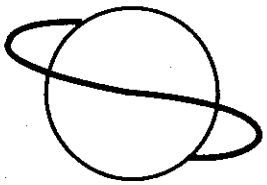
Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)

Draft Training Manual for Protected Areas in Lebanon

Protected Areas Project Lebanon

July 1998

MINISTRY OF ENVIRONMENT



GLOBAL
ENVIRONMENT
FACILITY

United Nations Development Programme

IUCN

The World Conservation Union

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Draft Training Manual for Protected Areas in Lebanon

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ETC

QUOTATIONS

"Peace, development and environmental protection are interdependent and indivisible."

The Rio Declaration on Environment and Development, 1992, Principle 25.

"Everybody should be a "parks person". Those who live in and around them have a special stake in their continuance, and are entitled to a special share of the benefits they confer. But all sectors of society should join together to ensure that the beauty, the living richness and the inspiration of the natural world is cherished as an essential part of true civilization."

Martin Holdgate, Director General, IUCN, 1993.

"We trained hard but it seemed that every time we were beginning to form up into teams we would be reorganised. I was to learn later in life that we tend to meet any new situation by reorganising and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralisation."

Caius Petronius, Roman Consul.

1. INTRODUCTION TO THE MANUAL

PURPOSE

The purpose of this manual is to provide information to assist those involved in the planning and management of protected areas particularly in Lebanon. It was prepared as part of the training program for the Protected Areas Project undertaken in Lebanon. The aim of this training program was to "train a multi-disciplinary team of natural resource managers and rangers in the basic principles and tools of wildland management."

ORGANISATION

The manual is divided into modules beginning with those that provide background and context, continuing with ones on planning and resource management, and concluding with ones on institutional management.
Each module is divided into sections. A standard format has been used for most sections. This comprises:

- Title
- Objectives
- Information
- Lebanon
- References
- Additional information
- Activities

HOW TO USE

The manual can be used, in whole or in part, in a variety of ways. First, it can be read as a textbook. Second, one or more modules can be used as the basis for making a presentation or delivering a course. The "Activities" part of each section suggests how this might be done. Third, it can form the basis for developing more substantial files on the various topics relating to protected area planning and management.

SURVEY OF USERS

Before giving all or part of the manual to protected area staff, or using it to teach a course, the characteristics, qualifications, experience and training needs of trainees should be determined. The following survey form could be used for this purpose. The survey information should then be used to decide which modules and sections of the manual are most useful for trainees. Additional information on training is provided in a later section of the manual.

Survey of Training Needs

MODULE A – INTRODUCTION TO PROTECTED AREAS

2. THE STATE OF THE WORLD

OBJECTIVES

Provide a broad context for considering PAs
Emphasise the need for PAs
Identify threats to PAs
Review the history of environmental degradation
Suggest some current socio-economic trends relevant to PAs
Note some positive initiatives to restore the environment
Encourage State of the Earth, State of Lebanon, State of PAs reporting

INFORMATION

Human Degradation of the Environment

"Natural wealth is being eroded at an unprecedented rate, because of the rapid growth in human numbers, the uneven and often excessive consumption of natural resources, mistaken and socially harmful styles of development, global pollution and defective economic regimes, so that the future of humanity is now threatened." The Caracas Declaration, IUCN, 1992.

Note the following:

Finite planet
Population of world still growing, to 8 billion by year 2000
Resource use increasing, eg. only 10% of tropical forests will be left by 2000
Loss of species due to human impact unprecedented
Agriculture, increasing monoculture, chemical use, soil erosion
Water, an increasingly scarce resource, likely to be a focus of conflict
Water pollution, eg. Mediterranean
Urbanisation continuing, eg. Mexico City c. 20 million people
Megaprojects, eg.3 Gorges dam in China
Climate change, air pollution, global warming, reduced ozone layer
Waste management problems, sewage, garbage, toxic waste
Tourism, increasing and causing more impacts, eg. Spain
War and terrorism, eg. Kuwait

Care of the Environment

Despite population increase, resource use, pollution, human race persists
Rate of population growth has decreased. No natural growth in many developed countries
A considerable area of wilderness, and numerous resources remain

Environmental movement:

UN Conference on Human Environment, Stockholm, 1972
1982, U.N. World Charter for Nature
Bruntland Commission, 1987
IUCN World Conservation Strategy
The Rio Declaration on Environment and Development, 1992
Convention on Biological Diversity
Sustainable development
Initiatives to combat acid rain, global warming, ozone loss
Species protection, egs. anti-whaling, panda, tiger, oryx
Environmental Impact Assessment, legislation and implementation
Impact of environmental NGOs
Protected Areas movement growing
Funding for environmental protection
IUCN, WWF, etc
Aid for development
UNDP, GEF

Some Current Trends Relevant to Pas

Globalisation: increased integration of the world politically, legally, economically, socially, culturally. International benefits, but international competition, responsibilities and constraints.

Bioregionalism: increased interest in local responsibility for the environment and decision-making.

Minorities: greater concern for indigenous people, local people, women, visible minorities, the disabled.

