

THE WORLD NATIONAL PARKS CONGRESS



BALI, INDONESIA
11-22 October, 1982

SPONSORS

- The Government of the Republic of Indonesia
 - The Directorate General of Forestry
 - The Directorate of Nature Conservation and Wildlife Management
 - The Indonesian Wildlife Fund
- The International Union for Conservation of Nature and Natural Resources
- The United Nations Environment Programme
- The World Wildlife Fund
- The Food and Agriculture Organization of the United Nations
- The United Nations Educational, Scientific, and Cultural Organization
- The World Heritage Fund
- The United States National Park Service
- Parks Canada
- The Canadian International Development Agency

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THE EMBLEM OF THE CONGRESS

The Congress emblem shown on the cover represents both a mountain (it is sometimes called a *gunungan*, *gunung* being mountain) and the tree of life. In Bali, it is also called simply the *kayon*, the tree, or *babad*, the story. Either way, it is the sign of life force, of continuity; in the wayang plays, it is displayed at the beginning and ending of each story and between each section of the story.

The Department of Nature Conservation uses this emblem of life force and continuity to symbolize the unity of life and the interconnected role of every living being or thing on earth. The trees and animals indicate the natural ecosystem; the tiger and the banteng symbolize the balance between violence and placidity; the rice and cotton symbolize the benefits of human agriculture; and the temple represents spiritual welfare.

Human beings are part of the natural ecosystem; it sustains them and they, to survive, must sustain it. The ecosystem approach is vital to our appreciation of the theme of the Congress, "National Parks and Protected Areas in Support of Social and Economic Development."

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INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND
NATURAL RESOURCES
INDONESIAN DIRECTORATE-GENERAL OF FORESTRY

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1. WELCOME TO BALI

We are gathered together on "the Isle of the Gods" – the island of Bali, world-renowned as a place where man has adapted harmoniously to the environment. Sun-washed terraced ricefields climb the lower slopes of the forest-clad volcanoes; water-producing springs are guarded by shrines; villages are set amidst orchards, gardens and flowers; colourful temples are decorated with intricate stone and wood carvings; and art, music, and dance are seen everywhere, forming a foundation of the Balinese culture.

But man has not dominated nature. The volcanoes erupt on a disturbingly regular basis, often wreaking havoc; in 1917, Gunung Batur – still an active volcano – killed 1,300 people, destroyed 2,500 temples, and flattened 25,000 houses and in 1963, Gunung Agung, the island's highest volcano, killed 1,500 people and affected over 20 percent of Bali. Small wonder that the volcanoes are considered the home of the gods, producing both fertile soil and providing the source for the streams which bring life to the ricefields, but also showing their occasional displeasure through violent eruptions.

This earthly paradise is also suffering some serious environmental problems. The population has grown to the stage where "transmigration" projects have been organized to move Balinese to other islands, the sea turtles which are essential to Balinese ceremonies are now so rare that sailors must travel hundreds of kilometers to find their prey, demand for firewood is affecting the watershed forests, and tourism is beginning to have an undesirable effect on the culture.

This contrast between the ideal of the travel brochure and the hard reality of limited resources provides an ideal setting for the World National Parks Congress. As human populations continue to expand and nature is required to produce more goods and services to support humanity, the role of national parks and other protected areas will need to evolve to help support the expanding needs. A new "socially-conscious" role for protected areas will be defined at the Congress here in Bali.

The provisional agenda is included in this booklet, along with short summaries of most of the papers. We hope that a number of "provisional papers" will in fact become real, so we expect the agenda to evolve as the Congress proceeds. As this is a working meeting of those professionally involved in protected area management, we should not hesitate to adapt to changes and new ideas, even for our own agenda.

The Congress will be honoured by the presence at the opening ceremony of His Excellency the Vice President of the Republic of Indonesia, Mr. Adam Malik, who will give the Opening Address. Following welcoming addresses, there will be a slide presentation to provide an overview of protected areas issues, past, present, and future. Far-reaching conceptual presentations will be given by Peter Thacher of UNEP, Lee M. Talbot of IUCN, and Robert Goodland of the World Bank. The Keynote Address, on "National Parks to Meet Modern Needs of Society," will be given by Prof. Sudarsono, the Indonesian Minister of Agriculture.

The afternoon of the opening day will be free for an introduction to the charms of Bali, but there will be a special session for alumni of the International Seminar on National Parks and Equivalent Reserves.

After the opening ceremonies, the work of the Congress will begin with a review of the world coverage of protected areas, including a slide presentation reviewing the world situation, the unveiling of a revised system of terrestrial biogeographic provinces and a new system of coastal and marine biogeographic provinces, a mapping of all protected areas on the biogeographic map, and an introduction to the Protected Areas Data Unit (PADU) of IUCN's Commission on National Parks and Protected Areas. Some of PADU's products will be on display, including the **1982 United Nations List of National Parks and Protected Areas**, the **IUCN Directory of Neotropical Protected Areas**, and the draft data sheets for each of the other seven realms. Congress Participants are encouraged to inspect these materials closely, and to contribute material to PADU.

There will then be a short series of addresses by key figures in the major disciplines of conservation: species survival; ecological processes; environmental planning; environmental policy, law and administration; education; and protected areas.

The remainder of first week – with a day and a half off for field trips – will be devoted to plenary sessions presenting status reviews, case studies, and analyses of future prospects for each of the world's eight biogeographic realms. Each realm session will have as Chairman a senior individual who will be responsible for running the session; as Keynote Speaker, a distinguished individual from the realm addressing the historical background and current situation of protected areas in the realm; five to ten Case Studies (depending on the size of the realm) which will deal with the most important current issues in the realm, outlining new approaches, new methods, and state-of-the-art techniques; and a Future Directions Speaker, who will look at the future, identifying the directions that protected areas in the realm will take in the next decade. A special session will be devoted to Indonesia as the host country, reviewing its remarkable recent expansion of protected areas.

At the end of the first week there will be a half-day session on "New Directions," a series of thought-provoking papers which are aimed at giving the Participants another view of their profession. Most speakers will be from outside the Protected Area business, so are able to look at things with a fresh and stimulating perspective.

The first 3 days of the second week are devoted to workshop sessions on three major topics:

Managing Protected Areas in the Tropics
Managing Coastal and Marine Protected Areas
Training Protected Areas Personnel

Each of these three topics will be addressed by about 12 workshop sessions, each dealing with a specific set of principles and developing guidelines for their application. It is intended that a conceptual background paper for each chapter will be prepared, though in some cases one of the plenary session papers will serve this purpose admirably. The workshops will be expected to distill the set of principles and guidelines and to apply specific illustrations from different parts of the world to the basic principle being addressed. Case studies from the plenary sessions, invited papers for workshop sessions, and voluntary papers provide the raw material for the workshops.

Thursday of the second week will be devoted to international support for protected area management. Following the keynote address by Dr. Emil Salim,

Indonesian Minister of Development Supervision and Environment, which will present a challenge to the international community from a major third-world country, there will be a series of addresses which outline some of the steps that are being taken by the United Nations, bi-lateral agencies, development banks, and multi-national business.

The afternoon will discuss two major programmes being carried out under the auspices of Unesco: the Man and the Biosphere Programme (particularly biosphere reserves) discussion will lead to a statement from the protected area managers to the scientists who work in protected areas, specifying what is needed from science if modern management is to be effective; and the World Heritage session will review the current status of natural World Heritage Sites, present a case study from Ethiopia to show how the Convention is being used on the ground, speculate on where the Convention is going, and conduct several short workshops to produce guidelines for managing World Heritage Sites, criteria for selection, and criteria for the World Heritage in Danger List.

The concluding day will consist of several reports from committees which have been established earlier. Key reports and discussions will deal with:

The Bali Declaration, a statement from the protected area professionals of the world to the upper level policy-makers and the public at large, stating in succinct form precisely the new, socially-conscious, role the Congress sees protected areas playing in the future. A draft declaration, with supporting background documentation, is included in the Congress papers distributed to participants.

The International Society of Protected Area Professionals, a proposed professional organization for those whose business is protected areas.

Recommendations. A committee representing all eight biogeographic realms will present a set of 20 recommendations to provide guidance for the furthering of the objectives of the Congress. A background paper reviews the recommendations from the Second World Conference, held in Grand Teton in 1972, and summarizes their major results.

Awards. The IUCN/CNPPA Fred M. Packard International Parks Merit Award will be presented to individuals representing each of the world's eight biogeographic realms.

The concluding address, based on the discussions of the Congress, will set out a plan of action for the future, outlining what needs to be accomplished by the next World National Parks Congress in 1992. The closing address will be given by Prof. Sudarsono, the Minister of Agriculture of the Republic of Indonesia.

Throughout the Congress, there will be *ad hoc* evening sessions dealing with special topics of interest to the Congress Participants. Any Participant may convene an evening session, and the Secretariat will be delighted to help with the arrangements and to discuss how any special session can contribute to the work of the Congress.

All of this is going to take lots of paper. In addition to this booklet, each participant will receive – In'sh-Allah – a set of all papers which were submitted to the Secretariat before 15 September, a special issue of PARKS Magazine dealing with Indonesia, a special issue of AMBIO dealing with the World Parks Congress, a copy of the **1982 United Nations List of National Parks and Equivalent Reserves**, and a copy of **The World's Greatest Natural Areas: An indicative inventory of natural sites of World Heritage quality**.

It should be apparent by now that this Congress is going to involve a lot of work by everyone involved. But if we are together going to move forward to ensure that protected areas will continue to play their appropriate role in social and economic development, then we must grasp the opportunity at Bali to chart a new course for protected area conservation which will lead to increased benefits of conservation for mankind.

With greatly increased responsibilities for helping to ensure that social and economic development meets the real needs of human societies, protected areas can expect to receive a significantly greater amount of support from governments, international development agencies, and local people. Protected area personnel will become recognized professionals, with a status similar to that of Forester or Teacher. Scientists will have a management focus for some of their research in natural areas. And protected areas will become an inseparable part of the modern human ecosystem.

One final word: The World National Parks Congress is a volunteer effort. Everyone involved has a full-time job doing something else; nobody has been able to devote full time to making sure that everything works. No doubt there will be rough spots, both in the programme and in the organization. We ask your understanding and seek your cooperation in making the Congress a success worthy of its setting.

2. PROVISIONAL AGENDA/SCHEDULE

Day/Date Activity
(Quarter)

Day I. Monday 11 October

(A) **OPENING CEREMONY**

1. Welcoming address by Soedjarwo, Director-General of Forestry (Host Institution) and Co-Chairman of the Conference
2. Welcoming address by Governor of Bali
3. Welcoming address by Prof. Emil Salim, Minister of Development Supervision and Environment
4. Welcoming addresses from M. Flores Rodas, FAO; Bernd von Droste, Unesco; and Reuben Olembo, UNEP
5. Opening address by Adam Malik, Vice President of the Republic of Indonesia

- (B)
1. Secretary General's remarks and appointment of committees
 2. The Road to Bali – slide presentation to provide an overview of protected areas issues, past, present, and future (CNPPA)
 3. Peril and Opportunity: What it takes to make our choice – Peter Thacher, Deputy Executive Director of UNEP
 4. Environmental Requirements of the World Bank including Wildland Conservation. Robert Goodland
 5. The Role of Protected Areas in Implementing the World Conservation Strategy – Lee M. Talbot, Director-General of IUCN and Co-Chairman of the Conference
 6. Keynote address: "National Parks to Meet Modern Needs of Society" Professor Sudarsono, Minister of Agriculture

(C) Afternoon: Introduction to Bali. Local tours arranged to various

(D) temples, gardens, beaches, shops, etc.

Concurrent special session for alumni of the International Seminar on National Parks and Equivalent Reserves. (Tom Thomas)

Day II. Tuesday 12 October

(A) **THE WORLD COVERAGE OF PROTECTED AREAS**

A multi-media presentation from CNPPA. Session Chairman: Kenton Miller

1. Slide Programme: "Protected Areas of the World." Kenton Miller
2. The Biogeographic Provinces of the World. Miklos Udvardy.
3. A new system of marine biophysical provinces for conservation purposes. Bruce P. Hayden, Robert Dolan, and Carleton Ray
4. Presentation of large (1:12,500,000) map of the biogeographic provinces on both land and sea of the world, with all protected areas demarcated. CNPPA
5. The IUCN Protected Areas Data Unit: Applications and Results. Jerry Harrison

(B) **MAJOR ISSUES OF THE FUTURE** Chairman: Lee M. Talbot

1. The Survival of Species Genetic Diversity. Gren Lucas
2. Ecological Processes and National Park Management. Derrick Ovington

3. The Permanence of Conservation Institutions. Wolfgang Burhenne
4. Planning for Regional Harmony in Land Use. Keith Garratt
5. Promoting People's Understanding of Conservation. Ricardo Luti
6. How Protected Areas Can Help Meet Society's Evolving Needs. P.H.C. Lucas

(C) THE EVOLVING ROLE OF PROTECTED AREAS IN MEETING SOCIETY'S NEEDS

THE AFROTROPICAL REALM Chairman: Reuben Olembo (Kenya)

Keynote: Edward Ayensu (Ghana)

Case studies:

1. Back from the brink: The recovery of Uganda's National Park System. Prof. I.B. Kayanja (Uganda)
2. Amboseli National Park: Human values and the conservation of a savanna ecosystem. David Western (Kenya).
3. Training wildlife managers in East Africa. G.T. Mosha (Tanzania).
4. A wildlife management strategy benefitting local communities and the resource: a case study from Zimbabwe. Graham Child (Zimbabwe).

(D) 5. The role of protected areas in catchment conservation in Malawi. Alfred Dikito Kombe (Malawi).

6. We all want the trees: Tai National Park (Ivory Coast).
7. The role of protected areas in reclaiming the Sahel. John Newby (Niger-UK).
8. Protected areas and the Management of Large Mammals. Tony Ferrer.
9. Kenya's experience in coastal and marine protected areas. Fred Pertet (Kenya)

Future directions: Walter Lusigi (Kenya)

Day III. Wednesday 13 October

(A) THE INDOMALAYAN REALM Chairman: Jose Furtado (Malaysia)

Keynote: M.R. Ranjitsinh (India)

Case Studies:

1. Indonesia's experience in training protected area personnel. Mohd. Duryat (Indonesia) and Bart van Lavieren (Netherlands).
2. Nature conservation for rice: Nature conservation and rice production in Dumoga, North Sulawesi. Effendy A. Sumardja, Tarmudji, and Jan Wind (Indonesia).
3. How to protect coastal and marine ecosystems: Lessons from the Philippines. Amado Tolentino (Philippines).
4. Man and mangroves in Malaysia. Ong Jin Eong (Malaysia).
5. Protected areas and turtle eggs in East Malaysia. G.S. da Silva (Malaysia).

(B) 6. Vulnerable marine resources, coastal reserves, and pollution: A Southeast Asian perspective, by Alan White (USA)

7. A delicate balance: tigers, rhinos, tourists and park management vs. the needs of local people in Chitawan, Nepal. Hemanta Mishra (Nepal).
8. What to do when you've succeeded: Project Tiger 10 years later. Hemendra Panwar (India).

9. Human dimensions in wildlife management: The Indian experiment. V.B. Saharia (India)
10. River basin development and protected areas in Sri Lanka. Lyn de Alwis (Sri Lanka).

Future directions: Kasem Snidvongs (Thailand)

(C) THE OCEANIAN REALM: Chairman:

Keynote: Birandra Singh (Fiji)

Case Studies:

1. Wildlife management by the people. Navo Kwapena (Papua New Guinea).
2. Conservation of a limited land resource on Yap. Margie Falanruw (USA).
3. Conserving marine resources in Papua New Guinea. John Genolagani (PNG).
4. Indigenous island peoples, living resources and protected areas, by Bernard Nietschmann
5. Indigenous people and protected areas: Traditional resource management in the Pacific. R.E. Johannes (Australia).

Future directions: Arthur Dahl (New Caledonia)

(D) THE AUSTRALIAN REALM Chairman: Neville Gare (Australia)

Keynote: Don McMichael (Australia)

Case studies:

1. People in parks. A.M. Fox (Australia).
2. The marine park story. Graeme Kelleher and Richard Kenchington (Australia).
3. Protected areas and environmental planning in Australia. J.G. Mosley (Australia).
4. Increasing pressures for resources development in areas of high nature conservation value. Peter Bosworth (Australia).
5. Fire and Pest Species. G. Medhurst and R. Good (Australia).

Future directions: Don Johnstone (Australia)

Day IV. Thursday 14 October

(A) THE ANTARCTIC REALM Chairman: Brian Huntley

Keynote: Jonathan Elworthy

Case studies:

1. Protected areas and introduced species in New Zealand. Carolyn Burns (New Zealand).
2. Finding ways and means to conserve Antarctica. P.H.C. Lucas (New Zealand).
3. Moving towards a representative system of protected areas in New Zealand. Paul Dingwall (New Zealand).
4. The Campbell Island story. The management challenge of sub-Antarctic Islands. Dave McKerchar (New Zealand).
5. Reservation of commercially important lowland forests. Les Molloy (New Zealand).

Future directions: David Thom (New Zealand)

(B) INTRODUCTION TO INDONESIA'S PROTECTED AREAS.

Chairman: Wartono Kadri

Keynote: The Balinese view of nature – Governor of Bali

1. Indonesia's network of protected areas. Effendy Sumardja, Warsono, John MacKinnon.
2. New National Parks for Indonesia.
3. Development of marine conservation in Indonesia. Aprilani Soegiarto, Soewito, Rodney Salm.
4. National Parks and land-use policy. I Made Sandy, I Made Tantra, Kuswata Kartawinata.
5. National parks and rural communities. Soekiman Atmosoedarjo, Lukito Daryadi, John MacKinnon, Paul Hillegers.
6. Involvement of politicians in the development of parks and protected areas. Prijono Hardjosentono, Fred Hehuwat, B. Sumarmo.
7. Management and conservation of marine turtle populations in Indonesia. Nyoman Sumertha Nuitja, Sutomo Achmad.

(C) Free (group leaves for overnight to Bali Barat)

(D) (group leaves for overnight to Bromo Tengger)

(group leaves for overnight to Baluran)

Day V. Friday 15 October

Field trips

- (I)-(IV)** – Bali Barat – Primarily marine (scuba available)
– Bali Rural Landscape – Man and land in harmony
– Bali Field Trips: Mt. Batur; Mt. Agung; Mt. Bratan; Nusa Dua; Nusa Lembongan

Day VI. Saturday 16 October

(A) THE PALAEARCTIC REALM. Chairman:

Keynote: Francois Ramade (France)

Case studies I. The Western Palaeartic:

1. Limited choices: Protected areas in the U.K. John Foster and Adrian Phillips (UK).
2. The Mediterranean: a regional approach to protected areas. Hedia Baccar (Tunisia).
3. The economics of a park: Plitvice, Yugoslavia. Yosip Movcan (Yugoslavia).
4. Abruzzo's bears: Reconciling the interests of wildlife and people in Abruzzo National Park, Italy. Franco Tassi (Italy).
5. Threshold approach to the definition of environmental capacity: a case study from the Tatry National Park, Poland. Jerzy Kozłowski (Poland)

(B) Case studies II. The Eastern Palaeartic

7. (To be selected by the USSR)
8. Problems of Mammal Conservation in Mongolia. Acad. V. Sokolov (USSR)
9. Pandas, bamboo, and protected areas. (China)

10. The Sherpas of Sagarmatha: Trekking-tourism, Ecological Problems, and Cultural Conflicts. Bruce Jefferies (New Zealand).

11. The adjustment of nature and human activities in Japan's national parks. Masaaki Sakurai (Japan).

Future directions: Mats Segnestam (Sweden)

(C) THE NEARCTIC REALM. Chairman: Al Davidson (Canada)

Keynote: Russell Dickenson (USA)

Case studies:

1. Saving the Redwoods. Edgar Wayburn and Bruce Howard (USA)
2. Conserving Hawaii's endemic birds. Henry P. Little (USA)
3. Preserving and managing habitats for teaching and research: The University of California experience. J.A. Kennedy
4. The Mexican biosphere reserve experience. Gonzalo Halffter (Mexico).
5. The Politics of parks in Alaska. Bob Cahn and Ted Swem (USA).
6. Learning to live with exploitation in the Arctic and Sub-Arctic. Gordon Nelson (Canada)
7. The lone prairie: Protected grasslands in Canada. Steve Kun (Canada).
8. The Everglades: A case study. Jack Moorehead (USA)

Future directions: Harold Eidsvik (Canada)

Day VII. Sunday 17 October

(A) THE NEOTROPICAL REALM. Chairman: Cecelia de Blohm (Venezuela)

Keynote: Gerardo Budowski (Costa Rica and Venezuela)

Case studies:

1. Designing a total system: Costa Rica. Craig MacFarland (Costa Rica/USA).
2. Starting from the ground up: Developing a conservation ethic on Dominica. James Thorsell, (Canada)
3. Strategic planning and evolution based on experience in the Lesser Antilles. Allen Putney (USA).
5. Inca technology and ecocodevelopment: Vicunas in Pampa Galeras. Carlos Ponce del Prado (Peru).
6. Islands for people and evolution: The Galapagos. Arturo Ponce and Jose Villa (Ecuador).
7. Genetic diversity, endemism, and protected areas: The Atlantic forests of eastern Brazil. Ibsen de Gusmao Camara (Brazil) and Russ Mittermeier (USA)
8. Local management of protected areas: The Valds Peninsula, Argentina. Ricardo Luti (Argentina)
9. Brazil's protected area system in the Amazon. Maria Tereza Jorge Padua (Brazil).
10. Waterfalls and hydropower: Canaima National Park, Venezuela. Jose Rafael Garcia (Venezuela).

Future directions: Marc Dourojeanni (Peru)

(C) NEW DIRECTIONS IN PROTECTED AREA MANAGEMENT

Chairman: Lee M. Talbot

1. The Use of Protected Areas for Environmental Monitoring. Harvey Croze

2. Getting Caught with Our Genes Down: Managing Protected Areas for Genetic Conservation. Robert Prescott-Allen
3. In situ Conservation of Genetic Resources: Determining Minimum Areas Requirements. Bruce Wilcox
4. Eternal values of protected areas and the Monday morning world. Norman Myers
5. Protecting wild genetic resources for the future: The need for a world treaty. Cyrille de Klemm

- (D)
6. Protected areas and indigenous peoples. Ray Dasmann
 7. Ecosystem or Biosphere? Global Sharing and National Self-Interest. David Munro (Canada).
 8. A professional organization for stewards for natural lands. CNPPA.
 9. Introduction of draft of "The Bali Declaration" (CNPPA).

Days VIII-X. Monday 18 October to Wednesday 20 October

WORKSHOPS: PREPARING TOOLS FOR THE MAN ON THE GROUND

The following is a general outline of the 12 workshop sessions devoted to each of three broad topics: Managing Protected Areas in the Tropics; Managing Coastal and Marine Protected Areas; and Training Protected Area Personnel. Workshop Coordinators will be free to re-allocate time as they see fit and necessary.

Managing Protected Areas in the Tropics	Managing Coastal and Marine Protected Areas	Training Protected Areas Personnel
1 Managing protected natural areas to contribute to social and economic development: Policies to meet expanding needs	Introduction: The need for coastal and marine protected areas	Training: The key to developing the capacity to manage.
2 Categories, criteria and objectives for protected areas	The role of coastal and marine protected areas in the conservation of genetic resources	The skills required to effectively manage protected areas
3 The Biogeographical basis for protected areas systems	Classifying marine habitats for conservation purposes	A world survey of manpower requirements for protected areas
4 The legal and administrative basis for management: organizational design	Categories, criteria and objectives for coastal & marine protected areas	Options for developing management capacity
5 Protected areas and regional planning	Principles of management planning for coastal and marine protected areas	Regional institutions for protected area personnel

6 Socio-economic factors in managing protected areas	Implementing management of coastal and marine protected areas	National training for protected area field personnel
7 Developing principles of resource management	Selection and management of coral reef protected areas national seminars on national parks	International professional training: the experience of international seminars on national parks
8 Management planning	Selection and management of protected areas in estuaries, mangroves and other coastal areas	Professional training: universities and colleges
9 Implementing management	Protected areas in the open seas	Training at the senior policy level
10 Determining effective management	Protected areas in polar regions	Overcoming institutional obstacles to training
11 International cooperation in management of protected areas	Protecting island habitats	Sharing experience
12 Communication: Ensuring that the right message reaches the right audiences	Conclusion: The role of coastal and marine protected areas in the process of social and economic development	The protected area manager becomes a professional Training the public

Day XI. Thursday 21 October

PROMOTING INCREASED INTERNATIONAL SUPPORT FOR PROTECTED AREAS MANAGEMENT

Chairman: David Munro (Canada)

- (A) Keynote Address: The World Conservation Strategy: How to bring real benefits to those in need. Emil Salim (Indonesia)
1. Ten years later: The Smithsonian International experience since the Second World Parks Conference. Ross Simons
 2. Council of Europe work on protected areas. Division of Environment and Natural Resources.
 3. Cooperation between government and the private sector. G. Ray Arnett.
 4. The role of international development agencies in promoting effective management of protected areas. Arne Dalfelt.
 5. Promoting cooperation between protected areas and resource development corporations. Leroy Balzar.
 6. The Exchange of Wildland Technology: A Management Agency Perspective. Gary Wetterburg.

- (B) Panel Discussion: How to promote increased international support for protected areas. Questions and comments from the floor.
- (C) **United Nations Involvement in Protected Areas Management**
1. UNEP and Protected Areas. Reuben Olembo
 2. FAO and Protected Areas concerns: Promoting increased support.
 3. How Unesco's Man and the Biosphere Programme is contributing to human welfare. Bernd von Droste.
 4. Biosphere Reserves in concept and practice. Kenton Miller
 5. The Biosphere Reserve and its relation to other protected areas. Craig MacFarland
- (IV) **The World Heritage Convention.** Chairman: Walter Lusigi (Kenya)
1. Introductory remarks by the Chairman of the World Heritage Committee
 2. Audio-visual presentation and worldwide indicative inventory. IUCN
 3. The World Heritage Convention in Ethiopia. Teshome Ashine (Ethiopia)
 4. World Heritage: Where is it going? David Hales (USA).
 5. Workshops: - New criteria for selection. Harold Eidsvik
- Criteria for World Heritage in Danger. D. Navid
- Management standards for World Heritage Sites

Day XII. Friday 22 October CONCLUDING SESSION

(A) **New Directions.** Chairman: Kenton R. Miller

The Bali Declaration. Discussion of the declaration introduced the previous Friday. Adoption of the Bali Declaration.

The International Society of Protected Area Professionals. Report of the committee elaborating the concept of a professional society. Discussion.

(B) **Recommendations**

Presentation and discussion of recommendations by the Recommendations Committee.

(C) **Closing Ceremonies** Co-Chairmen: Soedjarwo and Lee M. Talbot

Awards: Harold J. Coolidge

Concluding Address: A Plan of Action for the Future: What to accomplish by 1992 - Kenton Miller

Closing Address: Professor Soedarsono (Minister of Agriculture).

3. RULES OF PROCEDURE

INTRODUCTION

The World National Parks Congress is a technical working meeting of experts professionally involved with protected areas. It is hosted by the Government of Indonesia and sponsored by IUCN; co-sponsors are UNEP, FAO, Unesco, Parks Canada, the US National Park Service, and the World Wildlife Fund.

