited in many of the wetlands. Interpretation and recreation programmes are targeted primarily towards local residents, but their importance for visitors is also recognised. An important activity is designing educational materials and creating hiking trails for visitors.

Geography The park comprises two separate areas that constitute 60% of the Island of Martinique. It includes the mountainous, volcanic part of the island, as well as coastal cliffs, lagoons, beaches and reefs but excludes the cultivated lowlands. Altitude ranges from sea level to 1397m.

Nature conservation values Martinique was once covered mostly by moist forest, with cloud forests above 800m and rain forests above 500m. Coastal areas support cactus scrub, dry forest and mangrove. The flora and fauna are typically Caribbean. One species of bird is endemic to the island. The wetland at Baie de Fort de France is internationally important for migratory birds. Turtles breed along the southern shores and the mangroves are rich in molluscs and crabs.

Cultural and social values There is some evidence of prehistoric Arawak Indians, but today's 80,000 park residents are of French, African and Caribbean origins. Historic ruins include 17th century distilleries and colonial houses. The ruined city of St. Pelée is on the slopes of the active volcano, Mount Pelée. The park contributes to the local economy through a thriving ecotourism and handicrafts industry. It is well known for its hiking trails, as well as its cycling and golfing facilities.

Reasons for classification as V (Protected Landscape/Seascape) Martinique features a variety of ecosystems ranging from the relatively undamaged Mt Pelée cloud forests to important wetlands and mangroves. The landscape has been influenced by human occupation over hundreds of years. The park's natural and cultural resources are protected, and land continues to be used in traditional ways and for recreation, contributing significantly to the local economy.

PINELANDS NATIONAL RESERVE, United States of America

National designation Pinelands was established as a national reserve in 1978 under the federal *National Parks and Recreation Act, 1978*. It covers 438,210ha, of which 148,928ha is by law a core preservation area. Land is under government and private ownership.

Legal basis of management Under the federal *National Parks and Recreation Act*, the scenery and natural resources are protected and there are provisions for public access and enjoyment. In 1979 the State of New Jersey introduced the *Pinelands Protection Act*, which established the Pinelands Commission, confirmed the moratorium on incompatible development during the planning process and required compliance with the then proposed management plan.

***In situ* management** A management plan has been formulated through extensive public participation. The core 'preservation area' is strictly protected from the impact of future development, and buffered by a surrounding protection area with a mix of natural features, farmland, hamlets and towns where development is allowed in a manner which does not degrade the essential character of the Pinelands environment. Nine land-use management areas have been identified, including resource-use areas, environmentally sensitive lands, agricultural production areas, rural development areas, regional growth areas, pinelands towns and villages, and military and federal installation areas. Land-use policy aims to promote a well-balanced and rational pattern of compatible land uses, providing for a wide variety of lifestyles and activities while protecting community interests. Fire is important in the maintenance of habitats, having occurred frequently for at least 10,000 years. Administration is coordinated by the 15-member Pinelands Commission, an independent state agency.

Geography Pinelands lies within the Atlantic coastal plain of New Jersey. The gently rolling landscape consists of a mosaic of forest, swamps and bogs, and contains the largest freshwater aquifer in the mid-Atlantic region. The extensive surface and ground water resources are of high quality.

Nature conservation values Habitat types include salt marsh, white cedar swamp, sphagnum and cranberry bogs, pygmy pine plains and upland pine-oak, with a flora of over 800 species. Pinelands is particularly important for its minimally disturbed forest ecosystems and 71 internationally threatened plant species. The wet infertile soils have discouraged development of the area and maintained its almost unique character.

Cultural and social values The reserve contains a number of towns and villages, and several notable archaeological sites. Up to 495,000 people live in the buffer zone. Cranberry and blueberry picking is among the most important economic activities in the reserve.

Reasons for classification as V (Protected Landscape/Seascape) Pinelands is a major asset to conservation with its unique forests, water resources, scenic landscape and local agricultural land-use patterns. The landscape is protected, with development channelled into less environmentally sensitive areas.

SETONAIKAI NATIONAL PARK, Japan

National designation Setonaikai was established as a national park in 1934 under the *National Parks Law, 1931*. It comprises 62,757ha, with a 985ha core special protection area.

Legal basis of management Objectives under the *Natural Parks Law, 1957* are to protect the scenery and to promote its utilisation for the enjoyment and welfare of the people. Provisions include zonation into ordinary, special and special protection areas. Large constructions are not permitted in ordinary areas, but there are few restrictions on commercial and industrial activities. Special protection areas are strictly protected from any development. 'Marine parks' may be designated within national parks to preserve the "marine natural scenic beauty"; capture of fish and other sealife, sea reclamation, mooring of boats and discharge of polluted water, changes to the seabed and mining are also prohibited.

