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PARKS

The international magazine dedicated to the protected areas of the world

PARKS FOR LIFE

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The international magazine dedicated to the protected areas of the world

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Cover: *Aspects of Parks for Life: El Avila National Park provides a dramatic backdrop as well as water for Caracas, host city of the IV World Congress on National Parks and Protected Areas; wildlife management and marine conservation set into the Congress logo. Designed by The Nature Conservation Bureau Ltd.*

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PARKS is published with the following aims:

- to demonstrate the contribution which protected areas can make to sustainable development;
- to improve the quality of protected areas management;
- to communicate protected areas information amongst all involved;
- to promote the management of protected areas as a profession.

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EDITORIAL

Taking PARKS Forward

Adrian Phillips

PARKS in its present form is now well into its third year. Thanks to funding from several sources, and to individual subscribers, circulation has climbed steadily from 650 at its launch to more than 1,300 now. Copies go widely to CNPPA's network, and to field staff of WWF and managers of World Heritage Sites. At the IV World Congress on National Parks and Protected Areas, held in February at Caracas, there were many expressions of support for PARKS – reinforced by numerous testimonials from readers on the editor's files.

But set against the challenges identified at Caracas – the theme of this issue – a circulation of 1,300 is a drop in the ocean. There are at least 15,000 individuals holding senior and middle management positions in the planning and management of protected areas. Our target should be to reach them all, and the institutions that employ them. But at present, barriers of cost and language get in the way of this target.

Also, with the experience of several years under our belt, the Editorial Board and the Advisory Group (comprising all the regional vice-chairs of CNPPA), are agreed that there now needs to be shift in the editorial balance of PARKS. The aim must be to make it an essential part of the professional reading of all protected area planners and managers. To fulfil that role, it needs to contain more substantive and longer articles, perhaps requiring the use of a larger format. Whilst remaining attractive and readable – and not becoming esoteric – we see it evolving into a less newsy and more authoritative publication. It should help expose the professional community of park managers to new concepts and ideas, and familiarize them with current developments relating to protected areas. We hope that readers of PARKS will want to file copies for future reference.

PARKS should become more closely identified with the protected area programme of IUCN, led by CNPPA and the IUCN Protected Areas Unit. It should be used to publish and disseminate policy papers on protected area issues, such as the economic value of protected areas, eco-tourism, and parks and sustainable development. PARKS could be used to promote guide-lines for the management of protected areas. It can play a much expanded role in transmitting field experience. By dealing with protected area issues in greater depth than at present, it will complement the CNPPA newsletter, and any regional newsletters on protected areas.

The support of IUCN has been offered to bring about these changes. PARKS in its present form will appear once more at the end of 1992, when the theme will be the Twentieth Anniversary of the World Heritage Convention. Meanwhile, the editorial, production and distribution arrangements are being reviewed so that PARKS can be taken forward to the next stage in its development early next year. The stage is being set for PARKS to become what it has always aimed to be: the international professional journal of IUCN – The World Conservation Union, for all in the protected area business.

Prof. Adrian Phillips is Chairman of the Editorial Board of PARKS.

Editor's note: This issue of PARKS was delayed in order to provide the most up to date material from the IV World Congress on National Parks and Protected Areas, held in Caracas, Venezuela in February. The next issue of PARKS will celebrate the 20th Anniversary of the World Heritage Convention in November. It will be distributed at the end of the year.

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PROFILE

Cristina Pardo joined the Venezuelan National Institute of Parks (INPARQUES) when it was established in 1974. She began work as an Architect in the Projects Division, and became General Director in 1989. Cristina was a member of the Venezuelan Organizing Committee that hosted the IVth World Congress of National Parks and Protected Areas. Accordingly, she was appointed the CNPPA Regional Vice-chair for the Neotropical Realm – South America. During the Congress itself, she participated in the coordination of Plenary Session 4 on National Parks of Latin America and the Caribbean. Recently, she has served as Associate Editor for the Spanish version of PARKS.

Profile: As someone deeply involved in the organisation the Caracas Congress, what do you think its main achievements were?

Pardo: The Caracas Congress brought together 1840 specialists from over 100 countries. It was the first time that such a large group of people associated with the CNPPA mandate had the opportunity to exchange experiences and to discuss the broad range of problems faced by protected area managers throughout the world.

The Congress contributed to a better understanding of the latest techniques available for the effective administration of these areas and showed the importance of bringing on board new sectors of the community, in particular generating a knowledgeable public committed to conservation. Within Latin America it was the opportunity to give the international community a general view of the present situation of protected areas in the region and of their importance in the development and conservation of natural resources and biodiversity.

The need to establish new financial strategies for the maintenance of national parks and protected areas was evident, and so was the importance of sharing with other sectors of society the obligation to ensure their protection and effective management. Thus, the Congress made a significant contribution to informing the general public about the social and economic benefits of protected areas and the vital role they play in sustaining society.

Profile: With the benefit of hindsight, do you feel any issues were not properly addressed?

Pardo: Unfortunately, it was not possible to provide simultaneous translation in all the workshops. This in turn prevented the discussion of some very interesting issues among different groups. In addition, the large number of workshops and the diversity of issues involved made it difficult to address all the topics in depth. Nonetheless the workshops made possible the gathering of very important and valuable information that represents the effort made during the last 10 years at global level in conservation, management, planning, financing, investigation and restoration of national parks and protected areas. However, IUCN will publish both general and specialist manuals and thematic publications in a major effort to make available the information generated. In this way I believe the difficulties will be somewhat ameliorated.

Profile: What has been the effect in Venezuela itself of playing host to the World Congress?

Pardo: The Congress made possible, in a very significant way, the extension to a larger audience of technical concepts on protected areas and in so

World Congress participants enjoy a field excursion to Henri Pittier National Park.
Photo: Paul Goriup

doing, broadening public awareness of the importance of these areas. The Congress therefore represented a very dynamic way of informing the Venezuelan people about the National Park system they have and how the international community shares Venezuela's concern for the preservation of the system. It also provided the opportunity for public discussion of conservation issues, through a wide use of mass media and promoted further links with new audiences, with a special contribution from painters, film makers and press people.

I am personally very pleased with the work of the Venezuelan Organizing Committee. It was a great effort widely recompensed by the camaraderie present during those two weeks of hard work. This was a rewarding experience, successfully shared and unanimously supported by a group of specialists committed to protected areas.

Parks for Life — Achievements and Prospects

Jeffrey McNeely

The IV World Congress on National parks and Protected Areas was held in Caracas, Venezuela, from 10 to 21 February. The 1840 participants from 133 countries addressed the major challenges facing protected areas in the 1990s, based on the theme, "Parks for Life". Congress participants had no illusions about the severity of the problems they will be facing in coming years from resource scarcity, economic imbalance and continuing use of inappropriate technology. But they were equally convinced that such challenges mean that protected areas have an even more important part to play in securing a productive future for humanity.

The IV World Congress on National parks and Protected Areas was opened by Venezuelan President Carlos Andrés Perez, followed by three technical plenaries - on broad issues, expanding partnerships, and regional reviews. Then four parallel symposia examining the scientific, development, management, and social-economic issues introduced a week of workshops. Over 1000 papers were presented to the 49 workshops, which all fed back to the fifth plenary, where the Congress Recommendations, Action Plan and Declaration were debated. Plenary six showed how the new approaches being discussed in the workshops are actually being applied in the field. The final plenary approved the Declaration and Congress Recommendations, and President Andrés Perez handed the Declaration to Maurice Strong, Secretary-General of the United Nations Conference on Environment and Development for passing on to the Earth Summit in Rio in June.

Jeffrey McNeely, General Secretary of the IV World Congress on National Parks and Protected Areas
Photo: IUCN

In building on the experience of the past decade, the Congress provided advice on what is required to help people on the ground carry out their important work more effectively, yet recognized that every site has its own particular solutions to its unique problems. More generally, the Congress provided policy advice to governments and international agencies to help ensure that investments in development will help support protected areas, not degrade them.

The Caracas Action Plan details the elements of a major new effort to improve protected area management, with 12 priority objectives. One of these objectives is to extend the protected areas network to cover at least 10% of each biome by the year 2000. Another calls for establishing a global network of representative and well-managed marine protected areas.

To keep pace with the new realities facing protected areas in a time of increasing expectations and falling budgets, the Congress urged the

Leaders of Plenary Session 5: Moving ahead to the 21st Century. From left, Héctor Ceballos-Lascurdin (Member of the Congress Organising Committee); Dr Martin Holdgate (Director General IUCN); Enrique Colmenares-Finol (Venezuelan Minister of the Environment); Dr Kenton Miller (World Resources Institute). Photo: IUCN.

development of new reward systems that reach local communities and spread the benefits of protected areas in a more equitable manner. it initiated investment portfolios to draw on new financial support mechanisms that have sprung up in the past decade. it urged that personnel be recruited from local communities, especially from tribal and other minorities. The Congress also recognized that the military, in a time of changing national security needs, can play an important part in conservation, and called for greater efforts to involve them as allies in support of protected areas.

Finally, the World Congress recognized that training of protected area managers needs to be far more sophisticated than before, building skills in both natural and social sciences, community relations, gender sensitivity, conflict resolution, and information management.

In seeking to convert these general recommendations into reality, the Congress called on IUCN to prepare a long-term programme for protected areas based on the Caracas Action Plan. The programme should set out what needs to be done, where and by whom, building on national priorities and global environmental perspectives.

Apart form the official documents, the Congress generated plans for more than 20 publications and dozens of sets of guidelines to appear over the next two years.

Congress participants had no illusions about the severity of the problems they will be facing in coming years. Tomorrow's conflicts will be even more difficult than today's, as resource scarcity, economic imbalance and continuing use of inappropriate technology form a witch's brew of challenges to protected areas, and to sustainable use of the environment as a whole. But participants were convinced that such challenges mean that protected areas have an even more important part to play in securing a productive future for humanity.

For additional information, contact Jeffrey A McNeely, Secretary General, IV World Congress on National Parks and Protected Areas, IUCN, Rue Mauverney 28, CH-1196 Gland, Switzerland.

The Caracas Declaration: A Call for Personal Commitment

P H C (Bing) Lucas

The singular gathering of distinguished experts at the Caracas Congress has led to a positive, shared vision for the future of the world's national parks and protected areas. The Caracas Declaration puts national parks clearly in their global context and stresses their importance to humanity as well as to the ecosystems of the world. This article captures and conveys the spirit of the World Congress on National Parks and Protected Areas.

"Action to safeguard the living riches and natural beauty of the Earth depends on the commitment of all people..."

That is a message for everyone who has an interest in protected areas and is especially relevant to readers of PARKS.

The quotation comes from the concluding section of the Caracas Declaration (see Box), one of the key products of the IVth World Congress on National Parks and Protected Areas held in the city of Caracas, Venezuela earlier this year.

The Caracas Declaration was in draft form at the beginning of the Congress. It had substantial input from participants and workshops during the Congress and was the subject of vigorous and constructive debate during the plenary session at which it was adopted.

An important consequence of this extensive input from Congress participants was that those present at Caracas developed a close identity with the Declaration, not a universal feature of many declarations which purport to derive from some congresses and conferences. The participant input made the Caracas Declaration longer but also stronger, carrying the benefit of the experience, vision and commitment of all the men and women who made written and verbal suggestions to enhance it.

At the closing session, the Declaration was handed by Venezuela's President, Carlos Andres Perez, to Maurice Strong, Secretary-General of the Earth Summit at Rio de Janeiro, which followed four months later. This was not only an important symbolic link with the United Nations Conference on Environment and Development, but was also a very practical move to feed into the work of that Conference. It has links with UNCED's Agenda 21, with its strong emphasis on protected areas, and the conventions on biodiversity and climate change agreed at Rio.

The Caracas Declaration emphasizes a number of fundamental principles: that nature has intrinsic worth and warrants respect regardless of its usefulness to humanity, that parks protect areas of living richness, natural beauty and cultural significance and that they are a source of inspiration and are places of spiritual as well as scientific, educational, cultural and recreational value. The Declaration affirms the responsibility of humanity to safeguard the living world and, at the same time, underlines the need for sensitivity to customs and traditions and the interests of indigenous people as well as all men and women and children of this and future generations.

The Declaration puts parks in the context of the global problems which threaten them: rapid population growth, poverty, pollution, excessive consumption of resources, harmful styles of development and defective economic regimes as well as the need for peace.

More specifically, the Caracas Declaration establishes a number of objectives for protected areas. A central objective is to consolidate and enlarge national systems of well-managed protected

areas with buffer zones and corridors, so that by the year 2000 they safeguard the full representative range of land, freshwater, coastal and marine ecosystems of each country, and allow these ecosystems space to adapt to climate change.

This addresses concepts which are central to parks and other protected areas: representative systems, effective management, putting protected areas in the context of their surroundings, and providing a capacity to adapt to climate change.

The Declaration identifies in broad terms what is necessary to meet these objectives. It provides the basis for their translation into specific actions which will be addressed globally in the forthcoming Caracas Action Plan and which are quantified in an investment prospectus for which financial support will be sought.

The global action plan will be progressively elaborated in a series of action plans covering all the CNPPA regions. Preparation of these regional action plans will be the central focus of Working Sessions of the Commission.

The Caracas Declaration should be seen as a broad statement of the views of participants at the Congress. Clearly, it needs to be put into action by governments and national and international bodies and indeed by all who are committed collectively and individually to protected areas.

The noble goals set out in the Declaration will be achieved only with action and, as the Declaration says,

"Action to safeguard the living riches and natural beauty of the Earth depends on the commitment of all people..."

This is a challenge for each one of us.

P H C (Bing) Lucas is Chairman of the IUCN Commission on National Parks and Protected Areas.

The Caracas Declaration 1992 Parks, Protected Areas and the Human Future

WE, over fifteen hundred leaders and participants deeply committed to world conservation, brought together by the World Conservation Union for the Fourth World Congress on National Parks and Protected Areas in Caracas, Venezuela, between 10 and 21 February 1992, ADOPT this Declaration of our belief in the vital importance of well-managed national parks and protected areas to all people.

WE RECOGNIZE THAT:

- nature has intrinsic worth and warrants respect regardless of its usefulness to humanity;
- the future of human societies depends upon people living in peace among themselves, and in harmony with nature;
- development depends on the maintenance of the diversity and productivity of life on Earth;
- this natural wealth is being eroded at an unprecedented rate, because of the rapid growth in human numbers, the uneven and often excessive consumption of natural resources, mistaken and socially harmful styles of development, global pollution and defective economic regimes, so that the future of humanity is now threatened;
- this threat will not be averted until these problems have been redressed, the economies of many countries have been strengthened, and poverty has been conquered through processes of sustainable development;

WE CONSIDER THAT the establishment and effective management of networks of national parks and other areas in which critical natural habits, fauna and flora are protected must have high priority and must be carried out in a manner sensitive to the needs and concerns of local people. These areas are of crucial, and growing, importance because:

- they safeguard many of the world's outstanding areas of living richness, natural beauty and cultural significance, are a source of inspiration and are an irreplaceable asset of the countries to which they belong;
- they help to maintain the diversity of ecosystems, species, genetic varieties and ecological processes (including the regulation of water flow and climate) which are vital for the support of all life on Earth and for the improvement of human social and economic conditions;
- they protect genetic varieties and species, which are vital in meeting human needs, for example in agriculture and medicine, and are the basis for human social and cultural adaptation in an uncertain and changing world;
- they may be home to communities of people with traditional cultures and irreplaceable knowledge of nature;

- they may contain landscapes which reflect a long history of interaction between people and their environment;
- they have immense scientific, educational, cultural, recreational and spiritual value;
- they provide major direct and indirect benefits to local and national economies and models for sustainable conservation which may be applied elsewhere in the world.

ACCORDINGLY, bearing in mind the message of Caring for the Earth: A Strategy for Sustainable Living, the Global Biodiversity Strategy launched at this Congress, and the earlier messages of the World Conservation Strategy, the World Charter for Nature and the World Commission on Environment and Development, WE, the PARTICIPANTS OF THE CARACAS CONGRESS:

1. REAFFIRM the responsibility of humanity to safeguard the living world;
2. EMPHASIZE the spiritual, social, economic, scientific and cultural importance of national parks and other kinds of protected area;
3. STRESS that the conservation of global biological diversity and the achievement of sustainable development depends upon effective and vigorous international action to reform the world's economic and trading systems, and to halt the global pollution that threatens to bring about climate change;
4. STRONGLY URGE all governments, regional and local authorities and international institutions to include protected areas as integral elements in development policies, programmes, plans and projects;
5. ENCOURAGE communities, non-governmental organizations, and private sector institutions to participate actively in the establishment and management of national parks and protected areas;
6. URGE all governments, local authorities, international institutions and non-governmental organizations to inform and educate all sectors of society about the importance of protected areas, and the economic, social and environmental benefits they provide, and so make the public active partners and supporters in their protection;
7. INSIST THAT industry (including tourism, agriculture, forestry and the extraction of oil and minerals) must adopt the highest standards of environmental protection and eliminate damaging impacts on protected areas;
8. STRONGLY URGE industry, especially multinational corporations, and governments, to ensure that any exploitation of biodiversity conforms with rigorous controls established by the sovereign State concerned;
9. EMPHASIZE the vital role of environmental education and urge all governments to strengthen their programmes, especially in and relating to national parks and protected areas, constituting appropriate national organizations to develop and coordinate this process;
10. EMPHASIZE that although national parks and other protected areas are of special importance, all lands and seas should be managed so as to maintain (or restore) the highest environmental quality;
11. STRESS the need for international cooperation and assistance to place the latest knowledge and best available technology at the disposal of all governments and especially their protected area managers.