PART I PARTICIPANTS, OBSERVERS, SECRETARIAT, AND OFFICERS

Rule 1. Participants

Every person wishing to attend the Congress must register with the Congress Secretariat and is subject to payment of the registration fee. Individuals participate in their personal capacities rather than as representatives of their governments or agencies. Every participant has an equal voice in the Congress and may participate fully in all sessions and events. Each is entitled to receive the publications, papers, and other materials distributed at the Congress.

Rule 2. Observers

- 1) Observers come from the Host Country (Indonesia), unless specifically invited from elsewhere by IUCN and the Government of Indonesia. They must also register with the Congress Secretariat.
- 2) Observers shall not have the right to speak or to vote, but the Congress may invite them to speak. They may address written statements to the Congress through the Chairman.

Rule 3. Secretariat

The Secretariat works under the joint responsibility of the Organizing Committee.

Rule 4. Officers

- 1) The Co-Chairmen of the Congress are the Director General of Forestry of Indonesia and the Director General of IUCN.
- 2) Each Plenary Session and Workshop Session shall have a Chairman appointed by the Organizing Committee.
- 3) Rapporteurs shall be appointed for each session by the Congress Secretariat.
- 4) Other Officers may be appointed by the Organizing Committee.

PART II SESSIONS

Rule 5. Duration and Types

- 1) Sessions shall normally begin at 0800 and end at 1800, with a one hour lunch break and two half-hour coffee breaks.
- 2) The opening session on 11 October will be largely ceremonial.
- 3) Other sessions shall be plenary working sessions, or workshop sessions.

Rule 6. Plenary Sessions

- 1) These sessions shall be open to all participants, observers, and members of the press.

- 2) Due to size limitations of the facilities, the sessions will not be open to the public; however, none of the proceedings of the Congress are to be considered confidential in any sense.

Rule 7. Workshop Sessions

- 1) Workshop sessions from 18 to 20 October shall be considered informal, with venue, procedures, and timing at the discretion of the Session Chairman. They will be announced at a plenary session and details will be posted on the official Bulletin Board.
- 2) The Chairman may invite those individuals he considers essential to the points under discussion, though other individuals may attend if they so wish, subject to space being available.

Rule 8. Evening Sessions

- 1) Evenings are available for *ad hoc* meetings as desired by participants.
- 2) Such meetings will be coordinated through the Secretariat in order to ensure availability of meeting rooms and equipment, and to help ensure that there will be as few conflicting meetings as possible.
- 3) Evening meetings will be announced at each plenary session and displayed on the official Bulletin Board.

PART III COMMITTEES

Rule 9

- 1) The Government of Indonesia and IUCN as the host and the sponsor formed the Organizing Committee.
- 2) The Organizing Committee together with the co-sponsors form the Congress Steering Committee.
- 3) The Chairman of the opening session shall appoint a Recommendations Committee, to consist of a Chairman and no more than 8 members from different countries.
 - a) The task of this Committee shall be to prepare - through its own deliberations and considerations of drafts submitted to it by participants - draft Recommendations for consideration and adoption by the Congress.
 - b) The Chairman of the Committee shall have the authority to appoint such Sub-Committees as he may desire to deal with any particular issue.
- 4) The Secretariat shall coordinate the work of each Committee.
- 5) Experts may be invited by the Chairman to attend Committee sessions.

PART IV RULES OF ORDER

Rule 10. Order and Discipline

- 1) The duties of the Chairman shall be:
 - a) to open, suspend and close sittings;
 - b) to guide the debates of the Congress;
 - c) to maintain order, call on speakers, close debates, put questions to the vote and announce the results of votes.

- 2) The Chairman shall call to order any participant who, making remarks not relevant to the subject under discussion, causes a disturbance during the proceedings or otherwise contravenes the Rules of the Congress.
- 3) The Chairman shall begin each session at the scheduled time with an introduction of himself and the speakers and provide a short background of the subject.
- 4) The Chairman shall invite the speakers to present summaries of their papers and each such summary shall not exceed twelve minutes.
- 5) The Chairman will then open the session to the floor.
- 6) At his discretion, the Chairman may wish to summarize the discussion - in particular calling attention to specific aspects of the discussion which should be taken up by the Recommendations Committee - before closing.

Rule 11. Right to Speak and Procedural Motions

- 1) Participants intending to speak after the Chairman has opened the session to the floor shall inscribe their names and affiliation and the topic they wish to address on the "Intervention Request" forms addressed to the Secretariat.
- 2) A participant may speak only if called upon by the Chairman. Each participant who speaks shall give his name and affiliation, shall speak for not more than three minutes and shall later present a written summary of his statement to the Secretariat.
- 3) A participant shall have prior right to speak for up to three minutes if he asks leave:
 - a) to call the attention of the Chair to a point of order or an abuse of the Rules of the Congress;
 - b) to move the closure of a debate at the end of a plenary session;
 - c) to move that the sitting be closed.
- 4) The above matters shall take precedence over the main question, debate on which shall be suspended while they are considered.
- 5) In debate on motions, on the closure of a debate, and that the sitting be closed, only the following may be heard: the proposer, one speaker against, and the Chairman or Rapporteur of the matter concerned. The Congress shall then take a decision.

PART V. RECOMMENDATIONS

Rule 12. Form of Recommendations

- 1) The Congress should issue Recommendations which may provide guidance for the furthering of the objectives of the Congress.
- 2) Draft Recommendations shall be consistent with the context of the **World Conservation Strategy**.
- 3) Although taking recognition of the importance of global issues such as population or disarmament, the Congress deals specifically with matters directly concerning protected areas and therefore Recommendations must be of this nature.
- 4) Recommendations concerning individual persons and/or particular national parks or other protected areas in any country will not be considered.

Rule 13. Submission of Draft Recommendations

- 1) These shall be submitted in writing to the Chairman of the Recommendations Committee in the working language. Participants may submit draft Recommendations until noon on 19 October. Each draft Recommendation must be submitted or endorsed by at least three participants.
- 2) Recommendations submitted to the Congress for approval by the Recommendations Committee shall be determined by such Committee and shall not exceed 20; similar draft Recommendations may be amalgamated into a single Recommendation as appropriate if the Committee so desires.

Rule 14. Acceptance of Recommendations

- 1) Recommendations shall be approved by majority of the votes cast by participants present.
- 2) Participants shall express their opinion only by show of hands.
- 3) There shall be no voting by proxy.
- 4) If the votes are equal, the motion or amendments shall not be carried.
- 5) Any participants may propose amendment to a Recommendation.
- 6) An amendment shall relate directly to the text which it is sought to alter and be tabled in time for it to be distributed before it is debated. The Chairman shall decide whether an amendment is in order.
- 7) Amendments shall have priority in debate over the text to which they relate and shall be put to the vote before the text itself.
- 8) If two or more amendments relate to the same words of a Recommendation, the amendment which differs most from the text which it is sought to amend shall have priority over the others and shall be put first to the vote. If it is agreed to, other contradictory amendments to the same words shall be considered as having been thereby rejected. In case of doubt as to the degree of priority, the Chairman shall give a ruling.

PART VI CONDUCT OF BUSINESS**Rule 15. Working Language**

- 1) The working language of the Congress shall be English. Speeches made in the working language shall be interpreted into French, if desired. If a participant wishes to speak in a non-working language, he shall himself be responsible for arranging interpretation into the working language.
- 2) Any documents submitted to the Secretariat or to the Recommendations Committee in any language other than the working language shall be accompanied by a translation into the working language.

Rule 17. Documentation

Any papers which it is desired to be distributed by the Secretariat to the participants must be provided to the Secretariat in sufficient quantity.

Rule 18. Bulletin Boards

All items to be posted on the official Bulletin Board shall be cleared by the Secretariat. A general bulletin board for use of participants will also be available.

Rule 19. Liability

Neither the host, the sponsor, nor any of the co-sponsors of the Congress will accept any liability for loss of life, personal injuries, loss of or damage to property owned by Congress participants or observers, either before, during, or as a result of the Congress.

Rule 20. Alteration of Rules

Alterations of these Rules may be proposed to the Steering Committee for adoption by the Congress.

4. WHO'S WHO AT THE WORLD PARKS CONGRESS

In order to provide Congress Participants with an indication of who is doing what, and to whom to turn with a suggestion or a problem, the following is a list of the key individuals involved with the various aspects of the Congress. A complete list of participants will be circulated early in the Congress.

Co-Chairmen of the World National Parks Congress

Soedjarwo, Director-General of the Indonesian Directorate-General of Forestry
Lee M. Talbot, Director-General of the International Union for Conservation of Nature and Natural Resources (IUCN)

Co-Secretaries-General

Wartono Kadri, Director, Indonesian Directorate of Nature Conservation (PPA)
Kenton R. Miller, Chairman, IUCN Commission on National Parks and Protected Areas (CNPPA)

Responsibilities: Directing the operations of the Secretariat, reporting to the Co-Chairmen.

Deputy Secretary General, Operations, Registration, and Protocol

Harold K. Eidsvik, Senior Policy Advisor, Parks Canada

Responsibilities: Ensuring that the physical facilities and supplies are appropriate for each session, that all offices and small meeting rooms are available as necessary, that registration and fees are handled adequately, and that all protocol matters are appropriately attended. All matters of finance. Translation and interpretation.

Assistants: Bernardo Zentilli, Regional Liaison Officer, IUCN
Richard Herring, Canadian Nature Federation and Parks Canada

Press Relations

Raisa Scriabine (IUCN) (Head of Section)

Don Hinrichsen (*Ambio*)

Paul Wachtel (WWF)

Responsibilities: Dealing with the dissemination of information from the Congress to Indonesia and the world at large.

Interpretation and Translation

Cyrille de Klemm (Head of Section)

Catherine Johnston

Deputy Secretary General, Programme

Jeffrey A. McNeely, Executive Officer, IUCN Commission on National Parks and Protected Areas

Responsibilities: Organization of the technical dimensions of the Congress; ensuring that each session is organized, that speakers are briefed, that notes of rapporteurs are received and logged in as appropriate, that evening *ad hoc* sessions are scheduled, and that the necessary documents are made available in a timely fashion.

Assistant: Ken Erdman, Alberta Parks and Wildlife Service

Documentation

Jean Packard, US National Park Service (Head of Section)
Sue Rallo, IUCN/CNPPA

Responsibilities: The distribution of documents, mail and other materials to participants of the Congress; preparation of materials during the Congress.

IUCN Liaison Officer

Bernardo Zentilli, Regional Desk Officer, IUCN.

Responsibilities: To confer with Congress Participants on matters relating to IUCN and the IUCN Programme; to provide support to the Deputy Secretary General (Operations) as appropriate.

IUCN Commission on National Parks and Protected Areas

Chairman: Dr. Kenton Miller

Deputy Chairman: P.H.C. (Bing) Lucas (New Zealand)

Vice-Chairmen:

Neotropical: Marc Dourojeanni (Peru)

Nearctic: Rob Milne (USA)

Afrotropical: Walter Lusigi (Kenya)

Western Palaearctic: John Foster (UK)

Central Palaearctic: V.V. Krinitsky (USSR) (not present)

Eastern Palaearctic: (vacant)

Indomalayan: Samar Singh (India)

Australian: Don Johnstone (Australia)

Oceanian: Uday Raj (Fiji) (not present)

Executive Officer: Jeffrey A. McNeely

Protected Areas Data Unit (PADU): Jeremy Harrison

5. EVENING SESSIONS

There will be no "official" Congress sessions in the evenings, providing ample opportunity for Congress participants to arrange *ad hoc* meetings to suit their own interests; with several rooms available, simultaneous meetings will be possible. It is hoped that these meetings will be able to contribute to the Congress in various ways, such as preparing papers for workshop sessions, developing recommendations, and providing guidelines for wider distribution. Please consult with the Programme Secretariat for scheduling, availability of rooms, etc. The following have already been booked (the name of the convenor appears in parentheses):

Monday 11 October	Awards Committee
Tuesday 12 October	Sea Turtles (Archie Carr) PARKS Magazine Editorial Board
Wednesday 13 October	Social Evening, sponsored by the Governor of Bali
Thursday 14 October	IUCN Commission on Environmental Planning (Dan Navid) Anti-poaching
Friday 15 October	Indigenous people (Ray Dasmann)
Saturday 16 October	Biosphere Reserves (Craig MacFarland) Mineral exploitation and Protected Areas.
Sunday 17 October	Social evening, hosted by the Director General of Forestry
Monday 18 October	IUCN Commission on National Parks and Protected Areas (Kenton Miller)
Tuesday 19 October	Social evening, hosted by the Director General of IUCN
Wednesday 20 October	Antarctica (Bob Cahn and Jim Barnes)
Thursday 21 October	
Friday 22 October	Social Evening, sponsored by the Minister of Agriculture (cultural event)

6. THE PROGRAMME

Monday 11 October 1982

Session IA. **OPENING CEREMONY**

Session IB. **OPENING ADDRESSES**

The Road to Bali. Slide presentation to provide an overview of protected areas issues, past, present, and future (CNPPA)

Peril and opportunity: What it takes to make our choice, by Peter Thacher

Environmental requirements of the World Bank (including Wildland Conservation), by Robert Goodland

Environmental criteria (including conservation, pollution control, public and occupational health and safety, and human ecology) are systematically integrated into World Bank projects in the belief that sustainable economic development depends on sound environmental management. Procedures are outlined by which the Bank incorporates necessary environmental safeguards into each stage of the project cycle, from initial identification through final evaluation.

The Bank's other environmental functions (including technical assistance and liaison work) also are outlined. Specific Bank projects with significant wildlands conservation components are noted, along with sources of environmental information and guidelines.

The Role of Protected Areas in Implementing the World Conservation Strategy, by Lee M. Talbot

Keynote address: National Parks to Meet Modern Needs of Society, by Professor Sudarsono, Minister of Agriculture

Tuesday 12 October

Session IIA. THE WORLD COVERAGE OF PROTECTED AREAS

The IUCN/CNPPA System for Monitoring the Protected Areas of the World,
by Kenton Miller (USA)

Since the 1972 World National Parks Conference, there has been considerable progress in the establishment of protected areas; during this decade, the total number of areas rose from 1584 to 2307, and the area protected increased from 212 million hectares to 386 million ha. While we celebrate this great progress in the establishment of protected areas, we remain humble in the face of the increasing demands of human populations. But science has been working during this decade to improve the technology of managing protected areas to attain social and economic objectives, as outlined in the World Conservation Strategy. Among the new management tools have been the establishment of management categories as determined by objectives, the classification of natural habitats for conservation purposes, and the creation of a monitoring and inventory system.

A revised system of terrestrial biogeographic provinces for conservation purposes,
by Miklos Udvardy (USA)

This paper represents a major revision of the 1975 system of biogeographic provinces of the world, taking into consideration all revisions that have been suggested since that time. In each of the world's eight biogeographic provinces – Nearctic, Neotropical, Oceanian, Antarctic, Australian, Indomalayan, Palaearctic, and Afrotropical – the system has been refined to more accurately reflect new information. All protected areas have been superimposed upon the new system of terrestrial biogeographic provinces, and the system has been integrated with the new coastal and marine system (following paper).

A new system of marine biophysical provinces for conservation purposes,
by Bruce P. Hayden, Robert Dolan, and Carleton Ray (USA)

This paper describes a new system of biophysical provinces in coastal and marine habitats. Comparable in function to the terrestrial biogeographic realms which have been used as a first level indication of adequacy of protected area coverage, this new system divides the coastal and marine zone into manageable units on biological and physical criteria which can be used to assess protected area coverage. This system is being mapped in conjunction with the terrestrial system for the World Parks Congress.

The World Coverage of Protected Areas, by Jeremy Harrison (UK), Kenton Miller, and Jeffrey McNeely (USA).

Modern civilization requires explicit means of conserving natural lands in order to bring benefits to mankind. One of the best means is through the establishment of protected areas, an effort that has matured over the past 110 years. This paper will discuss how different parts of the world vary in their response to the need to establish and manage protected areas; provide a status report on the extent to which the international protected area network is covering natural ecosystems; suggest priorities for further action; describe a system which is monitoring the protected areas of the world; and outline how protected areas can adapt to the even greater challenges that are sure to come.

Session IIB. MAJOR ISSUES OF THE FUTURE

The survival of species genetic diversity, by Grenville Ll. Lucas (UK)

The Species Survival Commission (SSC) has more than a 1000 of the world's leading animal and plant scientists available to advise on which groups are most threatened by what, and to help formulate action plans for particular species or groups. They have long recognized that it is cheapest and most correct to save a species by saving the habitat of which it is a part. Surely, there are many species where this is already or nearly too late and more drastic breeding or artificial propagation techniques have to be used to boost the population for reintroduction into the habitat, where appropriate.

When we come to the species/habitat/reserve side of work there are some major problems. How do we choose the most representative areas for the maintenance of genetic diversity for this or that species? If one looks at just the tree species in a tropical forest, you can never choose a sample big enough or representative enough to ensure that all species are covered. However, you can overlay the information of the different taxonomic groups and various disciplines. In this way, you may get the largest number of species covered by a potential reserve. This compromise approach is familiar to you all.

The problem for SSC members increases with the decreasing state of our knowledge; the mammal and birds data, as the Red Data Books show, is most comprehensive and data is least comprehensive in the plants and invertebrates. This does not have to be a crippling factor in conservation management advice – the threats are all too familiar; but it is site selection which is a problem and again there are often indications to be had from the general species diversity in any one region.

So selection of areas is possible. Once this is done and the reserve or park is declared, then the work must really begin. Scientists may be encouraged to look at a whole area in detail to establish the potential life support patterns of a given animal, but please do not stop there; how many parks do we know where you can obtain a glossy coloured guide to the animals and birds? But a botanist might get a duplicated list of plant names if he is lucky. And yet how many of those plants grow to feed the animals and birds – the public would be interested to know and understand I am sure. How many plants have a value to man? We should know Man and all the animals we see in our reserves depend on the plants one way or another, and yet they are the poor relation of our activities. How many times has the agriculturist had to return to the wild to find the nematode or fungal-resistant strain to breed back into his crop? And where did it come from? The wild, and we have a responsibility to ensure that the "wild" within the reserve and outside in the countryside as a whole maintains the greatest genetic diversity both within the species, and the greatest range of species to keep all our future options open.

Ecological Processes and National Park Management, by Derrick Ovington (Australia)

The nature and inter-relationships of ecological processes are discussed. Examples are given of the effects on ecological processes of different management decisions and of their consequent impact on national park values. It is suggested

that an understanding of ecological processes, as the functional elements of ecosystems, can assist park managers in the implementation of management plans and is especially relevant to research and educational activities.

The Permanence of Conservation Institutions, by Wolfgang Burhenne (FRG)

The Relationship Between Adjacent Lands and Protected Areas: Issues of Concern for the Protected Area Manager, by Keith Garratt (New Zealand)

Protected areas are at one end of a spectrum of land uses ranging from strict protection to total development, and the protected area manager must take an interest in conservation on other lands. There are many physical and human linkages between protected areas and other lands, and legal boundaries often have little effect on these linkages. Integrated regional planning provides a means of understanding these linkages and resolving conflicts in land use. Effective environmental planning requires adequate information and means of structuring and using this information in ways that can be understood by all interested parties. Successful integration of protected area management with management of other land requires adequate systems for involvement of local people and other organizations. These systems must be designed to suit local needs and to encourage involvement at all levels.

Promoting People's Understanding of Conservation, by Ricardo Luti (Argentina)

How Protected Areas Can Help Meet Society's Evolving Needs, by P.H.C. Lucas (New Zealand)

This paper outlines the many ways that protected areas contribute to social and economic welfare, following the guidelines established by the World Conservation Strategy. Protected areas contribute to life-support systems, preservation of genetic diversity, sustainable utilization, conservation of natural heritage, recreation and tourism, and many others. The concept of protected areas is expected to evolve to meet society's changing needs primarily through devising ways and means of management to meet the real needs of people.

THE EVOLVING ROLE OF PROTECTED AREAS IN MEETING SOCIETY'S NEEDS

Session IIC/D. THE AFROTROPICAL REALM

Keynote Address, by Edward Ayensu (Ghana)

This paper summarizes the major needs and various responsibilities that lie ahead for both the decision makers and scientific communities who are concerned with protected areas in Africa. Such areas have a much more intensive role to play in the social and economic development of Africa, provided that conservation can be effectively integrated with economic development. There is room for both people and wildlife in this world, in spite of the tremendous pressures to exploit our living resources to the fullest.

Back from the brink: The recovery of Uganda's National Park System, by Prof. A.K. Kayanja (Uganda)

Impact of the unexpected: A case study of Uganda's National Parks, by F.I.B. Kayanja and I. Douglas-Hamilton

Protected areas are subject to unexpected factors. Rinderpest and sleeping sickness epidemics, the compression of elephants in national parks, and internal security have all had major impacts. In Uganda, the National Parks were institutionalized under a Board of Trustees and were managed at a high standard; tourism – largely due to the national parks – was the country's second largest foreign-exchange earner. But the 1972 military coup brought catastrophe to the parks; tourism collapsed, the country's economy was ruined, and law and order broke down. Poaching by well-armed military personnel and government officials led to tragic reductions in wildlife populations, especially affecting elephants and rhinos. Following the war of liberation – which was itself another tragic episode for the parks – investigations by the Uganda Institute of Ecology found, rather miraculously, that the rangers were still at their posts and the National Parks organization remained intact with a tradition of dedication. For the future, the importance of training dedicated wildlife managers and educating a sympathetic public is stressed, if National Parks are to survive in Africa through the periods of turbulence that may lie ahead.

Amboseli National Park: Human values and the conservation of a savanna ecosystem, by David Western (Kenya)

The Amboseli ecosystem in Southern Kenya typifies the problems of conserving large migratory mammal communities in Africa. The changing pastoral herdsmen exerted increasing pressures on wildlife because the animals contributed nothing to the human economy, even though the value of wildlife nationally through tourism was considerable. A 15-year programme is described which has attempted to create an integrated use of the ecosystem by including the landowners in the benefits from the national park, thereby justifying continued animal migrations beyond its boundaries.

Training wildlife managers in East Africa, by G.T. Mosha (Tanzania) and James W. Thorsell (Canada)

The College of African Wildlife Management trains middle-level managers for the anglophone countries of Africa. Nearly 1,000 graduates from 16 countries

are now in important positions in virtually all of the protected areas in eastern Africa. Lessons which have been learned over the 19-year history of the school are summarized, and future problems are fully discussed. Primary among these are the need to secure appropriate funding, and the importance of modifying the curriculum to reflect the expanding importance of resource management in east Africa.

A wildlife management strategy benefitting local communities and the resource: a case study from Zimbabwe. by Graham Child (Zimbabwe)

The 170,000 sq km Chirisa Safari Area has experienced, over the last 20 years, a steadily expanding wildlife population, especially elephants. This resulted from continuous wildlife conservation measures and an absence of competition from livestock due to infestation by tsetse fly. This situation was monitored by over 15 years of research effort into wildlife species and tsetse. A plan is currently being implemented to crop the abundant large mammals, using local labour, and returning the products to local communities. The success of the first two years of this management policy, which combines broadly applied conservation with specific aspects of utilization, holds great promise. The enhancement of protected area values and the involvement of rural people in carefully planned sustainable resource use in this pilot project sets the stage for this form of land use to spread to other areas.

The role of protected areas in catchment conservation in Malawi, by Alfred Dikito Kombe (Malawi).

Malawi is a small country with a dense and increasing population. At the same time, a relatively high proportion of the land area is designated as protected area. The primary objectives of conservation in Malawi are preservation of ecological communities and catchment conservation; this paper emphasizes the latter objective. Catchment conservation is a basic tenet of land husbandry, and for this reason most protected areas are located on land classified as unsuitable for development, particularly the highlands and escarpments. The value of this protection is demonstrated through its effect on streamflow and through its role as the basis of the extensive system of gravity fed rural water supplies. Conservation areas in Malawi are currently experiencing heavy pressures from the expanding population. The key to overcoming these pressures is raising production on agricultural land, not opening up protected areas, which play an integral role in the National Land Use Plan in maintaining productivity in the developed areas, and ensuring a satisfactory environment.

We all want the trees: Tai National Park, by Harald Roth and Michel N'Guessam (Ivory Coast).

The role of protected areas in reclaiming the Sahel, by John Newby (Niger-UK).

Using the Air and Tnr National Nature Reserve, a proposed area of some 8 million ha, the study shows the immensely important role that protected areas and wildlife can play in the wise use of Africa's arid lands. Potentially valuable wildlife resources in the Sahel are rapidly dwindling because of over-hunting, but lack of funds forbids anything but cursory action to stop the decline and this is likely to continue until the wildlife totally disappears or its real potential is

recognized and exploited. Throughout the Sahel the aim should be a mix of traditional forms of resource conservation and more modern land-use approaches such as wildlife culling within zoned conservation units; such zoning needs to be flexible and allow for changes in management as resource abundance and local imperatives change. Eventually it should be possible to transfer much of the decision-making and land management to the local populations, who can be expected to act rationally in their own benefit.

Protected areas and the Management of Large Mammals. Tony Ferrer (South Africa).

Future directions for the Afrotropical Realm, by Walter Lusigi (Kenya)

The crisis confronting the present system of protected areas in Africa is largely due to the fact that the system is a continuation of conservation policies that fail to recognise the needs, fears and values of the local people, and which are ill-suited to today's development problems. This paper analyzes the trends leading to the present situation and suggests a possible new approach recognizing three basic choices to be made. First, where it can be shown that the conservation of a certain unique ecosystem should have priority, the state has an obligation to secure the land for conservation as by the creation of national parks and reserves (in consultation with surrounding populations). Second, and at the other extreme, there will be areas where there will be intensive use to the exclusion of any protection activity. Third, between these two extremes, land use plans for the remaining land should assume a degree of compatibility between various competing uses such as wildlife, animal husbandry and agriculture.

Wednesday, 13 October 1982

Session IIIA/B. THE INDOMALAYAN REALM

Keynote Address, by M.R. Ranjitsinh (India)

Indonesia's experience in training protected area personnel, by Mohd. Duryat (Indonesia) and Bart van Lavieren (Netherlands)

This paper describes the methods being used to train personnel to manage the greatly expanded protected area system of Indonesia. It reports on the training course for field level managers at the School of Environmental Conservation Management located at Ciawi in West Java. It describes the personnel structure of the Directorate of Nature Conservation and shows how the curriculum of the school is related to the personnel needs of the Directorate. It discusses some of the problems that have been faced, including financing, the value of the diploma, participation from other institutions, marine conservation and regionalization. It is hoped that the school will become increasingly regional in the future, provided that a number of basic issues can be successfully addressed before proceeding with such an expansion.

Nature conservation for rice: Nature conservation and rice production in Dumoga, North Sulawesi, by Effendy A. Sumardja, Tarmudji, and Jan Wind (Indonesia)

The proposed Dumoga-Bone National Park, located in the middle of the northern arm of Sulawesi, is shaped like a large U; the reserve surrounds the Dumoga Valley irrigation scheme, funded by the World Bank. Concern about possible deforestation of the Dumoga watershed resulted in an agreement between the Government of Indonesia and the World Bank to provide appropriate financial support to develop and protect the water catchment area proposed as the Dumoga-Bone National Park, one of the first instances in Indonesia where a major development funding agency fully recognized protected area conservation as an integral part of development. The paper discusses the problems encountered, the strategy adopted to solve the problems, and the results obtained to date.