Privitisation: reduction in government services in favour of increased private and commercial services.

User-pays: belief and practice that users of an area, facility, or service should pay more of the costs or all of the costs rather than non users.

PA revenue: increased expectation that PAs generate revenue, and have the right to retain such revenue, to cover more of their costs.

Economics of PAs: increased recognition that PAs have economic values, that these can be measured, and used to justify PAs.

Computerisation: increased use of computers for obtaining, storing, providing information, maps, and communicating in general.

Best practice standards: increased use of best practice guidelines and objective standards to provide management targets, ensure high quality, efficiency and compliance with laws, and provide basis for accountability and evaluation.
Traditional knowledge: increased recognition of scope and value of knowledge of indigenous and local people.

Science: increased recognition of the need for physical and social science research, especially applied research, to guide management.

Human uses of PAs: increased recognition of historical uses and impacts in PAs, and tolerance of their
continuation if ecologically sustainable.
Global climatic change: warming, instability, rising sea level
Cloning, hybridisation

EXAMPLES

REFERENCES
Bruntland, G. (1987)
IUCN (1980);
McNeely, J.A. (1997)

OTHER INFORMATION

ACTIVITES
What is the net effect on the environment of the negative and positive human impacts
identified above?
Discuss the possible implications for PAs of the trends identified above.

3. THE STATE OF LEBANON

OBJECTIVES

Provide a broad environmental and socio-economic context for considering PAs in Lebanon
Emphasise the need for, and threats to PAs in Lebanon
Review the environmental history of Lebanon
Identify important current activities degrading the environment
Identify some current socio-economic-political trends relevant to PAs
Note some positive initiatives to restore the environment
Advocate environmentalism and PAs as means to help national reconciliation
Stress the importance of preparing environmental histories of each PA
Encourage the preparation of regular State of Lebanon, State of PAs reports

INFORMATION

Basic Geography of Lebanon

Country 10,452 sq.kms., 220 km from N-S, av. 48 km from E-W.
4 physiographic units – coast, Mt.Lebanon, Beqaa, Anti-Lebanon
73% of country hilly, mostly limestone
17 perennial rivers, notably the Litani
Climate, Mediterranean, 200-1600 mm of precipitation, most on Mt.Lebanon

Species

Flora: 4,633, fauna: 4,486 species
92 endemic plants, of which 38 rare, mostly in mountains
Ancestors of wild fodder species: 69, of which 34 endangered
Marine species – 1685, some rare and threatened
"The conservation of this biological diversity at its three levels, including the genetic base level, the species, and the ecosystem, requires the effective protection of the natural ecosystems specific to Lebanon" (Lebanon Biological Diversity Report, 96)

Population

Estimated at 4.1 million, 2.2% annual growth, with 800,000 Lebanese abroad
32% under 14 years, so considerable potential for growth
400 people per sq. km.
Rural population declining: 1961 – 59%, 1990 – 16%
Beirut, main city, growing, has 42% of country's secondary schools

Tourism

1974 – 1.9 million arrivals, especially from Syria; 1997 – c.500,000 arrivals
1974 – 14,390 rooms, 1991 – 6630 rooms, of which c. half in the mountains
UNDP Plan for Tourism, anticipates 800,000 arrivals by 2000-2005.

Environmental Problems

Vegetation removal, logging, flower picking
Overgrazing
Soil erosion, desertification
Uncontrolled fires
Hunting
Monoculture agriculture
Excessive use of fertilisers and pesticides
Quarrying and sand removal
Excessive water use
Water pollution, sewage, oil, thermal water
Garbage disposal, hospital waste
Air pollution, leaded gas, cars
Military and war impacts
Urban development
Lack of land use planning
Laws administered by many ministries, poorly coordinated and enforced
Environmental destruction in Lebanon costing c. $315 million per year (Ross Mountain, UNDP)

"A number of ecosystems tend to get ignored somewhat in the rush to save the tropical forest, One such ecosystem is the Mediterranean-type system which actually has a higher rate of endemism – a higher rate of species found nowhere else – than even in the tropical forest." (Mansfield, W.H. in McNeely, 1993, 63)

Environmental Progress

Historically there has been some interest in nature conservation, eg. protection of cedars
1993, Ministry of Environment created, and other ministries contributing to environmental protection
1994, Law 21, for conservation of biodiversity
Lebanon has signed global conventions, such as world heritage and biodiversity
International support for environmental projects has been received from agencies such as UNDP, GEF, IUCN
There are scientific and research institutions to assist with environmental programs, eg. National Council for Scientific Research, Marine Research Centre, universities.