TO THESE ENDS WE STRONGLY URGE ALL GOVERNMENTS AND APPROPRIATE NATIONAL AND INTERNATIONAL BODIES:

1. To take urgent action to consolidate and enlarge national systems of well-managed protected areas with buffer zones and corridors, so that by the year 2000 they safeguard the full representative range of land, freshwater, coastal and marine ecosystems of each country and allow these ecosystems space to adapt to climate change.
2. To ensure that the environmental and economic benefits which protected areas provide are fully recognized in national development strategies and national accounting systems.
3. To support the development of national protected area policies which are sensitive to customs and traditions, safeguard the interests of indigenous people, take full account of the roles and interests of both men and women, and respect the interests of children of this and future generations.
4. To ensure that effective international, national, regional and local administrative, legal, accounting and financial mechanisms for supporting protected areas are established as a matter of priority and regularly reviewed.
5. To allocate adequate financial and other resources so that, once designated, protected areas are managed effectively, to achieve their intended objectives.
6. To strengthen environmental education, and to provide training that will improve professionalism in the management of protected areas.
7. To facilitate the establishment of effective and efficient networks of NGOs cooperating at a local, national and international level to further national park and protected area objectives.
8. To recognize the significance of demographic change and its consequences for the survival of biological diversity and to take appropriate actions to reduce this threat.
9. To foster publicly funded scientific research and monitoring that will improve the planning and management of protected areas, and to use such areas as sites for studies that will improve understanding of the environment.

The Caracas Recommendations

Adrian Phillips

The recommendations produced by the Caracas Congress are the result of intensive discussions that took place in workshops, seminars and specialist groups. This article summarizes the key points under each of the 20 recommendations. Because of the limited space available however, this review is rather necessarily selective in highlighting certain themes.

The Caracas Congress approved 20 substantive recommendations at its closing session. They are detailed statements of what the participants felt needed to be done by governments and others if protected areas were to make their full contribution to conservation and to sustainable development.

Given the breadth of representation at the Congress, it was not surprising that some of the draft recommendations were the subject of heated and lengthy debate before agreed wording could be found. Inevitably they bear in places the marks of compromise, but the messages that come through in the recommendations are generally strong and clear.

The recommendations incorporated much of the detailed thinking done in the workshops and received wide circulation among te World Congress participants. They run, in all, to over 30 pages of text which it is not practical to reproduce in full in PARKS. However, the full texts are being conveyed to governments and other IUCN members.

1. Strengthening the Constituency for Protected Areas

Recognizing the importance of public support for protected areas, the Congress stressed the need for education and public awareness designed to raise knowledge of the benefits of protected areas.

2. Global Change and Protected Areas

This recommendation addresses the three world-wide aspects of global change which bring special threats to protected areas: demographic trends, climate change and pollution. The Congress called on governments to address the issue of population growth far more urgently. It called for both preventive and adaptive strategies to be followed in terrestrial and marine environments in view of the prospect of climate change. On pollution, it stressed that only successful abatement will provide effective protection to species and habitats.

3. Global Efforts to Conserve Biological Diversity

The Caracas Congress was used as the platform for the launch of a Global Biodiversity Strategy. It also took place just a few months before the adoption of the Biodiversity Convention at UNCED. This recommendation aimed to put the establishment and proper management of protected areas at the heart of attempts to safeguard biodiversity.

4. Legal Regimes for Protected Areas

The Congress sought to achieve two things at the policy level through this recommendation. First,

it calls on governments around the world to accede to, implement and strengthen, the various international treaties for enhancing protected areas. Next, it recommends the necessary action at the national level to make sure that protected areas are set up and properly managed and resourced.

5. External Forces Threatening Sustainability

War, civil strife, the narcotics industry, toxic waste dumping and so forth threaten protected areas around the world. In this recommendation, the Congress underlines the environmental reasons for combating such threats and the action which is required.

6. People and Protected Areas

Protected areas cannot survive unless those who plan and manage them recognize the needs of human populations, especially those who live in and around such areas. The recommendation sets out the guiding principles for building meaningful relationships with local communities so that their support for the aims of protected areas can be secured.

7. Financial Support for Protected Areas

Funding protected areas costs money. The Congress identified what should be done at the international level (relieving debt burdens, targeting assistance and so forth), and at the national level (eg mobilising funds from the private sector or generating income from entrance fees) to bring new resources to bear on protected area needs.

8. Protected Areas and the Sustainable Use of Renewable Resources

The proper management of renewable wild species is an essential component of protected area policies. This recommendation gives guidance on how this can be secured, covering such issues as monitoring the status of species and the need for adjoining states to cooperate.

Recommendation 6: protected areas cannot survive unless those who plan and manage them recognize the needs of human populations, especially those who live in and around such areas, like these settlers in Bali Barat National Park, Indonesia.
Photo: Paul Goriup.

Recommendation 12: those managing protected areas need good information upon which to base decision-making: collecting water quality samples in the Danube Delta Biosphere Reserve. Photo: Paul Goriup.

9. Tourism and Protected Areas

Tourism is a two-edged sword, which can both destroy protected areas and help ensure their survival. The Congress set out in the recommendation the guiding principles which should be followed if the benefits are to be maximized and the problems minimized.

10. Partnerships for Protected Areas

Protected areas cannot survive solely through the efforts of governments; non-governmental bodies and the owners of private lands have an important part to play too. This recommendation encourages all governments to develop partnership programmes designed to encourage private owners and non-governmental bodies to play their part in establishing and managing protected areas.

11. Marine Protected Areas

Marine protected areas have been neglected and there is an urgent need to give them more attention in future. The Congress called for a global system of marine protected areas and for nations to give conservation of the marine environment higher priority.

12. Information, Research and Monitoring

Those managing protected areas need good information upon which to base decision-making. This recommendation identified the tasks before governments, managers, research bodies, donor agencies and so on in ensuring that the right information is gathered and disseminated, and research priorities addressed.

13. Ecological Restoration

In future, more attention will be given to the restoration of habitats and species. Congress recognized the valuable role which restoration programmes can play, but also some of the pitfalls – especially with the introduction and re-introduction of species. Accordingly, this

recommendation sets forth the guiding principles for habitat and species restoration.

14. Water and Protected Areas

Protected areas are often critical to integrated water management, as well as being dependent for their survival on the maintenance of hydrological processes. In this recommendation, the Congress called on all countries to pursue an integrated approach to water management based on river catchments in which protected areas are a component part.

15. Development Planning and Natural Resource Use

Protected areas are a vital part of many countries' economic development, but they can only survive if natural resources are managed wisely in a regional context. This recommendation calls for protected areas to form part of each country's plans for sustainable development, and for arrangements to be put in place to safeguard such areas from the damaging impacts of poorly-planned development projects.

16. Expanding the Global Network of Protected Areas

The Congress heard that less than 5% overall of the land surface is under a protective regime. Many biogeographical regions lack adequate protection. Countries need to draw up plans for the development of their protected areas based upon a systematic approach: the identification of the status of existing areas, gaps in coverage and action to fill those gaps. The aim should be that at least 10% of each biome be covered by the year 2000.

17. Protected Area Categories, Management Effectiveness and Threats

International action for protected areas needs to be based on a common understanding of key principles: how to categorize protected areas by management aims, how to measure management effectiveness and how to identify threats to such areas. This recommendation proposes a sequence of steps needed to provide that common language for the protected area community.

18. Building Protected Area Institutions

Effective, well-resourced national institutions are needed to ensure that governments give a lead in protected areas. While non-governmental organizations have an important role to play, this recommendation recognizes that governments have to create a positive climate for protected areas.

19. Developing Protected Area Professionalism

A major effort is needed to upgrade the quality and increase the quantity of training given to protected area personnel. In this recommendation the Congress seeks a lead from IUCN in this area, backed by a new infusion of funding.

20. Biosphere Reserves

The biosphere reserve programme is an essential part of the efforts to protect biodiversity, especially by linking research, monitoring and training in a network of sites devoted to conservation and sustainable development. This recommendation urges that more effort be given to developing the biosphere reserve network.

Adrian Phillips is Deputy Chairman of CNPPA and served as Chairman of the Caracas Recommendations Committee

Managing Parks for the 21st Century: Advice from the Parks Congress

Caroline Martinet and Jeffrey McNeely

In a changing world, the contribution of protected areas to society must be shown to be relevant and important. The needs of parks and protected areas to adapt and to attract public and political support was a fundamental theme throughout each of the major symposia at the Caracas Congress. This article reports on the content of the workshops organized around four major symposia dealing with social, political and economic issues, scientific issues, development issues and management issues.

Everyone working in protected areas is well aware of the challenges facing today's protected area manager. Growing demands and shrinking budgets are the norm, calling for more political support, new allies, more relevant information, better science, better technology, better integration with development in surrounding lands, and improved approaches to management. At the World Congress on National Parks and Protected Areas, held in Caracas, Venezuela, from 10 to 21 February 1992, the 1800 participants met in nearly 50 workshops to share experience and chart a new course for the stormy seas which surely lie ahead.

The workshops were organized around four symposia:

- How protected areas can meet society's needs: the social, political and economic issues (Chair: Walter Lusigi);
- Protected areas in a changing world: the scientific issues (Chair: Martin Holdgate)
- Regional planning and protected areas: the development issues (Chair: Guillermo Colmenares and Harold Eidsvik)
- The challenge within: the protected area management issues (Chair: Graham Child)

Full reports from these workshops – including issues, responses, and products – will be included in the Congress Proceedings, to be published by IUCN toward the end of 1992. Many of the workshops will also generate their own, more detailed publications. A few may be simply collections of papers presented at the workshop (nearly 1,000 papers were tabled), but many workshops will generate guide-lines and review papers which present the collected wisdom of those attending the workshop. These publications will be issued by IUCN and collaborating organizations over the coming few years, providing a basis for improving management in protected areas in all parts of the world.

This short report presents highlights from the four symposia.

SYPOSIUM I: How Protected Areas Can Meet Society's Needs: The Social, Political and Economic Issues

Symposium I Workshops

1. Social Perceptions and Protected Areas.
2. The Economics of Protected Areas.
3. People and Protected Areas.
4. Community-based Management of Protected Areas.
5. Indigenous Views of Parks and Protected Areas.
6. Protected Areas and Demographic Change.
7. Education about Protected Areas.
8. Building the Capacity of NGOs.
9. Resolving Conflict about Protected Areas.
10. Protected Areas, War and Civil Strife.

11. International Legal Instruments in Protected Areas Management.
12. The Role of Tourism in Expanding Support for Protected Areas.
13. Funding Mechanisms for Protected Areas.
14. Developing an Investment Portfolio.
15. The World Heritage Convention.

Symposium I was based on the premise that protected areas generate a net benefit to society over time. Many of these benefits are poorly understood, and need to be quantified and explained both to politicians and the general public. Protected areas need to be managed on the basis of long-term visions if they are to pay dividends locally and globally on a sustainable basis.

People aspire to having enough, and in some cases more, of the necessities of food, water, shelter and recreation and these needs must be met. Politicians are motivated by a whole range of factors which have to be understood when it comes to respecting conservation principles. However, in each case, the existence of one faction is dependent on the other for community, resources and protection.

Protected area professionals are increasingly aware of the necessity of having more collaborative relationships with the people living in surrounding lands, and that conservation efforts which are not supported by local people are bound to fail. However, the necessary change in attitude on behalf of protected area professionals and at the local and political level toward protected areas is still in process.

Protected area managers often consider local people a hindrance to conservation efforts rather than as a determining factor. The misconception that the restrictions associated with protected areas are contrary to the interests of local people is supported when decisions are taken without their consultation. Conflict rather than cooperation is all too common, and each side accuses the other of denying fundamental rights as each aspires to different uses of resources.

The challenge is to justify the existence of protected areas and gain broad support for them as an integral part of society's constant struggle to adapt to changing conditions. Environmental education, participatory processes, co-management options, international environmental conventions, non-governmental organizations, economic analysis, demographic assessments, financial return, and addressing recreational and resource needs are some of the key tools at the disposal of protected area professionals in building local and national credibility for the conservation of resources; and each was the subject of one or more workshops at Caracas.

Enhancing Education and Participation

If environmental education is to be used to build significant support for protected areas, it must be more than the study of ecosystems and developing an understanding of how the social, economic and cultural influences determine the use of the ecosystems. It must also develop an environmental ethic and impart skills to enable people to participate in informed environmental decision making and management.

Also inherent in any public education programme is providing information about the values of protected areas and their role in demonstrating the interrelationships between people and resources. Such a programme is not limited to local communities and tourists. Development and funding agencies, and influential institutional agencies should also be targeted. The implementation of environmental education programmes requires commitment in the form of national policies, funding and training, as well as collaboration between the government, protected area agencies, educational institutions and non-governmental organizations.

Current institutional structures are often inadequate in providing for the participation of

One area which is rapidly growing and has far-reaching implications in the role and management of protected areas is tourism. An example of success is ICBP's Cousin Island reserve in the Seychelles. Photo: Paul Goriup.

local people in the management, planning, monitoring and evaluation of protected areas. Opportunities for public debate on development issues, representation of local communities on local protected area management boards, incorporating indigenous knowledge and traditional management activities into management plans, delegation of responsibility to community members and providing legal institutional support to the establishment of community organisations are some ways to implement a participatory process based on co-management options.

Site-specific approaches, methods of resolving conflict and documented successes and failures should be made widely available through information sharing and publications. However, the Congress was very clear that many protected areas have been established to achieve national objectives, requiring some subordination of local interests and firm enforcement of protective legislation. In such cases, mechanisms to compensate local people for their opportunity costs may be required.

Paying for Parks

One area which is rapidly growing and has far-reaching implications in the role and management of protected areas is tourism. The term "ecotourism", used to distinguish nature-based tourism from other forms of tourism activity, was widely debated. Positions varied from promoting ecotourism as a conservation tool to ecotourism being likened to colonial exploitation and promoting an elitist attitude. Participants agreed that regardless of the appropriateness of the term, the environmental impacts, aesthetic and development demands, social alterations and revenue generation consequentially arising from tourism need to be integrated into the management objectives of affected areas.

Though relatively few protected areas are able to apply the funds earned from tourism to the improved management of the site, the income is very considerable indeed and could be even greater with larger investments. Mechanisms are therefore required to ensure that protected areas retain their fair share of tourist income, and that

local people also share appropriately in any benefits gained.

In a time of shrinking government budgets, the Congress gave considerable attention to the concept of user fees and "beneficiary pays" as approaches to increasing (or, in some cases, replacing) budget allocations. While a few protected areas may be able to "pay for themselves", most protected areas represent public goods which provide benefits to the entire nation (and even to the world), underlining the responsibility of government to provide operational and management funding for the national protected area system. Other funding mechanisms are available through private sources for investments in land acquisition, environmental education, research and restoration. Items which can be financed through trust funds include infrastructure, operational and administrative costs.

Some participants suggested that defining protected area needs in terms of costs, benefits, and returns on investment would lead to protected areas becoming "marketable" and thus able to tap into additional sources of funding. What remains to be seen is not only the impact that this will have on conservation efforts but how well major funding agencies can be influenced to address the actual priorities, such as management, staffing, infrastructure, public information, and programme implementation. Such an approach by funding agencies would be far more appropriate than simply supporting income-earning tourism infrastructure development which is easily evaluated in terms of immediate return on investment.

SYMPOSIUM II. Protected Areas in a Changing World: the Scientific Issues

Symposium II Workshops

1. Monitoring in Protected Areas.
2. Research in Protected Areas.
3. How Restoration Ecology can Contribute to Protected Areas.

4/5. Reintroduction of Extirpated Species and Problems with Introduced Species in Protected Areas.

6. The Role of Species Research in Ecosystem Conservation in Tropical Protected Areas.
7. Managing Small Populations of Wildlife in Protected Areas.
8. Impacts of Environmental Change in Protected Areas.
9. Impacts of Pollution on Protected Areas.
10. Protected Areas and the Hydrological Cycle.
11. The Science of Conservation in the Coastal Zone.

Symposium II addressed the application of science to protected area management and the scientific role of protected areas, both terrestrial and marine, and for increasing human understanding of the natural world. It was based on the premise that successful conservation, whether at species level or on a global scale, depends upon an effective working relationship between managers and scientists.

The information generated by research is instrumental in identifying ecosystems which need protection and in developing management strategies which effectively encompass the ecological and biological processes as well as socio-economic impacts within and surrounding a protected area.

Well-managed protected areas, on the other hand, are needed to further our understanding of natural systems, to study the impacts of pollution and climate change, and to conserve genetic resources for research. To make a significant contribution to the management of ecosystems, research needs to be presented to park managers and their agencies, and to the general public, in addition to peers in science.

Comprehensive and coordinated research and monitoring programmes are urgently required to enhance predictive ability and to promote the exchange of information. Several workshops

recommended that: (i) research be given high priority in funding and be included as a part of management plans; (ii) research and monitoring infrastructure be increased; (iii) research training be provided to staff; (iv) alliances be built with local people and relevant institutions; and (v) a network be developed among research agencies.

Given the intricacies of an ecosystem, research at the species level is necessary to understand ecological processes and to monitor habitat status. The loss of species due to increasing human population pressure, habitat fragmentation or introduced species has a profound and generally indeterminable effect on the functioning of an ecosystem. Management actions such as controlling the invasion of species, reintroducing species preferably to former ranges, enhancing small populations through breeding programmes, and restoring degraded habitats are increasingly necessary and require a solid scientific basis as well as local and institutional support.