How to protect coastal and marine ecosystems: lessons from the Philippines, by Amado Tolentino (Philippines)

Using Philippine examples, this paper analyzes the legal and institutional approaches to the effective management of coastal and marine protected areas. It presents the Philippine coastal and marine zone situation, outlines the master plan for managing these areas and discusses the use of law as an environmental management tool. It offers legal and institutional approaches to the effective management of coastal and marine protected areas, including: a well-defined coastal zone policy; serious implementation and strict enforcement of coastal zone legislation; and a coastal zone management programme including a master plan, a coordinating mechanism to ensure implementation of policy with development, use of interagency and multi-disciplinary approach, and a management systems framework.

Man and mangroves in Malaysia, by Ong Jin Eong (Malaysia)

Malaysia's 650,000 hectares of mangroves are under the jurisdiction of the various State Forest Departments. Some 20% of mangroves have been lost through "reclamation" by the woodchip industry in the last twenty years. Another 20% has been earmarked for possible aquaculture development in Peninsular Malaysia. A comparison between sustained-yield management for forestry and conversion to aquaculture shows that aquaculture development is economically precarious. A conservation plan involving sustained-yield management and the establishment of mangrove protected areas is suggested. Seed materials from the protected areas will ensure genetic vigour for sustained-yield management.

Protected areas and turtle eggs in East Malaysia, by G.S. da Silva (Malaysia).

This case study describes the circumstances which caused the near disappearance of two species of marine turtles from three island rookeries in the Sulu Sea of East Malaysia. It describes how establishing protective measures was able to bring the species back to a productive level. The economic importance of turtle products is discussed, along with the threats such values have caused. Continuing problems lead to the suggestion that international marine sanctuaries need to be established for sea turtles between Sabah and the Philippines.

Vulnerable marine resources, coastal reserves, and pollution: A Southeast Asian perspective, by Alan White (USA)

The distribution of vulnerable marine resources, coastal reserves and pollution sites in southeast Asia as compiled for the **Marine Policy Atlas for Southeast Asian Seas** are presented by brief description to accompany the display of maps at a scale of 1:16,000,000. In addition, critical areas showing pollution and vulnerable marine resource conflicts and priority sites for management of marine resources are shown. The vulnerable marine resources distributions include estuaries, beaches, mangroves, coral reefs, sea turtles, crocodiles, seabird colonies, dugongs, whales and dolphins. Coastal reserves include all the various designations of marine reserves in the region which border on the coast or have jurisdiction over marine areas. Priority sites for management of marine resources are determined by particularly strong aggregations of vulnerable marine resources, productive fishers and the presence of marine reserves. This paper focuses on geographical distributions and aggregations which have implications for national and regional marine reserve selection and management programmes.

A delicate balance: tigers, rhinos, tourists and park management vs. the needs of local people in Chitawan, Nepal, by Hemanta Mishra (Nepal).

This paper describes the conflicts inherent in trying to establish an effective national park in an area of important agricultural use. It points out the costs in human lives due to attacks by tigers and rhinos, the destruction of crops by wild animals, and the cost to villagers of doing without the resources of the park. On the other hand, the area surrounding Chitwan has been virtually denuded of firewood and thatch for housing purposes, proving the value of strict protection. In order to bring benefits to the local people, the most reasonable option has been shown to be the removal on a planned basis of grasses for thatch and reeds; these have provided, in the 5 year period from 1978 to 1982, some 334,000 kilos of grass worth an estimated US \$2.9 million.

What to do when you've succeeded: Project Tiger 10 years later, by Hemendra Panwar (India).

This paper reviews the progress and future of India's Project Tiger. The action imperatives include strengthening the protected area network to make it functionally efficient and biogeographically representative; ensuring that the management of such areas is compatible with local communities; and providing a strong conservation orientation to community development in the forested regions of India. Project Tiger has stimulated the evolution of a coordinated development strategy for the forested regions of India, based on the realization that the people, the forests, and the wildlife either thrive together in a balanced environment, or stagnate together in a wretched one.

Human dimensions in wildlife management: The Indian experience, by V.B. Saharia (India)

This paper outlines a number of basic issues in wildlife conservation and protected area management programmes. Using four different cases in India, (Chilla, Gir, Dudhwa and Palamou), the paper stresses the importance of linking local people with the conservation programme through identifying wildlife as part of a resource system in the socio-economic sense. It is also important to have an institutional framework where analysis of environmental impacts of development projects become mandatory processes in project planning.

River basin development and protected areas in Sri Lanka, by Lyn de Alwis (Sri Lanka)

This paper describes the accelerated Mahewali project, which represents the first opportunity in Sri Lanka for the integrated and mutually supportive development of a system of protected areas with different management categories in order to bring benefits to both wildlife and people. This favourable situation has been brought about by a realization of the benefits that protected areas can bring, including control of sedimentation rates, mitigation of crop damage, and buffer zone development, as well as flood control, bank stabilization, fisheries conservation, opportunities for tourism, provision of local employment, conservation of genetic resources, and providing educational and recreational opportunities.

Future directions for the Indomalayan Realm, by Kasem Snidvongs (Thailand)

It appears that we are close to the limit of the area which can be established for preservation of natural conditions in the Indo-Malayan realm. Our primary concerns must be on how the increasing population and development pressures will affect the status of protected areas, how to effectively manage the existing areas, and how to convince the decision-makers that the areas are truly worth saving. Each of the countries in the realm differs significantly in socio-economic and political structures; since many of the problems in protected area management are non-technical problems, the varying social, political and economic settings are likely to result in significantly different problems in managing similar environments in different countries. Future directions must continue to adapt to these variable conditions.

Session IIIC. THE OCEANIAN REALM

Keynote Address, by Birandra Singh (Fiji)

Conservation has always been a crucial issue for the survival of the peoples in the various islands of the Oceanian Realm. The introduction of new methods of transportation and communication brought the indigenous inhabitants in contact with new ideas, styles of living and technologies for resource use, greatly affecting the traditional conservation concepts. New methods of conservation have had to be introduced, which include adaptations of the traditional protected area system to the specific situation in the Pacific islands. One major difficulty is the traditional land tenure system, which has led to a number of specific adaptations.

Wildlife management by the people, by Navo Kwapena (Papua New Guinea).

Papua New Guinea is a country rich in cultural and natural resources, where 98 percent of the land is held by customary landowners. This presents problems in establishing national parks and other sorts of protected areas, but a method has been evolved to use tradition to conserve nature. This involves the establishment of Wildlife Management Areas, parcels of land of any size, reserved at the request of landowners for the conservation and controlled utilization of the wildlife and its habitat. Sixteen such areas have already been declared, and 80 more are proposed, including both marine and terrestrial areas. An example of one such area is provided.

Conservation of a limited land resource on Yap, by Margie Falanruw (USA).

Conserving marine resources in Papua New Guinea, by John Genolagani (PNG).

Horseshoe Reef is planned to be the first marine park of Papua New Guinea. The paper discusses the major constraints in developments at Horseshoe Reef, and requests further assistance from Congress participants in identifying practical approaches to the problems involved. These problems include politics, lack of data, finance, administration, and personnel, a formidable set of constraints.

Indigenous island peoples, living resources and protected areas, by Bernard Nietschmann

This paper describes how indigenous island peoples use and manage living marine resources, the significance of those resources to islander society and culture, and the importance of this information in the design of protected areas. It considers cultural ecology and its application to island study and management, ecological characteristics of tropical islands, reefs and coastal waters significant to management strategies, Torres Strait environments and resource history, living marine resources and indigenous conservation, and the implications of these considerations for protected area specialists and indigenous island peoples. It provides a series of nine guidelines for protected areas and indigenous island peoples, concluding that legislated protected areas can meet the needs of indigenous peoples only if those peoples are involved in the design and establishment of new protected area programmes.

Indigenous people and protected areas: Traditional resource management in the Pacific, by R.E. Johannes (Australia).

Local fishermen in Polynesia, Micronesia and eastern Melanesia have an understanding of shallow tropical fisheries which can be invaluable to marine resource use planners. Their knowledge is often superior to that obtained from conventional resource surveys. They have also developed traditional methods of conservation that provide a variety of opportunities for those concerned with establishing and managing protected areas. Recognition of traditional fishing rights can be an important factor in protecting fisheries from over-exploitation. An understanding of local traditions is essential for marine resource use planners.

Future directions for the Oceanian Realm, by Arthur Dahl (New Caledonia)

Session IIID. THE AUSTRALIAN REALM

Keynote Address, by Don McMichael (Australia)

People in parks, by A.M. Fox (Australia).

This paper describes the impact of people on a small unnamed park which has significant ecological attractions, cultural deposits and archeological values. Through the years the impact of humans has changed dramatically, and protected area management has evolved to respond to this different human pressure. Protected areas will receive appropriate attention from public and government only when staff are well motivated and well trained, the purposes and objectives for protected areas are clearly spelt out and accepted, and there are programmes of management which involve the public.

The marine park story, by Graeme Kelleher and Richard Kenchington (Australia)

The Great Barrier Reef is the largest system of coral reefs and associated life forms in the world, covering an area of some 300,000 sq km off Australia's northeast coast. The Australian Government has established a management regime over the area which provides for multiple use of this great system while ensuring that its natural qualities are protected. The paper describes the management regime, which is based on scientific research, public involvement and zoning of areas to separate incompatible activities and to reserve areas for the uses to which they are best suited.

Protected areas and environmental planning in Australia, by J.G. Mosley (Australia).

This paper discusses the range of categories of protected areas which can be used to achieve a variety of conservation objectives. It discusses the moves in Australia to diversify the range of protected areas, including conservation in State forests, conservation in private lands, and conservation of Aboriginal lands. The application of "other protected areas", including landscape protection areas, resource reserves, anthropological reserves, and multiple use management areas, in Australia is discussed. Each of these areas is making an important contribution to conservation in Australia, and can be even more important in the future.

Increasing pressures for resources development in areas of high nature conservation value, by Peter Bosworth (Australia).

Southwest Tasmania occupies 25 percent of the smallest State of Australia and is one of the last three major temperate wilderness areas in the world. It has many features which warrant its conservation, but the area also has potential for the production of water power, minerals and timber as well as for tourism and recreational development. Developing these resources would greatly reduce its conservation value. Efforts have been made to conserve the area and to minimize the detrimental effects of development but these efforts have not solved the basic conflict between conservation and resource development.

Fire and pest species: A Case Study of Kosciusko National Park, by G. Medhurst and R. Good (Australia)

As with almost all the Australian biota, the native flora and fauna in Kosciusko National Park have evolved under a natural fire regime. However, the fire regime of prescribed burning does not duplicate natural fire occurrence and gross changes in plant communities may eventually result. The frequent removal of ground litter similarly can provide a potential for recolonization by alien species, catchment instability and erosion. The structural changes in the plant communities also provide potential habitat for feral animals such as the rabbit, pig, cat and horse. The increase in numbers of these species has contributed to the problems associated with wild dog and dingo management.

Future directions for the Australian Realm, by Don Johnstone (Australia)

In order to adequately respond to the challenges presented by growth in population and the economy, the protected area manager in Australia should be aware of the need to be dynamic, to adjust to socio-economic changes over time and when necessary to do things differently. A diversity of approaches may be most appropriate for the different states of Australia, in order to take account of their different sizes, populations, stages of development and ecological factors. Traditional concepts of "national parks" may need to be modified, and greater emphasis placed on planning control rather than ownership by the Crown. In order to decide among the many alternatives available, protected area managers will need to have a clear set of objectives in mind. Establishing these objectives should be their first task for the future.

Thursday 14 October

Session IVA. **THE ANTARCTIC REALM**

Keynote Address, by Jonathan Elworthy (New Zealand)

Protected areas and introduced species in New Zealand, by Carolyn Burns (New Zealand)

New Zealand's native flora and fauna have evolved in the absence of browsing and grazing mammals and contain many endemic species; during the 1800s, many species of plants and animals were introduced and a number of them have now been spread so widely that they threaten the preservation of native species in protected areas. For this reason, extermination is widely considered to be appropriate management for introduced species in national parks, although control is often the only feasible management goal. A framework for the management of exotic species in national parks and reserves is provided by general policy and individual management plans for each protected area; the public play an essential role in the preparation of both policy and management plans.

Finding ways and means to conserve Antarctica, by P.H.C. Lucas (New Zealand)

Until the late 1950s human impact on the Antarctica continent stemmed from the challenge of exploration. Then, the International Geophysical Year (1957-58) saw the beginning of a continuing programme of scientific research, while territorial claims were frozen with the adoption by interested nations of the Antarctica Treaty which entered into force in 1961. The Treaty provides for Antarctica to be used only for peaceful purposes with concentration on scientific research and safeguards for conservation of its flora and fauna. Mineral resource exploration and possible extraction has become a recurring issue since evidences of hydrocarbons were found. The effectiveness of the Treaty in preserving the Antarctic environment is assessed.

Moving towards a representative system of protected areas in New Zealand, by Paul Dingwall (New Zealand).

Although New Zealand has more than 1500 protected areas, extending over 16% of the total land area and encompassing a wide range of management objectives, the system is biased ecologically toward upland forested terrain. Recent developments in legislation, policy making, administration and information gathering reveal a new commitment to extend the protected area network to lowland and non-forested environments, thereby protecting a fully representative range of the country's natural biota and landscapes.

The Campbell Island story: The management challenge of sub-Antarctic Islands, by Dave McKerchar and W.T. Devine (New Zealand)

Campbell Island illustrates that distance, climate and isolation have not been sufficient barriers to man and his accompanying animal and plant invaders and that island floras and faunas are vulnerable, although sometimes quite resilient after human settlement ceases. The Nature Reserve has a national administrative

structure which guarantees the best scientific advice and management coordination. While resources for surveillance are generally limited for related New Zealand reserves in the Sub-Antarctic, there is a permanently manned Meteorological Station on Campbell. This is critically important for management, with increasing activity in fishing and oil exploration in the surrounding seas.

Reservation of commercially important lowland forests, by Les Molloy (New Zealand)

The lowland indigenous forests of New Zealand are of international importance, for the long isolation of the islands has preserved a flora which retains many of the elements of the ancient supercontinent of Gondwanaland. Whereas 1200 years ago indigenous forests covered nearly 80 percent of New Zealand, today just 21 percent remains. The case study charts the changes in public attitudes and government policy during the past decade, particularly with reference to the indigenous forest of the West Coast of the South Island, a resource sought by the timber industry in the face of public concern about the need to preserve as much as possible of the nation's lowland forest remnants. A number of conclusions are drawn which should be applicable to developing countries attempting to balance forest production with the need to preserve a representative range of protected areas.

Future directions for the Antarctic Realm, by David Thom (New Zealand)

Session IVB. INTRODUCTION TO INDONESIA'S PROTECTED AREAS
Keynote Address: The Balinese view of nature, by the Governor of Bali

Indonesia's network of protected areas, by Effendy Sumardja, Warsono, and John MacKinnon (Indonesia).

This paper describes the criteria for different categories of Indonesian protected areas, including national parks, nature reserves, game reserves, recreation parks, hunting reserves, and protect forests. It defines the sorts of human activities which are permitted in each of the categories, and provides a list of areas that are suitable as national parks or equivalent status, both in the short term, the middle term and the long term. A total of 40 such areas are suggested for Indonesia. The threats to protected areas are also covered.

Development of marine conservation in Indonesia, by Aprilani Soegiarto, Soewito, and Rodney Salm (Indonesia)

Two-thirds of Indonesian territory is covered by seas so there is an urgent need to develop a marine protected area system in order to conserve representative examples of Indonesia's valuable and rich marine ecosystems. This paper discusses the concept of marine conservation in Indonesia, describes progress to present, and outlines a plan for further development of marine conservation. Thirteen areas have been declared as marine protected areas, although there is as yet no fully established management for any of these areas. In addition, 42 proposed marine protected areas are listed, along with 24 existing terrestrial protected areas which include a marine component. There are four broad activities of Indonesia's marine conservation programme, including strategy formulation, establishment of a team of marine conservation specialists, establishment of protected areas, and establishment of a Sub-Directorate of Marine Conservation within the Directorate of Nature Conservation.

National Parks and land-use policy, by I Made Sandy, I Made Tantra, Kuswata Kartawinata (Indonesia)

This paper describes land use patterns as the net result of conflicts between individual, sectoral and public interests, suggesting that population increase and rising demands will result in fierce competition for the use of land in the future. It is seen as essential to involve local communities to share full responsibility for protected areas with the officially appointed managers from the protected area agency. At the highest level of government, priorities must be given to the various alternatives of land use.

National parks and rural communities, by Soekiman Atmosoedarjo, Lukito Daryadi, and John MacKinnon (Indonesia)

National park development in Indonesia is still at an early stage; none of the first parks are yet fully developed and in no case have the buffer zones and other community projects yet been implemented. But existing government programmes of extension and agro-forestry can be adapted to conservation needs. Indonesia already has much experience in all of the components of the proposed methods for minimizing friction between local people and national parks and in maximizing benefits from these areas. This paper describes a number of these

social programmes for protected areas which are being implemented in Indonesia, with hopes that such information will prove useful to other countries facing similar problems.

Involvement of politicians in the development of parks and protected areas, by Prijono Hardjosentono, Fred Hehuwat, and B. Sumarmo

This paper provides some basic approaches to convincing politicians about the need for nature conservation. It covers approaches, both from the top and from the bottom (the grass roots approach) and describes a number of political issues in nature conservation; these include suggestions that problems should be presented with their solutions, the importance of timing, and the importance of non-governmental conservation organizations to achieve political aims in conservation. The paper then describes 20 steps through which conservationists may discover how best to involve politicians in their conservation movement.

Management and conservation of marine turtle populations in Indonesia, by Nyoman Sumertha Nuitja and Sutomo Achmad (Indonesia)

Of the five marine turtle species known to inhabit the Indonesian archipelago, only the leatherbacked turtle, the Pacific Ridley, and the loggerhead are fully protected. The intensive collection of eggs and hunting of the green and hawksbill turtles may endanger the continued existence of these two species. This paper discusses the current knowledge on status and distribution of the species, discusses the main constraints which have impeded management and conservation programmes in the past, and recommends that nesting sites outside turtle reserves should be classified as turtle resource reserves where commercial collection of eggs is supervised.

Saturday, 16 October

Session VIA/B. **THE PALAEARCTIC REALM**

Keynote Address, by Francois Ramade (France)

Keynote address for the Palaeartic Realm, by Francois Ramade

This paper summarizes the coverage of protected areas in the four ecological regions of the Palaeartic Realm – Eurosiberian, Mediterranean, Aralo-Caspian, and Chinese – based on information submitted by the countries involved to IUCN's Protected Areas Data Unit. It covers the factors which are promoting the establishment of protected areas, including promotion from the United Nations and other international organizations, and factors which are obstructing the establishment of protected areas. While the growth in area under protective management has been regular and fairly substantial for the realm as a whole, the achievement of the various countries has been very mixed.

Limited choices: Protected areas in the U.K., by John Foster and Adrian Phillips (UK)

This paper describes the approach developed in the United Kingdom for selection, establishment and management of protected areas, stressing the role played by government. It identifies the important features of this approach, explains these in terms of the circumstances prevailing in the UK and draws attention to the achievements of the system and the outstanding problems. The challenge in the UK has been to develop conservation policies, including those for protected areas, in a relatively small and very densely populated country with very little unaltered natural environment, but where there is a strong public demand for conservation action. Since the total protection of extensive areas of unaltered natural environment is not an option in the UK, it has been necessary to find ways of integrating conservation with other land uses.

The Mediterranean: a regional approach to protected areas, by Hedia Baccar (Tunisia)

This case study demonstrates the importance of the regional approach to protected areas in the Mediterranean region. In the field of marine protection, the United Nations Environment Programme has adopted the regional approach to environmental issues, believing that in this way, efforts could be concentrated on the special problems of each area and all concerned governments would gradually become involved in the safeguarding of their marine environment. Problems of balanced management in the Mediterranean imply that development and implementation of measures to control pollution and monitor protected ecosystems along with the identification and coordination of intervention at the regional level. The different measures and interventions would cover a series of activities concerning protection of the Mediterranean environment, particularly along the coastal fringe. Among these measures, management of protected areas can only be considered in the context of coordinated action.

The economics of a park: Plitvice, Yugoslavia, by Yosip Movcan (Yugoslavia).
A large number of national parks seem to be located in economically under-developed areas. Consequently, they frequently face the problem of inadequate financing. Using the Plitvice National Park in Yugoslavia as an example, this paper points to some ways of improving park revenues. Efficient park management, good organization and control of park attendance, together with suitable package tours, may not only improve park financing, but may also contribute to the welfare of the area where the park is located.

Abruzzo's bears: Reconciling the interests of wildlife and people in Abruzzo National Park, Italy, by Franco Tassi (Italy).

Threshold approach to the definition of environmental capacity: a case study from the Tatry National Park, Poland, by Jerzy Kozłowski (Poland)

This case study presents a planning method for defining the environmental carrying capacity through the identification of boundary constraints, "Ultimate environmental thresholds" (UETs). It shows how it can be practically applied using the Tatry in Poland. The system is aimed at allocating rational use and evaluating ecosystem carrying capacity, drawing on a broad intra-disciplinary approach and integrating a number of diverse elements.

Restoring Przewalski's horse to the Great Gobi National Park, Mongolia, by V. Sokolov (USSR)

Pandas, bamboo, and protected areas.

The Sherpas of Sagarmatha: Trekking-tourism, Ecological Problems, and Cultural Conflicts, by Bruce Jefferies (New Zealand)

The dramatic increase in tourist trekking in the Himalayan regions of Nepal has created serious impacts on the natural and cultural environment of the Sagarmatha National Park area. Direct field involvement and an alternative approach to park planning and management were key elements of what was a very broad-based, but small scale, effort by the New Zealand Government in cooperating with the Government of Nepal in setting up a national park in the Sagarmatha region of the Himalayas.

The adjustment of nature and human activities in Japan's national parks, by Masaaki Sakuri (Japan)

This paper describes the natural and socio-economic characteristics of Japan, outlines the national park system of the country and discusses the present status of protected areas in Japan. It provides a general introduction of the problems faced by national parks, as well as the measures being taken to solve these problems. The importance of national parks for recreation and tourism are given particular attention, along with the problems of land tenure, land ownership, and other land use planning matters of concern in a densely populated country. Some 5% of Japan is currently protected by national parks, and a total 14% of the country is under some form of natural park.

Future directions for the Palaearctic Realm, by Mats Segnestam (Sweden)

Session VIC/D. THE NEARCTIC REALM

Keynote Address, by Russell Dickenson (USA)

Keynote Address for the Nearctic Realm, by Russell Dickenson

The paper reviews the history of the establishment of national parks in Canada, Mexico and the United States. It explains that in the future, those implementing parks policy in the United States will concentrate on consolidation of existing parks, and must be prepared for intensifying pressures outside these areas. Mention is made of the value of the World Heritage Convention, as well as the great contribution to the wider international goals of international friendship and cooperation that is made by all those associated with the worldwide parks and conservation movements

Redwood National Park: A case study in preserving a vanishing resource, by Edgar Wayburn, Michael McCloskey, and Bruce Howard (USA)

The establishment by the United States in 1968 of a Redwood National Park and its enlargement in 1978 to its present boundaries focused worldwide attention on a magnificent natural resource, the *Sequoia sempervirens* or Coastal Redwood. However, the establishment of this park involved much more, as it happened, than the recognition of the importance of a superb species of tree. It involved unusual economic, political, and social, as well as ecological, aspects, and this particular park effort holds important lessons for park proponents both within government and nongovernmental organizations.

The Nature Conservancy of Hawaii's Endangered Hawaiian Forest Bird Project, by Henry P. Little (USA)

In 1980, The Nature Conservancy launched the Endangered Hawaiian Forest Bird Project in an effort to preserve viable populations of many of Hawaii's 23 species of endangered forest birds. The beneficial linkage between economic development and biological preservation in Hawaii is the key to the success of this project; the two newest tropical forest preserves have been established in cooperation with two ranching companies, which have deeded to the Conservancy perpetual management easements in exchange for Conservancy commitments to arrest watershed deforestation and erosion from feral animals.

Preserving and managing habitats for teaching and research: The University of California experience, by J.A. Kennedy

The Mexican biosphere reserve experience, by Gonzalo Halffter (Mexico).

The Politics of Parks in Alaska, by Bob Cahn and Ted Swem (USA)

The politics of parks in Alaska: Innovative planning and management approaches for new protected areas, by Theodore R. Swem and Robert Cahn

Passage of the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 constituted a milestone in protection of US National Parks and Protected Areas. In a single piece of legislation, the US Congress gave permanent protection

to 41,684,000 ha of land in Alaska containing some of the nation's most varied and abundant wildlife. The 10-year effort toward passage of the ANILCA featured remarkable cooperation between conservationists, federal government officials and members of Congress. Special consideration was given to the long-term subsistence, cultural and land ownership needs of the native peoples of Alaska; the provision for wildlife protection and ecosystem integrity; and international factors such as worldwide migration of birds and migratory wildlife moving across the Canada-US border. The non-governmental conservation movement in the US coalesced as a political force to draw support from thousands of citizens and a wide variety of organizations.

Learning to live with exploitation in the Arctic and Sub-Arctic, by Gordon Nelson (Canada)

This case study of exploitation and its effects covers the northern 40% of Canada, some 5 million square kilometres. The flora and fauna include many forest, tundra, wetland and ecotonal associations as well as whales, caribou and other animals whose ecology and use pose major challenges to the scientist, policy maker, planner and resource manager. The presence of a number of indigenous human groups complicates matters even further. Environmental management responses to recent development include general land use responses, and the establishment of protected areas of various types.

The lone prairie: Protected grasslands in Canada, by Steve Kun (Canada)

This case study reviews the nature and extent of natural grasslands in Canada and how it was impacted by human settlement. It summarizes the conservation measures that were implemented from 1900 to 1950 to protect the faunal elements of the Canadian grasslands from extinction due to habitat destruction and over-hunting. The study highlights the actions taken to resolve the social, economic and political constraints associated with the establishment of a national park in southwestern Saskatchewan to conserve one of the last remnants of the grasslands biogeographic province in North America.

The Everglades: A case study, by Jack Moorehead (USA)

Future directions for the Nearctic Realm, by Harold Eidsvik (Canada)

The 1980s will be a period of consolidation. The 1970s saw doubling of park and wilderness areas, leaving both budgets and personnel stretched to the maximum. New funding will be scarce as governments attempt to restrain growing deficits, so managers will be cautious about taking on new responsibilities. Professional management capabilities are increasing and this will lead to significant improvements in the planning and scientific management of protected areas. As many future problems are outside protected area boundaries, managers will need to work with external agencies. Significant expansion will occur in protected areas in northern Canada. The protected area system will be intact for the 1992 Congress.

Sunday, 17 October

Session VIA/B. **THE NEOTROPICAL REALM**

Keynote Address, by Gerardo Budowski (Costa Rica and Venezuela)

Designing a total system: Costa Rica, by Craig MacFarland (Costa Rica/USA).