***In situ* management** The park comprises a mosaic of protected areas adjacent to unprotected areas, which continue to be used for industrial and commercial purposes, making it extremely difficult to maintain the quality of the environment. The park is largely managed for its scenic and recreational values, with important wildlife conserved in special protection areas. Tourism and multiple-use areas constitute much of the park.

Geography Setonaikai lies within a 9.5 million hectares inland sea enclosed between the islands of western Honshu, Kyushu and northern Shikoku. It includes a 6760km coastal strip and 3000 islands in the straits of Harima and Iyo. Coasts are deeply indented, with granite hills and white, quartz-sand beaches. The straits and channels are noted for their strong tides and whirlpools.

Nature conservation values The islands are dominated by coastal forests of black pine, interspersed with red pine and Japanese cedar. The unique, virgin forest of Mount Misen on Miyajima has red and black pine mixed with fir. Also outstanding are the examples of temperate rain forest, with camphor, oaks, cherry and maple. Mammals include about 80 Japanese macaque on Miyajima Island, and the locally uncommon black finless porpoise. Birds include a variety of winter visitors and summer residents. Coral reefs are extensive.

Cultural and social values The inland sea has always been central to Japanese culture and commerce, largely on account of its importance as a shipping lane. Many are the island temples founded by the scholar and priest, Kukai, who introduced a new school of Buddhism in the ninth century. Awaji and Shodo islands are well populated, but over 80% of the islands are uninhabited. Traditional, small fisheries have been replaced by vast ship yards, petro-chemical plants and steel mills, but these occur outside the park. Agriculture is varied, ranging from mandarin orange groves to terraced rice fields. Over 50 million people visit the park each year, the most popular destination being the floating shrine off Miyajima Isle.

Reasons for classification as V (Protected Landscape/Seascape) The land and seascape of Setonaikai is beautiful. Its islands, with their many temples and historic buildings, are testimony to much of Japan's culture and feature a diverse array of local customs and livelihoods. Land and sea are protected and used for human enjoyment and education.

CEVENNES NATIONAL PARK, France

Cévennes, in the southern Massif Central, was established as a national park by *Order 70–777* under *Law 60/708 Relating to Creation of National Parks* for its scenic landscapes and traditional land-use patterns. Covering 91,279ha, it comprises core and buffer zones under a mixture of government, private and common ownership. The natural and cultural landscape within the core zone is protected from changes in appearance and composition, but park regulations do not apply to the buffer zone. About 600 people live in the core zone in villages and isolated farms, and over 4,100,000 in the buffer zone. Stock herding, rural farming and forestry are the major occupations. The park receives well over 60,000 visitors every summer.

TAISHAN SCENIC BEAUTY AND HISTORIC INTEREST ZONE, China

Taishan Scenic Beauty and Historic Interest Zone comprises 50,000ha of impressive forested landscape which has been influenced by thousands of years of human use. Mount Taishan, rising abruptly from the vast plain of central Shandong to 1545m, is one of the birthplaces of Chinese civilization. Its mix of natural and cultural values has produced an harmonious interaction between people and nature. Legal protection is afforded to the site's natural and cultural values under the *Cultural Relics Protection Law*, *Forest Protection Law* and *Regulations concerning the Adminstration of Scenic Beauty and Historic Interest Zones*. The main objectives are to protect the scenic beauty and cultural wealth of the site. Management is directed towards maintaining the cultural relics, archaeological sites and the harmonious interaction of people with nature.

Figure/Figure/Figura 8

Ungulates, such as the lowland tapir, are regularly shot for meat by subsistence hunters, the ribereños, in Tamshiyacu-Tahuayo Communal Reserve.

Les ongulés, comme le tapir, sont régulièrement abattus dans la Réserve communautaire de Tamshiyacu-Tahuayo par la population locale, qui en consomme la chair.

En la Reserva Comunal Tamshiyacu-Tahuayo, los ungulados, tal como el tapir de tierras bajas, son cazados con regularidad por los ribereños; cazadores de subsistencia.

Photo/Photo/Fotografía: James Penn Jr

TAMSHIYACU-TAHUAYO COMMUNAL RESERVE, Peru

National designation Tamshiyacu-Tahuayo was notified as a 322,500ha communal reserve in 1990 under the *Regulation of the Conservation of Flora and Wildlife, 1977* relating to the *Forest and Wildlife Law, 1975.*

Legal basis for management The *Forest and Wildlife Law* and its subsequent *Regulation of the Conservation of Flora and Wildlife* provide for the conservation and exploitation of wild resources (usually fauna) within communal reserves for the benefit of local communities. Beneficiaries are responsible for the management of the reserve according to the regulations issued by the local forest administration. No exploitation, other than that carried out for the benefit of local communities, is allowed. Permitted activities typically include sustainable hunting and harvesting of non-timber forest products, such as seeds, fruits, bark, latex, leaves and medicinal plants.