Sound advice to governments on investment priorities needs to be based on objective identification of habitats and ecosystems which are critical in the functioning of the hydrological cycle, in assessing global and regional change, as breeding sites in the marine environment, and as critical habitats of threatened species. Such sites should be given very high priority and be placed in the context of wider regional management considerations to provide for a fully representative global system of terrestrial and marine protected areas.

The symposium concluded that the scientific basis of protected area management needs to be improved, so that hard fact and rigorous analysis increasingly replaces intuition, belief, and conviction (though these remain an important part of management).

SYMPOSIUM III. Regional Planning and Protected Areas: the Development Issues

Symposium III Workshops

1. The New Regional Planning.
2. Regional Planning, Protected Areas and the Coastal Zone.
3. Recent Experience of the Biosphere Reserves

Symposium II concluded that the scientific basis of protected area management needs to be improved, so that hard fact and rigorous analysis increasingly replaces intuition, belief, and conviction, though these remain important.
Photo: Paul Goriup.

3. Recent Experience of the Biosphere Reserves of UNESCO.
4. Protected Areas Managed by Private Organizations.
5. Fostering Stewardship.
6. Legal Strategies for Integrating Ecosystem Conservation into Land-use Planning.
7. Protected Areas Systems Plans.
8. Expanding the World's Network of Protected Areas.
9. Corridors, Transition Zones and Buffers.
10. Transboundary Protected Areas.
11. Data Management for Planning.
12. Cross-sectoral Approaches to Protected Areas.

Symposium III was based on the principle that protected areas make such important contributions to society that they need to incorporated into national and sub-national development plans and economic policies. By considering protected areas together with their surrounding lands, the benefits of diversity and biological resources can be brought to local residents and ecosystem services can be protected and managed. Further, many of the challenges faced by protected areas come from environmental mismanagement in the total landscape, well removed from the responsibility of protected area managers.

Solving such problems as over-population, pollution, military activity, and inappropriate uses of agricultural lands demands a commitment from both the public and the private sectors so that protected areas are part of a broader environment which is sensitively managed within the capacity of natural systems. The main issue is how to ensure that protected areas can play an appropriate role in incorporating environmental considerations into socio-economic development.

The underlying basis to this approach is one of kindling a sense of ownership, and hence responsibility, toward protected areas and natural resources as a part of national heritage. The concept of biosphere reserves as demonstration sites for conservation, scientific research, monitoring and rural development is becoming a more widely-accepted management tool for reconciling conservation with local development concerns. More broadly, protected areas can be made a more effective part of regional development through the preparation of national protected area system plans which specify national policies, illustrate the contributions that protected areas are making to development, quantify the benefits the system delivers both to local people and society at large, and identify the roles of the various stake-holders in protected areas.

In many countries, protected areas will be able to make more significant contributions to society if they cover more land area. Congress participants suggested that a reasonable target would be to cover at least 10 per cent of major ecosystems and biogeographic regions by the year 2000. This 10 per cent figure is considered to be a realistic compromise among politicians, local people, managers, tourism agencies, and scientists, with considerable variation expected between countries and habitat types. Even densely-populated parts of the world, such as Europe, were seen to have considerable scope for additional protected areas, at least in part to meet increasing demands for natural areas.

Expanding the coverage of protected areas amidst an accelerating rate of development will be effective only when it fits within the context of regional planning which supplements protected areas by corridors, transitions and buffer zones, and transboundary applications. Essential components of planning this expansion are identifying the gaps in coverage and managing protected areas as a part of a national or regional land/sea-use plan.

Fostering stewardship by encouraging land owners to practise conservation principles, increasing the capacity of private and non-governmental organisations to manage protected areas, and assuring institutional, political and local involvement in a protected area system planning process are recommended means of

Successful protected areas will rely on the capacity of professional protected area managers to integrate the range of socioeconomic, development and scientific issues into an effective management structure. Photo: Sandvik Steel.

expanding the effectiveness of a national system of protected areas. These techniques also require support through enforceable laws and policies. This calls for strengthening laws and regulations which address national environmental and development policies and take into account indigenous resource management practices, property rights, and land tenure issues.

SYMPOSIUM IV. The Challenge Within: Protected Area Management Issues

Symposium IV Workshops

1. An International Review System for Protected Areas.
2. Building Professionalism among Protected Area Managers.
3. Training Protected Area Managers.
4. Site Management in Protected Areas.
5. Marine Protected Area Management Tools.
6. Managing Protected Areas to Conserve Genetic Resources.
7. Managing Tourism in Protected Areas.
8. Managing Sustainable Utilization in Protected Areas.
9. Interpretation in Protected Areas.
10. Institutional Options for Managing Protected Areas.
11. Revenue Enhancement and Cost Recovery.
12. Data Management in Protected Areas.

This symposium addressed the challenges that face protected area managers in seeking to carry out their tasks more professionally. Increasing demands mean that managers will be required to work with a new array of technologies, including assessing minimum viable population sizes of target species; restoring habitats and populations; establishing linkages with *ex situ* facilities; developing and maintaining productive relationships with people in surrounding lands; devising co-financing and co-management approaches; developing new approaches to enhancing revenues without sacrificing the qualities of the area; managing increasing demands of tourism; managing inventory, screening, chemical prospecting, and systemic survey of the

biodiversity of the protected area; managing and applying information; building strong public relations programmes; ensuring participatory planning; and many others. Protected area management is thus becoming a highly complex and important skill, calling for greatly improved training, incentives and sources of support.

Successful protected areas will rely on the capacity of protected area professionals to integrate the socio-economic, development and scientific issues into an effective management structure. This will require developing local and regional training institutions to assist the professionals in achieving the highest possible standard of resource management at the site level. Short courses, seminars, degree courses, on-the-job training and staff exchanges are also required.

Some participants suggested that it was timely to create an international park and protected area professional organisation as a means of strengthening professional capabilities. Such an organisation would have to be based on a clearly stated code of ethics or mission statement (see Box), and PARKS magazine itself could serve as the vehicle for communication for the organisation's members.

One workshop was devoted to developing methods of assessing the management effectiveness of an area, providing both a tool for the manager and a basis of comparison with the management of other areas. Such methods will also allow for the identification of threatened protected areas and thus provide a basis for addressing action and funding priorities in the protected area system. Good management depends on sound objectives, which in turn calls for different kinds of protected areas to be managed differently. While National Parks (IUCN Category II) remain the foundation of many protected area systems, participants also advocated a range of other categories of protected areas for attaining other objectives. Biosphere reserves, for example, can be managed to deliver benefits to local people and scientists, as well as to the general public.

Protected Area Managers' Mission Statement Developed by Workshop IV.2

RECOGNIZING that there are nine principles set out in *Caring for the Earth – A Strategy for Sustainable Development* which apply to all of the Earth's people, namely:

(i) building a sustainable society
(ii) respecting and caring for the community of life
(iii) improving the quality of human life
(iv) conserving the Earth's carrying capacity
(v) keeping within the Earth's carrying capacity
(vi) changing personal attitudes and practices
(vii) enabling communities to care for their own environment
(viii) providing a national framework for integrating development and conservation
(ix) creating a global alliance;

And that therefore protected area managers have a special responsibility for conserving the Earth's vitality and diversity which is one of these principles;

And furthermore that the establishment and proper management of protected areas is a specific action with the Strategy for Sustainable Living;

THE MISSION of protected area managers is to defend the integrity of protected areas for which they are responsible so that all values are sustained in perpetuity and that human use of the protected area does not compromise that integrity.

IN CARRYING OUT THIS MISSION, protected area managers will ensure that the management of a protected area is of the highest standards appropriate to the IUCN management category in which the area is classified and, where feasible, seek to enhance the level of protection for the area.

Another workshop addressed the difficulties managers face in seeking to meet more of their costs through a range of revenue-enhancement measures. Participants were insistent that government budgets continue to pay a reasonable share of the budget of protected areas, even where considerable revenue can be generated from the area, pointing out that when protected areas are forced to recover too much of their costs, programmes such as resource management, education, and science will inevitably suffer.

Conclusion

The Congress theme, "Parks for Life", grows in depth and meaning with an examination of how protected areas make their practical contribution to the health and well-being of humanity. The coming decade will bring many institutional, social, economic, and environmental changes.

To remain acceptable to the public, protected areas will need to adapt to these changes. The approaches developed in the four Congress symposia will provide protected area managers and supporters with the tools they require to adapt to these changes. Protected areas will need to be increasingly sophisticated, requiring a higher quality of management, better application of science and technology, more effective relationships with people living in and around protected areas, and a concerted effort to build public and political support for protected area objectives.

The products, which will be appearing in the next few years as a result of the Congress, provide practical guide-lines and mechanisms to enable protected areas to adapt to change, and thereby, make increasingly important contributions to sustaining society.

Publications Expected from the Symposia

In addition to the Congress Proceedings, regional protected areas reviews, and a book on "Expanding Partnerships in Conservation", Caracas will result in a number of publications from the workshops. Many of these will be produced in collaboration with other organisations. Expected publications include (titles may change in the coming months):

- The Economics of Protected Areas (with the World Bank)
- People and Protected Areas (with WWF)
- Managing conflicts: A Manual for Protected Area Managers (with the Keystone Centre)
- Funding Mechanisms for Protected Areas (with The Nature Conservancy)
- Tourism and Protected Areas (with the Ecotourism Society)
- New Directions for the World Heritage Convention (with UNESCO)
- Protected Areas and the Hydrological Cycle
- Marine Protected Areas: Proceedings of Workshops at the IVth World Congress on National Parks and Protected Areas (with WWF-US)
- Regional Planning Approaches to Habitat Conservation (with Organization of American States)
- New Perspectives on Biosphere Reserves (with UNESCO)
- Protected Areas and Economic Development in Latin America and the Caribbean (with InterAmerican Development Bank)
- Training Protected Area Managers (with the University of Queensland)
- Categories of Protected Areas

Caroline Martinet and Jeff reyMcNeely are members of the IUCN Secretariat in Gland, Switzerland. They are currently compiling the final text of the Caracas Action Plan which will provide prescriptions for implementing the recommendations formulated by the symposia and plenaries of the Caracas Congress. Publication of the Caracas Action Plan is expected by the end of 1992

Protected Area Management Guide-lines

Jeremy Harrison

There is considerable scope for cooperation between the managers of protected areas worldwide and for advice to be disseminated globally. Universal guide-lines covering a range of important management issues have been proposed following on from the Congress. This article examines proposed and existing guide-lines, and uses those on cross-frontier protected areas as an example.

The World Parks Congress covered an extremely wide range of topics of very real relevance to protected areas managers right across the world. It is now vital that the lessons learnt from these deliberations should reach those many protected areas managers who were unable to participate in the congress directly, and that the material is made available in a format that is accessible.

In order to achieve this the organizing committee has proposed the development of a series of *Protected Areas Guide-lines* for protected area managers and other conservation organizations. Each of the guide-lines will cover a specific topic, will average about 50 pages, and will be written in simple language. Both the length and the use of simple language will facilitate translation and wide dissemination.

Each volume of the series will arise from the discussions and presentations at one or more of the Congress workshops, and will usually be drafted by the workshop "officers" (chairs and rapporteurs), in collaboration with IUCN and the Commission on National Parks and Protected Areas (CNPPA). CNPPA regional working sessions will provide further opportunity for review of the contents of each volume, and CNPPA has established an editorial board to ensure the quality and applicability of the product.

At least 15 guide-line documents have been proposed so far (see Box). Clearly the production of all these documents is a major exercise, and one that is currently not completely funded. Hopefully all 15 will be published in a range of languages over the next three years, and this is IUCN's aim – provided that the funds are available. The pages of both *PARKS* and the *CNPPA Newsletter* will be used to advertise their publication.

One set of guide-lines are briefly presented below to give a flavour of the kind of material being prepared for publication.

Promoting Effective Management of Trans-Frontier Protected Areas

Management of large natural areas is a complex process which involves selecting key habitats on a scientific basis, establishing objectives, defining the management steps required to attain the objectives, implementing action, monitoring results and feeding adjustments back into the management system. Managers usually regard their business of managing a protected area within national boundaries as difficult enough without adding the complication of the cooperative effort required when dealing with international frontiers. Although practical pressures limit what can be accomplished, the conservation benefits and political advantages of border protected areas are worth the extra effort. Without political and managerial commitment, border protected areas have no better hope of success than any other, but by the very fact that these areas do meet on a border may be a contributory factor in ensuring that commitment.

Proposed Protected Area Management Guidelines

1. Involving local people in protected areas management
2. The preparation of protected area systems plans
3. Data management guidelines for protected area managers
4. Research tools for enhancing management of protected areas
5. Extending the benefits of protected areas to surrounding lands
6. Using protected areas to monitor global environmental change
7. Management of protected areas by private organisations
8. The application of an international review system for protected areas
9. Monitoring management effectiveness and threats in protected areas
10. Establishing and managing genetic resources
11. Integrating demographic variables in the planning and management of protected areas
12. Applying science to the establishment and management of protected areas
13. Effective management of marine protected areas
14. Expanding the world's network of protected areas
15. Effective management of transfrontier protected areas

The following guide-lines were prepared first in draft and discussed at the 1st Global Conference on Tourism: A Vital Force for Peace (Vancouver, Canada, October 1988). The resulting version was published by IUCN (Thorsell 1990). In February 1992, the 1990 guide-lines were reviewed by a workshop at the IV World Congress on National Parks and Protected Areas, chaired by Jan Cerovsky of the Czech and Slovak Federal Republic. These guide-lines are the result of that workshop.

These guide-lines are aimed at protected area managers, governments, and supporting non-governmental organizations. They are designed to promote effective management of trans-frontier protected areas in all IUCN categories.

1. Review existing protected natural areas along the border of the nation.

Each country should possess an inventory of shared natural sites along their frontiers such as waterfalls and mountain complexes and be aware of cross-border movements of species, tourism patterns and other trans-boundary interactions.

The conservation benefits and political advantages of border protected areas are worth pursuing. The border zone between the former blocs of east and west Europe could be particularly fruitful, for example the riverine forests on the Danube across the frontiers of Austria, the Czech Republic and Hungary.
Photo: Paul Goriup.

2. *Examine potential border areas to complement the existing protected area system.*

Ideally, the boundaries of trans-frontier protected areas should be coincident and incorporate the main ecological values of the border area. In doing so, they will integrate the area into the process of regional economic planning to enable effective responses to issues originating outside the immediate border zone (pollution, water catchment area and species management). More commonly, however, selection has been based on other criteria and boundaries either do not match up or do not include all the key biophysical elements. A map of potential additions and boundary adjustments should be available to display the gaps.

3. *Formulate cooperative agreements for integrated management of border protected areas.*

Once border parks are recognized as areas of special importance by governments, the agencies concerned should develop a set of detailed measures for cooperative management with attached budgetary and financial instruments. This may involve ensuring that management plans prepared for each site are consistent, that a working-level consultative committee is established, law enforcement regulations are harmonized, and other mechanisms are designed to foster neighbourly relations.

As the sovereignty question can often be a sensitive one, care must be taken to avoid the inference that such agreements imply relinquishing control over national territory. Private associations (NGOs) should be encouraged to initiate action where government bureaucracies are slow to act.

4. *Ensure that local communities are involved.*

Governments and agencies charged with the responsibility of establishing trans-frontier protected areas should work closely with local communities on both sides of the border to raise awareness and motivation for the successful management of the area.

5. *Identify practical management activities in border protected areas to facilitate more effective conservation.*

Day-to-day concerns of the border protected area field manager include law enforcement, search and rescue, border crossing points, indigenous populations, fire prevention, wildlife disease, re-introductions and ecotourism among others. Close liaison with park staff in the adjoining country is necessary to address all of these types of activities. Regular staff exchanges and compatible communication systems are two means that are in operation in some border parks. Special allowances to facilitate and accommodate appropriate development activities of resident human populations should be given careful attention.

6. *Design joint visitor use facilities and programmes.*

Trans-frontier protected areas can benefit from joint tourism marketing efforts and also ensure that certain facilities and publications can be shared and are complementary. Acting together, border park administrations can better influence the location of and access to visitor facilities and development of areas adjacent to the parks themselves, thereby enhancing their role in regional development. Public education programmes can emphasize the symbolic message that international peace parks should represent.

7. *Formulate cooperative research programmes and share results.*

Cost-savings and sharing of monitoring and research results are potential benefits of cooperative

Cross-frontier reserve management will require high levels of personnel exchange and communication. Specialised meetings, such as the seminar on conflict resolution held at the World Congress, will increasingly be needed. From left, Len West (The Nature Conservancy USA); Lebonetse Goitseone (Botswana Department of Wildlife); Kevin McNamee (Canadian Nature Federation); Gordon Nelson (University of Waterloo, Canada); Nepalit Bonifaz (Instituto de Estrategias Agropecuaries, Ecuador).
Photo: IUCN.

border park management. Clearances for custom permits and exchange of researchers, research material (equipment) and *bona fide* specimens can often be facilitated between adjoining protected area agencies.

8. Build on bilateral and international agreements related to boundary cooperation.

Some countries have established special legal and administrative commissions to deal with boundary questions (such as cross-border poaching) and to promote good relations. The protected area agency should be familiar with these as well as articles of international conservation conventions that encourage such cooperation (for example, the conventions on World Heritage, Wetlands and Migratory Species).

9. Prepare joint nominations of border parks meriting inclusion on the World Heritage List and other conventions and international agreements.

Some 16 natural World Heritage properties are currently found along international boundaries. Only two of these were jointly inscribed (Kluane and Wrangell-St. Elias in the United States and Canada and Mt. Nimba in Guinea and Ivory Coast). In the spirit of the Convention, countries are encouraged to nominate their adjacent reserves and consider joint nominations of others. International Biosphere Reserves and Ramsar sites should be similarly pursued. International donor agency funding should be directed to priority sites in order to ensure management effectiveness.