Starting from the ground up: Developing a conservation ethic on Dominica, by James Thorsell and C. Maximea (Dominica)

This paper describes the development of a new national park in Dominica, a country that previously had no protected areas at all. In establishing the Morne Trois Pitons National Park, 14 coordinated steps are identified: developing local initiative; developing local public awareness; defining an area of priority interest (the Morn Trois Pitons area); obtaining basic equipment; defining the park boundaries; drafting protected area legislation; preparing interim management guidelines; undertaking a field demonstration project; establishing linkages with tourism and education; preparing the education and interpretative programmes; developing the management capacity; continuing the development of park facilities; establishing a research programme; and ensuring follow-up support. The paper draws conclusions from the Dominica experience and suggests how they might be applied elsewhere.

Strategic planning and evolution based on experience in the Lesser Antilles, by Allen Putney, Yves Renard and Ivor Jackson (USA).

The paper describes the activities of the Eastern Caribbean Natural Area Management (ECNAMP), a non-governmental endeavour to improve local capacity to manage natural areas critical to development. The programme consists of a series of projects which combine field action, training, and research activities in ways that are mutually reinforcing. The paper presents a series of tentative insights into planning from the bottom up, showing how substantive materials and field demonstration areas can improve the local capacity to manage. As the field projects generate experience, examples, and guidelines, emphasis will shift to broadening the effort to improve the local capacity to manage. In this way, it is expected that the programme will have an increasing impact on the effective and realistic management of natural resources in the region, and provide a documented experience for managers in other parts of the world.

Inca technology and ecodevelopment: Vicunas in Pampa Galeras, by Carlos Ponce del Prado (Peru).

The vicua was nearly driven to extinction by over-exploitation, but protection has brought about an amazing recovery to the point where vicua can once again be harvested to bring benefits to local people. This paper describes how the vicua was saved, and the steps that are planned for the future to both maintain thriving populations of the species and to use the vicua to bring benefits to local people.

Islands for people and evolution: The Galapagos, by Arturo Ponce and Jose Villa (Ecuador).

Located 1,000 km from the South American coast, Ecuador's Galapagos Islands have attracted the attention of naturalists and conservationists since the time of

Charles Darwin; national park protection has been extended to 92% of the land area. This paper describes an approach to conservation which unites science, protection, and development in a way which benefits the rather limited human population without destroying the resources upon which development depends. Crucial parts of this programme include the continuing scientific investigation; resource protection, which is aimed particularly at eradicating introduced species; training for students and national park managers and special environmental education programmes directed to the local population; and the development of carefully controlled tourism designed to bring benefits to the local people.

Genetic diversity, endemism, and protected areas: The Atlantic forests of eastern Brazil, by Ibsen de Gusmao Camara and Russ Mittermeier

Genetic diversity, endemism and protected areas: A case study of the endangered primates of Brazil's Atlantic forest region, by Admiral Ibsen de Gusmao Camara and Russell A. Mittermeier

The Atlantic forests of eastern Brazil are a unique series of ecosystems quite distinct from Amazonia. These forests contain a large number of unique species of plants and animals, including two genera (*Leontopithecus* and *Brachyteles*) of primates. Unfortunately, these genetic resources are under severe pressure from alternative forms of development; local and international efforts in Brazil are concentrating on conserving at least representative samples of the remaining habitats and key species in the Atlantic forests.

They survive under the southern winds: Wildlife protection in northern coastal Patagonia, by Ricardo Luti

The Valdes Peninsula in Argentina's Chubut Province is an arid terrestrial habitat which supports a surprising diversity of wildlife, accompanied by an exceptional marine fauna which includes seals, elephant seals, penguins, whales, and dolphins. In pre-colonial times, the local people lived in harmony with this harsh-appearing environment, but the massive cultural change which came with the Europeans brought increasing threats to the wildlife. As a result, the provincial authorities developed new ways on conservation, establishing three protected areas. Early problems involving uncontrolled tourism and lack of trained personnel have been overcome, and today the area appears to have stabilized as an important protected area bringing benefits both to people and to wildlife.

Brazil's protected area system in the Amazon, by Maria Tereza Jorge Padua and Angela Tresinari Bernardes Quintao (Brazil)

This paper describes the programme by which Brazil created seven new conservation units in the Amazon in the past three years, totalling about 7 million hectares. It describes the approach that was taken in deciding which of these areas are of highest priority, and determining the network of areas that is required to conserve centres of diversity and Pleistocene refugia and other sites of biological importance. This methodology is suggested to be of general importance for the design of protected area systems. The next stage in Brazil will

be the creation of 30 new protected areas, including a number of management categories which do not yet exist in Brazil.

Waterfalls and hydropower: Canaima National Park, Venezuela, by Rafael Garcia

Future directions for the Neotropical Realm, by Marc Dourojeanni (Peru)

This paper analyses the principal characteristics of protected areas in the Neotropical realm, indicating how they are expected to adapt to the coming decade. The paper points out some of the difficulties facing the establishment of new protected areas, the problems in maintaining existing areas – colonization, highways, mining, hydraulic infrastructure, exploitation, pollution and tourism – and concludes with a number of suggestions on what should be done in the future.

The use of protected areas for environmental monitoring, by Harvey Croze

The paper examines the question: what are the most useful things to do in and around a protected area? The first is to decide as precisely as possible what particular type(s) of land use will be served: agriculture, agroforestry, watershed management, special ecosystem conservation, national parks, hunting reserve, etc., or any combination of the above. The second is to establish a system of data gathering which will produce, as inexpensively as possible, analyzed data for those responsible for managing the area. That information must be geographically based, since land use planning decisions necessarily deal with precisely defined geographical areas which contain particular ecosystems, and which have particular ecological, social and economic relationships with neighbouring areas. The data collected should be compatible with those collected from similar ecosystems in other areas, in order to ensure that experience is shared and costly duplication of effort avoided.

Depending on available finances and manpower, the next most useful thing to do is a resource inventory: enumeration and spatial referencing of the components of the particular ecosystem(s) in question. Finally, if possible, the inventory should be repeated in a time series of environmental monitoring, paced to the seasonal rhythm of the area under study, in order to produce information on ecosystem trend and function. Both are necessary for rational environmental management.

The paper goes on to suggest that it is a relatively easy exercise to make a logical, operational link between the ultimate development goal of optimizing human welfare, and the technical components of ecological monitoring. Thus there is an *a priori* case for investment in monitoring. Apart from that, it turns out that monitoring results are actually useful, both for managing the area in question, as well as for extrapolating from the intensively-studied area to much wider regions.

The paper then describes ecological monitoring within the United Nation's Global Environment Monitoring System; gives examples of how the data are used in decision-making; and poses an hypothesis for a global geographical environmental information management system, which, when combined with a sensitivity for "living space" requirements for burgeoning human populations, could produce the most important and relevant data for land use planners over the next half century.

Getting Caught with Our Genes Down: Managing Protected Areas for Genetic Conservation, by Robert Prescott-Allen

In situ conservation of genetic resources: Determining minimum area requirements, by Bruce Wilcox (USA)

This paper offers an introduction to the conservation of genetic resources in protected areas, presenting basic concepts of genetics and island biogeography and showing how these can be applied by the protected area manager to real situations on the ground. It focusses on the problem of minimum effective size of protected areas, showing how the process of extinction works in small areas.

A method for selecting appropriate "target species" is outlined, along with the methodology for estimating minimum viable populations of the target species. Many of the factors of extinction are caused by man, and therefore can be overcome by more effective management; but more difficult are the chance factors – natural catastrophes, environmental variation, chance demographic events, chance genetic events, and the like – for which the only defense is as large and diverse a population as possible.

Eternal values of the parks movement and the Monday morning world, by Norman Myers

During the coming few years, we must get the parks and protected areas movement established as an accepted phenomenon in a crowded world; if we don't, the end of the century may see us with little of our parks movement left, at least in its present worldwide form. Plainly, the world is running out of space for everybody to do everything they want, but there is growing awareness that wild nature can play an appropriate part in the modern world. In order to accomplish this, protected areas must be coordinated with modern man rather than confront him; far from being considered as "set aside", a park should be viewed as being brought into the main arena of human affairs.

Protecting wild genetic resources for the future: The Need for a world treaty, by Cyrille de Klemm

This paper contains an analysis of some of the deficiencies of present treaties dealing with the establishment of protected areas, proposals for a world treaty on the conservation of genetic resources of wild species, and suggestions on certain areas for research into protected areas and general legislation.

The relationship between protected areas and indigenous peoples, by Ray Dasmann (USA)

"Wilderness" – natural areas untouched by man – has always been rare, but only recently have people started drawing lines on maps and preventing people from using resources they have traditionally exploited. But without the support by local people, the future of any protected area is insecure, since in their search for the means of their own survival, the temptation to exploit reserved resources may be irresistible. Such support should not be difficult to obtain, provided the proper approach is used; but nature conservation is not to be accomplished only by the setting aside of specially protected natural areas – it must be practiced in all places at all times. Guidelines on how to provide for long-term positive interactions between local people and the natural environment are provided.

Ecosystem or Biosphere? Global Sharing and National Self-Interest, by David Munro (Canada)

The establishment and management of protected areas must be considered in the context of the continuing quest for security. Far from being a drawback, this will provide great strength to the protected area movement, as it will relate human self-interest to the establishment of protected areas. A comprehensive, global system of protected areas will materialize only as a result of effective political action which is supported by broadly based public understanding. The cost of such development should be shared broadly.

An international society of protected area professionals, by CNPPA

Given the remarkable increase in number of protected areas and in the science of managing such areas, a number of people have suggested that it is time to consider establishing an international guild of those professionally involved with national parks, national forests, and other sorts of natural lands which are managed to attain conservation objectives as established in the World Conservation Strategy. The proposal is put forward as a basis for discussion, leading to a consideration of actions to be taken at the Congress.

The Bali Declaration, by CNPPA

In order to communicate to the rest of the world precisely what the enterprise of protected areas is all about, CNPPA has prepared a draft "Bali Declaration" which was circulated to the entire CNPPA membership network for comments. The result of the exercise is presented here as a draft declaration, for discussion and further refinement at the Congress. A committee will be appointed for this purpose and report back to the Congress at the closing session.

Monday 18 October to Wednesday 20 October

Sessions VIII to X. WORKSHOPS: PREPARING TOOLS FOR THE MAN ON THE GROUND

Once the principle of planning and managing protected areas for socio-economic development objectives has been accepted, it becomes necessary to provide a means by which the principle can be put into action on the ground. The first three days of the second week of the Congress will be devoted to three simultaneous workshops, each based on materials prepared before the Congress and each aimed at producing a manual which is a practical "state of the art" synthesis for those professionally involved with protected area management. The titles of the workshops and the manuals to be produced:

- I **MANAGING PROTECTED AREAS IN THE TROPICS**
- II **MANAGING COASTAL AND MARINE PROTECTED AREAS**
- III **TRAINING PROTECTED AREA PERSONNEL**

Each of the three workshops will have an overall Workshop Coordinator, who will be responsible for running the twelve workshop sessions; each of the workshop sessions will have a Session Chairman. While most workshop sessions will be based on papers prepared separately for the session, links with the case studies and other plenary session papers will be crucial to the success of the workshops. The aim is to develop a body of principles for managing protected areas, managing coastal and marine protected areas, and training protected areas personnel, to provide guidelines for implementing the principles, and to illustrate the principles and guidelines with examples from various parts of the world; the illustrations will show how the general principles can be adapted to specific local situations.

It is not expected that a final product will be produced at the workshops. Rather, we hope to develop, in as polished form as possible, a set of written principles and guidelines, with indications of which of the case studies presented at the Congress contain useful illustrations of the principles. The Workshop Coordinators would then work with the CNPPA Secretariat to develop the final product, which would be commercially published.

It should be stressed that these are **workshops**. Their structure is flexible; their content will reflect the desires and diligence of the workshop leaders and participants.

Detailed outlines of the chapters begin on page 62.

Thursday 21 October

Session XIAB. **PROMOTING INCREASED INTERNATIONAL SUPPORT FOR PROTECTED AREAS MANAGEMENT**

Keynote Address: The World Conservation Strategy: How to bring real benefits to those in need, by Emil Salim (Indonesia)

The Council of Europe Work on Protected Areas, by Division of Environment and Natural Resources (France)

This paper describes the work of the European Committee for the Conservation of Nature and Natural Resources, mainly centred on the protection and management of the natural heritage. Under the Council of Europe, the Committee has instituted the "European Diploma", which has proven effective in conserving the most representative sites and landscapes in Europe; established the European network of biogenetic reserves, which will enable the genetic heritage of Europe to be conserved; and instituted the Convention on the Conservation of European Wildlife and Natural Habitats (the "Berne Convention"), which is aimed to encourage initiatives concerned with protected areas while stimulating sound management of all natural habitats.

Cooperation between government and the private sector, by G. Ray Arnett (USA).

The role of international development agencies in promoting effective management of protected areas, by Arne Dalfelt (Norway).

Development and conservation: Coexistence through rational planning, by J. Leroy Balzar

This paper, written by a representative of industry, covers the planning of resource use with respect to development and conservation. The paper welcomes the **World Conservation Strategy** and shows how industrial resources, such as technology, labour and capital, can be used to contribute to the process of rational resource planning. All interests, whether managers of protected areas or international developers, must work together to meet the need of defining rates for sustainable resource production and consumption in order to plan areas for preservation, development or maintenance of production. While all interests may not be consistently be in agreement, working together is mandatory to obtain the best results for all.

The Exchange of Wildland Technology: A Management Agency Perspective, by Gary Wetterberg (USA)

This study presents a management agency perspective on international exchange of wildland technology. Underlying reasons for increasingly shared expertise on an agency-to-agency basis are explored along with expected future trends. Both structured cooperative activities (ones under a formal umbrella agreement) and unstructured exchanges are discussed. Various recent examples of agency-to-agency exchanges are given, illustrating a diversity of topics as well as of countries involved.

Ten years later: The Smithsonian international experience since the Second World Parks Conference, by Ross Simons

This paper discusses recent programmes of the Smithsonian Institution, including the Nepal-Smithsonian Terai ecology project and the Barro Colorado Island in Panama. The paper stresses the importance of conservation foundations to support appropriate activities in developing countries, particularly in developing cooperative programmes. The importance for increasing interchange of information between scientists and resource managers is highlighted and several suggestions are made on how to overcome the barriers. The Smithsonian hopes to continue to play a greater role in natural resource protection around the world.

Session XIC/D. **UNITED NATIONS INVOLVEMENT IN PROTECTED AREAS MANAGEMENT**

The United Nations Environment Programme and Protected Areas, by Reuben Olembo

Within the framework of the World Conservation Strategy and the Charter for Nature, UNEP together with the other members of the Ecosystem Conservation Group, i.e., FAO, Unesco and IUCN, have played an important catalytic role in planning and establishing systems of terrestrial and marine protected areas as well as ensuring that each area is managed effectively. For example, UNEP and IUCN have undertaken surveys of the distribution of existing terrestrial and marine protected areas at global, regional and national levels and the extent to which they cover representative samples within different natural characteristic ecosystems of the area has been established. On the basis of this work, recommendations were made for additional areas that should be protected. Consultations have been held with the national parks administrators and scientists in the areas concerned, and working conferences for national park officials have been convened to consider the establishment of mechanisms for consultation and cooperation as well as the initiation of follow-up action. Technical advice on the identification, planning, establishment and effective management of terrestrial and marine protected areas in relation to relevant social and economic conditions of specific regions has been provided and encouragement has been given for the establishment of an effective network of protected areas. Effective decision-making in respect of protected areas must be based on accurate inventories which provide a tool for identifying priorities. Action which has been taken in this regard includes publications produced with UNEP's assistance by the IUCN Commission on National Parks and Protected Areas (CNPPA).

Training and education activities in national park and wildlife management has been promoted, especially for developing countries and particularly in Africa through UNEP's fellowship assistance to the College of African Wildlife Management in Mweka, Tanzania. Exchange programmes for national park and wildlife managers such as international workshops and study tours, have been organized and extension and public information activities undertaken. For example, the joint UNEP/FAO Regional/Quarterly Bulletin on Wildlife, National Parks and Wildland Conservation ("Tiger Paper"), for the Asia-Pacific region has been issued for many years; similar regional publications are about to be launched for Africa and Latin America ("Elephant Paper/Nature et Faune" and "Puma Paper"). Information on parks management on a global scale is being provided through the "PARKS Magazine" by a Consortium of IUCN, UNEP, FAO, Unesco, WWF, Canada, USA, France, Australia and New Zealand.

FAO and Protected Areas concerns: Promoting increased support, by Gil Child

How Unesco's Man and the Biosphere Programme is contributing to human welfare, by Bernd von Droste.

Biosphere reserves in concept and practice, by Kenton Miller

The concept of the biosphere reserve provides a framework to relate natural resource management to the needs of people. More than 84 percent of established

biosphere reserves in the world are based upon pre-existing national parks and other types of protected areas. A review of the advantages and disadvantages of biosphere reserves suggests that this new management approach can serve to compliment existing practices and address resource problems in surrounding lands to ensure that agriculture, grazing, forestry, fishing and other resource uses can be enjoyed sustainably. Ten strategies for action are suggested to overcome many of the weaknesses in implementation of the biosphere reserve programme to date, including: full recognition of management as a profession, focusing research and monitoring on management problems, providing educational information to the public on serious issues, demonstration and extension of lessons learned to resource users and political leaders, strengthening financial and institutional support, and the establishment of advisory committees. Specific projects are recommended to study the biological viability of the natural core areas, provide a series of workshops for managers, and implement a model biosphere reserve.

The biosphere reserve and its relation to other categories of protected area, by CNPPA.

This paper was published by IUCN and Unesco in 1979, showing how the biosphere reserve category can be used to attain conservation objectives which are contained in a number of other management categories. The paper is being presented at the Bali Congress to form the basis for discussions leading to a second generation of the paper, building on experiences from around the world in implementing biosphere reserves on the ground.

Session XIX. **THE WORLD HERITAGE CONVENTION**

The World's Greatest Natural Areas: An indicative inventory of natural sites of World Heritage Quality, by CNPPA.

Beginning in 1980, IUCN's Commission on National Parks and Protected Areas has been collecting information and advice from around the world on the compilation of an indicative inventory of natural areas which may be of World Heritage Quality. This paper, accompanied by a slide presentation, is the first edition of what is expected to be a continually evolving process of identifying the world's outstanding natural sites. It is hoped that the inventory will lead to the nomination of more natural sites to the World Heritage List, and to more nations joining the Convention.

The World Heritage Convention: What it is and what it means to protected area managers, by Ralph Slatyer, Chairman of the World Heritage Committee

This paper gives a brief outline of the history of the World Heritage Convention (including its endorsement by the Second World Conference on National Parks in 1972), reviews its progress to date, and gives a few illustrations of what it has meant to the protected areas which have been listed.

What World Heritage has meant to Ethiopia, by Teshome Ashine (Ethiopia)

Ethiopia contains a variety of World Heritage Sites, including the natural site of Simen National Park, the mixed cultural/natural sites of the Lower Awash and Lower Omo valleys (where some of the most important human paleontological sites have been found), and the cultural sites of Axum, the rock-hewn churches of Lalibela, and the castles of Gondar. All of these had already been identified by the government of Ethiopia as of outstanding value to the nation. However, the support of World Heritage recognition has been of outstanding benefit to help ensure that the government of Ethiopia is able to implement its management activities.

World Heritage: Where is it going? by David Hales (USA).

New criteria for selection and evaluation of World Heritage Sites, by Harold Eidsvik (Canada)

Criteria for World Heritage in Danger, by D. Navid (USA)

This paper is an investigation of the issues involved in establishing criteria for the inclusion of natural heritage properties on the List of the World Heritage in Danger. It is presented as a basis for discussion, leading to a proposal to the World Heritage Committee at its next meeting.

Friday 22 October

Session XIIA/B. **CONCLUDING SESSION**

Concluding Address: A Plan of Action for the Future: What to accomplish by 1992, by Kenton Miller

Closing Address: (Title to be selected), by Professor Soedarsono (Minister of Agriculture).

WORKSHOP I

MANAGING PROTECTED AREAS IN THE TROPICS: Principles for Managers of Natural Areas

Scope. The conservation of natural areas has come of age. There are now well over 2000 national parks and major protected areas around the world, totalling over 380 million hectares; virtually every nation has its system of protected areas. Training centres for managers have been started in many parts of the world and increasing numbers of universities offer courses in management of natural lands. What is needed today is a definition of the role and function of protected areas in the process of social and economic development which will help ensure that governments provide the necessary support for designing protected area systems, developing personnel, providing appropriate legal and administrative structures, and effectively managing protected areas. The first step is for the professionals involved in protected areas to define their own principles for management.

This workshop is aimed at producing a book for the individuals who are actual or potential protected area managers in the tropics; managers and researchers from the temperate zone will be involved in the book both through making their expertise available for developing principles which can be broadly applied, and through applying the new approaches developed for the tropics to problems in the temperate zone. The book will not be about techniques such as road-building, but rather about the principles of protected area management. Each of the basic principles will be illustrated with appropriate case studies, drawn from all parts of the world.

The following outlines of the workshop sessions include a short overview of the topic, a set of principles and guidelines for discussion, a short list of key plenary session papers (surely not exhaustive), and abstracts of invited papers or voluntary papers which are relevant to the topic. In addition, there will be other materials available from participants or from background material submitted to the Secretariat. Participants are urged to submit any other of their own contributions in writing so that they may be included in the final publication.

All participants are further encouraged to contribute their expertise to the various workshop sessions, to provide photographic or other illustrative material, and to make suggestions on the final publication.

It may well transpire that the participants will feel that the principles and guidelines are sufficiently useful to be applied to the entire world, not just the tropics. The title of the final book may reflect this expanded scope.

Session I.1 **MANAGING PROTECTED NATURAL AREAS TO CONTRIBUTE TO SOCIAL AND ECONOMIC DEVELOPMENT: POLICIES TO MEET EXPANDING NEEDS**

Overview. Conservation is defined in the *World Conservation Strategy* as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations." Living resource conservation has three specific objectives: to maintain essential ecological processes and

life-support systems; to preserve genetic diversity; and to ensure that utilization of species and ecosystems is sustainable. Conservation therefore is able to make an important contribution to social and economic development, but new policies must evolve in order for national parks and other categories of protected areas to make their most useful contribution to development. This chapter discusses the principles for establishing protected areas policies, serving as an introduction to the chapters that follow. Specific policies are required for managing protected areas according to objectives, managing for the benefits of genetic resources, managing for ecological process conservation, and many others.

Principles and Guidelines (proposed for discussion only)

a) An introduction outlines how protected areas can contribute to the implementation of the *World Conservation Strategy*, and to social and economic development. This topic is considerably expanded in the other chapters of the book.

b) Some basic policies are established: i) Countries need a wide range of protected area categories in order to attain different objectives; ii) Protected areas should form an integral part of any regional land use plan; iii) Protected area systems should be managed in such a way as to help meet social and economic needs of the country; iv) The effective management of protected areas is sufficiently important to countries that appropriate resources should be allocated to the task; v) Protected areas personnel should be considered professionals, with appropriate training provided at all levels; vi) Protected areas require appropriate legal and administrative structures if they are to attain their desired objectives; vii) Each protected area should have a plan of management, and the country should have a protected area systems plan; viii) Methods should be developed in each country for determining when management is effective in meeting conservation objectives; ix) International support for protected area management is widely available and could be expected to expand as the areas contribute more effectively to development concerns.

Key plenary session papers. I.B. The role of protected areas in implementing the *World Conservation Strategy* (Lee Talbot); II.B. How protected areas can help meet society's evolving needs (P.H.C. Lucas); VII.C. Institutional frontiers (Cyrille de Klemm); VII.D. The Bali Declaration.

Session I.2. CATEGORIES, CRITERIA, AND OBJECTIVES FOR PROTECTED AREAS

Overview. The social and economic well-being of mankind requires that some areas be retained in their natural state. The flow of rivers and streams, the maintenance of genetic materials, the protection of scenic and aesthetic areas, and the opportunity for individuals to enjoy their natural heritage are just a few of the benefits received from establishment and management of natural reserves. This chapter, based on a CNPPA paper of the same name, sets out the basic principles of establishing management objectives for protected areas and categorizing the area based on management objectives (national park, nature reserve, multiple-use resource reserve, biosphere reserve, etc.). The major theme is that the manager of natural lands has a whole range of management possibilities in addition to the national park.

Principles and Guidelines (proposed for discussion only)

- a) Many of the benefits of natural areas can be produced in perpetuity if management is properly designed and implemented. However, some of these benefits are incompatible; for example, research on natural ecosystems is difficult in a forest under intensive management for timber production. But the sustainable production of benefits from natural areas is the major objective of conservation, however these benefits may be produced.
- b) Taken together, all of the different categories of protected areas can provide for many human and environmental needs and increase the amount of land maintained in a natural or semi-natural state.
- c) The categories of protected areas which are established by nations reflect their particular resources and requirements.
- d) All conservation areas, regardless of category or nomenclature, can be given appropriate recognition based upon their functional management and their effective role in conservation and development.
- e) International organizations are working with national governments to prepare programmes and plans which address strategic aspects of global conservation. A range of alternatives for protected area management will enable these efforts to be more meaningful and effective.
- f) IUCN's Protected Areas Data Unit is compiling information on all of these categories, with priority going to those for which maintenance of the natural state is a major objective.

Key plenary session papers. II.A. The World Coverage of Protected Areas (Kenton Miller); II.A. The Protected Areas Data Unit (Jeremy Harrison); III.D. Protected areas and environmental planning in Australia (J.G. Mosley); VII.A. Designing a total system in Costa Rica (Craig MacFarland).

Submitted papers

Categories, objectives and criteria for protected areas, by CNPPA

The national park is just one type of protected area; it can be complemented by many other sorts of areas under conservation management. Nomenclature of the different sorts of protected areas has obscured the important point that there are really relatively few basic objectives for which areas are established and managed.

The nomenclatural confusion can be greatly eased by a system of categories based on objectives of management. Ten categories are suggested in this paper: I. Scientific Reserve/Strict Nature Reserve; II. National Park; III. Natural Monument/National Landmark; IV. Nature Conservation Reserve/Managed Nature Reserve/Wildlife Sanctuary; V. Cultural Landscape/Heritage Landscape; VI. Resource Reserve; VII. Natural Biotic Area/Anthropological Reserve; VIII. Multiple-use Management Area/Managed Resource Area; IX. Biosphere Reserve; X. World Heritage Site (natural). The objectives for each of these categories is specified in the paper, which is a revision, based on four years of discussion, of CNPPA's 1978 version of this paper.

Categories for protected areas in Australia: The present position, by G.J. Armstrong (Australia)

Individual national parks and wildlife agencies in Australia supported the principles and proposals contained in the 1978 CNPPA paper "Categories, Objectives and Criteria for Protected Areas". While it was considered that it was too complex for general introduction at this stage the NSW NPWS is introducing the system into its planning and management systems so that by 1983 all areas within its administration will be classified, and have appropriate management objectives and commitments identified. The system is also being applied to individual management units within areas to reinforce management commitment. The value of the CNPPA system in regional and sub-regional planning is also appreciated, and its use in these areas is being pursued by the NPWS with other land management authorities.