***In situ* management** The reserve is zoned into a totally protected core and a surrounding resource-use area, in which subsistence agriculture and sustainable exploitation of wild resources are practised. Local inhabitants hunt deer, tapir and peccary as important sources of protein. Palm fruits are harvested without damaging the parent trees by tree climbing and other appropriate techniques. Agroforestry is also practised using small, multi-species plots. Fishing takes place in the major rivers and ox-bow lakes, but it is regulated by the *Ribereño* communities: the use of nets and lances is prohibited during low water, and commercial fisheries are banned.

Geography The reserve lies in north-east Peru between the Tamshiyacu, Tahuayo and Yavari Miri rivers in an area of non-flooded *terra firme* forest.

Nature conservation values Tamshiyacu-Tahuayo supports a rich flora and fauna, including 13 primate species, two of which are not found within any other protected area. Its *terra firme* forest complements the flooded forest of the nearby Pacaya-Samiria National Reserve.

Cultural and social values There are no residents within the reserve, but some 4,300 people live on its borders, and a further 2,000 people live close enough to benefit from the exploitation of its resources. The inhabitants are semi-indigenous, non-tribal people known as *ribereños.*

Reasons for classification as VI (Managed Resource Protected Area) Tamshiyacu-Tahuayo is a large, predominantly natural forest that is communally managed to conserve its biological diversity, while providing its semi-indigenous inhabitants with a range of natural products for local use or consumption. Sustainable use of wild resources is restricted to an area of subsistence use that surrounds a strictly protected core.

TONDA WILDLIFE MANAGEMENT AREA, Papua New Guinea

National designation Tonda was declared a wildlife management area in 1975 under the *Fauna (Protection and Control) Act, 1966*. The entire 590,000ha of land is held under customary tenure.

Legal basis of management Although concerned primarily with the protection of threatened species, the *Fauna (Protection and Control) Act* provides for the establishment of wildlife management areas, thereby involving customary land owners in the control of wildlife exploitation.

***In situ* management** Under the enabling legislation a Wildlife Management Committee has been established to advise on the provision of rules for the area. Gazetted in 1976, the rules permit customary landowners to hunt freely. Tourists are charged a nominal entry fee and may hunt only deer, duck and two species of barramundi in limited quantities. According to the rules, hunting is prohibited in the region between the Bensbach and Morehead rivers. Other restrictions include the use of vehicles or boats for hunting.

Geography Tonda lies in southern Papua New Guinea on the southern margin of the Oriomo Plain, a relict alluvial floodplain rising to 45m at Morehead Ridge on the northern boundary. Three major river systems traverse the area; impeded drainage causes widespread seasonal flooding.

Nature conservation values The vegetation is similar in physiognomy and species composition to that of northern Australia, in contrast to most of lowland New Guinea. This reflects the strongly seasonal climate and the geological history of former land connections with the Australian continent. The presence of a relict Australian flora and fauna, mixed with species characteristic of or endemic to New Guinea, is important for conservation.

Cultural and social values There are about 1,200 inhabitants distributed among 16 villages. Ten of these villages occupy lands lying completely within the management area and six occupy lands within and beyond its boundaries. The population is mobile and abandoned villages are evident. Hunting, fishing and egg-collecting play an important part in subsistence and cash economies. Shifting cultivation occurs in forest areas, operating on a fallow period of 15–30 years.

Reasons for classification as VI (Managed Resource Protected Area) Tonda was established as a wildlife management area at the request of the customary land-owners for the conservation and controlled utilisation of wildlife and other natural resources. Human population density is very low and much of the area remains wild and untouched.

BUSTARD FISH HABITAT RESERVE, Australia

Declared in 1983 under the *Queensland Fisheries Act 1976*, the 4550ha reserve protects fish habitats below the higher high water spring tide level. It comprises the least disturbed marine environment in the locality, and supports an unusually high diversity of fish species. Management is the responsibility of the Queensland Department of Primary Industries. The principal management objective is to protect the habitat, while providing for the continued productivity of fisheries. Prohibited activities include damage to the habitat, removal or disturbance to fish and other taxa except by approved methods, and dumping or dredging. However, fishing by approved methods, access, and boating are permitted.

KIUNGA MARINE NATIONAL RESERVE, Kenya

Kiunga Marine National Reserve protects 25,000ha of relatively pristine tropical coastal habitats, managed sustainably for the benefit of the local community. It comprises a narrow strip of mainland, about fifty small offshore islands and the surrounding waters. The offshore islands support large nesting colonies of seabirds. There has been relatively little human interference in the area, other than limited exploitation of local wildlife. As a marine national reserve designated under the *Wildlife Conservation and Management Act, 1976*, Kiunga is managed for the preservation and sustainable use of its natural resources. Artisanal fishing represents the main local use of natural resources. Tourism and non-destructive activities, such as swimming and sailing, are permitted. Fishing by specified traditional means is allowed, but not by use of poison, spearguns or dynamite. Collection of shells and corals is also prohibited. The passage and anchorage of boats, diving, and access by non-locals are controlled by permits.