Reference

Thorsell, J. (ed.) 1990 *Parks on the Borderline: Experience in Trans-frontier Conservation.* IUCN Protected Area Programme Series **1**: 1–98.

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School of Environmental Conservation Management, Bogor

The School of Environmental Conservation Management (SECM) in Bogor, Indonesia, was established in 1978 as a Dutch–Indonesian bilateral aid project to provide in-service training to mid-level Indonesian government officers. The School operates under the aegis of the Centre for Education and Training for Forestry Officials (PusDikLat) and is located at the Forestry Training Centre (BLK) in Bogor. The Dutch partners include the International Institute for Aerospace Survey and Earth Sciences (Enschede), the Research Institute for Nature Management (Arnhem) and the "Larenstein" International Agricultural College (Velp). In addition, the Netherlands Directorate-General for International Cooperation has seconded two experts to the BLK chiefly to support the SECM.

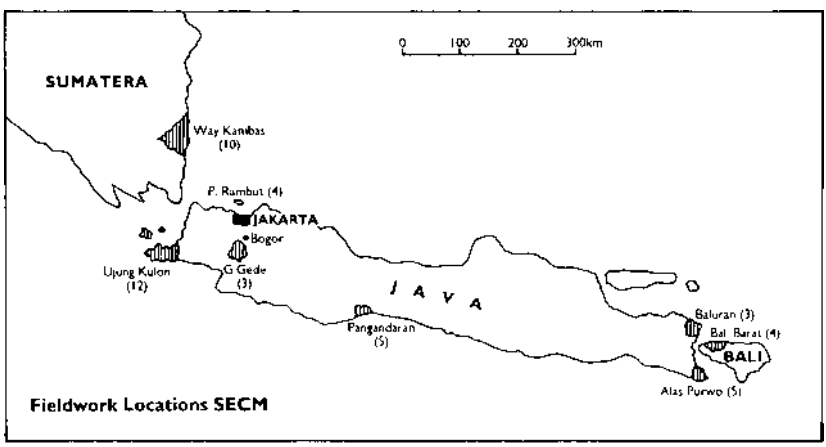
The School initially offered one 8-month course of Environmental Conservation Management (ECM) per year, attended primarily by officers from the Directorate-General for Forest Protection and Nature Conservation (PHPA). In 1986 a second course in Watershed Management was started for staff from the Directorate General for Reforestation and Land Reclamation. A limited number of students from outside these two Directorates-General and non-Indonesians participate in both courses. So far, the School has trained over 330 Indonesian conservation managers and more than 45 non-Indonesians from 14 countries.

The principal objective of the ECM course is to improve management skills in supervision and implementation of conservation, particularly in protected areas. It aims at improving understanding of the complexity and functioning of natural ecosystems and their interaction with man. The Watershed Management course, for example, aims at developing the knowledge and experience of relevant government departments, agencies and institutions in order to advance integrated planning and management of watersheds in Indonesia.

Philosophy of SECM

The fundamental philosophy of the School is that one learns best by doing: the transfer of knowledge and skills is most effective in the field. Accordingly, we try to foster an appreciation of fieldwork for primary data collection – more often than not undervalued by management staff in developing countries.

Some 55% of the total curriculum consists of fieldwork and excursions to zoological and



Fieldwork Locations SECM

botanical gardens, museums, the national herbarium, a taxidermy laboratory, and so on. This practical component counts for half the marks of the final assessment of the students' achievements. The remaining half consists of theory (30%), and a case study and an oral comprehension examination (together 20%).

Classes are small; 20 Indonesians and up to 5 foreign students attend each year. There is abundant opportunity for discussion of real-life problems, particularly with management staff in fieldwork locations and during the case-study seminars given by specialist guest-lecturers.

The broad spectrum of backgrounds of the participants (Indonesians from all corners of the vast archipelago and foreigners from various countries in the region) contributes to a lively exchange of views and experiences. Most students are forestry and biology graduates from national universities with up to 15 years of work experience in conservation agencies.

Curriculum and Training Staff

The course is taught in English throughout, though lavishly mixed with Indonesian. Most subjects have a theoretical and a practical component (Table 1). Classroom teaching focuses on basic concepts and methodologies. Lecturers stress the importance of collection of primary data relevant to management, focusing on simple labour and time-efficient techniques with proven scientific validity and practical value. During the fieldwork, the students apply most of these techniques to real-life problems in the national parks they visit. Written examinations appraise the students' command of each subject.

Students and staff travel some 4,500 km by bus and boat to various field locations. There are six major excursions of 5–12 days each to National Parks: Pangandaran (lowland), Mts. Gede-Pangranggo (mountainous), Ujung Kulon (lowland), Pulau Rambut (small island off west Java), Way Kambas (lowland, south Sumatra), Baluran and Alas Purwo (dry, east Java) and Bali Barat (coastal, west Bali). During the fieldwork, a variety of skills in a wide range of exercises are practised, including fire management planning, orienteering, making plaster casts of animal tracks, visitor analysis, interpretation and education planning, nature trail design, bird inventory, large mammal counts, mapping, and boundary inspection. In the evening, students write concise reports and discuss their interpretation of the results. Intensive discussions with park managers (usually graduates of the School) about relevant management issues conclude the field trips. Instructors and a written test evaluate the students' achievements.

Each student prepares a case study over the Christmas recess. Subjects usually relate to a management aspect or problem in the student's work environment, e.g. large mammal poaching, firewood collection in parks, hunting regulations, captive breeding, and visitor management. Students present and discuss their case studies during a two-day seminar attended by all participants and training staff. The course concludes with individual oral examinations.

Every year, the curriculum is evaluated and adjusted in consultation with the principal client organisation (PHPA). A two-week module on Buffer Zone Management and 44 hours on Land-use Planning and Environmental Impact Assessment have recently been included.

The permanent teaching staff presently consists of six Indonesian and two Dutch lecturers. Some 15 guest lecturers from various institutions treat a wide range of more specialized subjects during seminars. The project offers Indonesian lecturers the opportunity for additional studies abroad under its fellowship programme. To date, 11 instructors have followed a 10–12 month post-graduate study, in several cases followed by a one to two year MSc degree study.

Facilities

A limited number of grants from several sponsors are available to non-Indonesian students, covering board and lodging, tuition fees, pocket money

Modules	Theory	Practice	Total (hours)
Basic subjects (Indonesians only)	44	184	228
Induction training for civil servants	8	-	8
Forestry development policy	8	-	8
Organization, tasks and functions of the Forestry Department	6	-	6
Discipline and para-military training	10	60	70
English language	12	124	136
Core subjects	576	500	1,076
Introduction to environmental conservation	24	-	24
Economic aspects of conservation	20	20	40
Landuse planning and environmental impact assessment	24	20	44
Conservation law and policy in South-East Asia	34	-	34
Conservation education, forestry extension and interpretation	42	60	102
Natural history	64	50	114
Ecology	56	30	86
Habitat management	98	90	188
Wildlife management techniques	74	80	154
Management of conservation areas	66	90	156
Buffer zone management	48	30	78
Surveying and management	26	30	56
Supporting subjects	82	214	296
Collecting and preserving biological materials	14	8	22
Office routine	6	-	6
Personnel management	8	-	8
Photography	6	8	14
Mechanics	-	8	8
Search and rescue	8	-	8
Rural sociology	6	-	6
Capita selecta	34	90	124
Case study, seminar and comprehensive examination	100	-	100
Total	**702**	**898**	**1,600**

Table 1: Breakdown of the 8-month curriculum of the Environmental Conservation Management Course.

Coastal deciduous thorn forest rising to cloud forest in Baluran National Park, one of the areas visited by SECM students. Photo: Paul Goriup.

and international travel. During the course all students stay in the Centre's dormitory, which has a capacity of 100 beds, and use the Centre's canteen.

Students and staff have access to the BLK library, with over 2,500 titles and some 50 periodicals, primarily in English and Indonesian. The School has developed an extensive set of lecture notes, field instructions and other training materials. Two computer-based geographic information systems and six PCs are available to staff and students. The School has the vehicles necessary for field and city use and a comprehensive range of field equipment.

Constraints

The School experiences several constraints of varying character and extent, not the least of which is the gradual withdrawal of Dutch support since September 1991. Inherent to any in-service training is the variation in educational background and level of participants. The wide range of work experience, both in length and character, further complicates teaching. On the other hand, this heterogeneity facilitates exchange of experience among participants. Proficiency in English has been a permanent and serious problem.

From the student's point of view, it is regrettable that recognition of the course certificate is limited only to the Directorate-General of Forest Protection and Nature Conservation. Universities do not grant academic credits to the certificate. Although academic credits are not the primary objective of the School, the educational level would certainly merit them.

A recurrent complaint of graduates is the fact that their working environment has not changed along with their new insights. Superiors do not always understand the management skills gained by the students, nor do they always appreciate the graduates' enthusiastic proposals, while subordinates still lack the basic skills required for data collection and implementation of management. Refresher courses are desirable to update the graduates' knowledge and to provide new stimuli for maintaining their working spirit.

For further information contact B E van Helvoort, Vegetation Ecologist (DGIS) and Sudibyo, Wildlife Ecologist and ECM Course Coordinator (BLK), c/o SECM, PO Box 109, Bogor 16001, Indonesia. Tel. +61 (0) 251 312841/323565. Fax. +61 (0) 251 324576

Updates on protected area issues

Lake Mburo National Park, Uganda

Lake Mburo National Park (LMNP) lies between 0°30' and 0°43' South and 30°46' and 31°03' East in southwest Uganda. It covers 260 km^2 (100 miles^2) of the Akagera ecosystem, a dry belt that extends from central western Uganda to northern Tanzania and Rwanda. It represents Uganda's only protected part of this ecosystem. The park is of great beauty and comprises a rich diversity of habitat types, including swamps, lakes, open grassland, wooded savannah, riverine and dry forest, granite outcrops and rocky hills. This mosaic of habitats supports a high biodiversity including several species found nowhere else in Uganda.

History

The Lake Mburo area was first conserved as a Controlled Hunting Area in 1932. In 1964 part of this area was declared a Game Reserve. Under this status indigenous residents were given permits to remain. Over the next two decades, however, large numbers of new settlers entered the Game Reserve, exploiting the political turmoil in the country. In 1983 the entire Game Reserve of 650 km^2 was declared a national park and all people occupying the area were evicted, without compensation and without due regard for human rights. The declaration of LMNP was widely viewed by the local people as politically inspired to punish them for supporting opposition to the ruling party. In 1985/86, with the fall of the government, the people rose in arms against the park administration, settled the park, destroyed its infrastructure, and attempted to eradicate the wildlife. In 1986 a commission established by the newly formed National Resistance Movement Government examined the issues dividing the park and the people and decided to reduce the Park's area by 60%, in order to provide land for resettlement of the people evicted in 1983. This move was intended as a compromise between the needs of wildlife conservation and the needs of the local people. This national park has enormous potential for conservation of biodiversity and for socio-economicand educational development.

Ecological Importance

The park is a key part of Uganda's protected area network, representing the only conserved example of the Akagera ecosystem in the country. It contains populations of zebra *Equus burchelli*, leopard *Panthera pardus*, hyaena *Crocuta crocuta* and several other large mammals. It conserves Uganda's only population of impala *Aepyceros melampus*, and perhaps Uganda's last roan antelope *Hippotragus equinus*. The park also supports over 270 species of birds, including the rare whale-headed stork *Balaeniceps rex*. The park's wetlands and woodlands perform an important role in regulating water flow and condition and in countering the progressive dehydration of the region resulting from swamp drainage and loss of tree and grass cover from the surrounding region.

The park lies within a semi-arid region which receives only 700–850 mm of rain per annum with a distinct dry season. The region is being unsustainably used for grazing, cultivation, and charcoal burning. This is resulting in rapid environmental degradation, both outside and inside the park, and to loss of biodiversity and productivity. An important function of the park is to provide a benchmark of the natural ecological condition, and to demonstrate how the

rehabilitation and sound land use of degraded areas can be achieved.

Economic and Educational Potential

Lake Mburo National Park lies within easy reach of Kampala (220 km) and the major towns of Mbarar (40 km) and Masaka (80 km). As such, the park has great potential as an education resource for the people of Uganda and as an earner of revenue through local and international tourism.

Though at present the infrastructure and facilities are poor, which discourages visitors, with adequate investment and reduced human settlement and use, the park could become a great asset for Uganda.

The park is a key link in the country's major tourist circuit which is being developed to enable the country to recapture its former eminence as a tourist destination.

What are the Park Authorities Doing for the Park?

Uganda National Parks, with some international support, is attempting to improve the status of LMNP. Activities currently being carried out include construction of park tracks and access roads, upgrading of visitor facilities, and a community conservation project aimed at changing local attitudes towards the park. At present, however, the park still has minimal management and visitor infrastructure, an inadequate operating budget and little local support or interest. The new park boundary has been surveyed recently and plans are underway to construct a modern Park Headquarters and a Safari Lodge.

Unfortunately, the 260 km^2 of LMNP is currently occupied by 126 farming families and 200 Bahima cattle-keeping families with over 20,000 head of cattle, that is an average of 1.3 families and 77 cattle per km^2. These have resided within the park since 1986 and have Government permission to remain until they are provided with land outside the park.

Annually, during the long dry season, the park is invaded by nomadic Bahima pastoralists looking for pastures and water. As many as 80,000 cattle are believed to enter the park during this time. The small park ranger force and the lack of local support render the park authorities virtually powerless to resist this.

The high levels of settlement and use of the park are resulting in rapid habitat change, loss of biodiversity and environmental degradation. Cattle grazing is causing serious damage to all parts of the park due to overstocking resulting in dramatic changes in grassland species composition, prevention of tree regeneration, loss of vegetation cover and soil erosion. Frequent burning of the pastures by cattle keepers is promoting rapid encroachment of bushy fire-resistant vegetation. Destruction of predators by cattle herders (lions were eradicated during the early 1980s) has further unbalanced the ecosystem.

Underlying causes of the problem

1. Sociological and Cultural

The Bahima cattle keepers have retained a traditional lifestyle and an extensive production system which requires larger areas of unenclosed land than are available in southern Uganda today.

Bahima subsistence requirements, and their culture which values cattle above all else, have resulted in the keeping of larger herds than are sustainable. There is direct conflict with wildlife in competition for grazing and conflict with the park authorities over the use of the land itself.

These conflicts are steadily worsening as human and cattle populations increase. Tolerance of the park is reduced further as excessive demands on the declining resource base lead to progressive impoverishment of the people. There is a natural tendency to believe that free access to the park will solve these problems. The Bahima do not perceive any importance in the conservation of the park and are therefore reluctant to make any compromises.

2. *Political Aspects*

The history of LMNP makes the removal of the people for relocation more difficult as the creation of the park in 1983 was a contentious issue, both locally and nationally. This, and the Government's strong commitment to human rights, precludes the simple eviction of communities from the park. Even the proposed relocation of the people, with provision of land and payment of compensation, does not receive strong local political support.

The sensitivity of the entire land issue in Uganda and the special difficulties surrounding the park have resulted in very slow progress in solving the issue of settlement within the park. Lack of progress heightens the problems experienced by both the people and the park. The people live in a situation of great uncertainty. They have been informed that they will be relocated but the lack of action has convinced many that this will never happen. Their efforts to carry on a normal life and develop their communities results in the destruction of the natural environment and thus brings them into direct conflict with the park authorities.

The high level of human activity in the park makes it difficult to manage for the conservation of biodiversity, or develop the park for tourism and education. Habitat loss and environmental degradation continue and the remaining wildlife populations are forced to concentrate in an ever decreasing "core" area of the park where efforts are made to keep human and cattle use to the minimum possible.

Proposed solutions

To resolve the problems discussed briefly above the following actions are believed to be essential.

1. *Land must be allocated to Bahima cattle herders.*

The timing of this intervention is critical as further delays aggravate the situation. The longer people stay within the park the greater the degradation caused, the less willing to move the people becomes, and the more expensive relocation becomes.

2. *Farming communities must be resettled.*

The provision of land for farmers resident within the park is critical. Though the Government has undertaken to provide land, the timing is uncertain. Continued delays make the situation more difficult as farmers are cultivating more land, causing further damage to the park and it may be necessary to purchase land to resettle the farmers.

3. *Permanent water sources must be provided outside the park.*

If the annual dry season invasion of the park is to be prevented it is necessary to provide permanent water sources far away outside the park. These should be situated so as to prevent the need for the annual migration south into the park area and will have to be provided over a large area to the north of the park. Providing water sources close to the park will aggravate the current situation as

Lake Mburo holds Uganda's only population of impala Aepyceros melampus.
Photo: Paul Goriup

cattle will be drawn south into the vicinity of the park and will enter the park in search of grazing.

4. *A livestock project must be established.* Provision of infrastructure and extension services is essential if cattle keepers are to change from their current extensive subsistence system to an intensive production system. Merely providing permanent water sources without improving infrastructure, extension services and marketing could cause increased environmental degradation and result in even greater pressure on the park.

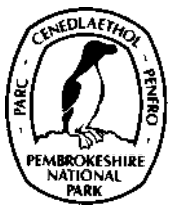
Appeal for International Support for LMNP

The survival of LMNP depends on determined action by local and national government. At present there appears to be a lack of political will and ability to take the necessary decisions, finance them adequately, and implement them effectively. Placing the park on the IUCN International List of Threatened Parks will help focus attention on the plight of the park and assist the Government of Uganda to undertake the difficult programme of action which is necessary to resolve the Park's present problems.