Session I.3 THE BIOGEOGRAPHICAL BASIS FOR PROTECTED AREAS SYSTEMS

Overview. A system of classifying the natural regions of the world is a basic tool for evaluating the effectiveness of conservation and for determining priorities for conservation action. This chapter describes the IUCN system of biogeographic provinces for the world (specially up-dated and revised for the Congress), then demonstrates applications of the biogeographical approach to national systems of protected areas. The major principle is that protected areas systems should be based on biogeographical coverage, which could include a wide range of specific approaches (Holdridge, etc.) at the national level.

Principles and Guidelines (proposed for discussion only)

- a) Biogeography provides an important approach to determining the coverage of natural diversity by protected areas. However, systems which are useful at an international scale (such as the system used by IUCN in its Protected Area Data Unit) must be considerably modified if they are to be applied to the national level.
- b) There are other important biogeographic principles which need to be considered when designing protected areas and systems of protected areas. Important among these is the theory of island biogeography (which states, in essence, that the smaller is an area, the fewer species it will hold; and that the more isolated an area is from a source of immigrants, the fewer species it will hold. It is also important to consider centres of endemism, those particular areas which are especially rich in diversity of species, and areas that were refugia during certain periods in the Pleistocene Epoch; such areas, if they can be identified, may be of outstanding importance in maintaining genetic diversity.
- c) It is particularly urgent that biogeographic principles for the design of reserves and area systems be formulated, as the options are fast disappearing for altering existing areas and creating new ones.
- d) A major international system of protected areas is based on securing representative coverage of the earth's major ecosystems: the Biosphere Reserve system of Unesco. It is important that this system be supplemented by a large number of other reserves based on national requirements for protected area coverage.
- e) This chapter will include a number of national approaches to the problem, stressing the tropical countries; but lessons learned from systems design in temperate regions will also be included.

Key plenary session papers. II.A. The Biogeographic Provinces of the World (Miklos Udvardy); II.A. The Marine Biophysical Provinces of the World (Carleton Ray); II.A. The World Coverage of Protected Areas (Kenton Miller); IV.A. Moving towards a representative system of protected areas in New Zealand (Paul Dingwall); V.B. Indonesia's network of protected areas (Effendy Sumardja, Warsono, John MacKinnon); VII.A. Designing a total system in Costa Rica (Craig MacFarland); VII.B. Brazil's protected areas system in the Amazon (Maria Teresa Jorge Padua)

Submitted papers

A system of national parks: the Canadian experience, by Chris George (Canada). The management of protected areas can be enhanced if clear statements of objectives can be established for each protected area. The selection of protected areas on a biogeographical basis provides a rationale for the selection of areas; when a rational basis exists for the establishment of such a system, it becomes much more feasible to determine management objectives. The review of Canada's approach to using the biogeographic or natural region basis for protected area systems has shown that there have been major accomplishments in the application of this approach at the international, national and provincial levels. The greatest challenge, however, lies ahead: to find ways of filling in the gaps for those areas which are not yet represented by a protected area.

The Ecuadorian system of conservation of natural areas, by Arturo Ponce Salazar (Ecuador).

After two years of preparatory work, a national strategy for conserving outstanding natural areas of Ecuador was produced in 1976. The study had three major objectives: in the short term to identify the best natural areas in the country, to determine the most adequate system of management for each area, and to establish priorities among these areas; in the medium term, to protect the most important ecosystems in the country and to offer goods and services for urban areas through the administration of protected areas; and in the long-term, to manage the natural areas of the country to provide sustainable goods and services for the benefit of the population without decreasing the natural capital of these areas. The system was based on biogeographic provinces, which have been applied along with an assessment of the legal, social, and economic constraints.

Methods and criteria for selecting and evaluating reserves for conservation in Indonesia, by John MacKinnon

This paper discusses the evaluation and determination of priorities in selecting and developing areas of conservation interest. Areas are described on the basis of biogeographic divisions, habitat divisions, agroclimatic divisions, and distinctive geological formations. Priorities are described on the basis of importance in preserving genetic resources, socio-economic justifications, and management feasibility. Indices are provided for many of these factors, providing a methodology which may have much wider applications.

Session I.4. THE LEGAL AND ADMINISTRATIVE BASIS FOR MANAGEMENT: ORGANIZATIONAL DESIGN

Overview. This chapter deals with guidelines for protected area legislation, at international and national levels, then outlines principles for developing specific regulations for individual protected areas. The basic principle is that whatever legal system a country uses, protected area management must be based on legislation which is appropriate to the area. The major international conservation conventions are summarized in boxes. The chapter also deals with the administrative basis of management, outlining the principles of organizational design to carry out the established policies.

Principles and Guidelines (proposed for discussion only)

- a) The importance of international conventions: Establishing a consensus of conservation ideals; reminding nations of their own obligations; providing a checklist for countries to judge their own performance and degree of participation in the global effort. A major point: The effectiveness of these instruments depends largely on the will of the nations who are signatories.
- b) The problem of legal rights of indigenous people is of particular concern, as many "natural" areas are occupied by native peoples who are not part of the mainstream culture. Can pluralistic legal systems provide a solution?
- c) Indigenous people also often have customary controls (such as taboos, seasonal prohibitions, religious observances, etc) which have served as customary law with the function (if not the design) of conserving living resources. To what extent can the modern legislative needs of nation-states be met by such customary law?
- d) As a general principle, protected areas should be established by legislation or degree with the force of law; areas should be de-listed only by the highest legislative body in the country.
- e) Legal measures will vary widely among countries with different land tenure systems. It is often considered ideal to have national parks and other protected areas of similar status under ownership of the central government, but there are many variations. Most common is ownership by provinces or states within the country (as in India, Malaysia, and many other federal systems); in many such countries, there are both national and provincial parks. In some countries, government ownership may not be necessary, provided there is government control over land use (such as the Napoleonic Code concept of "administrative servitude"). It may also be possible for private ownership to provide appropriate protection for the achievement of conservation objectives.
- f) Different levels of control by a central government also require different legal approaches, with strong central governments often seeming to have more control over protected areas. But whatever the legal system, there is still a necessity for providing legislation which is designed to fit the specific need of the country, and regulations for each individual protected area which is designed to fit local needs and to promote local support for the area.
- g) Appropriate administrative structures are also of concern. Many countries have several parallel administrative structures dealing with protected areas having different management objectives; a national park department, game department, and forestry department are often found in the same ministry. In

many other countries, the organization responsible for protected areas is found within the Forestry Department, which has administrative control over the non-agricultural state land of the country; in such cases, it is important that the protected area system have a sufficient degree of organizational autonomy to ensure that conflicts of objectives are avoided.

Key plenary session papers. II.B. The permanence of conservation institutions (Wolfgang Burhenne); VII.C. Institutional frontiers: Developing administrative structures for the 21st century (Cyrille de Klemm)

Submitted papers

The legal and administrative basis for management: Organizational design, by Bruce Davis

This paper identifies some basic principles which should be incorporated into legislation governing the conservation of national parks and protected areas, notes the strength and weaknesses of particular forms of administrative organization for managing protected areas, and initiates a programme to record comparative lessons of experience about statutes and institutions for nature conservation activities. Administrative organization is given particular attention, while realizing that each arrangement has particular strengths and weaknesses. The importance of having central policy units, research units, and appropriate data base and monitoring facilities, field management operations, interpretive programmes, logistic support, and advisory committees are all discussed.

Law and protected areas: The manager's role, by Barbara Lausche (USA)

Law and legal process become involved directly with protected areas when strategies and institutional arrangements necessary for the programme structure and authority are being developed. These arrangements may take a variety of forms, from government agency decision making, laws, and regulations, to other means of formally or informally influencing human behaviour in order to effect change and achieve the desired conservation objectives. An understanding of the strengths and weaknesses of existing legal systems puts the manager in a strong position to interact with the legislative process in creating and maintaining the institutional mechanisms which can respond to the natural resource, social, and cultural setting in which they must operate.

Terrestrial protected areas in international law, by Cyrille de Klemm (France) and Daniel Navid (USA)

This paper is a review of international conventions and networks dealing with terrestrial protected areas, with conclusions for future requirements. It provides the rationale for international conventions and outlines the provisions of the World Heritage Convention, the Ramsar Convention, the African Convention on Conservation of Nature, the Western Hemisphere Convention, the Antarctic Treaty, the South Pacific Convention, and the Bonn Convention.

Managing protected areas in a federal system of government, by Phillip Lee (Australia)

This paper describes the implications of the Australian federal system of government for the establishment and management of protected areas. In such systems, protected areas may be competently run by State or Provincial governments (which are then "the highest competent authority" following the IUCN definition of National Park). In federal systems, cooperation between different levels of government may be the most effective way to promote effective management of protected areas. International treaties should take into consideration the administrative structure of federal systems, and include federal clauses when necessary.

Session I.5 PROTECTED AREAS AND REGIONAL PLANNING

Overview. This chapter provides principles for integrating protected areas management into the regional context, in order to develop linkages with other sorts of land-use in surrounding areas (watershed protection, buffer-zone development, etc.). The basic principle is that the protected area is not an island unto itself, but an important part of the entire region; and that management must take the regional context into consideration.

Principles and Guidelines (proposed for discussion only)

- a) The role of protected areas in integrated land-use planning must be specified in social and economic terms so that "protection" is seen as an important land-use option within a total system of allocation of land resources to appropriate uses. The aesthetic needs of societies should be given due attention..
- b) The management of adjacent lands needs particular attention, particularly buffer zone development, controlling incompatible land uses, dealing with conflicting claims to land, how land tenure affects management, etc. Means of legislating such management should be considered here (using India and Mexico as examples).
- c) Political links must be forged with planning agencies in order to ensure that protected areas are given appropriate consideration in land-use plans and budget allocations.
- d) The relationship between protected areas and other forms of use of forested lands could be much more productive for the objectives of conservation if it were made explicit, and if there were regular dialogues between the respective management authorities..
- e) The role of indigenous people in regional planning will be given due attention, including the contribution of traditional land use systems to modern systems, traditional rights to the land, subsistence economies, problems encountered as a result of cultural and linguistic differences, etc.
- f) What are the lessons from regional planning in the temperate zone which can be applied to the tropics? (Insights into the conservation steps that can be taken when many desirable options are closed, etc.). What adjustments to these lessons may be needed in various biomes and political systems?

Key plenary session papers. II.B. Planning for regional harmony in land use (Keith Garret); II.D. The role of protected areas in reclaiming the Sahel (J.A. Gritzner and John Newby); III.B. River basin development and protected areas in Sri Lanka (Lyn de Alwis); III.D. Protected areas and environmental planning in Australia (J.G. Mosley); IV.A. Moving towards a representative system of protected areas in New Zealand (Paul Dingwall); VI.A. Limited choices: Protected areas in the U.K. (John Foster and Adrian Phillips); VI.A. The Mediterranean: A regional approach to protected areas (Hedia Baccar); Designing a total system in Costa Rica (Craig MacFarland); VI.B. Threshold approach to the definition of environmental capacity, by Jerzy Kozlowski; VII.A. Strategic planning in the Lesser Antilles (Allen Putney); VII.B. Brazil's protected areas system in Amazonia (Maria Teresa Jorge Padua)

Submitted papers:

Protected areas and regional planning: Guidelines for protected area managers,
by Keith Garratt

This paper considers the relationship between protected areas and the surrounding region, including ecological, biological, and physical relationships, as well as cultural, social, and economic factors. It is apparent that the protected area manager, in order to attain the objectives established for his area, must expand his interests to include land use outside of his area. An important means for doing this is for the protected area manager to become an integral and respected member of the regional community; the paper provides a number of suggestions on how this can be done.

Guidelines for the development of conservation buffer zones and enclaves in Indonesia, by John MacKinnon, (Indonesia)

This paper describes the methods the Indonesian Government is using to reduce abuses by people of protected areas as well as control wildlife damage to agriculture. Buffer zones are defined as areas peripheral to protected areas and which have restrictions placed upon their use to give an added layer of protection to the reserve and to compensate villagers for loss of access to the strict reserve areas. It describes when a buffer zone is needed, how large the buffer zone should be, the types of buffer zone, and the activities prohibited and permitted in different classes of conservation area and adjacent zones. The paper provides a series of buffer zone management guidelines which may have wider applications.

Session I.6 **SOCIO-ECONOMIC FACTORS IN MANAGING PROTECTED AREAS**

Overview. This chapter discusses an approach to assessing the economic and social values of protected areas, and demonstrates how to develop management principles which optimize the economic and social benefits of the area (through, for example, buffer zone development). The basic principle is that protected areas are managed best when they make real socio-economic contributions to the country, region, and community; management must also be cost effective. Education will have an important role in ensuring that local people are made aware of how the protected area is bringing benefits to them, and the steps that they can take to further promote their own interests in the area. The role of native peoples in protected areas is also mentioned in this chapter, covering matters not covered in previous chapters. Finally, the role of non-governmental conservation organizations and their contribution to protected areas management is explored.

Principles and Guidelines (proposed for discussion only)

- a) The economic values of the goods and services produced by protected areas: Protected areas as watersheds, windbreaks, controllers of local and regional climates; recreation, tourism, aesthetics; value of genetic diversity to agriculture, medicine, biogenetics, and other natural sciences; etc.
- b) Methods of measuring the value of maintenance of natural environments: The demand (utility) side, where value is inferred from the demand for substitute or complementary goods; supply side, where value is seen as a factor input into production; willingness of "consumers" or users to pay for the service; value as inferred from voting in support of protected areas; land value studies.
- c) Other economic issues: Demand for protected areas increasing over time, as "nature" becomes an increasingly rare commodity; the factor of irreversibility of many developments of natural areas, essentially precluding future generations from enjoying the areas; others.
- d) The social values of protected areas: the importance of maintaining areas which can support diverse human ecosystems; the widespread respect for nature; others.
- e) The significant involvement of local people in the management of protected areas is often the most important step in bringing real benefits to local populations. What are the options for doing this?
- f) What is the role of non-governmental conservation organizations in promoting effective management of protected areas?
- g) What are the educational steps required for ensuring that local people are aware of the social and economic objectives of the protected area?

Key plenary session papers. II.C. Amboseli National Park: Human values and the conservation of a savanna ecosystem (David Western); II.C. Wildlife management strategies to produce benefits for local people (Graham Child); II.D. The role of protected areas in catchment conservation in Malawi (Alfred Dikito Kombe); II.D. The role of protected areas in reclaiming the Sahel (John Newby); III.A. Conservation for rice: National parks and irrigation in Dumoga, North

Sulawesi (Tarmudji); III.B. A delicate balance: Tigers, rhinos, tourists, and park management vs. the needs of local people in Chitawan, Nepal (Hemanta Mishra,); III.B What to do when you've succeeded: Project Tiger 10 years later (Hemendra Panwar) III.B Human dimensions in wildlife management: The Indian experience (V.B. Saharia); III.B River basin development and protected areas in Sri Lanka (Lyn de Alwis); III.C Wildlife management by the people (Navo Kwapena); III.C Indigenous people and protected areas: Traditional resource management in the Pacific (R.E. Johannes); IV.A Reservation of commercially important lowland forests (Les Molloy); VI.A Limited choices: Protected areas in the U.K. (John Foster and Adrian Phillips); VI.A The economics of a park: Plitvice, Yugoslavia (Yosip Movcan); VI.B The Sherpas of Sagarmatha (B. Jefferies); VII.A Strategic planning and evolution based on experience in the Lesser Antilles (Allen Putney); I.B Environmental requirements of the World Bank (Robert Goodland).

Submitted papers:

Economic concepts and methods for valuing protected natural areas, by Michael Moore (USA)

The topic is human well-being: utilizing wildland and protected natural areas to enhance the welfare of the members of local, national, and global societies. A protected area which is designed and managed without consideration of its potential for use as a centre for human education, employment, research, and enjoyment may be underutilized. Operating a protected area in such a way sows the seeds of potential future disaster: if the needs of the local, national, and international communities are inadequately accounted for, a critical element in the successful management of the area may be missing. For example, if the needs of the indigenous people are ignored they will feel exploited, and a contentious, destructive relationship between groups of people and/or between people and the ecosystem may ensue; or, if the international community is neglected, a source of funds required to support the area in a "correct" manner will dry up, and the quality of the protected area may deteriorate. Thus, by focusing on the ability of a protected area to contribute to human improvement, the resource manager demonstrates that the area is a fundamental link in local, national, and international economics. In so doing, the manager increases his or her ability to obtain the freedom and the resources to maintain the protected area in a manner that both preserves the integrity of the ecosystem and satisfies the needs of the human population.

Native cultures and protected areas: Management options, by Leslie A. Brownrigg, (USA)

On their own lands, the culturally native populations of Latin America protect large areas in natural ecosystems and achieve a renewable resource of a living environment. This relation can be reinforced by each of the four management options for the formal designation and organization of protected areas which are outlined in this paper: native owned lands, where the protection of the area is by native peoples; reserves, where a protected natural area corresponds with the territory of a particular native population; buffer zones, where a protected area serves as a physical or ecological barrier between native lands and the lands of others; and research stations, where certain areas under native management are organized as agricultural or ecological research stations.

Conservation and indigenous peoples: A study of convergent interests, by James C. Clad

This paper describes the way that indigenous peoples and conservationists can work together to attain their common objectives. These can be approached in three main ways: through quasi-legal efforts to protect and enhance the welfare of indigenous peoples; how to use legal instruments in the best ways (the choice of tactics); and how to enlist new allies and leverage. The argument that indigenous peoples and conservationists are natural allies is made with particular force when strategies to preserve tropical forests are discussed. An example based on New Zealand's experience is given, providing a number of guidelines in how to bring benefits to the local indigenous population.

Socio-economic factors in managing protected areas in Tanzania, by Albert L. D. Mongi

The socialistic policy of the United Republic of Tanzania is based on the principle of national independence and self-reliance. The aim is total development of all the citizens of the country. Development includes improvements in human health, reduction of ignorance and availability of adequate housing. Among the national institutions for the achievement of this total development is the Ministry of Natural Resources. Under this Ministry are the National Parks, Forest Reserves, Game Reserves, Game Controlled Areas, the Ngorongoro Conservation Area and Fisheries Areas. Together they take 28 percent of the total land area of Tanzania (excluding water bodies). Management activities of these institutions variously and severally implement facets of integrated rural development. They constitute conservation wise use of the natural resource base of the country. The main activities include protection of dynamic relicts of the natural environment, realization that man is an essential component of viable systems and that criteria for socio-economic development are not static: they are time related. Future direction in socio-economic development has its foundation at the grassroot level of society and draws much from the present institutional arrangement. Parliamentary legislative authority gives some permanence to the protected areas.

How conservation of endemic plants and animals contributes to human welfare in India, by G.M. Oza

This paper provides a number of examples on how nature conservation in India has very real benefits to people. Examples given include the amelioration of floods through conservation of forests, the conservation of chir forests in Kashmir, conservation of the faras tree in Kashmir, the relationship between food production and environmental conservation and many others.

Traditional land use and nature conservation, by Joseph Andriamanpanina (Madagascar)

Although the population of Madagascar is just 9 million for a country of almost 600,000 sq km, there is still a serious lack of productive agricultural soils. This paper discusses the original vegetation of Madagascar, the changes in land use that have taken place over time, and the traditional conservation measures that have been developed. As many of these traditional conservation methods are becoming weaker with increasing land hunger, the government has stepped in

with a conservation programme which includes the establishment of protected areas, public education, and international cooperation.

Community participation in protected areas management in New South Wales,
by D. A. Johnstone (Australia)

This paper describes the New South Wales system of community participation in national park management through advisory bodies at central and local levels, and through public responses to exhibited management plans. The historical and legal basis for the system and the nature, role and functions of advisory bodies are outlined and discussed. Administrative arrangements for intra-system communication are described and examples of public participation to management decision-making are provided. Generalizations on the features considered essential to the effective functioning of advisory bodies should have considerably wider applications.

Session I.7 **DEVELOPING PRINCIPLES OF RESOURCE MANAGEMENT**

Overview. This chapter deals with the ecological basis of managing protected areas, providing guidelines for developing principles of resource management, including basic principles of appropriate management of genetic resources, managing endangered species, dealing with exotics, handling the problems of excess populations, managing wildlife for the visitor, etc. The basic principle is that while the protected area manager need not be an expert in resource management, there are important resource factors which he must take into consideration in his management decisions. This chapter may prove to be so complex that it will need to be separated into separate chapters dealing with plants, animals, and processes.

Principles and Guidelines (proposed for discussion only)

- a) Genetic resources are defined as "those heritable characteristics of plants and animals that are of actual or potential use to people." Protected areas are of critical importance in maintaining the natural diversity of genetic resources, but they have heretofore seldom been managed for this purpose. The chapter will include principles of managing protected areas to serve as *in situ* gene banks.
- b) Ecological stability: The condition that never was.
- c) Managing endangered species: What to do when the size of the gene pool is too small to ensure survival.
- d) Habitat management: Saving endangered plants; controlling exotic species; maintaining secondary habitats; managing fire; others.
- e) Problems of "over-abundant species." What to do when protection leads to abnormal population increases in key species (elephants, tigers, deer); to intervene or not to intervene.
- f) The basic issues in deciding the appropriateness of harvesting of species of plants and animals; ecological and political decisions. Balancing conservation costs and economic benefits; the role of buffer zones in harvesting "surpluses"; defining objectives and categories for protected areas which allow harvesting.
- h) Resource management and visitors to protected areas. Managing resources for the benefit of visitors; informing the public about resource management programmes; using visitors to help manage resources.

Key plenary session papers. II.B Survival of species genetic diversity (Gren Lucas); II.C Wildlife management strategies to produce benefits for local people (Graham Child); III.C Protected areas and turtle eggs in East Malaysia (S. da Silva); III.C Wildlife management by the people (Navo Kwapena), III.D Fire and Pest species (G. Medhurst and R. Good), IV.A Protected areas and introduced species in New Zealand (Carolyn Burns); VII.A Inca technology and ecodevelopment: Vicunas in Pampa Galeras (Carlos Ponce del Prado); VII.B Genetic diversity, endemism and protected areas: the Atlantic forests of eastern Brazil (Rafael Garcia). VII.C. *In situ* conservation of genetic resources: Determining minimum area requirements (Bruce Wilcox)

Submitted papers:

The role of protected areas in conserving animal genetic resources, by Ian Mason (UK)

This paper discusses the need to conserve species of animals because of their actual or potential benefit to mankind. Categories of potentially useful animals which need protection include the wild ancestors or other close relatives of domesticated species which may still have something to offer to their domestic descendants; the feral populations of domestic animals which have gone back to the wild; and the threatened breeds of domestic species. Examples are provided which show how national parks and other protected areas can play a practical role in conserving animal genetic resources of both wild and domestic animals which are actually or potentially of economic benefit as well as being of scientific interest.

Biological principles relevant to protected area design in New Guinea, by Jared M. Diamond (USA)

This paper uses the New Guinea region to illustrate biological principles relevant to the design of terrestrial reserves. Biological input into the initial selection of protected areas must include answers to three sets of questions? What are the major types of habitats that biologically distinctive communities? What are the major biogeographic districts that constitute separate centres of endemism? How much area is required for effective conservation? Each of these questions is considered for New Guinea region.

The Bali Mynah: Restoration after a decline in numbers, by Hans de Jongh

This paper presents a literature review on the Bali mynah and a summary of data on its population size. It sounds an alarm that even with the most optimistic estimates of population size, the species is still critically endangered. A number of management suggestions are made, but the paper concludes that only by improving the standards of living for the people who are exploiting the Bali mynahs can the long-term survival of the species be assured.

Anti-poaching in Botswana, by Deceanor Dwililan Mangubo

Botswana's approach to anti-poaching is to institute active management of all wildlife resources in the country. The Department of Wildlife and National Parks has full powers of arrest of those who violate the regulations, but is also carrying out an active public relations campaign involving public conservation education, public meetings, and seminars for local decision makers; this campaign aims at increasing the awareness of the value of the wildlife resource so that the people themselves help to control poaching. Difficulties include the lack of sufficient manpower, funds, equipment, and infrastructure.

Anti-poaching efforts in Senegal's national parks, by Andre Dupuy

This paper covers the approach to anti-poaching in a West African country which has had quite a different history from the faunally richer East Africa countries. Human impact, whether controlled hunting or uncontrolled poaching has been all the more dramatic because of the low population density of the target species; the Niokolo-Koba National Park in Senegal may have been under the heaviest poaching pressure in all of Africa, as it lacked staff, equipment and experience. The intense effort to improve the situation is described in this paper.

Session 1.8 MANAGEMENT PLANNING

Overview. Based on the principles developed in the previous 7 chapters, this chapter discusses the ways and means of putting the principles into action: How can the management of protected areas be planned in order to achieve the objectives of social and economic development? Concepts discussed include the importance of planning for social and development objectives, involving personnel of the protected area in the preparation of the management plan, making planning a continuous process which is an important part of management, aiming the management plan at a specific target audience (with different sorts of plans for different purposes), the need for a system plan, and forming linkages with regional and national development plans.

Principles and Guidelines (proposed for discussion only)

- a) A management plan is a document which guides and controls the management of the resources and uses of a protected area and directs the design of subsequent programmes of management; it defines the type, character, and location of developments, and provides guidelines for resource management, interpretation, and visitor use. A management plan is a working tool which orients and facilitates all activities to be implemented in an area. It is subject to modification as new information is obtained (particularly in regards to the effects of management actions), but all changes should be made within the scope, context, and overall continuity of the plan. Plans should be reviewed and approved by the appropriate planning boards, and discussed with local people in order to settle any conflicts that may be involved.
- b) The first step: Asking some basic questions. Why does this area warrant special protection? What benefits are likely to accrue to the nation and the surrounding human populations? How will the area contribute to the social and economic development aims of the country?
- c) The fifteen steps of the planning process: Gathering basic background information; Field inventory; Analysing the limitations; Defining the objectives; Designing the system of management zones; Establishing boundaries; Designing the management programme; Preparing the integrated development programme; Conducting a cost-benefit analysis; Evaluating the plan; Designing the development schedule; Submitting the plan for public review; Publishing and distributing the plan; Implementing the plan; Evaluating and revising the plan.
- d) Who does the planning? It may often be desirable to have an individual or team responsible for planning, but plans will be most appropriate, practical, and down-to-earth if the individuals responsible for implementing the plan are also involved in the planning process. It is essential that local people be appropriately represented in the planning process (some nations have sophisticated "public review" or "community involvement" processes for management plans).
- e) The plan should also include built-in feedback mechanisms, so that planning is a continuous process which involves, ideally, every individual in the area. Continuous planning of this sort will help ensure that the management of the area is steadily improving.
- f) The ideal management plan is outlined, and a table of contents is provided. But there are other plans to be considered as well: Master plans; operations plans; interpretive plans; and others. Each of these will be described, and appropriate uses suggested.

g) The systems plan will be given particular attention. It is a basic tool for describing the objectives of the protected area system, and for relating planned areas to the real needs of the country and region. The master plan describes the interrelationships of biological, physical, and social factors and shows how they can be managed to attain conservation of natural areas.

Key plenary session papers. Protected areas and environmental planning in Australia (J.G. Mosley); IV.A The Campbell Island story: The management challenge of sub-Antarctic islands; VII.A Designing a total system in Costa Rica (Craig MacFarland); VII.A Strategic planning in the Lesser Antilles (Allen Putney); VII.B Brazil's protected area system in Amazonia (Maria Teresa Jorge Padua).