The proposed actions listed above will require financial support beyond the capacity of the Government or the Uganda National Parks to provide. Implementation of the proposed livestock project and the provision of permanent water sources will require significant donor support. The payment of compensation to families to be relocated and the purchase of land for them are also expensive. Without international donor support these actions cannot be undertaken and it must be doubted whether the park will survive the next five years in anything more than name.

Dr Eric L Edroma, Director, Uganda National Parks, Box 3530, Kampala.

PEMBROKESHIRE COAST NATIONAL PARK, UK



It is entirely appropriate that the razorbill (*Alca torda*), one of the most elegant of seabirds, was chosen as the symbol of the Pembrokeshire Coast National Park.

This member of the auk family is found all along the coastline of the Pembrokeshire Peninsula, its strongholds the famous bird islands of Skomer and Skokholm. On Skomer alone over 3,200 individuals breed, along with its auk cousins the puffins (*Fratercula arctica*) and guillemots (*Uria aalge*).

Jutting out into the Atlantic Ocean in the south-western corner of Wales, the Pembrokeshire National Park is Britain's only predominantly coastal national park. Unlike other British National Parks it is not a single area of specially protected landscape – it is made up of the coastal margins of Pembrokeshire, the upland area known as the Presely Hills and the inner heartland around the upper reaches of the Milford Haven waterway. This latter area is known as the Daugleddau, Cleddau being the Welsh name of the river system and *dau* meaning "two".

One of the smallest of the British parks, it covers 583 km^2 and has a population of over 20,000 people.

The coastline, and its 290 km coastal path, offers a splendid vantage to see Pembrokeshire's rich bird life, including the razorbill.

Distinguished from its auk cousins by its sleek black plumage and contrasting brilliant white front, the razorbill is indeed an imposing looking seabird. Its beak and head are distinctive too, with a thin white line running from under the eye towards the curved tip. Its beak is very sharp for its fishing activities – "razor" by name and by nature.

Razorbills raise one chick per season and they breed in loose colonies, on their own or in small groups on ledges or in cracks on the higher parts of the cliff. The single egg is laid in May and both parents take turns in the incubation.

Five weeks on, in June, the chick hatches and an intense period of feeding by the parents results in rapid progress. After about 18 days the chick is ready to leave the nesting site, being coaxed to jump from the cliff by the male parent who accompanies it out to sea.

By early August, all the razorbills have forsaken their Pembrokeshire haunts, spending the winter months at sea. Five months later they return to their ledges, to prepare for another breeding season.

Pembrokeshire is world renowned for its very varied wildlife and its seabird colonies are, in the main, continuing to flourish. There have, however, been some pollution problems in the past 30 years since Milford Haven began to be developed as one of Europe's major oil ports, and seabirds have suffered most in these incidents.

Nevertheless life on the Pembrokeshire Coast must be fairly pleasant for the razorbill family – the oldest 'razor' on record was recorded on Skomer and it was at least 24 years old!

Steve Drinkwater

Wildlife Fencing as a Management Tool for Protected Areas in Africa

One of the management strategies most often attempted to alleviate conflicts between wildlife and people, or to separate land uses for conservation purposes is the use of fences. However, with relatively poor planning and little impact assessment many expensive failures have resulted, often accompanied by significant side effects.

The advent of effective electrified fencing has introduced greater flexibility in the use of wildlife barriers at reduced cost, making the definition of the problem at hand and the practicalities of using this technology of great importance. This paper considers the complexities of the issues involved in the use of such a powerful management tool as a fence and how guide-lines can be set for better use of fencing for protected wildlife areas or the avoidance of it altogether.

Fencing used in the management of African wildlife areas is principally aimed at the control of larger mammal species and traditionally has had a range of definable purposes. These are (i) to demarcate a boundary, (ii) to contain or separate animals in order to avoid conflict with people and (iii) to exclude domestic livestock or restrict illegal activity. Embraced by many sections of society, whatever their orientation towards wildlife: rural communities often see fencing as a solution to property damage by wildlife; donors of financial aid encourage it because it represents tangible assistance; and preservationists often believe that it secures a future for protected areas.

To date, the main determinants in the siting and construction of fences have been political pressure or the availability of funds. Wildlife fencing is perhaps the only major factor having a substantial influence on ecosystems and animal populations in Africa that has not been influenced by environmental impact assessment and legislation. A number of very important resource management issues are associated with fencing as the planning and construction of any wildlife barrier involves biological, sociological and economic issues.

A kongoni Alcelaphus buselaphus trapped in fencing on the Athi Plains, Kenya.
Photo: Paul Goriup.

Animal Species Requiring Management

The variation in individual size, group size and behaviour between species of African mammals means that any one fence may suffer very variable levels of challenge against it. It may also have very different effects on a range of problem and other species (target and non-target species), as shown by Taylor and Martin (1987). A broad classification of challenges facing a wildlife barrier is given in the box.

Challenges Facing Wildlife Barriers

Type A:	Heavy non-jumping species
Examples:	elephant *Loxodonta africana*, rhinoceros *Diceros bicornis*, hippopotamus *Hippopotamus amphibius*, giraffe *Giraffa camelopardalis*, buffalo *Synceros caffer*
Type B:	Medium-weight non-jumping species
Examples:	zebra *Equus burchelli*, wildebeest *Connochaetes taurinus*, hartebeest *Alcephalus buselaphus*, sable *Martes zibellina*, ostrich *Struthio camelus*
Type C:	Jumping species
Examples:	eland *Tragelaphus oryx*, waterbuck *Kobus ellipsiprymnus*, kudu *Tragelaphus strepsiceros*, impala *Aepyceros melampus*
Type D:	Species burrowing or squeezing through small gaps
Examples:	hyaena *Hyaena* spp., bushpig *Potamochoerus porcus*, warthog *Phacochoerus aethiopicus*, porcupine *Hystrix africaeaustralis*, small carnivores
Type E:	Potential climbers
Examples:	lion *Panthera leo*, leopard *Panthera pardus*, primates

Types of Fencing

Conventional Fences

Recent years have seen the advent of specialized "game fencing" in those countries where wildlife has assumed a value in terms of utilization for tourism, safari hunting or meat production. In more sophisticated conventional fences the use of wooden posts and high-tensile galvanized steel wire is universal. To control jumping species of antelope, heights of 2.5 m are required. Mesh wire above ground has to be used if small species are to be stopped and the mesh has to be buried if burrowing species are a problem. Large species such as buffalo and rhinoceros may require the fence to be strengthened with steel cables while no conventional fence will resist a determined elephant. The financial costs are very considerable.

Power Fences

Wildlife managers in many parts of the world would agree that the advent of electrified or power fencing represents one of the most significant advances in their science. After many years of development, modern electric energisers are highly reliable and some can power up to 60 km of fence each, if used on mains electricity. On 12-volt battery power, the length of fence per energiser is much less but the result is no less efficient. Solar panels charge the battery by day and the stored energy in the battery is used to power the fence at night. According to Gallagher (1989) the general advantages of power fencing over conventional fencing for use in wildlife applications are:

- easier construction because lighter materials are required;
- alarms can be fitted to monitor fence breaks;
- construction is cheaper and proceeds more quickly in rough terrain;
- versatile as designs can be changed easily;
- electrified components can be attached to existing fences;
- longer life due to reduced physical pressure on the fence;
- a wider range of species can be controlled;
- specific groups of animals can be targeted (e.g. predators);
- a greater deterrent to poachers or to theft of fence materials;
- aesthetically more pleasing.

The implications of having electrified components on a fence that should be considered are: the need for constant attention to earthing and insulation; the "breakthrough learning period" for the animals to avoid the fence; a slightly increased risk of fires; and

Veterinary control fence along a National Park boundary in Zimbabwe. The higher wooden tsetse fly control fence is to be replaced by the smaller Foot and Mouth disease control 'buffalo fence' with steel cables and standards. Differential control of large herbivores has resulted in marked vegetational changes.
Photo: R. E. Hoare.

possible damage to the electrical components by lightning.

Power fencing relies on the fact that most animals can be trained to avoid objects associated with unpleasant experiences (McKillop and Sibly 1988) – the contacting animal is earthed and becomes part of the electrical circuit during each short pulse of current. Because of the behavioural conditioning required to maintain a deterrent or "fear barrier", animals should never be allowed to experience "power dead" sections of fencing (Schultz 1988). The pulsations and strength of the energiser current are not dangerous to humans, even children, touching the wire. However, as an additional safety measure, the law in Zimbabwe for instance, states that barbed wire may not be electrified.

Contrary to widely held belief, once people and wildlife have learned to respect a properly installed power fence the cost of maintaining it should be low and can be carried out by relatively uneducated staff. Maintenance has to be continual throughout the year and meticulous (See Figure 1); lack of maintenance is the single greatest reason for the failure of wildlife fencing projects. In Zimbabwe, neglecting maintenance of power fences during dry season, when they are not perceived to be needed by farmers, has resulted in the loss of conditioning of crop-raiding elephants and subsequent disrespect for the fence even after repair.

Principles of Wildlife Management with Fences

There is no simple relationship between problem species and fence design. The following principles are important to both planners and contractors:

Management Considerations

(i) Have the problems been defined and will a given fence layout alleviate these problems, not merely export them to adjacent areas?

Do the animals have alternatives regarding their needs or will their requirements exceed those of the protected area available to them? Ranging patterns, territorial behaviour and social structure of the target species of animals all need to be considered.

(ii) Will the effects on non-target species be positive or negative?

(iii) What effect might the barrier have on vegetation utilization? Does a route following an arbitrary administrative boundary take account of vegetation communities, soils, topography or water drainage?

(iv) A fence is a barrier to attitudes as well as a physical barrier, and human attitudes to it are pivotal to success. If the fence is not sympathetic to the local community's needs or they do not

feel involved in its objectives, it will fail. Theft of fencing wire to set snares, for example, can exacerbate poaching and undermine the barrier.

(v) Is there some flexibility in the alignment in the face of future climatic changes?

(vi) Can the fence design or configuration be upgraded or changed if it later proves ineffective?

Material Considerations

Any fence has to be a compromise between its deterrent value and its cost. The quality of the materials is far more important than the type used. It is false economy to use anything but the best materials and workmanship on a wildlife fence unless it is for a short-term purpose only, such as protecting regeneration of young trees. Moreover, it should be possible to upgrade or change the fence design or configuration if it later proves to be ineffective.

The golden rule is that a fence is only as good as its maintenance. Financial provision should be made for daily patrolling and a depreciation fund for long-term replacement work.

Alternatives to Fences

The greatest objections to wildlife fences have been their high cost, their inflexibility or their failure through lack of maintenance. Alternatives have therefore long been sought in the form of other types of barriers such as spiny plants, stone walls, deep ditches or moats (Hoare 1991). Generally, these have had limited success. Other approaches to the human-animal conflicts are summarized by Bell (1984). Those avoiding the use of a fence in a conflict situation are:

(i) shooting or disturbance hunting;

(ii) utilizing the problem species for commercial hunting;

(iii) compensation payments for damage to property

(iv) revenue sharing schemes around protected areas;

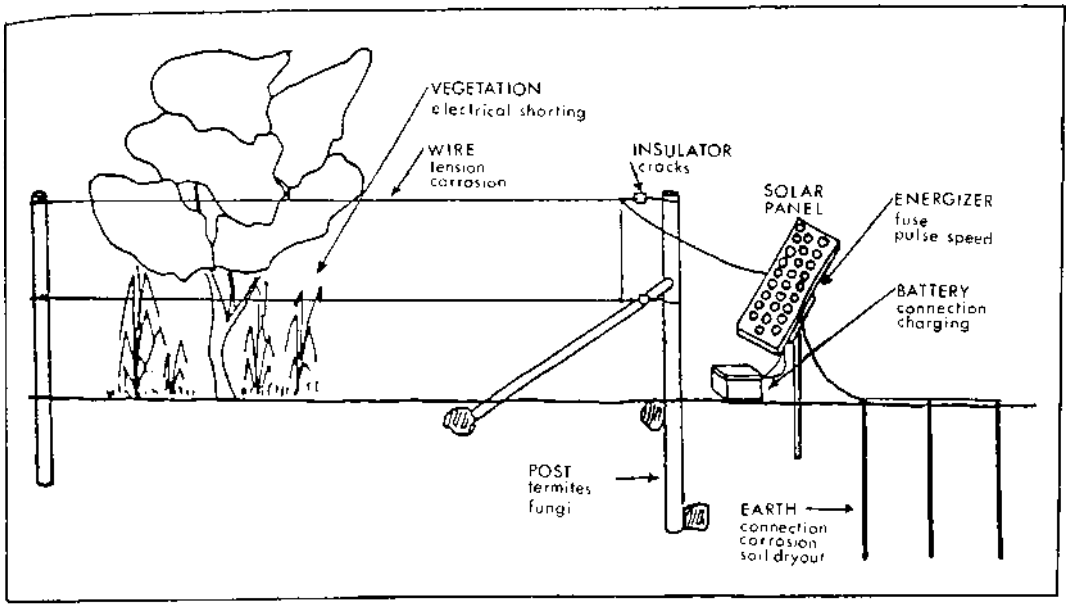
(v) simply tolerating damage at low levels;

(vi) the creation of zones around areas of high wildlife density where land use patterns are modified.

Conclusion — New Initiatives in Wildlife Fencing

It is this latter approach of "softening the edges" of protected areas that is gaining ground in southern Africa as it represents the hope of a workable solution to conflicts between agriculture and wild mammals in the larger protected areas. To promote coexistence of people and wildlife (Eltringham 1990), new initiatives are in place for involving surrounding rural communities in collective ownership of wildlife (Martin 1986), that may disperse out of a protected or restricted area. At present this primarily involves the sale of

A light, electrified crop protection fence being tried in Zimbabwe. Steel poles can be transported in greater numbers, are not too rigid and resist rot and termites. Height of at least 1.7 m and alternate live and earth wires deters elephants.
Photo: R. E. Hoare.



Critical fence components requiring regular maintenance.

trophy animals to safari hunting operators. If a balance can be struck, the amount of wildlife traditionally destroyed on "problem animal control" can be far better utilized and the increased benefits returned to those who live amongst these problem animals. At the same time, areas of arable soils are being encircled with effective electric fences in an attempt to reduce the interface of human/animal conflict by providing better food security to rural communities, reducing the cultivation of unsuitable marginal land and allowing a greater dispersal area for wildlife, that can in turn, increase and be profitably utilized.

Fenced reserves, however, have their place. For example, access to a small or specialized protected area that is properly regulated at gates and entry points in a fence, can allow sustainable exploitation of such natural products as firewood, construction timber, thatching grass, edible fruits, honey or medicinal plants.

The circumstances of the human/wildlife interaction in each area are different and should be thoroughly researched or re-examined in the planning or appraisal of barriers. A fence creates a "hard edge" that limits planning and forecloses options; by and large the creation of hard edges should be limited to where this is the only viable solution or alternative.

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The Biodiversity Convention

One of the main successes of the Earth Summit was the **Convention on Biological Diversity.** Following a frantic eleventh-hour compromise on the financial mechanism at the final negotiating session in Nairobi only ten days before the Summit, more than 150 countries signed the Convention in Rio last June. The US chose to interpret the articles on the transfer of biotechnology as a threat to its world leadership in this highly commercial field, and refused to sign. As a major consumer of biodiversity, and as a key donor nation, the participation of the US is important but not crucial, although the publicity generated by its reluctance to sign elevated the profile of biodiversity to become one of the key issues of the Summit.

Fundamentals and Compromises

The Convention sets out new legal commitments for the conservation and sustainable use of biological resources. In its recognition of the fundamental need for the equitable sharing of benefits arising from the use of genetic materials, of the sovereign rights of countries to regulate access to the genetic resources, and of the need for the transfer of appropriate technologies, skills and information, the Convention breaks new ground.

It is, however, the product of some thirty months of fractious negotiations between over one hundred countries, and as such is inevitably a compromise. Some of its more assertive conservation proposals, such as global lists of threatened species and critical sites, were dropped, and the remaining articles are littered with weasel words like "as far as possible" and "as appropriate".

However, it does provide a broad-based framework, covering both *in situ* and *ex situ* conservation as well as sustainable use and development objectives, which will make it an essential vehicle for future conservation programmes. This framework must be elaborated by further negotiation and the agreement of protocols and annexes, but at least this process has now been started.

Key Measures

Some of the key measures that the Convention obligates Contracting Parties to undertake include:

- to develop and implement national strategies for the conservation and sustainable use of their biodiversity;
- to carry out surveys to identify species and sites and to monitor threats to these components of biodiversity;
- to establish systems of protected areas and to manage biodiversity both inside and outside protected areas;
- to rehabilitate degraded ecosystems and promote the recovery of threatened species;
- to control or eradicate alien species;
- to respect and maintain the knowledge and practices of indigenous and local communities
- to legislate for the protection of threatened species and populations;
- to support *ex situ* conservation practices predominantly for the purpose of complementing *in situ* measures;
- to adopt certain specified measures to promote

the sustainable use of biodiversity through the generation of economic incentives;

- to establish programmes for research and training, public education and awareness;
- to adopt environmental impact assessments for projects likely to have a significant adverse effect on biodiversity;
- to facilitate access to genetic resources for environmentally sound uses on mutually agreed terms and subject to profit-sharing arrangements;
- to facilitate access to, and transfer of, appropriate types of technology relevant to the conservation and sustainable use of biodiversity and to the exploitation of genetic resources: access to such technologies to be provided to the developing countries "under fair and most favourable terms, including on concessional and preferential terms where mutually agreed";
- to encourage the exchange of information, together with technical and scientific cooperation, to assist developing countries to strengthen their human resource skills and institutional capabilities.