Submitted papers:

Management planning for national parks and equivalent reserves in New South Wales, by G.J. Armstrong and J.F. Starling (Australia)

In New South Wales, the National Parks and Wildlife Act specifies the requirements for planning, and the National Park and Wildlife Service has a sophisticated planning system. This planning system includes: policies relating to the management of Service responsibilities; broad objectives in terms of the Service functions; district blue prints to facilitate coordination of programmes into a priority framework; plans of management which contain a scheme of operations to meet the purposes of each protected area; and coordination of all of the above elements. These elements are discussed at length in the document, but the point is stressed that the planning system is just one part of a comprehensive management system which also includes protection of Aboriginal sites, environmental education, and wildlife management.

Park and reserve management planning, by J.W. Thorsell (Canada)

This paper reviews an approach to the preparation of management plans. It defines what a management plan is, and outlines why plans are needed, how they are undertaken, who should be involved in the process, and where and when plans are required. It includes a sample table of contents for a protected area management plan.

Session I.9 IMPLEMENTING MANAGEMENT

Overview. This chapter covers the steps necessary to move from plan to reality, including the need for effective use of staff, public relations at several different levels (local people, visitors, politicians, etc.), public participation (including ways and means of enlisting volunteers), effective use of limited resources, and others.

Principles and Guidelines (proposed for discussion only)

a) In this chapter, "management" is defined to include the entire range of activities involved in planning, establishing, developing and administering the protected area. "Habitat management" does not necessarily imply active manipulation of habitats, since strict protection is also a form of management.

b) Translation of the policies included in the management plan into action on the ground requires a disciplined and motivated agency with the resources needed to carry out its stated objectives. To be effective, it needs a clear statement of its responsibilities and objectives, a strategic plan for attaining these objectives, a clear understanding of its place within the government structure, and a formalised structure of its own.

c) A basic need is for the protected area authority to be appropriately structured, with a well-defined hierarchy of command and control, and clearly defined internal channels of communication; this is particularly important for positions which require more than a simple direct in-line relationship with a single superior. The chapter will include a number of examples to show the range of organizational structures which have been used to manage protected areas, leading to guidelines that can be useful in optimising efficiency within the limits imposed by the availability of human and economic resources.

d) In many, if not most, countries, the available staff will be insufficient to carry out all the desired management activities. Therefore, it is often useful to attempt to involve volunteers in appropriate development and management procedures. Examples are provided of areas where this has proven effective.

e) Research is a vital tool to help implement management; however, if the research is to provide the information for rational management decisions, it must be designed with that purpose in mind. An appropriate function of research is to monitor the living resources of the area with the aim of detecting problems as they arise and while they are still relatively easy and inexpensive to solve, to suggest appropriate solutions to solve the problems, and to ensure that management actions are leading to the desired results.

f) Researchers and managers are complementary in the process of protected area management, but they tend to have somewhat different perspectives of the same problems; communication between them must therefore be carefully nurtured. A researcher will usually have little difficulty in understanding what his more practical counterpart in Management is doing and the reasons for it, but the reverse is much less obvious and can lead to suspicions. A system of institutionalised communication is suggested.

Key plenary session papers. III.D People in parks (A.M. Fox); III.D Protected areas and environmental planning in Australia (J.G. Mosley); IV.A The Campbell Island story: The management challenge of sub-Antarctic islands.

Submitted papers

Implementing Management, by G.J. Armstrong and J. Starling (Australia)

This paper describes the procedures undertaken by the New South Wales National Parks and Wildlife Service to implement their management procedure. This procedure includes planning, project documentation, a regional priority review, preparation of estimates for development works, approval of the works programme, and the finalization of the project. The paper also briefly discusses the means for determining effective management, and discusses in some detail the role of scientific research and monitoring in the professional park management process. Emphasis is placed on the documentation of management objectives and practices as a critical beginning to sound management.

SESSION I.10. DETERMINING EFFECTIVE MANAGEMENT

Overview. This chapter aims at providing the manager with a methodology for assessing the effectiveness of his management actions. It will cover relating management actions to objectives, monitoring staff assignments, monitoring ecological effects of habitat management, determining visitor reactions to management activities, and many others.

Principles and Guidelines (proposed for discussion only)

- a) A model questionnaire for enabling the manager to determine effective management of his area (and to enable the system director to assess effective management of his various areas).
- b) Establishing standards and controls from the ground level up.
- c) Working tools for the area manager: Management Tools; Problem Identification and Priority Setting; Establishing Goals; Development Planning and Implementation; Work Planning and Accomplishment Reporting; Use and Evaluation of Personnel; Controls and Progress Evaluation. Using these working tools to provide feedback of data into plans and programmes.
- d) How to use scientists and researchers to help assess management effectiveness (particularly in regards to monitoring of habitat changes, fluctuating populations of key wildlife species, etc.).
- e) Establishing a monitoring system: Principles and guidelines for protected area systems.
- f) What lessons have been learned in temperate countries in assessing effective management, and how can these lessons be applied to the tropics?

Key plenary session papers. II.A The Protected Areas Data Unit: Monitoring at the International Level (Jeremy Harrison). VII.C The use of protected areas for environmental monitoring (Harvey Croze)

Submitted papers

A systematic approach to effective management of protected areas, by William O. Deshler

This paper defines effective management as "the efficient and orderly use of human and material resources on a planned - wise basis directed towards the achievement of management objectives." The paper presents a methodology for protected area management that will maximise the probability that every action taken, regardless of scope, will be a step towards achieving one more of the management objectives. Additionally, the document can readily be used by the area manager and higher authority for evaluating management effectiveness and serve as a valuable training tool for professionals and technicians at central offices and field levels.

Evaluating effective management in protected areas: an application to Arusha National Park, Tanzania, by J. W. Thorsell

This paper discusses why management efforts should be evaluated, what are the limitations in attempting to do so, and how can evaluations be undertaken. A measurement method is tested in a particular sample area - Arusha National

Park – to illustrate the set of management issues faced today in one East African country. A major problem is establishing objectives; in the 55 protected areas of Kenya and Tanzania, for example only two areas have clear and formally stated objectives. But even without objectives, management effectiveness can still be measured, though it needs to be fine-tuned to reflect regional variations in the objectives, whether stated or unstated. Three options for evaluating management effectiveness include direct responses from visitors to the area, auditing by a panel of experts, and check list or questionnaire survey.

Effective management of protected areas, by Leslie F. Molloy

Subtitled "Some ideas for protected area managers on: implementing the admirable, anticipating the unavoidable, accepting the inevitable and acting on the actionable," this paper covers the appropriate classification of protected areas, effective implementation of management plans and programmes – including the ideal management of protected areas, quality and usefulness of resource inventories, adequacy of management surveillance, rectifying departures from management objectives, usefulness of environmental impact assessment, regulation of public use to minimize impact on park resources, work plans and staff training, and attitudes towards public park users – and ecological thinking in implementing management objectives. The paper concludes with a discussion of the question, "can temperate zone management techniques be successfully transferred to the tropics."

Session I.11. **INTERNATIONAL COOPERATION IN MANAGEMENT OF PROTECTED AREAS**

Overview. This chapter provides the protected area manager with the information he needs in order to mobilize whatever international support may be desired. Basic information is provided on the international organizations involved with protected areas management and on how they can be contacted. The international system for monitoring the status of protected areas is described, including the benefits of the system for the manager.

Principles and Guidelines (proposed for discussion only)

a) A number of international organizations have provided significant support to protected areas through the years. Among the most important are the following:

Unesco (especially its Man and the Biosphere Programme);

United Nations Environment Programme (UNEP);

The Food and Agriculture Organization of the United Nations (FAO);

The International Union for Conservation of Nature and Natural Resources (IUCN);

The World Bank;

The World Wildlife Fund (WWF);

The Organization of American States (OAS);

The African Wildlife Leadership Foundation (AWLF).

b) There are also a number of national or bilateral agencies which are important for protected area managers to be aware of, including the Frankfurt Zoological Society, the Audubon Society, the Nature Conservancy, the Fauna Preservation Society, the Canadian International Development Agency, the National Park Service and the Fish and Wildlife Service of the US Department of the Interior, and many others.

c) Key international programmes:

Unesco's Man and the Biosphere Programme (particularly Project 8, dealing with Biosphere Reserves);

The World Heritage Convention;

The WWF/IUCN Conservation Programme for Sustainable Development;

d) Monitoring the protected areas of the world. A system for monitoring protected areas has recently been established as part of IUCN's Conservation Monitoring Centre. The system is described, examples are provided of how it can contribute to protected area management, and sample products are demonstrated.

Key plenary session papers. II.A The Protected Areas Data Unit (Jeremy Harrison); VI.C The Mexican biosphere reserve experience (Gonzalo Halffter); I.B The shared interests of development banks and protected area managers. (Robert Goodland); XI.A. Promoting cooperation between protected areas and resource development corporations (Leroy Balzer); XI.C. FAO and protected areas concerns: Promoting increased support (Gil Child); XI.C. UNEP and protected areas (Reuben Olembo); XI.C. How Unesco's Man and the Biosphere Programme is contributing to human welfare (Bernd von Droste); XI.D. The World Heritage Convention (Ralph Slatyer); XI.D. The World Heritage Convention: Where is it going? (David Hales).

Submitted Papers

National parks for developing countries, by John Blower (Burma)

Based on experience in Africa and Asia, the author outlines some of the basic problems likely to be faced in planning and establishing national parks and other protected areas in a developing country which is starting from scratch in this particular field. Forms of technical assistance are described, and possible alternatives which may be worth considering for the future are suggested.

Session I.12. COMMUNICATION: ENSURING THAT THE RIGHT MESSAGE REACHES THE RIGHT AUDIENCES

Overview. This concluding chapter summarizes, in a form useful for the protected area manager, the ways and means for communicating the function and role of protected areas in the process of social and economic development. The audiences for this message include the general public (both the nation at large and the people living around protected areas), the government officials who make the planning and budgetary decisions which affect protected areas, the scientists whose work contributes (or can contribute) to protected area management, and the protected area managers who are not yet fully aware of the crucial role they are playing. Each of these audiences requires a somewhat different approach, though the ultimate objective is the same: To ensure that the benefits of protected areas are managed for the benefit of present and future generations of people.

Principles and Guidelines (proposed for discussion only)

- a) "The public" is a great amorphous mass which includes just about everybody in the country. Clearly, different "sub-publics" require different approaches, all of which should be addressed in the ideal public education programme. This would include: reaching school children through including conservation principles as part of the regular curriculum, using local examples which are relevant to the subjects being addressed ("conservation" should not be a separate topic, but rather a part of every other subject); reaching the general public through regular public information programmes involving television, radio, newspapers and other media; reaching the people living around each protected area with specially targeted programmes clarifying park regulations, ways and means that local people can (or do) earn benefits from the area, etc.; and carefully-designed public information programmes, aimed at several levels of sophistication, in each protected area.
- b) Government officials tend to reflect the will of the populace, but they are often subject to pressure from special-interest groups; such groups are very effective in getting their message to the appropriate officials. In the same manner, it is important for protected area managers to learn which are the government officials who are affecting their area or system of areas, and to target special information programmes for these officials. Such officials are likely to be busy, so the protected area message must be short, well-presented, and relevant to the functional needs and interests of the officials involved. A relatively small investment in informing government officials of the benefits of protected areas can often yield very high dividends.
- c) Scientists have tended to pursue their own interests in protected areas, though there are a few exceptions where scientists have made major contributions to the needs of managers. A special information programme for scientists would inform them in very clear and precise terms what sorts of information the manager needs, and what the manager is willing to do for the scientist in order to obtain this information. The system director might wish to prepare information of the availability of special scientific research facilities in the various areas, and to work with other government agencies to devise ways and means for supporting the kinds of science that are needed. Unesco's Man and the Biosphere

Programme is one outstanding example of integrated research and management (though it needs to be applied more faithfully).

d) Many managers of protected areas are so deeply involved in the day-to-day running of their area that they have little time to reflect on the larger issues of how their area is contributing to the social and economic welfare of the nation; but, as this book has shown, managers can often enhance this contribution if they target their management efforts more clearly. Therefore, it is important that the message be broadcast as widely as possible to the protected area profession. PARKS Magazine is one means of doing this; the wide distribution of this book is another; and a professional society of protected area managers is a third.

e) The World National Parks Congress is breaking new ground in defining more clearly the limits of the profession of protected area manager, and in specifying the contributions that protected areas can make to social and economic development. The message of the Congress will be presented in "The Bali Declaration," which will state very clearly the mandate for protected areas for the coming decade.

Key plenary session papers. VII.D. The Bali Declaration, by CNPPA; VII.D. The International Society of Protected Area Professionals, by CNPPA; II.B. How protected areas can help meet society's evolving needs (P.H.C. Lucas);

WORKSHOP II

MANAGING COASTAL AND MARINE PROTECTED AREAS: Principles and Guidelines for Managers of Natural Areas of the Sea

Scope. The next 10 years will see a great expansion in the number and size of coastal and marine protected areas around the world, as land-use planners become increasingly aware of the important role that conservation management can play in maintenance of essential life-supporting ecological processes, preservation of genetic diversity, and sustainable utilization of species and ecosystems. This book, which is presented in a readable and visually attractive style with numerous illustrations, will convey to planners and managers the basic principles which need to be considered when selecting, planning, promoting, and managing protected areas in the coastal zone and in the oceans.

Session II.1. INTRODUCTION: THE NEED FOR COASTAL AND MARINE PROTECTED AREAS

Overview. Since there are so few protected areas in the seas and along coastlines, it is important to review the reasons for expanding the network of coastal and marine reserves. This chapter will discuss both threats to marine areas and the contributions of such areas to human welfare. The continuity between land and sea will be stressed; the majority of coastal and marine protected areas will include both land and sea, and even those located only in the sea will be affected by activities on the land.

Principles and Guidelines (proposed for discussion only)

- a) The social and economic justification for protection of coastal and marine habitats (numbers of people dependent on coastal and marine habitats, etc.);
- b) The threats to coastal and marine habitats (including status and trends of fisheries, coral reefs, mangroves, estuaries, etc.);
- c) The aesthetic justification for coastal and marine protected areas (including contributions to art and literature; tourism; other intangible benefits);
- d) The relationship between "conservation," "protection," "management," and "development";
- e) The current status of coastal and marine protected areas (based on the 1982 UN List of Protected Areas).

Submitted papers:

The seas must live: Why coastal and marine protected areas are needed, by Sidney Holt and Mats Segnestam

This paper discusses the very basic need for coastal and marine protected areas to ensure the productivity of the marine environment. It describes traditional uses of the ocean and new uses of ocean space which may threaten the productivity of the environment. Marine protected areas should be considered in the broader context of appropriate use of the sea, securing restraints on the magnitude of particular uses of ocean space, securing control over choices in the

nature of particular uses of the ocean, converting life-damaging activities into life-enhancing ones which meet the same purposes, increasing the flow of information, protecting particular parts of ocean space, and restoring habitats which have become degraded.

The influence of development processes upon the coastal condition of Ambon Bay,
by Djuhari

This paper discusses some of the problems facing economic exploitation of natural resources in the region of Ambon Bay, Maluku, eastern Indonesia. Over-exploitation of forest, destructive fishing methods, and abuse of mangroves are all leading to deterioration of the Ambon Bay region. However, reforestation is beginning and steps are being taken to control exploitation of coral and sand. It is also proposed that conservation education needs to be promoted in the region.

Session II.2. **THE ROLE OF COASTAL AND MARINE PROTECTED AREAS IN THE CONSERVATION OF GENETIC RESOURCES**

Overview. "Genetic resources" is defined as "those heritable characteristics of plants and animals that are of actual or potential use to people. Marine genetic resources are even less well known than terrestrial ones, but, judging from applications of the known marine resources, they are comparable in importance. This chapter will explore methods of attaining *in situ* conservation of coastal and marine genetic resources.

Principles and Guidelines (proposed for discussion only)

- a) Broad concepts of the relationship between protected areas, the conservation of marine genetic resources, conservation of ecological processes, and sustainable utilization (based on specific cases, particularly regarding fisheries);
- b) Basic principles on how marine genetic resources conservation can be used to enhance protected areas (and vice versa);
- c) The spectrum of approaches to genetic resource conservation, and how these can be applied to specific local conditions;
- d) Protected areas for individual species, based on examples of sea turtles and cetaceans;
- e) The relationship between protected areas and traditional resource management in coastal and marine habitats.

Key plenary session papers. VII.B. Managing biological diversity on Galapagos (Arturo Ponce and Jose Villa). III.A Man and Mangroves in Malaysia (Ong Jin Eong). III.A. Protected areas and turtle eggs in East Malaysia (S. da Silva). III.D. The Marine Park Story (Graeme Kelleher).

Submitted papers

The role of protected areas in conserving coastal and marine genetic resources,
by N.V.C. Polunin (UK)

The preservation of genetic resources is viewed as one of the major aims of conservation; this paper demonstrates that this concept is valid, if predominantly long-term in the marine context. The paper begins with a review of important aspects of the genetics of the marine populations and some human implications of these, discussing the contribution which protected areas can make towards conserving genetic resources, and discussing the specific question of how genetic criteria may be used as a basis for reserve design. The paper concludes with an examination of the broad issue of how coastal and marine protected areas can be reconciled with immediate economic problems, especially in developing countries.

Sea Turtles and national parks in the Caribbean, by Archie Carr (USA).

Of the threatened and endangered species of the world, marine turtles are among the hardest to shield from further decline. Their intractability as objects of stewardship derives from the complexity of their life-cycles, the world demand for high-priced sea turtle products, and from collisions with man on ocean

beaches, coral reefs and commercial shrimping grounds. This paper reviews the conservation difficulties and opportunities involved in sea turtle conservation in the Caribbean, the need for expanded marine sanctuaries to deal with the problem, and the implications of these efforts for world sea turtle conservation. The valuable genetic resources of sea turtles will best be conserved through a combination of appropriate protected areas, particularly on nesting grounds, and management of exploitation wherever the sea turtles may occur.

The role of Ichkeul National Park in conservation of genetic resources, by Hedia Baccar (Tunisia)

Ichkeul National Park is one of the richest natural resource areas in the Mediterranean Basin. It has been recognized as a World Heritage site, a Biosphere Reserve, and a Ramsar Wetland site, an indication of its many values. It has a complex system of management, reflecting its wide variety of resources; despite the management efforts, there is a serious danger that water control measures will cause the long-term disruption of the Ichkeul ecosystem and a resulting reduction in its values.

Session II.3 CLASSIFYING MARINE HABITATS FOR CONSERVATION PURPOSES

Overview. This chapter outlines the new IUCN system of Marine Biophysical Provinces and its applications on a worldwide scale. It then suggests the ways and means of applying this approach at a national level in order to ensure that the full range of marine and coastal ecosystem diversity is covered by protected areas.

Principles and Guidelines (proposed for discussion only)

- a) The principle of representativeness: How can a classification system simplify the job of the coastal and marine planner?
- b) The international system being proposed by IUCN is useful as a first step in assessing the coverage by marine protected areas of the diversity of the seas, but how can this system be applied at a national level? What are the steps required to develop national systems of classifying coastal and marine habitats? Several examples are presented.
- c) Based on current knowledge and the new system, how well covered are the various coastal and marine biophysical provinces of the world? Based on this knowledge, what are the priority areas for attention?

Key plenary session papers. II.A. The IUCN System of Coastal and Marine Biophysical Provinces for Conservation Purposes. (J. Dolan, B. Hayden, Carleton Ray). VI.A. The Mediterranean: A regional approach to protected areas. (Hedia Baccar). VII.A. Strategic planning in the Lesser Antilles (Alan Putney).

Session II.4. CATEGORIES, CRITERIA AND OBJECTIVES FOR COASTAL AND MARINE PROTECTED AREAS

Overview. This chapter sets out two very basic principles: Protected areas should be established in order to attain specific conservation objectives; and different objectives require different management procedures. Many systems of coastal and marine protected areas will begin by extending existing terrestrial reserves into the sea; this has the advantage of including the land-sea ecotone in the reserve and facilitates institutional arrangements. But this criterion for selection is clearly insufficient, as the terrestrial reserves are typically chosen on their own criteria rather than for those of importance in the sea. The relevant criteria for identification and selection of coastal and marine protected areas are outlined in this chapter, stressing the point that the criteria should address the conservation and management objectives selected for the area. Based on these objectives, a system of providing categories of protected area management systems is provided.

Principles and Guidelines (proposed for discussion only)

- a) Each coastal and marine protected area should have clearly stated objectives of management. Examples of these objectives are provided (e.g., maintenance of important fisheries breeding grounds; baseline site for scientific research; promotion of tourism; maintenance of intact coral reef ecosystems). Establishing objectives is the first step in identifying and selecting coastal and marine protected areas.
- b) Criteria for identification and selection of areas include: practical criteria (urgency, opportunism, etc.); ecological criteria (values of ecosystems, etc.); criteria relating to research, education and training; social and economic benefit criteria; landscape and cultural criteria; and regional criteria (representativeness, conflict and compatibility). Practical criteria (urgency, opportunism, etc.) often must assume primacy, as other criteria may be applicable only if practical criteria are met.
- c) Ecological criteria have been suggested for a number of areas, but should be clearly established so that planners and decision-makers have a very clear mutual understanding of the ecological issues (e.g., the "open" nature of coastal and marine ecosystems and the difficulty of establishing ecologically meaningful boundaries).
- d) Coastal and marine protected areas can be categorized according to their stated objectives of management (e.g., a "Category I Strict Nature Reserve" would be appropriate for preserving fisheries and providing baseline conditions for research, while a "Category II National Park" would include provision for tourism).
- c) These different categories need different management structures and legal measures.

Key plenary session papers. III.D. The Marine Park Story: The Great Barrier Reef (Graeme Kelleher). VI.A The Mediterranean: A regional approach to protected areas (Hedia Baccar). VII.A Strategic planning in the Lesser Antilles (Alan Putney).

Session II.5. PRINCIPLES OF MANAGEMENT PLANNING FOR COASTAL AND MARINE PROTECTED AREAS

Overview. Management planning begins with the identification and selection of the area, but once an area has been selected planning must begin in earnest. It is essential at the outset to aim the plan accurately at the target group; the document required to convince government planners of the need for the area may be quite different from the plan which will guide development of the area. A wide range of management options are shown to be available to attain the various objectives of different categories of protected areas. Legal factors are of key importance here.

Principles and Guidelines (proposed for discussion only)

- a) What are the ideal contents for a management plan for coastal and marine protected areas? The workshop will develop a model.
- b) Different plans for different audiences. There is a major difference between a systems plan and an area plan; and between a plan for a new area being proposed and a plan for an existing area.
- c) The critical importance of zoning coastal and marine protected areas; zoning both provides a means of control and a means of allowing appropriate access to resources.
- d) In many cases, there are human populations which are still living in a sort of traditional balance with the coastal and marine environment; how can such people be included in management plans?

Key plenary session papers. III.D The Marine Park Story: Great Barrier Reef (Graeme Kelleher). VII.A Strategic planning in the Lesser Antilles (Alan Putney). III.A Man and Mangroves in Malaysia (Ong Jin Eong). III.C. Indigenous people and protected areas: Traditional Resource Management in the Pacific (R.E. Johannes). IV.A The Campbell Island story: The management challenge of sub-Antarctic islands (Dave McKerchar). VI.D The Everglades: Managing a wetland under multiple threats (Jack Moorehead).

Submitted papers

Proposed Pulau Seribu Marine National Park: Combining conservation and tourism development, by Rodney V. Salm, Matheus Halim and Achmad Abdullah

This paper describes the process in attempting to have Pulau Seribu declared as a Marine National Park. It describes the area and its values and threats, leading to a detailed description of the challenges faced in designing the area. It describes the establishment of zones and boundaries and how these will be administered for the benefit of both visitors and the natural resources.

Traditional Marine Practices in Indonesia and their bearing on conservation, by Nicholas V. C. Polunin (UK)

This paper discusses many of the ways that traditional Indonesian culture has helped to conserve marine resources. Various marine areas are prohibited to people, are designated for particular villages, families or individuals, or are

concessioned out to individuals on an annual basis. Traditional limited - intrigue areas have been described from many part of the Indonesia. Little is known of their current status, though they may not have developed in several areas because of the instability due to piracy and maritime seasonality. A number of practices influence and allocation of particular resources, and many controlled areas seemed to have resulted from conflict over specific resources. A plea is made for additional information on traditional limited entry areas, because these may represent a valuable basis for managing coastal resources, especially by enhancing local responsibility for shallow water habitats and exploited marine populations on settled coasts.

Marine conservation in Indonesia, problems and possible solutions, by Knut Kvalvagnaes (Norway), Alan Robinson (Indonesia), Matheus Halim, (Indonesia)
This paper describes the creation of marine parks and reserves in Indonesia, pointing out the importance to the country of the coastal and marine zone, the threats facing these areas, and the steps which are required to bring about conservation.

Session II.6 IMPLEMENTING MANAGEMENT OF COASTAL AND MARINE PROTECTED AREAS

Overview. Once a management plan has been adopted for an area, the area must then be managed on the ground according to the objectives which have been chosen. This involves staff management, equipment, budgets, location and design of buildings, visitor management, regulations, regional linkages, and others. The role of volunteers will be considered.

Principles and Guidelines (proposed for discussion only)

- a) Appropriate institutional structures for implementing management, including guidelines for involving local people in implementing management.
- b) Linking management with the surrounding areas, including the concept of buffer zones and the importance of establishing appropriate linkages.
- c) The benefits and problems of tourism.
- d) Developing regulations which are effective on the ground. This will involve preparation of Guidelines for Coastal and Marine Protected Area Regulations.
- e) What to do when you can't afford the staff you need. The role of volunteers; using local people to enforce regulations; determining priorities for existing staff.
- f) How to enlist the public to support management activities.

Key plenary session papers. III.D The Marine Park Story: Great Barrier Reef (Graeme Kelleher). VII.A Strategic planning in the Lesser Antilles (Alan Putney). VII.B Local management of protected areas: The Valdes Peninsula (Ricardo Luti). III.A Man and Mangroves in Malaysia (Ong Jin Eong). III.C. Conservation of a limited land resource on Yap (Margie Falanrue). III.C. Indigenous people and protected areas: Traditional Resource Management in the Pacific (R.E. Johannes). IV.A The Campbell Island story: The management challenge of sub-Antarctic islands (Dave McKerchar). VI.D The Everglades: Managing a wetland under multiple threats (Jack Moorehead). How to protect coastal and marine ecosystems: Lessons from the Philippines (Amado Tolentino).

Submitted papers:

Institutional arrangements for coastal conservation, by Julie Gardner

This paper examines protected areas involving the land-sea interface, concentrating on New Zealand to provide a number of examples of how the institutional framework for coastal conservation can be established. Case studies include Marlborough Sounds, Poor Knights Islands, and Mimiwhangata Peninsula. These cases represent a range of institutional arrangements, include various biophysical environments, are subject to differing regional political and social systems, and face varying degrees of threat from non-conservation resource uses. Conclusions based on these case studies have wide applications elsewhere.

Marine protected areas in international law, by Cyrille de Klemm (France), Daniel Navid (USA)

This paper presents a general overview of the international Law of the Sea as it relates to the establishment of marine protected areas as well as the provisions,

operations and effectiveness of various other international instruments which provide for the setting up of such areas. The Law of the Sea is given particular attention.

Kenya's experience in establishing coastal and marine protected areas, by Fred Pertet.