Causes for Concern

The most contentious articles are those relating to finance and the administrative mechanism for handling the money (Articles 20 and 21). Each Party is expected to provide financial support "in accordance with its capabilities", although developed countries shall also provide "new and additional financial resources" to enable developing country Parties to meet their costs of implementing the Convention. The debate about the financial mechanism concerned the role, if any, of the Global Environment Facility. Although the GEF is accepted as the mechanism for the Climate Change convention, the developing countries are clearly very suspicious of the impartiality of the GEF. Instead they proposed the establishment of a Biological Diversity Fund fully accountable to the Conference of Parties which would determine the policy, strategy and priorities under which the money would be made available. As a compromise, the GEF has been accepted on an interim basis, but its longer-term role will depend upon its developing "a democratic and transparent system of governance".

The Start of a Process

For all its shortcomings, the Convention is likely to become the most influential instrument for promoting global conservation over the coming decades. Already the programme of Biodiversity Country Studies that will provide the science-base for the proposed national conservation strategies has begun under the coordination of UNEP and with WCMC as a collaborating partner.

The Convention will not enter into force until it has been ratified by 30 counties. Donor countries are unlikely to ratify until the financial issues have been resolved, and this process will not begin until the Intergovernmental Committee on Biological Diversity has been established by the UNEP Governing Council in April 1993. UNEP is in the meantime providing the interim Secretariat, but the entry into force of the Convention is not likely before 1994 or even later.

The overall objective of the Convention is the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the exploitation of genetic resources. Despite the watering down of its conservation provisions, the Convention goes some way towards meeting these objectives. It provides a solid framework on which to build, but it must be seen as a long-term process rather than as a one-time product. It certainly is not just a paper tiger. Countries must now be encouraged to ratify.

Robin Pellew
Director, World Conservation Monitoring Centre.

CNPPA NEWS

Jim Thorsell
CNPPA Executive Officer

CNPPA Steering Committee Meeting

The CNPPA Regional Vice-chairs gathered from 10 to 12 May in Gland for a full weekend of discussion. The topics covered included the Caracas Action Plan, the Investment Prospectus, the Protected Areas/CNPPA Work Plan, Regional Reviews, CNPPA Publications, CNPPA membership and the issues of categories, management effectiveness and threats in relation to protected areas.

As instructed by IUCN General Assembly Resolution 18.4, a review of the Commission is being undertaken by Gabor Bruszt and David Munro. Both Mr Bruszt and Dr Munro sat in on discussions for an "inside" look at the Commission. In addition, IUCN Director General Dr Martin Holdgate joined the Chair for an active discussion on the role and function of regional offices and regional programmes.

CNPPA Chair visits China

The latest assignment undertaken by CNPPA Chair, Bing Lucas, was a 17-day mission to the People's Republic of China with Jim Thorsell, Senior Advisor for Natural Heritage. The purpose was to evaluate five natural sites nominated for inclusion on the World Heritage list. The team found that the level of political and public interest in World Heritage was extremely high in all four provinces visited. Television coverage reached a combined population of some 230 million people and banquets were hosted in each province at Governor/Vice Governor level. In several cases, whole towns turned out to welcome the team with Jim and Bing walking through lines of enthusiastic citizens applauding, waving flowers and banners, and with bands playing.

All of the sites inspected have been established by China's State Council as National Scenic Areas (roughly equivalent to national parks). They come under the general supervision of the Ministry of Construction, with management operated at the provincial level by specially established Administrative Bureaus. China has 84 such national-level sites, many of which are of a more cultural than natural nature.

The sites inspected were Wulingyuan, an area of forested sandstone pillars in Hunan Province; the Lunan Stone Forest in Yunan Province; the neighbouring Huanglong and Jiuzhaigou areas in the Min mountains of Sichuan Province (the former has travertine pools and the latter terraced lakes); and Hangguoshu in Guizhou Province, a karst landscape with waterfalls and caves.

Marine Protected Areas

A notable recent development in the Marine Protected Areas Programme has been recognition of CNPPA's work by the World Bank. In particular, the establishment of a globally representative system of marine protected areas could play an important role in guiding the Bank's marine activities under the Global Environment Facility. As a result CNPPA, the Great Barrier Reef Marine Park Authority (GBRMPA) and the World Bank are cooperating in a project that will help to define global priorities for the conservation of marine biodiversity. An additional outcome of the project will be the development of a map and database covering the world's protected areas which will build on data already available at the WCMC Protected Areas Data Unit (PADU).

CNPPA is also cooperating with the IUCN marine programme and the GBRMPA to produce

Jim Thorsell and Bing Lucas in China on a field visit to evaluate a potential World Heritage site. Photo: IUCN.

two sets of guidelines to supplement the "Guidelines for Establishing Marine Protected Areas" which were distributed at the IV World Congress. The two additional guidelines will cover both the application of science to the management of MPAs and the effective management of MPAs.

News from the Mountain Protected Areas Programme

Duncan Poore has been asked to draft a proposal for a modest IUCN Mountain Protected Areas Programme involving CNPPA and the Commission on Ecology (COE), plus individuals from other Commissions with special mountain interests. It is envisaged that the most important function of the programme will be to complement and supplement existing international activities in sustainable mountain management currently being carried out by organizations such as: International Mountain Society (IMS), United Nations University (UNU), University of Bern, East West Center (EWC), International Centre for Integrated Mountain Development, International Centre for Alpine Environments, University of California at Davis, Russian Academy of Sciences (section MAB6) and others. In particular, the programme will bring the protected area dimension, biodiversity and the global climate change interest of CNPPA and COE into these fora.

Caribbean Vice-chair Change

After a successful period in the Caribbean, Allen Putney has left the region to become Director of Conservation Programmes at IUCN-US. His successor is Dr Sixto Inchaustegui of the Dominican Republic. Dr Inchaustegui is a distinguished scientist and experienced conservationist. As President of Jaragua Inc., an NGO, he has been particularly active in promoting the creation and management of Jaragua National Park in the southwest of the Dominican Republic. He was recommended to fill the position of Vice-chair by members of the CNPPA Caribbean Steering Committee.

PADU NEWS

Jeremy Harrison
Head of the Protected Areas Data Unit, WCMC

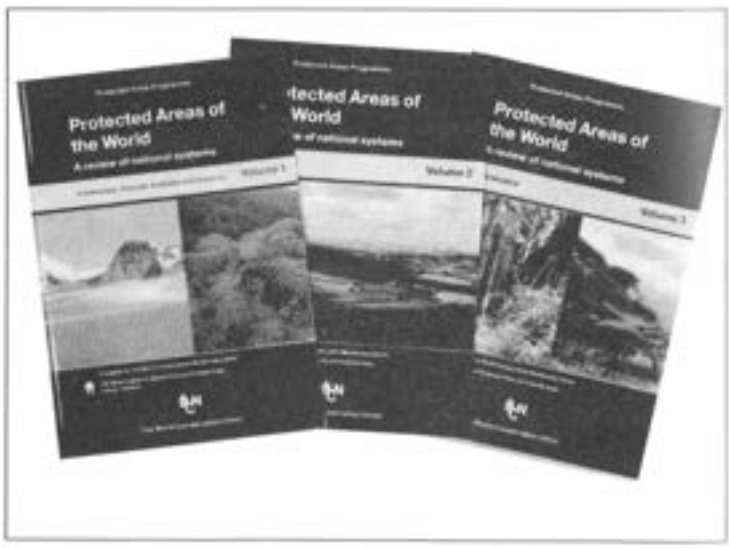
While information exchange and management is not as exciting a topic as many of those discussed at the Caracas Congress, it is none the less a vital component of effective conservation action (indeed, the whole congress was a means of facilitating information exchange). Certain activities at the congress were specifically geared towards more formal information exchange and management activities, and the following paragraphs briefly discuss these activities.

WCMC Activity

Part of WCMC's role is to manage information on protected areas, and the Congress therefore provided WCMC an excellent forum to make contacts, to renew acquaintances and to review available information. Five WCMC staff working on protected areas attended the Congress, and they were able to spend a significant amount of time discussing provision of information with protected areas professionals from all over the world. WCMC staff also attended the CNPPA regional meetings, and are now working with CNPPA to develop better means for integrating WCMC work on information collection and management as part of the cycle of regional meetings which are currently being organized by CNPPA.

During the two years prior to the Congress, WCMC had been compiling revised country protected areas accounts, and these were published for the congress in the four volume *Protected Areas of the World*. Copies of this work were circulated to participants to provide background information relevant to Plenary Session 3. Other WCMC outputs were also distributed to a range of participants for use in several of the workshop sessions. The fourth volume of *Protected Areas of the World* (dealing with the Americas) was taken to the Congress as a draft manuscript, and the Congress provided an excellent opportunity for review of the material prepared (which will be published later this year).

In addition to discussing current information management, the Congress provided a valuable forum at which to discuss future WCMC activities. Over the ten years since Bali, WCMC has built a solid information base, and the publication *Protected Areas of the World* is evidence of this. This base is now being used to develop other



The IV World Congress on National Parks and Protected Areas provided the platform for the launch of a new world directory of protected areas compiled by PADU and sponsored by British Petroleum.

activities further, and discussions in Caracas particularly covered protected areas system budgets, threats to protected areas and tourism, as well as World Heritage site monitoring, and biosphere reserves.

Categorization of Protected Areas

For years protected areas have been classified according to their objectives of management. However, the actual efficacy of a protected area depends not only on its objectives of management, but also on the effectiveness of implementation of those objectives, and the degree to which the site is threatened by external factors. As appropriate techniques of assessing the effectiveness and threats at the international level had never been specified, and in order to provide a focus for ongoing discussion on management categories, a workshop on these issues was held at the Congress (*Workshop IV.1*).

In order to give focus to workshop discussions, a paper was drafted in advance recommending a methodology for categorizing and recording information on management category, effectiveness and threat. Workshop participants discussed the issues raised, and made a series of recommendations to CNPPA on how the process might be refined further, including recommendations on definitions, roles, process, and applications. Further elaboration of these systems is now in the hands of IUCN and the Commission.

Workshops on data management

During the Congress there were two formal workshops on data management, one dealing with data management at the regional level for planners (*Workshop III.11*), and one at the site level for managers (*Workshop IV.12*). In both workshops there was extensive group discussion, following the presentation of a series of overview papers and case studies, and a range of conclusions and recommendations were drafted.

In the workshop dealing with data management at the regional level, a number of key points were identified and discussed, and then conclusions and recommendations were drafted which concentrated on the actions that needed to be carried out at different levels. This covered the roles of (i) protected area and protected area system managers; (ii) other resource use and planning sectors; (iii) national information managers; and (iv) international organizations.

In the workshop on data management for managers, this discussion was continued, and conclusions drafted which related information management more closely to the needs of individual park managers. Running through both workshops were themes such as the use of appropriate solutions, the importance of networking and standardization (of data handling, not of hardware and software), the importance of support and training, and the relationship between data managers and those ultimately using the information.

To a large extent the follow-up of this workshop will depend on those international organizations involved in information management. Various publications have been discussed including guidelines for development of protected areas information systems and case studies of applications, and regional workshops have been recommended. These options are being discussed by the workshop organizers.

Demonstrations and Exhibits

The Congress exhibition area provided the opportunity for a range of organizations to demonstrate ongoing activities, including a number of information management tools. WCMC itself collaborated with ESRI (who market the GIS ARC/INFO package) to provide demonstrations of computer mapping. An ESRI staff member was available to give demonstrations of ARC/INFO, and ran a short informal workshop on GIS. Congress participants were also able to learn about information management activities in Venezuela, and to visit the facilities of both INPARQUES and BIOMA.

Reviews of important new books

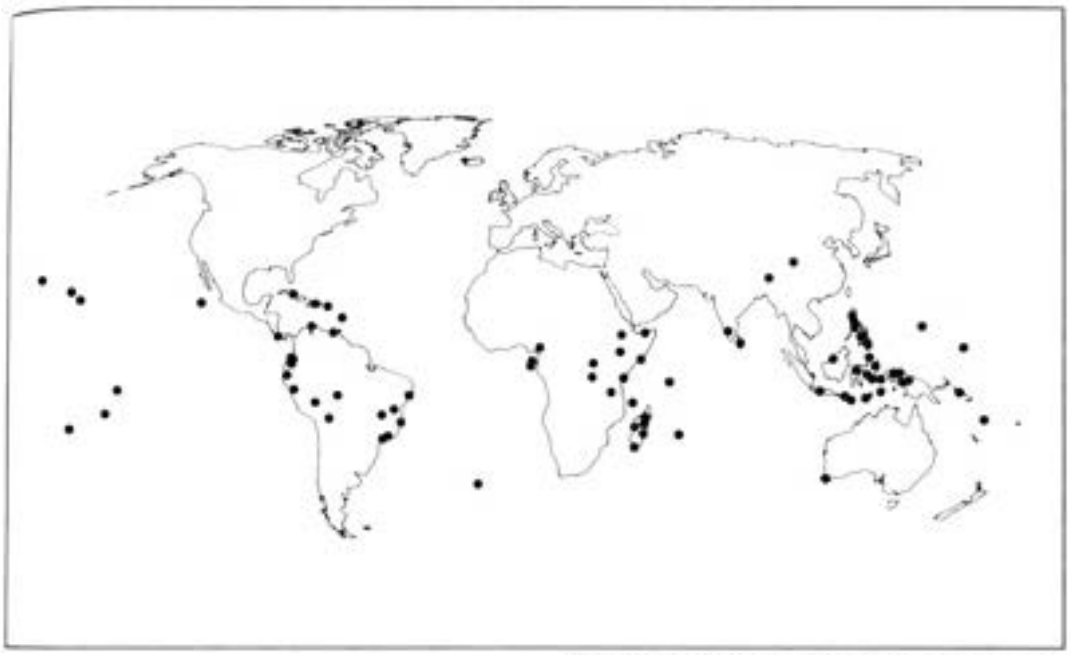
Putting biodiversity on the map: priority areas for global conservation. *Bibby, C.J., Collar, N.J., Crosby, M.J., Heath, M.F., Imboden, Ch., Johnson, T.H., Long, A.J., Stattersfield, A.J. and Thirgood, S.J. (1992). 90 pp. International Council for Bird Preservation, 32 Cambridge Road, Cambridge, CB3 0PJ, UK. £12.50.*

Until 1992, the term "biodiversity" was probably the exclusive preserve of the professional conservation community. Its precise meaning and importance may have been debated in the past, but it now stands fully centre stage, brought into the public gaze after the recent UN Conference on Environment and Development, and the signing of the Biodiversity Conservation. However, it may be years before sufficient governments actually ratify the Convention, and thus bring it to life. One powerful lever that will persuade politicians to ratify the Convention will be the recent report of the ICBP Biodiversity Project, *Putting Biodiversity on the Map: priority areas for global conservation.*

ICBP have marshalled an extensive and scientifically sound database that can be employed to make efficient and reliable conservation planning decisions, just when *in situ* conservation has to compete with ever greater competition from growing human needs. Using the distribution of birds, ICBP have endeavoured to identify those areas that carry the richest biodiversity and are critically important for conservation. Perhaps the most startling statistic to emerge from this study is the fact that no less than 20% of the world's avifauna occurs on just 2% of the earth's land area, indicating precarious vulnerability, and a remarkable challenge for conservation planning.

ICBP have gathered more than 50,000 locality records of those 2,609 species with breeding ranges less than 50,000 km^2, representing no less than 77% of all threatened birds. Using a computerized Geographic Information System these records were mapped and some 221 Endemic Bird Areas (EBA) emerged, each containing at least two species and often in the form of islands or isolated habitat patches. The EBAs, which tend to be found in the tropics, are portrayed in a series of global and regional maps and these provide a unique guide to the options and targets for the conservation of a significant proportion of the world's avifauna.

ICBP's choice of birds as the focus of the study is not simply professional narrow-mindedness: sound reasoning supports the choice. First, birds have been exceptionally well-studied over a long period of time, their taxonomy is relatively stable and they are generally highly visible in the field. Second, data from birds provides a guide to many areas that are also important for other plants and animals and a significant part of the report is devoted to reviewing the evidence for the degree of endemic congruence between birds, other vertebrates, invertebrates and plants. In other words, it appears that those areas that are important for birds may well be similarly valuable for other taxa, although, as the authors concede, aquatic and marine habitats such as coral reefs would be omitted if sole reliance were placed on bird data. The Strategy is therefore potentially of great importance in planning the conservation of a very wide range of terrestrial plants and animals.



Endemic Bird Areas of critical importance for bird conservation.

Having identified the EBAs, ICBP ranked them according to biological importance, immediacy of threat and degree of protection. Although the degree of protection is only one factor, it is not dealt with in any great depth in the Strategy.

The inclusion in the analysis of sites in IUCN Protected Area Management Category VIII (Multiple Use Area) is curious, as these place sustainable resource exploitation at least equal with nature conservation priorities. Moreover, Categories IX (MAB Reserves) and X (World Heritage properties) very often overlap with sites also classified under Categories I–V. Using Categories I–V, with a minimum size of 1,000 ha, would have brought the analysis more broadly in line with the *United Nations List of National Parks and Protected Areas*, a widely accepted global standard.

The next logical step is to identify practical actions that can be taken to safeguard the EBAs. Two example, from Vietnam and Mexico, are given which demonstrate how data from the Biodiversity Strategy can be used to help evaluate the degree of threat posed to restricted-range animals and plants, and how protected areas networks can be planned.