Kenya has long been a leader in nature conservation, and this holds true on the marine side as well as the terrestrial; the country has two marine national parks and two marine national reserves, with the first marine park in tropical Africa established at Malindi-Watamu in 1968. A series of other areas are also proposed for establishment in the future. These areas have a number of attractions and benefits to local people, including tourism and protection of breeding grounds of important species. In addition, the country has also instituted measures to control fishing, regulate shell collection and control pollution.

Session II.7 SELECTION AND MANAGEMENT OF CORAL REEF PROTECTED AREAS

Overview. Coral reefs are of outstanding importance, due to their diversity of life forms and importance for human welfare. They are also notably fragile and sensitive to a number of impacts of human activities (from pollution to overfishing to anchor damage). They also are of exceptional importance to small island nations, both for direct subsistence and for earning foreign exchange through tourism. This chapter will discuss the problems and potentials, illustrated by case studies – to be prepared separately – from countries which are developing coral reef protected areas.

Principles and Guidelines (proposed for discussion only) The author should develop principles for selecting and managing coral reef protected areas, stressing the following:

- a) What uses of coral reef ecosystems are compatible with conservation objectives? (The author is encouraged to refer here to the IUCN paper, "Categories, criteria and objectives for protected areas" as different categories of protected areas have different sorts of compatible uses).
- b) How can such areas be selected? What political, ecological, economic, and social factors are involved? Is the "critical habitats" concept of use? (The author is encouraged to refer here to the IUCN/UNEP paper, "Principles, criteria, and guidelines for the selection, establishment and management of coastal and marine protected areas in the Mediterranean," freely adapting the paper to his needs).
- c) What are the social and economic factors that need to be considered in managing coral reef protected areas? What is the relevance of traditional resource management in coral reef areas?
- d) How can protected areas in coral reefs contribute to the conservation of genetic resources? How can this contribution be used to help justify the management steps required in the area? (The author is encouraged to refer to the IUCN paper, "The role of protected areas in conserving marine genetic resources").
- e) What are the special management problems involved in coral reef protected areas, and how can these problems be addressed by the protected area manager? This might lead to the production of guidelines for managers of coral reef protected areas.
- f) Any other matters that the author might consider to be of importance. These might include ways and means for the protected area manager to use the expertise of ecologists and other specialists, the relationship between the coral reef protected area and adjacent areas further inland, ways and means of communicating the importance of coral reef protected areas to politicians, planners, the public, and many others.

Suggested topics for management section. The overall objectives of management will have been largely determined in the selection process. Options include:
Preservation: Strict Nature Reserve (IUCN Category I);
Purpose: preservation of representative area of an ecosystem or of an endangered species or group of species;

Management: exclusion of human activity other than the absolute minimum required for management surveillance and scientific monitoring.

Conservation (recreation, education and tourism permitted): National Park (IUCN Category II) or Managed Nature Reserve (IUCN Category IV); Purpose: conservation of a representative area; Management: education to encourage appreciation of the environment; no extraction.

Conservation (multiple use): Multiple Use Management Area (IUCN Category VII); Purpose: broad scale conservation of a resource system - including management of extractive activities within level which will not compromise the long-term integrity of the system; Management: education, and regulation of extractive activities with conservative estimates of the sustainable productivity of the system.

Planning:

Recording characteristics of the area: (will have been discussed in part one of the paper). Options include

field survey of benthic and fish resources
aerial photography
satellite imagery.

Recording usage of the area prior to incorporation in park.

provides insight into environmental stresses existing at time of incorporation and identifies management issues relating to established uses;

should where possible include public participation since local knowledge and history often provide a major insight into management issues;

establish short and medium term management goals leading to achievement of long-term objectives, e.g.:

timetable for phasing out established but unacceptable activities

timetable for education to achieve public awareness of management, its goals and objectives

working definition of carrying capacity - maximum acceptable loads of permitted human activity.

Techniques for control:

Spatial control: defining areas within which specific activities may take place.

Temporal control: defining periods with which specific activities may take place. These may be:

- short term - a month or two to cover a breeding period for a species or group of species.
- long term a year or more providing for periods during which an area may recover from the effects of human use.

Equipment control. Providing for the exclusion of equipment which may be environmentally damaging or which spoils the enjoyment of other park users, e.g.:

- certain monofilament nets which when left in place cause mass fish mortality
- dynamite
- jet skis
- spear guns

- hovercraft
- fish traps.

Harvest control. Where extractive activities are permitted. It may be desirable to establish permitted yields within the productive capacity of the area.

Operation of the Plan:

The detail of operation depends to a great extent on the acceptability of management goals to park users, the level of staffing and the resources available for transport, communication and surveillance.

Whatever the balance of these factors it is essential that operation of a park makes provision for collection of information which will enable the success of the plan to be assessed in relation to its goals and objectives. Information collected should include:

- number and type of users
- preferred locations
- specific site studies to determine changes to the resource over time
- review of characteristics of the area to compare with initial type of information in initial plan.
- logging unusual phenomena, cyclones, exceptional abundance of particular species, etc.

Key plenary session papers. III.A Conserving the multiple values of coral reefs in the Philippines, III.A Protected areas and turtle eggs in East Malaysia (S. da Silva), III.D The Marine Park Story (Graeme Kelleher)

Submitted papers

Bonaire Marine Park: An approach to coral reef management in small islands; by Tom Van 't Hof

The Bonaire Marine Park is managed to maintain the high productivity and essential ecological processes of the coral reef/lagoon system, while allowing for further development of the fisheries and recreational potential on a sustained basis. Research was carried out to monitor the impact of recreational diving and coastal development, to assess the economically important black coral population, and investigate the fish nursery function of the lagoon. Comprehensive legislation for the marine environment was submitted to the island government, providing for the establishment of the Bonaire Marine Park and for marine resource management in general. Environmental education programmes were initiated, but need further attention in order to produce lasting results.

Session II.8 **SELECTION AND MANAGEMENT OF PROTECTED AREAS IN ESTUARIES, MANGROVES, AND OTHER COASTAL AREAS**

Overview. Estuaries, mudflats, mangrove forests, and other sorts of coastal ecosystems are of outstanding importance in maintaining essential life-supporting ecological processes. They have relatively little attraction for tourism. Such areas are often most suitable for multiple-use management rather than strict protection, as they have high economic productivity when properly managed. Such management is considerably more difficult than outright preservation, requiring more ecological data and an effective monitoring system. This chapter aims to specify the principles by which the manager can ensure that natural values are maintained even if the area is being exploited for certain living resources.

Principles and Guidelines (proposed for discussion only)

- a) What uses of coastal ecosystems are compatible with conservation objectives? (As stated in Chapter III, different categories of protected areas have different sorts of compatible uses).
- b) How can such areas be selected? What political, ecological, economic, and social factors are involved? Is the "critical habitats" concept of use?
- c) What are the social and economic factors that should be considered in managing coastal protected areas?
- d) What ecological differences are there between arctic, temperate, and tropical estuaries and other coastal habitats, and what management measures are required to deal with them?
- e) What are the special management problems involved in estuaries and other coastal habitats, and how can these problems be addressed by the protected area manager? This would lead to the production of guidelines for managers of estuarine protected areas.
- f) Other matters discussed might include ways and means for the protected area manager to use the expertise of ecologists and other specialists, the relationship between the coastal protected area and adjacent areas further inland, ways and means of communicating the importance of coastal protected areas to politicians, planners, and the public, and many others.

Key plenary session papers. III.A Man and Mangroves in Malaysia (Ong Jin Eong). III.D The Marine Park Story (Graeme Kelleher). VI.A The Mediterranean: A regional approach to protected areas (Hedia Baccar). VI.D The Everglades: Managing a wetland under multiple threats. (Jack Moorehead).

Submitted papers:

Selection and management of coastal and estuarine protected areas, by W. J. Wolff

Some of the most important marine habitats for maintaining essential life-supporting ecological processes are found along sheltered coastal area. This paper describes the multiple uses of sheltered coastal waters, and describes the process of selecting and delimiting coastal protected areas; this process includes

selection and definition in relation to future management, identification of critical areas, and selection of protected areas. Ways and means of defining the boundaries of a protected area are described along with both theoretical and practical aspects of managing coastal and estuarine protected areas.

The relationship between protected coastal areas and marine fisheries genetic resources, by William E. Odum (USA)

The fisheries of the world appear to have reached a plateau in total annual catch between 70 and 80 million metric tonnes, and are unlikely to exceed 100 million tonnes per year in the future; between 50 and 75 percent of the commercial fish catch comes from species which utilize coastal and estuarine waters. This paper reviews the scientific evidence which indicates a strong connection between critical coastal habitats and fisheries production, discusses the need for protection of these critical habitats and reviews a few examples where protected coastal areas contribute significantly to coastal fisheries. The key to effective habitat preservation for benefit of fisheries genetic resources is to protect the complete sequence of critical habitat types encompassing the entire salinity gradient; the preservation of one type of habitat without consideration of functionally connected habitats may lead to disruptions in life-history cycles and long-term decline in fishery production.

Mangrove conservation and management in Indonesia, by Achmad Abdullah

Indonesia contains approximately 3.8 million hectares of mangroves, more than any other country. However, this resource is not being well managed and in many cases is even being abused. This paper outlines a mangrove conservation programme, with a goal to maintain the integrity and productivity of the mangrove ecosystem. An important part of the conservation programme involves the establishment of mangrove reserves, along with a management programme for the entire resource which emphasizes sustainable utilization of mangrove products. The paper has applications in other countries with extensive mangroves.

Session II.9. PROTECTED AREAS IN THE OPEN SEAS

Overview. While the Law of the Sea establishes extensive Exclusive Economic Zones, there are still vast marine areas which can be considered a "global commons." How can protected areas be established and managed where no nation has sovereignty? The Indian Ocean Cetacean Sanctuary provides one example. Other issues discussed in this chapter include ocean trench conservation and protected areas in the Southern Ocean.

Principles and Guidelines (proposed for discussion only)

- a) What uses of the open seas are compatible with conservation objectives? What sort of protected area is most appropriate for the open sea?
- b) How can protected areas in the open seas be selected? What political, ecological, economic, legal, and social factors are involved? Is the critical habitats concept of use?)
- c) What are the ways and means of managing what can be considered "global commons"? What are the means of establishing control over the area?
- d) How can protected areas in open seas contribute to the conservation of genetic resources, particularly in regards to fisheries? How can this contribution be used to help justify the management steps required in the area?
- e) What ecological differences are there between open seas in Arctic, temperate, and tropical oceans, and what are the differential management measures required to deal with these differences?
- f) What are the special management problems involved in protected areas in the open seas, and how can these problems be addressed by the protected area manager? This might lead to the production of guidelines for managers of protected areas in the open seas.
- g) Other matters of importance, including ways and means for the protected area manager to use the expertise of ecologists and other specialists, the relationship between the open sea and adjacent coastal areas, ways and means of communicating the importance of protected areas in the open seas to politicians, planners, and the public, and many others.

Key plenary session papers. VI.A The Mediterranean: A regional approach to protected areas (Hedia Baccar). VI.C Whale sanctuaries in Mexico; VII.B Local management of protected areas: The Valdes Peninsula. (Ricardo Luti)

Submitted papers:

Protected areas in the open seas, by Martin Angel (UK)

This paper argues that man will be forced to turn more and more to the oceans as sources of food, minerals and energy, so that the creation of inshore and open sea protected areas will become progressively more urgent as part of the overall development process. This paper defines many of the uses to which the open seas can be put, including fisheries, mineral extraction, transportation, dumping and energy extraction. It describes the importance of such protected areas in terms of maintenance of genetic resources, importance of marine animals, and scientific importance, and points out some of the limitations involved such as latitudinal differences in oceanic ecosystems and management, and protection

of aboriginal rights. It describes which categories of protected areas are likely to be appropriate for the open seas, and some of the steps required to realize such protected areas.

Conservation of Coastal and Marine Genetic Resources: Cetacean sanctuaries, by Maxine McCloskey (USA)

This paper discusses the need for cetacean sanctuaries, provides examples of areas in need of sanctuaries, and provides a number of examples where sanctuaries have been implemented. The paper gives suggestions on how the concept of marine sanctuaries can be promoted, and how such areas can be selected. It emphasizes the importance of local input, the need for research, the need to use multilateral agreements to support such sanctuaries, and the need to change attitudes about the use of the oceans.

Session II.10. PROTECTED AREAS IN POLAR REGIONS

Overview. This chapter deals with coastal and marine ecosystems in polar regions, where the ecosystems tend to be young (in geological terms), fragile and highly productive. While human numbers are generally very low, human impacts can be disastrous and irreversible in time spans of relevance to humans. This chapter outlines possible protected area management approaches to the polar regions, pointing out the essential differences between the Arctic (substantial resource exploitation, clear national jurisdiction, significant native populations) and the Antarctic (limited resource exploitation, controversial national jurisdiction, no permanent human populations).

Principles and Guidelines (proposed for discussion only)

- a) What use of the polar regions are compatible with conservation objectives? What sorts of protected area are most appropriate for the open sea?
- b) How can protected areas in the polar regions be selected? What political, ecological, economic, legal, and social factors are involved? Is the "critical habitats" concept of use?
- c) What are the social and economic factors that should be considered in managing coastal and marine protected areas in polar regions? The final chapter is expected to draw a distinction between the northern polar regions, which have important populations of indigenous people, and the southern polar regions, where such populations are not nearly so important; authors contributing to the relevant sections may wish to provide information for this issue.
- d) How can coastal and marine protected areas in polar regions contribute to conservation of genetic resources? How can this contribution be used to help justify the management steps required in the area?
- e) What are the special management problems involved in coastal and marine protected areas in polar regions, and how can these problems be addressed by the protected area manager? This discussion would lead to the production of guidelines for managers of polar protected areas.
- f) Other matters of importance, including ways and means for the protected area manager to use the expertise of anthropologists, ecologists, and other specialists; the relationship between coastal protected areas and adjacent areas further inland; ways and means of communicating the importance of polar protected areas to politicians, planners and the public; and many others.
- g) An annex might cover the special conditions involved in the Antarctic, and in particular the steps that are being taken to conserve Antarctic ecosystems under the Antarctic Convention (the author of this section is encouraged to refer to the IUCN Resolution on the Antarctic and to consult the IUCN background document on the Antarctic).

Key plenary session papers. VI.D Learning to live with exploitation in the Arctic and Subarctic (Gordon Nelson); IV.A Antarctic Keynote (Jonathan Elworthy); IV.A Finding ways and means to conserve Antarctica (P.H.C. Lucas); IV.A The Campbell Island Story: The management challenge of sub-Antarctic islands (Dave McKerchar); VI.D The politics of parks in Alaska (Bob Cahn and Ted Swem).

Submitted papers:

Protected areas in polar regions, by E.C. Young (New Zealand)

This paper describes the Arctic and Antarctic regions, including a detailed discussion of life in the polar regions, both at sea and in the freshwater systems. It describes the political status of the polar regions and suggests conservation needs for both the Arctic and the Antarctic. In these complex habitats, only two possible schemes of protection are feasible. The first is a rigid "world park" regime which would isolate the regions from all except global pollutants and other phenomena; it is not envisaged that such a Draconian, if idealistic, proposal would be acceptable. The second option is based on selective protection and management strategies for individual species, individual communities and habitats, and selected areas. It is this mixed format that is being practised by the Antarctic Treaty Powers for Antarctica.

Antarctica and the Southern Ocean, by James N. Barnes (USA)

This paper discusses the marine life and natural systems in Antarctica and the Southern Ocean, threats to their integrity, and what legal regimes are presently in place. The paper concludes that a long-term moratorium on exploratory and commercial drilling and mining is required in order to carry out the research necessary for informed decision making. Other priorities are (1) proper implementation of the Antarctic Marine Living Resources Convention, and (2) more open decision-making by the Antarctic Treaty governments.

Session II.11. PROTECTING ISLAND HABITATS

Overview. Islands (excluding the large continental islands) can be considered as "coastal" in their entirety, and their marine components are usually vital for the welfare of human populations on the islands; in addition, islands tend to have very high levels of endemism and have been hit particularly hard by species extinction. This chapter discusses the major threats facing islands and the role of protected areas in counteracting these threats. A number of case studies, especially from Caribbean and Pacific island nations, are being prepared to illustrate approaches which have proven successful.

Principles and Guidelines (proposed for discussion only)

- a) What uses of island ecosystems are compatible with conservation objectives?
- b) How can such areas be selected? What political, ecological, economic, and social factors are involved? How can the protected areas concept be modified to take "native rights" into consideration? Is the "critical habitats" concept of use?
- c) What are the social and economic factors that should be considered in managing protected areas on islands? How can the interests of indigenous people be safeguarded? Or, to look at the problem from a different direction, how can the indigenous people become involved in the management of the protected area?
- d) How can protected areas on islands contribute to systems of resource management and to the conservation of genetic resources? What are the special requirements for conserving genetic resources on islands? How can genetic resources be used to help justify the management steps required in the area?
- e) What ecological differences are there between continental and oceanic islands, and between Arctic, temperate and tropical island habitats? What management measures are required to deal with the ecological differences?
- f) What are the special management problems involved in insular protected areas, and how can these problems be addressed by the protected area manager? This discussion would lead to the production of guidelines for managers of island protected areas.
- g) Other matters of importance, including indigenous methods of resource management, ways and means for the protected area manager to use the expertise of anthropologists, ecologists and other specialists, the relationship between insular protected areas and the surrounding land, ways and means of communicating the importance of protected areas on islands to politicians, planners, and the public, and many others.

Key plenary session papers. III.A. Protected areas and turtle eggs in East Malaysia (S. da Silva). III.C Conservation of a limited land resource on Yap (Margie Falanrue). III.C Indigenous people and protected areas: traditional resource management in the Pacific (R.E. Johannes). III.C. Indigenous island peoples, living resources and protected areas (B. Nietschmann). VII.5 Starting from the ground up: Developing a conservation ethic on Dominica (Chris

Maximea). VII.A Strategic planning in the Lesser Antilles (Allen Putney). III.C Oceanian Keynote (Birandra Singh). VII.B Managing diversity on the Galapagos (Arturo Ponce and Jose Villa).

Submitted papers

Protecting island habitats, by Nigel Wace

This paper describes the characteristics of islands and discusses the number and distribution of islands before laying out six principles for protected island habitats: use natural limits for protected areas; enforce rigorous quarantine on all imports of plants, animals and soil; employ technologies which do not force islanders into total dependence upon imports for the necessities of life; establish means of estimating the environmental impacts of tourist invasion of islands; integrate the management and conservation of terrestrial and marine resources on and around islands; and establish environmental monitoring and research in the natural sciences as a locally-based activity. The paper concludes with some applications of these principles to islands variously affected by past human activities.

Session II.12. **CONCLUSION: THE ROLE OF COASTAL AND MARINE PROTECTED AREAS IN THE PROCESS OF SOCIAL AND ECONOMIC DEVELOPMENT**

Overview. This concluding chapter shows how coastal and marine protected areas can make a real contribution to human welfare, though this will require a wide range of management approaches geared to attaining specific objectives for each area. The importance of integrating protected areas with regional development efforts will be stressed. In this regard, regional initiatives such as the Regional Seas Programmes in the Mediterranean and the Caribbean will be discussed.

Principles and Guidelines (proposed for discussion only)

- a) Summary statement of the contributions of coastal and marine protected areas to human welfare.
- b) Management actions which are required in order to enable coastal and marine protected areas to make optimal contributions to human welfare.
- c) The institutional and personnel requirements to enable coastal and marine protected areas to contribute to social and economic development.
- d) Expanding the dialogue between scientists and managers in order to ensure the maintenance of ecological diversity, promote the sustainable utilization of ecosystems, and maintain essential ecological processes in coastal and marine protected areas.
- e) The role of monitoring in supporting social and economic development: Promoting more effective use of IUCN's Protected Areas Data Unit.
- f) International efforts in support of coastal and marine protected areas, including the UNEP Regional Seas Programme and various bi-lateral programmes.

Key plenary session papers. III.6 Man and mangroves in Malaysia (Ong Jin Eong). III.D The Marine Park Story: the Great Barrier Reef (Graeme Kelleher). VI.A The Mediterranean: A regional approach to protected areas (Hedia Baccar). VII.A Strategic planning in the Lesser Antilles (Allen Putney). VII.D Environmental Requirements of the World Bank including wildland conservation (Robert Goodland). XII.C UNEP and protected areas (Reuben Olembo).

WORKSHOP III

TRAINING PROTECTED AREAS PERSONNEL: Principles for Developing Management Capacity

Scope. Each of the over 5000 protected areas around the world requires a staff of trained personnel in order to enable the area's management to implement effectively the objectives for which the area was established. There are now several regional training centres (more are planned) and many countries have developed their own facilities for training field-level staff; increasing numbers of universities are becoming involved in higher-level training of protected area professionals. This book provides guidelines, principles, and illustrations for developing the capacity to manage through improved training of protected areas personnel.

Session III.1 TRAINING: THE KEY TO DEVELOPING THE CAPACITY TO MANAGE

Overview. The **World Conservation Strategy** lists the lack of trained personnel as one of the major obstacles to achieving conservation, and outlines the steps required to overcome the obstacle. This introductory chapter defines the problems involved with developing the increased management capacity that is required if protected areas are to play an expanded role in socio-economic development. By outlining the principles and guidelines for developing through the means of training – primarily for individuals already employed – the necessary capacity to manage protected areas effectively, this chapter will preview the structure of the book.

Principles and Guidelines (proposed for discussion only)

- a) What is a protected area and how does it contribute to social and economic development? This is the key question of the entire Congress, and forms the basis for guiding the structure of the workshop sessions; it is expected that this question will be answered by a major position paper to be prepared by IUCN's Commission on National Parks and Protected Areas.
- b) What are the personal skills required to manage effectively protected areas as defined above? This should not be merely a description of what has happened historically, but address the needs if protected areas are to meet the expanded development role envisioned by the Congress.
- c) All personnel should play a direct part in the management of the protected area (or system, if they are assigned at headquarters or a regional office), and should participate in the planning process; in addition to their technical roles as defined in Chapter II, all personnel are in some way both managers and planners. This involvement in the strategy of protected area management will lead to improved morale and performance, but does require appropriate training.
- d) What are the institutional requirements for developing the skills described above? Examples from several parts of the world will be presented in the workshops, but this chapter should present the conceptual basis for training

institutions, from game scouts to interpretation officers to community liaison specialists to directors. The different levels of training will be discussed further in other workshop sessions.

e) Why has training not yet met the identified needs? While some countries have outstanding training programmes, others are still lagging behind; this section should outline the steps required to overcome institutional obstacles to training.

Key plenary session papers. II.B Promoting Understanding of Conservation (Ricardo Luti); II.C. Training Wildlife Managers in East Africa (College of African Wildlife Management, Tanzania); III.A One Nation's Experience in Training Protected Areas Personnel (School of Conservation Management, Indonesia); VI.D. Professional Development Through International Cooperation (Rob Milne, USNPS).

Session III.2. THE SKILLS REQUIRED TO EFFECTIVELY MANAGE PROTECTED AREAS

Overview. This chapter sets out the concepts of management by objectives for different categories of protected areas and specifies the skills required to manage protected areas to attain these objectives; the kinds of personnel required will depend upon the functions of management which need to be performed. Some 15 functions are defined, and responsibility profiles ("roles") are presented for these functions in order to define standard categories of protected area personnel. The different requirements of different habitats are discussed: moist habitats tend to stress habitat management; dry habitats tend to link with wildlife management and direct benefits from tourism; island habitats are particularly vulnerable, with human population pressure and problems with species extinction (and introduced species); and marine habitats require dealing with the problems of jurisdiction and managing "open" ecosystems.

Principles and Guidelines (draft for discussion only)

a) What are the different objectives for protected areas? Concepts of management by objective. Categories of protected areas, and the differential management required for each.

b) Functions of management of protected areas are defined:

– **Decision-making Functions** (to determine the most effective course of action to achieve conservation objectives, and to direct and guide all activities to that end.

– **Major Programme Functions** (protection and management of natural and cultural resources and park visitors; interpretation of park values to visitors; research and monitoring activities necessary to support management, interpretation and ecodevelopment; maintenance of facilities and installations; and administration of all management and development activities.

– **Key Associated Functions** (management of visitors and others who use the area; manage the allocation of natural, cultural, and financial resources to achieve the objectives of the area; manage impacts on the specific natural and cultural resources of the area; guide legislative and policy matters; manage problems of land tenure and land acquisition; maintain appropriate relations with the public, political leaders, other public agencies, concessionaires, donors, and others).

– **Planning and Physical Development Functions** (preparing and up-dating management and development plans; designing and constructing the physical facilities of the area; and designing and constructing interpretive, educational, and informational materials and facilities concerning the area).

c) In order to design the management structure for an area, it is necessary to analyse which functions need to be carried out for the area, and the number of personnel required to fill the roles for covering these functions. Such roles include manager, ranger, ecologist, interpreter (naturalist or guide), administrative officer, maintenance specialist (engineer), sociologist, economist, scientific specialist (botanist, geologist, zoologist, anthropologist, archeologist, historian,

marine biologist, oceanographer, and others as appropriate to the needs of the area involved), law and policy specialist, land tenure and acquisition specialist, public relations specialist, planner, landscape architect, and exhibit designer. Small areas or systems might require that one individual fill a number of these roles; in large areas or systems, each role may be carried out by a number of individuals.

d) What are the common skills required to manage any category of protected area, and which are the specialized skills to deal with specific habitat types? A division into moist, dry, island, and marine habitats is suggested, but there may well be others that must be considered.

e) What is the relationship between size (in terms of personnel) of the management authority and complexity of management structure? It is clear that small national parks departments will be able to support fewer specialists, so training may have to be broader; what are the training implications of such a situation? Could there be regional specialists or cross-departmental specialists who could be trained for specific high-priority tasks?

Relevant background papers. i) "Categories, criteria and objectives for protected areas." (IUCN, 1979).

Submitted papers

Establishing Training Priorities, by Tom Thomas, (USA)

If the objectives established for the world's over 2,000 national parks and protected areas are to be met, a staff of highly qualified and dedicated individuals is required. A key issue in the process of training is to set priorities to ensure a total package of learning experiences for the wide range of staff that are required. This article provides a check list to assist protected area managers in developing a priority listing for training requirements.

Session III.3. A WORLD SURVEY OF MANPOWER REQUIREMENTS FOR PROTECTED AREAS

Overview. Based on information collected from all parts of the globe, this chapter summarizes by biogeographical realm and country (where available) the manpower requirements for the coming decade, at three levels: operational; technical; and professional. Differences between the realms are highlighted but the common requirements are still apparent.

Principles and Guidelines (draft for discussion only)

a) Based on the staff definitions from the previous chapter, the protected area authorities of the world are being asked to provide information on present personnel and required personnel; the role of training in any disparity between ideal and actual is explored.

b) The methodology for determining the worldwide manpower requirements for protected areas is presented, based on work by FAO. An application is presented for one part of the world (Latin America?). Detailed information is presented from the areas of the world where such information is available.

c) Broad estimations of manpower requirements for areas where sufficient information is lacking, by biogeographical realm.

d) Extrapolations and estimations on future manpower requirements, based on the assumption that protected areas will need to be increasingly well-managed in the future, in order to meet the expanding needs of society for sustainable use of renewable resources.

e) Discussion on the steps required to meet the future manpower requirements.