ICBP are to be commended for striking a fine balance between producing a work of robust scientific credibility that is also accessible to a lay audience. Amply illustrated and plainly written, the Strategy will satisfy both critical professional conservationists, and appeal to a lay audience of politicians and civil servants, development and donor agencies, and the general public at large. Perhaps the most important outcome from this publication will be persuading the latter groups of the great importance of biodiversity and the urgent need to safeguard it.

James R. Paine
World Conservation Monitoring Centre.

RECENT PUBLICATIONS

Notices of protected area publications recently received

¿Espacios sin habitantes? Parques nacionales de América del Sur. *Stephan & Thora Amend (Editors). IUCN, Gland, Switzerland. Editorial Nueva Sociedad, Caracas, Venezuela. 1992. 497pp.*
The book documents the current state of national parks in South America, noting both their successes, and difficulties in their management. The orientation of the discussion is particularly toward the relationship between man and nature, in particular the relationship established between national parks and local populations. The authors of the different chapters and sections have considerable experience in the field of conservation, and hold positions of responsibility in both governmental and non-governmental organizations.

Protected Landscapes: A guide for policy-makers and planners. *P.H.C. Lucas. ISBN 0-412-45530-7. Chapman and Hall, London. 1992. 282pp. £29.95.*
The guide explains the role played by one category of protected area, the Protected Landscapes, and identifies the ways in which this category has been implemented in a range of locations around the world. The book is practical in orientation, and serves as a guide for those making decisions on land use planning. The book also includes a listing of the addresses of protected areas management agencies around the world. Also available through IUCN publications, with usual discount, for IUCN members.

Global Biodiversity: Status of the Earth's Living Resources. *Compiled by the World Conservation Monitoring Centre. Ed. B. Groombridge. Chapman and Hall, London. 1992. 594pp. £29.95.*
Also available through IUCN publications, with usual discount, for IUCN members. *Global Biodiversity* provides the first systematic report on the status, distribution, management and utilization of the planet's biological wealth. The report is divided into three sections. Part 1 documents diversity at the genetic, species and ecosystem levels, including microorganisms, species extinctions and rates of habitat loss. Part 2 covers the benefits and values of biodiversity, focusing on wildlife utilization domestication and the economic valuation of biodiversity. Part 3 reviews the conservation and management of biodiversity at national and international levels, covering *in situ* and *ex situ* management, international conventions, and institutional and financial support.

Guide sur les parcs nationaux d'Afrique du nord et du l'ouest. *Bernard Bousquet. Delachaux et Niestlé, Lausanne. 1992. 368pp. Ffr 178,00.*
This illustrated practical guide fills a gap in the market by providing information on protected areas in francophone Africa, drawing upon the author's 20 years experience of the region. Following a general introduction on the history of conservation in Africa and general management objectives concerning national parks, the book provides details on 44 parks in 12 countries in north and west Africa. The final section deals with the large mammals of the region and their distribution by country.

Long-Term Monitoring of Biological Diversity in Tropical Forest Areas: Methods for establishment and inventory of permanent plots. *Francisco Dallmeier (Ed.) MAB Digest 11, UNESCO, Paris. 1992. 72pp.*
This digest describes methods used by the Smithsonian Institution/MAB Biological Diversity Programme for establishing and maintaining permanent inventory plots in tropical forests. The detailed description of procedures is followed by a case study from the Luquillo Biosphere Reserve, where comparative information is available for a permanent plot established before Hurricane Hugo affected vegetation within the plot.

L'Uomo e il Parco. *Cavallara, Carmelo (ed.) 1991. Universita degli Studi di Messina. 482 pp.*
This book contains papers in English and Italian from the International Conference on Protected Areas: "Man and Parks", which took place in September 1991. The management of national parks and protected areas, principally in Europe, is addressed, with particular reference to the relationship between human activity and protected areas. The opening paper

comprises a review of global issues by Jeff McNeely, and subsequent case studies range from Gomera in the Canary Islands to metropolitan Barcelona; from Britain to Estonia. The participants also drew up a motion to encourage the formal establishment of a National Park at Nebrodi in Sicily. There is a useful list of the Conference participants with their contact addresses at the back.

Science and the Management of protected areas. *Proceedings of an International Conference, Acadia University, Wolfville, Nova Scotia, Canada, 14-19 May 1991. Eds. Willison, J.H.M., Bondrup-Nielson, S., Drysdale, C., Herman, T.B., Munro, N.W.P., Pollock, T.L. Developments in Landscape Management and Urban Planning 7. Elsevier, Amsterdam, Netherlands. 1992. 548pp. Dfl. 345/US$ 197 (USA and Canada).*

Strategies to combat the accelerating decline in global biodiversity are put forward. The publishers claim this to be the first book to bring together the perspectives of both environmental scientists and the administrative managers of protected areas, and as such, hope the book will be useful to both the scientific community and land managers. Following an introduction on holistic perspectives, chapters cover: management strategies in terrestrial and marine environments; land-use planning and the selection and design of reserves; putting protected area policy into action and the role of partnerships; management of fauna and flora; protected areas and global change research, water chemistry, and data management; managing tourism and other human impacts in protected areas.

Regreening the national parks. *M. Frome, University of Arizona Press, Tucson. ISBN 0 8165 0956 5. 1992. 289pp. US$39.95.*

This book examines the state of the national parks system in the USA, and offers a strong critique of the forces that drive policy and the national parks service priorities.

People and Parks Linking Protected Area Management with Local Communities. *M. Wells and K. Brandon with L. Hannah. Produced by The World Bank, WWF, USAID. ISBN 0-8213-2053-X. 1992. 99pp.*

This study looks at new approaches to protected area management that are attempting to address the needs of nearby communities by emphasizing local participation and by combining conservation with development. The term "integrated conservation-development projects" (ICDP) is introduced to refer to projects that use these approaches. This report, based on 19 case studies, identifies the lessons of the first few years of ICDP implementation, and the implications for future conservation policies, programs, and projects. Case study selection was limited to projects with social or economic development components linked to protected areas that had been implemented for at least three years as of late 1989.

El Régimen de Areas Protegidas en Venezuela. *Ricardo Gondelles A. Fundación Banco Consolidado, Caracas, 1992. 68pp.*

A very clear, concise account of the most extensive protected area system in Latin America. Though there are already several books on Venezuela's national parks, there was a need for a more practical appraisal: this book gives a good account of the philosophy and purpose of the system, together with the legislation and administrative forces behind it. Also mentioned are the four new national parks and the country's first two biosphere reserves, declared in 1991. It is refreshing to read appropriate criticism of the actual functioning of management strategies and of the protected areas themselves.

Mise en Valeur de l'Ecosystème Guyanais. Operation ECEREX. *J.M.Sarrailh, Institut National de la Recherche Agronomique/Centre Technique Forestier Tropicale, 1990. 273 pp. ISBN 2-7380-0191-2 (INRA); ISBN 2-85411-014-5 (CTFT) Ff 232.23.*

This book, aimed at researchers, agronomists and foresters, details the activities of ECEREX (ECology, ERosion, EXperimentation), a vast operation closely linked to the management of the tropical forests of French Guiana. ECEREX concerns both commercial exploitation of the forests as well as mechanisms introduced to counteract the ecological damage caused by such exploitation. Sections in the book cover: geology; hydrology and erosion; botany; forest regeneration and soil micro fauna and flora.

Please send reports or books for review to:
Jeremy Harrison, Protected Areas Data Unit, WCMC, 219 Huntingdon Road, Cambridge CB3 0DL, UK.

CLIPBOARD

Roundup of world news compiled by PADU

International

World Heritage at 20

It is 20 years since the adoption of the World Heritage Convention. The occasion was marked during the World Heritage Bureau meeting in Paris in June, by a gala concert and a range of exhibitions, and the committee meeting in Santa Fe in December promises to be a significant occasion. The agenda for that meeting includes both an evaluation of the first 20 years of the convention, and the development of a strategy for the future. Unesco has also recognized the increasing profile of the Convention with the creation of a World Heritage Centre, bringing together natural and cultural experience within one department under the leadership of Dr Bernd von Droste. The convention now totals 122 signatories with the recent addition of Solomon Islands, Cambodia, St Lucia, Ireland and San Marino.

New World Heritage Sites Inscribed

Last December, the World Heritage committee placed six new natural sites on the World Heritage List: Shark Bay (Australia); Aïr and Ténéré National Nature Reserve (Niger); Ujung Kulon National Park (Indonesia); Komodo National Park (Indonesia); Thungyai-Huai Kha Khaeng (Thailand) and the Danube Delta (Romania). At the same time, the committee gave the following sites the status of "World Heritage in Danger": Srebarna Nature Reserve (Bulgaria); Mount Nimba (Guinea/Côte d'Ivoire); Rio Platano National Park (Honduras); Manas Wildlife Sanctuary (India); Amistad (Panama) and Plitvice National Park (Yugoslavia). *From:* IUCN, December 1991.

World Marine Protected Areas

An international project is currently working to bring together information on marine protected areas from around the world. The IUCN Commission on National Parks and Protected Areas is working in collaboration with the Great Barrier Reef Marine Park Authority, the World Conservation Monitoring Centre and the World Bank, to identify what is currently being done in the marine/coastal sector, and what needs to be done. This information will be used, amongst other things, to help identify funding priorities for the GEF. *From: Marine Conservation 2*, Summer 1992 and other sources.

International Awards

During the World Parks Congress in Caracas, a number of international awards were made. The following were presented with the Fred M. Packard International Parks Merit Award: Abdulaziz H. Abuzinada (Saudi Arabia), Carlos Castaño Uribe (Colombia), Madeleine de Grandmaison (Martinique), Almirante Ibsen de Gusmao Camara (Brazil), Jorge Ignacio Hernandez Camacho (Colombia), Tom van't Hof (Netherlands Antilles), Aila Keto (Australia), Vladimir Krinitsky (former USSR), Hugh Lamprey (United Kingdom), Joseph Mburugu (Kenya), Alex Rudolpho Mendez del Cid (Guatemala), Don Carlos Mendez Montenegro (Guatemala), P. Srinivas (India), and Vladislav Vassiliev (Turkmenia). *From: IUCN Bulletin 23*, June 1992.

Palearctic – Europe

Review of Conservation Sites in Eastern Europe

In June work got underway to extend the European Community CORINE biotopes (habitat) project into Bulgaria, Czechoslovakia, Hungary, Poland and Romania. Experts from all five countries met to review and discuss the standard techniques used in the project to date. The CORINE biotopes project is a systems planning initiative for identifying areas of importance for nature conservation at a regional level, using a standardized approach which reviews distribution of key species and habitats. This initiative is the first attempt to comprehensively identify at a regional level the most important areas for nature conservation in Eastern Europe.

Land Redistribution and Nature Conservation in Eastern Europe

A project, commissioned by the IUCN East European Programme, is reviewing the effect of privatization and land redistribution on nature conservation in six countries of Central Europe, and Russia, Ukraine and Belarus. Individual country reports are being produced, which deal with land ownership during previous regimes, current or pending land redistribution legislation, assessment of implementation of new laws, review of the main issues in relation to conservation, and case studies. *From:* IUCN, July 1992.

Losinskii Ostrov National Park

Food shortages in Moscow are threatening the forests of the Losinskii Ostrov National Park on the edge of the city. According to the park's director, hungry Muscovites are cutting down the trees and planting illegal patches of potatoes in the park. *From: New Scientist*, April 1992.

Samarskaja Luka National Park

A recent report highlights a wide range of threats being faced by this Russian national park. High air pollution is causing widespread damage to the forests over large areas, which are already suffering from the effects of over exploitation by clear felling. Several large mines are exploiting mineral resources inside the park, and oil pipelines which run through the park are leaking and polluting both the park and the groundwater (there is oil exploitation on an area of 17,000 ha within the park).

This situation probably obtains within a range of Russian protected areas, and IUCN was involved in a series of meetings in Moscow in July, to agree a programme of urgent action to be taken for the conservation of the biodiversity of Russia. *From:* WWF Germany, IUCN East European Programme and Y.K. Roshchevsky (Park Director, Samarskaja National Park), March-July 1992.

War in Croatia

The war in Croatia, apart from causing well-publicized human misery, has taken serious toll of wildlife and devastated the country's protected areas. This includes heavy battle damage in virtually all of the 19 important bird areas and bombing in Paklenica National Park. The Trsteno Arboretum established in 1492 near Dubrovnik has been completely burnt out, and trout in the Plitvice Lakes National Park have been killed by dynamite. *From:* M. Mrakovcic and J. Muzinic (Bird Protection, Watching and Study Society of Croatia), 1991.

Plea for the Burren

Conservationists are urging the European Commission to withhold funding for a visitors' centre in The Burren in Ireland. The Burren, which will be designated as a national park in 1993, is Europe's largest area of limestone pavement and botanically of international significance. The Irish Government is planning to build a visitors centre at Mullaghmore, which would involve road widening and a sewage treatment plant. The World Wide Fund for Nature already held up the scheme by persuading the Commission to insist that the government carry out an environmental impact assessment of the visitor centre, before funds were released. WWF then commissioned a review of the assessment, which concludes that it is "woefully inadequate". The Office of Public Works not only commissioned the assessment and chose the study group, but will also be making the final decision. *From: New Scientist*, March 1992; P.Wall, February 1992.

Palearctic - Middle East

Jabel Bura Proposed Reserve, Yemen

The proposed reserve would protect what is probably the last remaining closed riparian forest on the Arabian Peninsula. It has a rich flora and fauna including reptiles such as monitor *Varanus exanthmaticus*. Recent surveys have revealed continuing forest loss with 8% of the forest disappearing between 1973 and 1988 and another 3% lost between 1988 and 1991. During this period over 50% of the forest showed a decline in crown density. Principal threats are fuel wood removal, grazing and clearance for cultivation. *From:* M. Herzog, March 1992.

Sub-Saharan Africa

Air and Ténéré National Nature Reserve, Niger

This region has been drawn into the conflict between a Tuareg rebel alliance and the central governments of Niger and Mali. All equipment at the Iferouane Headquarters was looted, and in February the Director of the project and five staff were taken hostage. They have yet to be released. There is now a major presence in the area by the Niger army, and concern has been expressed over this as soldiers have previously been known to be avid hunters of the reserve's wildlife. The IUCN/WWF project in the area has been suspended. *From:* IUCN, 1992.

Bijilo Forest Park, Gambia

The opening of Bijilo Forest Park to the public in 1991 doubled the number of protected areas within the Gambia to which the public were admitted. The Abuko Nature Reserve, which has had public access for years, is well visited. Although very small (51 ha), the Bijilo Forest Park contains a wide range of local fauna and flora. The park was first gazetted in 1952, which theoretically provided for protection from outside encroachment, but problems have continued over the years, with timber removal and harassment of the wildlife. With support from the German Government's technical cooperation agency, the park has now been fenced and paths built, and since it is only 11 km from Banjul it is likely to become a popular attraction *From: Oryx 26*, April 1992.

New Reserves for Zaïre

In May 1992, two new protected areas were gazetted in Zaïre, the Okapi Faunal Reserve (1,400,000 ha) and a park officially referred to both as Mangrove Nature Reserve and Marine Park (100,000 ha). *From: Mankoto ma Mbaelele*, May 1992.

Drought in Gonarezhou

Severe drought is threatening animal populations in Gonarezhou National Park in south-eastern Zimbabwe. Hippos and other large mammals are reported to be starving to death during what has been described as the worst drought in Zimbabwe in living memory. The expected rainfall during the wet season of some 540 mm has been reduced to around 50 mm this year, and little more is expected. Gonarezhou's hippo population of 200 is seriously at risk and to date some 13 carcasses have been found. In order to mitigate the expected pressures on already overgrazed grasslands, the Department of National Parks and Wild Life are culling certain grazing species. During the 1983 drought some 80% of the game animals in the region died, despite the maintenance of some surface water, and the present situation is thought to be worse. Meat from culled animals is provided to local communities. *From: New Scientist*, 18 April 1992; *Guardian*, 6 June 1992.

Peace in Angola

Following a request from the Government of Angola, the IUCN Regional Office for Southern Africa has engaged a team to design an emergency programme for the demobilization and retraining of around 1000 soldiers for national parks/reserves management. The project is

supported by the German Agency for Technical Cooperation (GTZ). *From: IUCN Bulletin 23*, June 1992.

Indo-Malaya

Army Land for Nature Reserve in India

Plans to develop a nature reserve of almost 7,000 ha on land belonging to the army were unveiled in June, at the first ever workshop on environment and nature conservation held by defence officers. The workshop, "Environment and Conservation", was held at the National Defence Academy. The new nature reserve comes complete with existing infrastructure facilities such as roads, rail lines and watch towers. Other plans being drawn up by the army include the greening of the Rann of Kutch and afforestation on the slopes of the hills around Deolali in Nashik. *From: Pune Herald*, 19 June 1992; *Indian Express*, 21 June 1992.

Tigers in Trouble

A recent survey of the Ranthambore Tiger Reserve in Rajasthan, India, has revealed only 15 tigers compared to some 44 individuals three years ago. Park management attribute the decline to poaching which has increased dramatically in India in recent years. It is suggested that the poaching supplies the trade in bones for which there is a large demand in China, Taiwan and South Korea for grinding up to make wine for which there is a high demand as a tonic. *From: New Scientist*, 11 July 1992.

Indian Ocean Sanctuary

At its Annual Meeting in June/July, the International Whaling Commission agreed by consensus to maintain the Indian Ocean Sanctuary for ten more years. *From:* International Whaling Commission, 6 July 1992.