Submitted papers:

Manpower requirements for protected areas, by J.A. McNeely and K.R. Miller (USA)

This paper outlines the categories of personnel required to run a modern protected area system. It also reports on the results of a questionnaire sent to protected area management services around the world, to obtain information on current levels of manpower and requirements for the future (both levels that can be realistically expected, and levels that could be optimistically hoped for). This survey helps to provide guidance for establishing priorities for training programmes around the world.

Session III.4. OPTIONS FOR DEVELOPING MANAGEMENT CAPACITY

Overview. Having defined the skills required and surveyed manpower requirements around the world, it becomes clear that there is a serious need for improved training of protected areas personnel. This chapter looks at the various ways and means of developing management capacity through training, including workshops, seminars, study tours, short courses, university training, and many others. It is recognized that highly specialized training may often be required, as the protected area manager is expected to work with natural ecosystems, human impacts, the physical plant, and many others.

Principles and Guidelines (proposed for discussion only)

a) Training should continue throughout the professional life of each protected area staff member, and each staff member should have the potential to advance his position. The following areas will be discussed in some detail to examine positive and negative aspects; some combination of the list would probably be most appropriate for most protected area departments. The chapter will also discuss ways and means for emphasizing the positive aspects and minimizing the negative aspects of each option.

b) **Workshops.** Workshops are aimed at producing a real output, such as a management plan or a policy document, with the participants all playing an active role in the process. Workshops can also be held for "training the trainers" who might then use any of the alternative means described. Workshops will be given particular attention in view of their potentially crucial role in future training programmes. Advantages: Immediate reinforcement of training; "hands-on" experience; valuable side benefit of working in team situation. Disadvantages: Relatively expensive in terms of preparation time.

c) **Seminars.** Seminars tend to be more structured, formal, and academic. Participation can be either active or passive. Advantages: Large groups can attend with little additional cost; relatively low staff cost. Disadvantages: Difficult to assess impact on individuals.

d) **Study tours.** These usually involve relatively small groups of individuals visiting areas away from their normal assigned post to study new or different approaches to problems which may be common to both areas. Advantages: Broadens perspectives and expands contacts among professionals. Disadvantages: Expensive, difficult to assess impact.

e) **Short courses.** These tend to be fairly intensive, formal learning situations for relatively large groups of people for dealing with a specific topic. They may include features of workshops, seminars, and study tours. Several examples will be discussed, including BIOTROP in Indonesia and CATIE in Costa Rica; it is hoped that participants will bring other examples to the attention of the Congress. Advantages: Well-structured; testing of achievement relatively easy. Disadvantages: Requires infrastructure.

f) **Staff exchanges.** For countries where language difficulties can be overcome, staff exchanges, whereby staff from one country are seconded to another country, can help train both the individuals who are sent on secondment and those with whom they work in the host country.

g) **University training.** This includes sending employees for higher training at a university, rather than university training in preparation for a prospective career. Advantages: Can prepare individuals for positions of increased responsibility; an important rung on the advancement ladder. Disadvantages: Expensive; can lose individuals to other organizations if they become over-qualified or if appropriate positions are not available for their new qualifications.

Submitted papers

Guidelines for training resource managers, by James W. Thorsell

This paper provides guidelines as the basis for a plan of action to develop training programmes for natural resource management personnel in a country which is just beginning training in this field. The paper provides answers to the questions of why train resource managers, who should be trained, how are they to be trained, and what action can be taken to launch a training programme. A series of options are presented from which the solution most adaptable to local conditions can be selected.

Session III.5. **REGIONAL INSTITUTIONS FOR PROTECTED AREA PERSONNEL**

Overview. Based on needs identified earlier, several regional training centres have been established. At least three are of particular interest for protected area managers: Garoua, Cameroon, for francophone Africa; Mweka, Tanzania, for anglophone Africa; and Ciawi, Indonesia, for part of southeast Asia. Case studies for these three institutions are discussed, and other middle-level training opportunities are presented. The chapter concludes with specific recommendations for the existing regional institutions and for suggested new regional centres.

Principles and Guidelines (proposed for discussion only)

a) **Mweka, Tanzania.** As the pioneer training centre in East Africa, Mweka has produced the individuals who are now managing protected areas throughout the region; since its founding in 1963, Mweka has graduated 267 diploma students and 518 certificate students from 14 African countries. The College is expanding its physical plant and is now accepting graduate students as well as both diploma and certificate students. How will the college adapt to the changing needs of east African nations? What is required to broaden the curriculum beyond wildlife to give increased attention to land-use planning, preparation of management plans, the sociology of conservation, and other related matters?

b) **Garoua, Cameroon.** Established to be the West African counterpart of Mweka, Garoua has had to adapt to a rather different ecological and historical setting. The differences between Garoua and Mweka can provide insight into the training elements which are universal and which vary with the region. What differences are there in the curriculum? What has been the impact of Garoua on the protected areas of West Africa?

c) **Ciawi, Indonesia.** Begun as a national school for government officials already charged with running protected areas, Ciawi has recently expanded into a regional school, accepting personnel from Malaysia. What have been the adjustments which have been necessary to change from a national to a regional approach? What further adjustments will be needed if the school is to become even more regional?

d) Other regional training centres also train protected areas personnel, including CATIE in Costa Rica. CATIE conducts special training courses and workshops, which are held irregularly for government officials from Central American countries.

e) Additional centres need to be established in South Asia, Oceania, South America, and southern Africa. What has been learned from the existing regional centres which will assist new regional centres in becoming established and in carrying out their mandates successfully?

e) Based on discussions from those familiar with the operations of the various regional training centres, what recommendations can be made for improving the impact of the centres?

Key plenary session papers. II.C Training wildlife managers in East Africa (Mweka Staff); III.A One nation's experience in training protected areas personnel (Indonesia).

Submitted papers:

The role of training in effective management: The parks management course at the College of African Wildlife Management, Tanzania, by J.W. Thorsell (Canada)

The foundation of any success in managing protected areas depends on manpower capabilities. This paper describes the parks management course at the College of African Wildlife Management, which has four overall policy guidelines: the course is multi-disciplinary; provides a balance of practical skill development and formal academic background; emphasizes material relevant to the operation of protected areas in East Africa; and implants an attitude of commitment to wildlife and a behavioural style that displays that commitment.

School for the training of wildlife specialists at Garoua, Cameroon, by Andrew Allo (Cameroon)

The Garoua school trains francophone Africans to manage wildlife resources in West African countries. By 1980, 356 wildlife and national parks managers from 19 countries had been trained. The school is currently facing a number of difficulties, including inadequate infrastructure, lack of recognition of the school's diploma by governments, insufficient trained staff, and lack of sufficient scholarships. The incorporation of wildlife and protected areas management in any national development programme requires competent personnel capable of putting together the information required by planners in order to guarantee the perpetuity of the resource; but further assistance is required if this is to occur in francophone Africa.

Session III.6. NATIONAL TRAINING FOR PROTECTED AREA FIELD PERSONNEL

Overview. This chapter is a synthesis of the national approaches to field-level training in different parts of the world, based on case studies. The two main approaches for practical implementation of field-level training – establishment of specialist institutions which conduct regular courses, and on-the-job courses arranged as the necessity arises – are contrasted and compared. General principles are developed for broad application, and model curricula are presented.

Principles and Guidelines (proposed for discussion only)

a) National training examples are provided from the USA, Zimbabwe, Australia, New Zealand, United Kingdom, India, Peru, and Costa Rica; it is expected that numerous other countries will also contribute material to this chapter.

b) Highlights:

- United Kingdom's Peak National Park holds seminars each year;
- In the USA, the National Park Service has training facilities in several parts of the country, including specialized centres for interpretation;
- Zimbabwe is an outstanding example of a national training effort in the southern part of Africa, with on-the-job training the major approach;
- Kenya has recently opened, with World Bank assistance, a national training centre at Naivasha;
- Nigeria's Federal School of Wildlife Management has three levels of training: six-month course for wildlife guards; 2-year diploma programme for Wildlife Assistants; and a two-year National Diploma course for Wildlife Wardens;
- Argentina's Ranger Training School in San Carlos de Bariloche and Ecuador's Technical Training Centre in Conocoto are two field-level training centres which have been holding classes continuously for a number of years.

Key plenary session papers. III.A One nation's experience in training protected areas personnel (Indonesia).

Session III.7 INTERNATIONAL PROFESSIONAL TRAINING

Overview. It is expected that a significant number of the participants at the Congress will be alumni of the International Seminar on National Parks and Equivalent Reserves, held in the US and Canada for the past 16 years; many other participants will have attended seminars given by CATIE in Costa Rica, by the Australian government, or others of the many such seminars available. This chapter will present an analysis of the various seminars, concluding with general principles for making such seminars more effective in the future and specifying what sorts of seminars now need to be organized.

Principles and Guidelines (proposed for discussion only)

a) What are the special features which make international seminars of unique importance?

b) What are the weaknesses of the seminar approach? (Lack of measurable achievement, difficulty in finding the correct level, difficulty in attaining a truly international approach, difficulty in ensuring that the material is relevant to national interests, etc.)

c) Based on the experiences of past seminars, what is the ideal approach for the future? Among the options:

- Seminars held regionally, perhaps on a rotating basis;
- Seminars aimed at specialists (e.g., interpretation, marine protected areas, arid protected areas), with the seminar being held in uniquely appropriate sites (such as the Great Barrier Reef Marine Park for a seminar on managing coral reef protected areas);
- Seminars which become more "workshop" in nature, leading to the preparation of a real product;
- Seminars that deal with more categories of protected area than only national parks;
- Many others to be identified.

d) Would a coordinating mechanism for all of the various seminars (including the expected expansion in the coming years) be beneficial?

Key plenary session papers. VI.D. Professional development through international cooperation (R. Milne, USNPS).

Submitted papers:

Cross-cultural transfer of Parks technology, by John W. Bright

This paper discusses the transfer of information, materials, and techniques dealing with the transfer of protected area technology from the US National Park Service to developing countries. Its purpose is to identify problems in transferring parks technology both ways across often sharply contrasting cultural lines, to extract the underlying principles involved and to suggest procedures for effective technology transfer.

Session III.8. PROFESSIONAL TRAINING: UNIVERSITIES AND COLLEGES

Overview. Many universities and colleges have courses of study for managers of protected areas, resource economists, research and planning officers, wildlife managers, and the other sorts of professionals – both specialists and generalists – needed for the managing of modern protected areas. However, for improved applications to the evolving needs of protected areas to contribute more directly to human welfare, these courses need to become more involved with strategic issues for development, include more field contact and practical work, and be based on more current information of direct relevance to the countries involved. The possibility of developing regional university programmes for protected areas management, both terrestrial and marine, is discussed and recommendations made.

Principles and Guidelines (proposed for discussion only)

- a) Many of the industrialized countries have university programmes for the development of protected areas personnel. In the larger countries, such as the USA, a very broad spectrum of approaches can be seen (the University of Florida “Primate Conservation Training Program” being one example which is particularly addressed to individuals from tropical countries); in the smaller countries, such as New Zealand, the courses tend to be more directly related to the specific current needs of the protected area system so that professional education tends to merge into job training. Peru’s National Agrarian University at La Molina also has long-term experience in training protected area personnel (among several other examples that will be mentioned). What lessons have been learned from the experiences of the countries with comprehensive university curricula dealing with protected areas?
- b) Based on the above, what is the ideal university curriculum for professional protected area managers and planners?
- c) Many universities accept, even encourage, students from abroad. What problems are involved in tailoring programmes of study to the needs of these students? How can rangeland management courses taught in New Mexico, for example, be made more applicable to a Tanzanian student?
- d) Problems involved in overseas study include “brain drain” (graduates not returning to their home country) and frustration with the lack of appropriate positions and facilities on return to the home country. What steps are required to overcome, or at least minimize, these problems?
- f) It is clear that highly qualified and well-trained personnel are required if protected areas are to play a major role in social and economic development, and that overseas study can meet only part of the need. However, smaller countries with many competing demands on scarce resources will find it difficult to establish the necessary university programmes. What can be done? Several options will be discussed:
 - Establishment of regional university programmes;
 - Rotation of courses and faculties among universities;
 - Linking national universities directly with development work, including preparation of feasibility studies, impact assessments, and management plans;
 - Many others.

Session III.9. TRAINING AT THE SENIOR POLICY LEVEL

Overview. One of the major obstacles preventing protected areas from being effectively managed for purposes of socio-economic development is the lack of understanding of this role among the senior policy personnel who are not necessarily directly involved with parks and protected areas. This chapter deals with the ways and means of converting the unconverted to the new approach to protected area management as advocated in the **World Conservation Strategy**. It also deals with the most effective means of proposing new ideas on management, systems planning, and additional areas to the policy-level officials.

Principles and Guidelines (proposed for discussion only)

- a) The **World Conservation Strategy** emphasizes the need for protected areas to play a larger role in social and economic development, expanding away from traditional “strict protectionist” approaches to include conservation of genetic resources, maintenance of ecological processes, and sustainable utilization of renewable resources. In principle, this approach should be warmly welcomed by government policy advisors, but they have not yet been shown that protected areas can, with proper support and trained personnel, play the expanded role. Training of Senior Policy personnel is clearly needed.
- b) This chapter deals with the ways and means of political action by the protected area manager, in order to affect policies made at higher levels. Irrespective of political persuasion, government policies respond to similar sorts of approaches:
 - Real benefit to local people (or at least lack of active opposition);
 - Sensitivity to competing demands for resources (hence an approach showing that protected areas can contribute to another project instead of competing with it will be more likely to succeed; in cases where there is real and unavoidable competition, there may be steps that the advocate of protected areas can take to avoid harmful confrontation and seek acceptable compromise);
 - Use of expert advice (how to recruit and manage experts to develop policy guidelines which will have an influence at the Senior Policy Level);
 - Individuals at the Senior Policy level are busy people. Successful approaches are brief, succinct, visual, and convincing (but these approaches must be backed up with hard data to convince the technical advisors behind the scenes);
 - Mobilization of public support, or the support of influential individuals, is often crucial to convincing the Senior Policy level (who are seldom comfortable being too far out in front of their constituency).

Key plenary session papers. IV.A. Reservation of commercially important lowland forests in New Zealand (Les Molloy); III.D Increasing pressures for resources development in areas of high nature conservation value in Australia (Peter Bosworth).

Session III.10. OVERCOMING INSTITUTIONAL OBSTACLES TO TRAINING

Overview. Based on the previous chapters, this chapter outlines the international and national institutional requirements for training, the ways and means of overcoming obstacles to effective management. At the national level, this includes such things as developing a career structure, linking protected areas personnel with the national civil service, building flexibility into the system, providing for the full range of training levels, etc. At the international level, the main institutional requirement is an organizational structure into which the appropriate training facilities can fit. Diplomas must be given value in the civil service system, leading to career advancement.

Principles and Guidelines (proposed for discussion only)

- a) What national institutional structures have proven beneficial for staff development? Examples are provided from countries with mature systems, including the USA, Zimbabwe, Australia, and India (among others).
- b) How can flexibility be built into the system, so that training can be linked directly with evolving needs of protected area management?
- c) A basic principle: An ideal career development system provides incentives to officers to remain as employees of the protected area system by having, at least potentially, access to training and opportunities to gain increasing responsibility, status, position, and salary. A system of career development involving regular training opportunities cultivates personnel, enabling the most capable to grow into leadership and decision-making positions.
- d) What are the most effective ways that protected area departments can coordinate their needs with universities? Cooperative Wildlife Research and National Park Research Programmes are discussed as one example, and others are invited from other parts of the world.
- e) At the international level, how can field-level training be given national recognition? One possibility: An umbrella institution which would "legitimize" such training, so that a diploma from The College of African Wildlife Management, for example, would automatically be given appropriate recognition by the civil service in Kenya and Ethiopia (for example). Such an institution might also promote increased international training, help identify sources of funding, and provide support to national training efforts.
- f) How can research be translated into management prescriptions? What training is required for the protected area manager to be enabled to take advantage of research which is being carried out in his area?

Key plenary session papers. i) VII.C. The World Parks Association: A Professional Organization for Stewards of Natural Lands (Kenton Miller). ii) VII.C. Institutional Frontiers: Developing Administrative Structures for the 21st Century. (Cyril de Klemm).

Session III.11. SHARING EXPERIENCE

Overview. As more protected areas are being created and managed, more experience is being gained in solving the common management problems which face managers in all parts of the world. A major problem in ensuring that such experience can help train protected area managers is that there is relatively little sharing of information. This chapter deals with the ways and means that management experience can be shared. Institutional frameworks for sharing information are discussed, including existing structures such as the Unesco Man and the Biosphere Programme; recommendations are made on what, if anything, should be done to improve existing institutions or to create new ones. Publications, including national, regional, and international magazines and journals, are discussed, with special emphasis on PARKS Magazine.

Principles and Guidelines (proposed for discussion only)

- a) Current mechanisms for sharing experience:
 - Unesco's Man and the Biosphere Programme;
 - PARKS Magazine;
 - others.
- b) The role of publications in training. What is needed? What needs to be adapted to local conditions? Some suggestions:
 - Handbooks, which can be freely translated as required, for park wardens; for interpretive officers; for marine area managers; others.
 - Textbooks for universities. These can be more theoretical and thereby more generally applicable, though the most useful textbooks are those which include relevant examples for the country where they are being used. Perhaps standard textbooks in the US and Europe could be re-written by using examples from countries in the tropics.
 - A professional journal. This would include articles of more depth than those currently being published in PARKS Magazine. A journal would also help to develop the profession of protected area manager.

Key plenary session papers. XI.A. The exchange of wildland technology: A management agency perspective. (Gary Wetterberg)

Session III.12. THE PROTECTED AREA MANAGER BECOMES A PROFESSIONAL

Overview. This chapter deals with the strategic and tactical steps required to elevate the protected area manager to professional level. These steps include standards of training, a professional "guild", a regular journal to keep the manager current with new developments, and a number of other factors related to training. The chapter concludes with a set of specific recommendations by which professional status – parallel to that of Forester or Teacher – can be attained.

Principles and Guidelines (proposed for discussion only)

- a) What is required to develop a profession for protected area managers? Some suggestions:
- An international "guild" which establishes standards for the profession;
 - Internationally accepted definitions of technical terms;
 - Internationally accepted standards of training;
 - Ways and means of exchanging information and experience, including regular meetings, publications, staff exchanges, study tours, seminars, and many others;
 - Institutionalization of the professional roles of protected areas personnel.
- b) What can international organizations do to promote the Profession of protected area manager? Perspectives will be provided from IUCN, Unesco, UNEP, and FAO, as well as other international organizations.
- c) The major principles developed in the previous chapters should be drawn together into a synthesis in this chapter, ending in an action programme for the coming decade.

Key plenary session papers. XII.A. The International Society of Protected Area Professionals, by CNPPA.

7. COMMISSION ON NATIONAL PARKS AND PROTECTED AREAS

How can humanity live in balance with nature? How can forested mountains continue to supply pure water to the irrigated plains below? What can man do to allow varieties of wild plants to continue evolving, providing their domestic relatives with vigour to resist pests and diseases, and to enhance yields? How can endangered species be saved from extinction, and brought back to productive levels?

The **World Conservation Strategy** provides one broad answer to all these questions: Conservation, "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations".

Protected areas play an important role in this new and expanded sense of conservation, a role that is a challenge to land-use planners and managers. They must plan and establish systems of protected areas, and ensure that each area is managed effectively. As they carry out their new mandate, the world's managers of natural lands are supported by IUCN through its Commission on National Parks and Protected Areas (CNPPA).

WHAT IS CNPPA?

CNPPA is the leading international scientific and technical body concerned with the selection, establishment and management of national parks and other protected areas. It is responsible for the part of the IUCN Programme which promotes the establishment of a worldwide network of effectively managed terrestrial and marine reserves.

WHAT IS THE MEMBERSHIP OF CNPPA?

The CNPPA membership network now totals nearly 250 individuals from all parts of the globe, and the Commission is expanding further to include representation in every country which has protected areas. Four types of people are members of CNPPA:

- Professional managers of protected areas systems, typically the Director of a country's National Park Department or his top technical assistant;
- Academic specialists in land-use planning, resource economics, biogeography, wildlife management, marine conservation and other related fields;
- Top officials from relevant non-governmental organizations;
- *Ex-officio* members from Unesco, UNEP, FAO, Council of Europe, the Organization of American States, World Wildlife Fund, the Director General of IUCN, and the Chairmen of IUCN's other five Commissions.

The Commission is guided by its Steering Committee, composed of the **Chairman** (elected by the IUCN General Assembly), the **Deputy Chairman** (appointed by IUCN's Council), four Regional **Vice-Chairmen** (appointed from the membership by the Chairman), and the **Executive Officer** (a member of the IUCN Secretariat). The Chairman, Dr. Kenton Miller, provides leadership to the Commission and the Executive Officer handles day-to-day administration of the Secretariat.

WHAT ARE CNPPA'S OBJECTIVES?

CNPPA has four major objectives:

- To develop ways and means for selection, establishment and management of protected areas
- To develop an inventory and evaluation system for protected areas
- To promote the effective management of protected areas
- To promote international support for planning, establishment, and management of protected areas.

HOW DOES CNPPA ATTAIN ITS OBJECTIVES?

1. PROVISION OF TECHNICAL EXPERTISE. The Secretariat maintains a personnel file which allows CNPPA to provide expertise on protected areas to development agencies, governments, and related organizations, on a consultancy basis. Consultants also are engaged to carry out special assignments for CNPPA, such as defining terrestrial and marine biogeographic provinces to ensure that adequate samples of each can be protected, promoting the role of protected areas in conservation of genetic resources, and developing management guidelines for marine protected areas. CNPPA members act as a panel to review work in progress and to contribute ideas and data on request.

2. THE PROTECTED AREAS DATA UNIT. This unit is part of IUCN's Conservation Monitoring Centre in the United Kingdom. The CNPPA network provides data on the world's protected areas to the Unit, where it is entered on a computer. The data base has applications for development agencies, students and researchers, administrators of protected areas systems, and many others.

3. COOPERATION WITH INTERNATIONAL AGENCIES. CNPPA advises Unesco on natural sites for the World Heritage List and on Biosphere Reserves, advises UNEP on protected areas, and works in cooperation with FAO in many parts of the world on specific field projects. International projects are also carried out with the US National Park Service. The Protected Areas Data Unit will provide international development agencies, such as the World Bank and USAID, with information on the contribution of protected areas to socio-economic development.

4. WORLD WILDLIFE FUND PROJECTS. Through its membership, CNPPA helps to originate projects, screen project proposals, ensure that funds go to real priorities, evaluate project performance, and ensure that field projects are followed up by the proper authorities.

5. MEETINGS. There are normally two Commission meetings a year, rotating among the world's eight biogeographic realms in order to stimulate conservation action and provide all CNPPA members an opportunity to participate. Members also represent CNPPA at a wide variety of other relevant meetings in their own professional roles. The major meeting of the decade is the World National Parks Congress, in Bali, Indonesia, in October; it features case studies from the different realms, each with an important lesson for the future.

6. PUBLICATIONS. CNPPA has an ambitious publications programme, including:

- * the **IUCN Directory of Neotropical Protected Areas**, produced for the Bali Congress, is the first in a series of realm-based directories which will provide information on all of the major protected areas of the world
- * the United Nations **List of National Parks and Equivalent Reserves** (1961, 1971, 1974, 1980)
- * book-length reports on protected areas in each realm, resulting from Commission meetings; **Conserving Africa's Natural Heritage** (November, 1980), **Conserving the Natural Heritage of Latin America and the Caribbean** (June 1981) were the first two volumes
- * **PARKS Magazine**, the quarterly professional journal published by IUCN
- * a monthly Commission newsletter for members
- * Technical papers such as "Categories, Criteria and Objectives for Protected Areas" (1978), "The Biosphere Reserve and its Relation to Other Protected Areas" (1979) and "Guidelines for Protected Area Legislation" (1981) (in cooperation with Commission on Environmental Policy, Law and Administration)
- * field manuals to be produced as part of the Bali Congress, on **Managing Protected Areas in the Tropics**, and **Managing Coastal and Marine Protected Areas**
- * an atlas of biogeographic provinces for conservation purposes, including a mapping of vegetation and all protected areas (1982).

The CNPPA Secretariat also provides other publications to its members as a regular service, on an "as available" basis.

WHO PAYS FOR ALL THIS?

The Commission receives basic support for its Executive Office through IUCN and its contracts with WWF and UNEP. In addition, the Commission receives direct support from Unesco, United States National Park Service, Parks Canada, and the University of Michigan. Specific projects are supported from time to time by other governments, by foundations or by individuals. It is hoped that the new, expanded role of protected areas being championed by CNPPA will result in new and expanded support for its operations by both interested individuals and development agencies.

FOR FURTHER INFORMATION

Chairman, CNPPA
School of Natural Resources
University of Michigan
Ann Arbor, MI. 48109, USA

Executive Officer, CNPPA
IUCN
Ave. du Mont-Blanc
CH-1196, Switzerland

CNPPA'S INTERNATIONAL COLLABORATING NETWORK

The International Union for Conservation of Nature and Natural Resources (IUCN) was established in 1948 to promote scientifically-based action directed towards the protection and sustainable use of living natural resources. It is an independent, international, non-governmental organization with 470 members from 109 nations, including 55 sovereign states, 116 government agencies, and over 300 non-governmental organizations. The IUCN Secretariat has six Commissions – Ecology, Education, Environmental Planning, Species Survival, Environmental Policy, Law and Administration, and National Parks and Protected Areas – each comprising a body of volunteer experts who make major contributions to the development and execution of the IUCN programme. Together they constitute a global network of over 1,500 scientists and professionals. IUCN carries out a substantial programme of monitoring, planning, promoting and offering assistance to governments, intergovernmental bodies, and non-governmental organizations. This programme is based upon the authoritative information and advice provided by IUCN's members and Commissions, and the many other scientists and professionals with whom they and the IUCN Secretariat are in contact.

The World Wildlife Fund (WWF) is an international conservation foundation with national organizations on five continents. Since its founding in 1961, WWF has channelled over US \$50 million to more than 2,700 projects in over 130 countries, served as a catalyst for conservation action, brought its influence to bear on critical conservation situations, and provided a link between conservation needs, the scientific resource necessary to meet them, and the governments and other authorities whose action is needed. Well over half of the projects supported by WWF make direct or indirect contributions to national parks and protected areas.

The United Nations Environment Programme (UNEP) was established in 1972 to keep the world environmental situation under review so that emerging environmental problems of international significance receive appropriate consideration by governments. UNEP plays a catalytic and coordinating role among the other organizations of the UN family and administers a Fund which assists in promoting activities related to environmental assessment and management. Through a series of joint projects with IUCN, UNEP has made a major contribution to national parks and protected areas around the world.

The United Nations Educational, Scientific, and Cultural Organization (Unesco) has been deeply involved in protected areas matters for many years. Through the World Heritage Convention and the Man and the Biosphere Programme, direct support has been provided to a large number of protected areas; CNPPA has been providing advice and information to Unesco's protected areas programmes since its inception.

The Food and Agriculture Organization of the United Nations (FAO) has been the UN agency most deeply involved in protected areas matters at the field level, through its Forest Conservation and Wildlife Branch. With financial support from UNDP, FAO has provided expertise, equipment, fellowships, and training, often in close coordination with CNPPA. A number of FAO field personnel are members of the Commission.