Sumatran Rhinos Found

A recent report from Sumatra's Berbak Wildlife Reserve has indicated the presence of the Sumatran rhinoceros. A field survey during October 1991 by the Asian Wetland Bureau and the Directorate General for Forest Protection and Nature Conservation found positive evidence including footprints, dung, and evidence of feeding. The size of the footprints indicates the presence of the Sumatran species rather than the smaller Javan rhinoceros, whose presence has been suggested in the past. The reserve, which comprises some 175,000 ha of freshwater swamp and peat swamp forest, protects a number of other threatened species including tiger, tapir, mouse deer, milky stork and white-winged wood duck. The site has been threatened in the past by agricultural activities (including land drainage) and during 1982 some 8% was lost as a result of a man-induced fire. Current threats include proposals to develop port facilities on the adjacent coast, proposed infrastructure for which will include a road which will bisect the forest (providing opportunity for increased illegal access and use). *From:* Asian Wetland Bureau.

Visitors Have a Sleepless Time

The Thai government has closed all overnight accommodation in Khao Yai National Park, in anticipation that this will benefit conservation by reducing disturbance to wildlife. The closure of Khao Yai, Thailand's only National Park with high quality tourist accommodation, leaves visitors with no opportunity to stay in close proximity to the park. Tourists are now expected to stay in large private sector resorts outside the park. However, it seems likely that the closure will not result in a decrease in disturbance. The lack of management control over poaching and visitor behaviour as well as a lack of planning control over use and development within the park itself, are thought to be potentially far more damaging than a controlled tourism programme. *From: Oriental Bird Club Bulletin*, May 1992.

Nearctic

ZERO Database

The Danish Polar Centre is spearheading a new long-term research initiative, known as ZERO, in Northeast Greenland Biosphere Reserve, with a new permanent research station planned in the Young Sund region. The principal objective of the programme is to establish a database on conditions in an undisturbed high Arctic ecosystem, in what is the world's largest biosphere reserve. *From: InfoMAB* No.17, 1992.

Central America and the Caribbean

Macaya Biosphere Reserve

The recent declaration of Macaya National Park (Western Haiti) as a biosphere reserve by the Haitian Government in collaboration with the University of Florida may provide much needed assistance to biodiversity conservation in Haiti. The reserve lies within the Massif de la Hotte, which is of value for its montane cloud forest, the last in Haiti. Central to the rationale of the project is the integration of the local people with land use planning and park management, an imperative in one of the poorest and most environmentally degraded countries in the world. Activities have included the erection of stone anti-flood dams in steep ravines and a new experimental programme to recreate native plant communities in badly degraded areas. So far, the project has met with considerable success, despite the uncertain nature of the funding and continuing political and economic confusion. If, as the project management team suggest, the reserve can succeed it is likely to serve as a model for similar schemes in Haiti and elsewhere. *From:* Paul Paryski, University of Florida, March 1992.

South America

Mining Threat to Park

Podocarpus National Park in Ecuador is under threat from a Norwegian mining company, Ecuanor, which first gained a concession to explore the park in 1986.

Exploratory works have already caused damage, but the company now plans to start open-cast mining, causing destruction, disturbance and very serious pollution. An ICBP/University of Copenhagen team recorded 540 bird species in the park, making it one of the richest areas for birds in the world. Twelve threatened bird species are known to occur, and it is probably the only protected area large enough to hold a viable population of the woolly tapir. Half the bird species occur in the eastern half of the park, including the area to be mined. *From: World Birdwatch 14.*

Changes in the Protected Areas System in Venezuela

The long-standing Venezuelan protected areas system is in the process of transformation. The current system (Areas Bajo Régimen de Administración Especial), was legally sanctioned in 1983 with the passing of the Organic Law for Territorial Planning, but has been in use tacitly since the declaration of the country's first national park in 1937. Difficulties in the application of the system and reinforcement of its different categories of site, stemming from the existence of a very large number of management categories without either the necessary legislation or the administrative infrastructure, have brought about the change. The new National System of Protected Natural Areas (Sistema Nacional de Areas Naturales Protegidas) reorganizes protected areas into five principal groups, within each of which each exist a limited number of management categories (19 in total). There will be more reluctance to designate protected areas which cannot be managed and maintained in practice. On the basis of experiences in neighbouring countries, the possibility of delegating the administration of certain natural areas (such as those concerned with ecological preservation or preservation of flora and fauna) to NGOs will be studied. Adoption of the system is to be a gradual one with improvements expected to be seen over the coming years. *From:* Gondelles A., R. (1992). *El Régimen de Areas Protegidas en Venezuela.* Fundación Banco Consolidado, Caracas.

Oceania

Protected Areas Systems Review for Solomon Islands

An ecological survey of the Solomon Islands for representative conservation areas, funded by the Australian National Parks and Wildlife Service, was completed in February 1991 with the production, by the Maruia Society of a report entitled *A Protected Forests System for the Solomon Islands.* According to the report, the current protected area system in the islands is so weak that none of the existing conservation areas can be considered to be effective. Proposals are given in the report for the establishment of a number of "protected forest areas". Additionally, two areas in the Solomons, the Marovo Lagoon and Rennell Island, are currently being considered for World Heritage status. The proposals have been given initial support by the Solomon Islands Government. The island of Rennell is the largest and highest uplifted coral atoll in the world with Lake Te'Nggano, the South Pacific's largest expanse of fresh water, at its southeastern end. The Marovo Lagoon is regarded as the best defined double barrier reef in the world and is certainly one of the world's largest island-enclosed lagoons. *From: A Protected Forests System for the Solomon Islands,* Maruia Society, 1991.

Hurricane damage

Recent research on the impact of Hurricane Val on tropical forest ecosystems has been carried out within the area proposed as American Samoa's first National Park. The work, undertaken by researchers from the East West Centre, focused on the damage caused to flora and fauna. They noted that the most severe immediate impact was defoliation of almost 70% of the forest within the park area on the island of Tutuila. Despite this damage, the forest itself is expected to recover rapidly, although the same cannot be said for some animal species. One species of flying fox, which feeds principally on new flowers and fruits, is expected to be particularly badly affected, as a result of destruction of its main food source. Human use of its secondary food, coconuts, renders it particularly susceptible to predation or hunting. Bird life, especially pigeons and doves, had also become more susceptible to hunting following the hurricane, as a result of movement of the birds closer to villages in search of food. *From:* Charles Johnstone, East-West Centre, Hawaii.

Antarctica

CNPPA workshops

IUCN and SCAR (the Scientific Committee on Antarctic Research) have collaborated to hold two workshops on protected areas in region. The first workshop covered the sub-antarctic islands, and was held in Paimpont, France, in April, and the second covered the Antarctic Treaty area, and was held in Cambridge in June. On each occasion the current protected areas situation in the region was reviewed, along with likely developments over the next few years discussed, and major issues discussed. Reports and recommendations of both meetings are being drafted by the conveners, and will be available later this year. *From:* IUCN.

Sanctuary deferred

A proposal from France, which formed one of the main items on the agenda of the International Whaling Commission's meeting in June and July in Glasgow, for the establishment of a whale sanctuary in the Southern Hemisphere, has been deferred to next year. The boundary of everything south of 40°S, would effectively protect all the remaining great whales around Antarctica. *From:* International Whaling Commission, 6 July 1992.

Compiled by the WCMC Protected Areas Data Unit. Items for inclusion for newsletters and reports from which such items can be extracted) should be sent to: Protected Areas Data Unit, World Conservation Monitoring Centre, 219c Huntingdon Road, Cambridge CB3 0DL, United Kingdom.

Land use in New Sanctuaries

Dear Sir,

I was interested to read the letter by Henry Fosbrooke about the need to take the wishes of the local population into account before making any radical changes of land use in areas where new sanctuaries are contemplated.

I have been corresponding with conservators of Forests in India concerned with the promotion and management of sanctuaries, and I am glad to report that this aspect is well taken care of. A recent letter from the Deputy Conservator of Forests, Silvassa Union territory of Dadra and Nagar Haveli gives interesting information: "It was clarified by the Member Secretary of the State Wildlife Board that declaration of sanctuary does not mean that the people and the villagers will not be allowed to enter into the area. However, this would certainly entail curtailment in their rights as far as core area is concerned as punishment for violation of rules under the Wildlife Protection Act. The Hon. Member of Parliament and Shri Devjibhai R. Gond. Member believed that before issuing notification for the Sanctuary, it would be desirable if peoples' opinions were also sought, so that their genuine requirements from the forests are not affected and at the same time wildlife, including flora and fauna is also protected and preserved in the territory. It was suggested by the Hon. Chief Secretary and the Chairman, that the Collector, Dadra & Nagar Haveli and Deputy Conservator of Forests, Dadra & Nagar Haveli, in consultation with the Hon. Member of Parliament and other public representative of the respective area should hold three meetings at Dajpada. Luhari and Bonta, respectively to seek public opinion, listen to their problems and clarify the doubts of the people affected by such a move. This should be done and finalized before the next meeting.

Measure for protection of wildlife in the Union Territory:

"The Member Secretary informed the members that due to prevalent practices among the tribals, the population of herbivores has gone down considerably over a passage of time. This has resulted in elimination of the prey-base of the carnivore population. As a result, the carnivores, especially panthers and hyenas, attack domestic cattle, which results in conflict between human beings and wildlife. To arrest this trend, the department has planned to procure herbivores like sambhar, chittals, nilgai, etc. from outside and to release them in close enclosures near Dapada. After these animals have acclimatised themselves, they could be released into the forest to augment the extinct herbivores population. The members welcomed the suggestions/proposal of the department. As far as avifauna is concerned, it was informed by the Member Secretary that the tribal boys have a peculiar habit of killing the birds by "guld". To prevent this, a massive awareness campaign/drive is required. All the members unanimously agreed to the suggestion of the Chairman and the Member Secretary to educate the youngsters to refrain from such practices instead they should be motivated, as anywhere else, to give a boost to the cause of protection of animals and the bird population in the territory. Honorary Wildlife Wardens, who are also the members of the Wildlife Advisory Board, were requested to initiate a campaign in this regard in their areas."

Zafar Futehally, President, Palni Hill Conservation Council, Post Box No. 34, Kodaikanal-624101, India

DIARY

1992

12–19 November Waterfowl and Wetland Conservation in the 1990s – a global perspective. Petersburg, Florida, USA. Contact: IWRB, XXXV Executive Board Meeting, Slimbridge, Gloucester GL2 7BX, UK.

6-14 December 20th Anniversary of the World Heritage Convention and meeting of the Committee. Santa Fe, New Mexico, USA.

1993

3 February Creating Reedbeds of Value to Wildlife. Conference at the University of Bristol. *Contact: A Feest, Staff Tutor in Environmental and Health Studies, Dept for Continuing Education, University of Bristol, Wills Memorial Building, Queen's Road, Bristol BS8 1HR.*

8–23 February 17th International Grassland Congress. Palmerston, New Zealand. *Contact: Executive Secretary, XVII Grassland Congress Organizing Committee, Agronomy Dept, Massey University, Palmerston North, New Zealand.*

4–14 March Planning for Sustainable Use of Africa Mountain Resources, Mount Kenya, Kenya. *Contact: Prof. F.F. Ojany, Department of Geography, University of Nairobi, Kenya.*

22-26 March International Symposium on the Ecological Basis for River Management. University of Leicester. National Rivers Authority and the Ecology Unit of University of Leicester. *Contact: Dr D Harper, Ecology Unit, Dept. of Zoology, University of Leicester, Leicester LE1 7RH.*

7-9 June European Congress of the International Association for Landscape Ecology,: Agricultural Landscapes in Europe. Rennes, Brittany, France. *Contact: Sandrine Petit, Laboratoire d'evolution des Systems Naturels et Modifies, Campus de Beaulieu, Avenue du General Leclerc, 35042 Rennes cedex, France.*

24-27 August Environment Northern Seas (ENS). Stavanger, Norway. *Contact Dr Jostein Mykletun, Tel: + 47 4 558100, Fax: +47 4 551015.*

28 August–3 September 15th International Botanical Congress. Tokyo, Japan. *Contact: M. Furuya, Frontier Research Programs, The Riken Institute, Wako City 351–01, Japan.*

5 September 5th World Wilderness Congress, Norway. *Contact: The Wild Foundation, 211 W. Magnolia, Fort Collins, CO 80521, USA.* Tel: (1-303) 498 0303; Fax: (1-303) 498 0403.

RESUMOS

"Parques para toda la vida - triunfos posibilidades"

Jeffrey McNeely

El IV Congreso Mundial de Parques Nacionales y Areas Protegidas tuvo lugar en Caracas. Venezuela desde el 10 hasta el 21 Febrero. Los 1840 participantes de 133 paises se dedicaron al estudio de los mayores desafios que las áreas protegidas deben enfrentar en los años 90, basados en el tema "Parques para toda la vida". Los participantes del Congreso no se hicieron falsas ilusiones acerca de la severidad de los problemas que tendrán que enfrentar en los próximos años, tales como la escasez de recursos, la falta de una economía balanceada y el uso continuo de tecnologia inadecuada. Pero ellos permanecieron convencidos igualmente de que esos desafios significaacan que las áreas protegidas tienen un papel aún más importante que jugar en asegurar un futuro productivo para la humanidad.

La Declaración de Caracas: un ilamado al compromiso personal

Bing Lucas

La reunión singular de expertos distinguidos en el Congreso de Caracas, ha culminado con una vision positiva compartida por todos, del futuro de los parques nacionales del mundo y de las áreas protegidas. La Declaracion de Caracas pone claramente a los parques nacionales en su contexto global y hace incapié en su importancia tanto para la humanidad como también para los ecosistemas del mundo. Este artículo captura y transmite el espíritu del Congreso Mundial de los Parques Nacionales y Areas Protegidas.

Las recomendaciones de Caracas

Adrian Phillips

Las recomendaciones producidas por el Congreso de Caracas son el resultado de las discusiones intensivas que tuvieron lugar en talleres, seminarios y grupos especializados. Este articulo resumo los puntos claves bajo cada una de las veinte recomendaciones. Debido al limitado espacio disponible, este reseña es por necsidad selectiva al destacar cientos temas.

Informe del Simposto de Caracas

Caroline Martinet e Jeffrey McNeely

En un mundo cambiante, la contribución de las áreas protegidas hacia la sociedad, debe ser demonstrada en toda su relevancia e importancia. La necesiedad de los parques y de las áreas protegidas de adaptarse y de atraer al público y al apoyo politico fue el tema fundamental a través de cada uno de los simposios del Congreso de Caracas. Este articulo ofrece información sobre el contenido de los talleres organizados alrededor de los cuatro simposios mayores, que se ocuparon de los problemas sociales, politicos y económicos, los problemas cientificos, los problemas de desarrollo y los problemas de administración.

Directivas para la protección de areas protegidas

Jerry Harrison

Hay un campo considerable para la cooperación, a nivel mundial, entre administradores de las áreas protegidas y para la diseminación global de asesoramiento - A consecuencia del Congreso, han sido propuestas una serie de directivas universales que cubren importantes problemas de administración. Este articulo analiza las directivas existentes y las propuestas y usa como ejemplo las relativas al cruce fronterizo de áreas protegidas.

RESUMES

Parcs pour la vie - réalisations et perspectives d'avenir

Jeffrey McNeely

Le IVème Congrès Mondial sur les Parcs Nationaux et les Aires Protegées s'est tenu à Caracas, Venezuela, du 10 au 21 février. Les 1840 participants en provenance de 133 pays ont abordé les principaux problèmes que rencontrent les aires protégées dans les années quatre-vingt dix, en se basant sur le thème "Parcs pour la Vie". Les participants au Congrès ne se sont fait aucune illusion sur la gravité des problèmes qu'ils rencontreront dans les années à venir en raison du manque de ressources, du déséquilibre économique et de l'utilisation continue de technologies mal choisies. Mais ils ont été également convaincus que de tel défis soulignent le rôle encore plus important que les aires protégées ont a jouer afin d'assurer un futur productif pour l'humanité.

La Déclaration de Caracas: La Demande d'un Engagement Personnel

Bing Lucas

La rassemblement unique d'éminents spécialistes au Congrès de Caracas a conduit à une vision positive commune du futur des parcs nationaux et des aires protegées du monde. La Déclaration de Caracas situe clairement les parcs nationaux dans leur contexte mondial et souligne leur importance tant pour l'humanité que pour les écosystèmes mondiaux. Cet article capture et traduit l'esprit du Congrès Mondial sur les Parcs Nationaux et les Aires Protégées.

Les Recommandations de Caracas

Adrian Phillips

Les recommandations présentées par le Congrès de Caracas sont le résultat de discussions intensives menées dans les ateliers, les séminaires et les groupes de spécialistes. Cet article résume les principaux points de chacune des 20 recommandation. Cependant, en raison du manque de place, ce rapport souligne inévitablement d'une façon plutôt sélective certains de thèmes.

Gestion des aires protégées pour le 21ème siècle – recommandations du Congrés de Parcs

Caroline Martinet et Jeffrey McNeely

Dans un monde en évolution, il convient de montrer la contribution utile et importante des aires protégées à la société. La nécessité, pour les parcs et les aires protégées, de s'adapter et d'attirer l'appui du public et des politiciens a constitué un thème fondamental de chacun des principaux symposia du Congrès de Caracas. Cet article présente le contenu des ateliers organisés autour des quatre principaux symposia consacrés aux problèmes sociaux, politiques et économiques, scientifiques, et aux questions de développement et de gestion.

Lignes Directrices de Gestion des Aires Protégées

Jeremy Harrison

Il existe, au niveau mondial, une possibilité considérable de coopération entre les gestionnaires des aires protégées et le diffusion des informations. Des lignes directrices universelles sur un ensemble de problèmes de gestion importants ont été proposées à la suite du Congrès. Cet article examine les lignes directrices, proposées et existantes, et les met en pratique en prenant pour exemples des aires protégées frontalières.

PARKS

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