There are NGOs committed to protecting the environment, eg. Friends of Nature, Greenline, Greenpeace, Society for Protection of Nature.
The country is now relatively peaceful and intends to pursue environmental projects to assist with national reconciliation
The government has committed itself to the development of protected areas

EXAMPLES

REFERENCES

Hamadeh, et.al. 1996.
McNeely, 1993.
Ministry of Environment, Lebanon, 1998
UNDP, 1997

OTHER INFORMATION

Map: Physiographic characteristics of Lebanon
Map: Natural habitats and ecosystems of Lebanon
Newspaper: Cost of destroying the environment in Lebanon

ACTIVITIES

Obtain current information on activities degrading, and activities enhancing the environment of
Lebanon, and consider their implications for protected areas

4. HISTORY OF PROTECTED AREAS

OBJECTIVES

Understand the origins and evolution of ideas and actions regarding PAs
Identify early ideas and actions that lead up to PAs
Describe the dates, locations and purposes of the first national parks
Identify the first PAs in the Middle East and North Africa
Draw attention to a persistent argument about preservation versus conservation
Summarise the present pattern of PAs in the world

INFORMATION

- Many aboriginal peoples practiced conservation, and recognised conservation areas
- Royal families had hunting preserves, eg. Tunisia AD1240
- Many countries have had designated "common" land for public use, eg. Arabia's hima grazing reserves
- Arkansas Hotsprings, USA, early federal government initiative to reserve an area for public benefit
- George Catlin, in USA, in 1860's called for the designation of a "nation's park" to conserve the buffalo for the benefit of the aboriginal people that depended upon it
- Yellowstone National Park, USA, the first national park in the world, established in 1872
- Other countries soon established national parks, eg. Australia – Royal National Park, Canada – Banff National Park, 1885.
- In USA and other countries, a debate developed around 1900 over the merits of preservation of wilderness, as in national parks, versus the conservation, or wise use of resources, as in national forests.
- National Park Services established to provide national leadership, coordination, eg. Canada 1911, USA 1914.
- National Parks established in more countries, eg. Algeria 1920, Iran 1927, Morocco 1942
- 1964, US Wilderness Act, enabled the creation of a system of protected areas to protect wilderness in the USA
- 1972, First World Parks conference, Yellowstone, USA

Present pattern of national parks in the world:

There are now c. 12,800 protected areas, totalling well over 13.2 million hectares, covering 8.82% of the world's land area (IUCN 1994, 1997)

EXAMPLES

History of Nature Conservation and Protected Areas in the Arab Countries

"What about the protection of the natural heritage and natural resources in the Arab countries? This goes back to two thousand years ago when protection systems represented one of the most important types of land use. Such systems remained functioning till the present century, and were largely forest reserves for hunting, or for strategic importance. These reserves were well maintained during the Roman period, and their rocky boundaries are still existing since 138 AD. In the Arabian peninsula, most protection systems were mainly for range management, and reached a high level of development during the Islamic period. Some traditional protection systems were adopted in North African countries, the oldest of which is ESHKUL reserve system established in Tunisia in 1240. In the present century, national parks and nature reserves have been established since 1920 in Algeria, and since 1940 in Morocco. Now almost all Arabian countries include one or more types of these protection systems." (Ayyad, M.A., 1996, p.8-9)

"The total area of all types of reserves in the Arabian countries according to the IUCN Classification, is currently about 83 million ha., which represents nearly 4% of the total area of these countries, while the internationally recommended percentage is 10%. The percentage varies from one country to the other. The lowest percentage is in Qatar (0.1%), and the highest is in Oman (13.4%). Ten of the Arabian countries adopt detailed programs for the management of reserves, and seven countries have incomplete or inadequate programs. All other countries have no programs which guide the selection, establishment and management of reserves. Most reserves in Arabian countries do not cover the variations in habitat conditions or in biological communities, or do not include centers of endemism (e.g. Red Sea mountain chain, Atlas Mountains, and islands of the Arabian Gulf, e.g. Sokotra Island of Yemen). Efficient protection seems to be secured in one third of all Arabian reserves. In addition, most of these reserves lack surveys of their biota, particularly in marine and coastal reserves which are characterised by rich biodiversity and in the meantime are threatened by increasing pressure of tourist activities and pollution. This situation calls for the adoption of a concrete policy for establishment and management of reserves in Arabian countries." (Ayyad, M.A. 1996, p.9)

REFERENCES

Ayyad, M.A. (1996)
Dean, F.A. (1993)
Grainger, J. and Llewellyn, O. (1994)
IUCN (1994)
IUCN (1997)
Nash, R. (1982)
Runte, A. (1987)

OTHER INFORMATION

ACTIVITIES

5. INTERNATIONAL INITIATIVES IN PROTECTED AREAS

OBJECTIVES

Describe IUCN and its activities
Describe WCPA and its activities
Explain IUCN's new categories of PAs
Identify other international designations for PAs
Emphasise the role of international NGOs in PAs
Note some major international agencies funding PA projects
Draw attention to the World Conservation Monitoring Centre

INFORMATION

IUCN

The International Union for the Conservation of Nature and Natural Resources (IUCN), now
known as The World Conservation Union, was founded in 1948, and is based in Gland, Switzerland.
It is a NGO with 895 state and NGO members in 137 countries
A central secretariat coordinates the IUCN Programme and serves the Union membership, representing their views on the world stage and providing them with the strategies, services, scientific knowledge and technical support they need to achieve their goals. Through its six Commissions, IUCN involves over 6000 expert volunteers in project teams and action groups, focusing in particular on species and biodiversity conservation and the management of habitats and natural resources.
David McDowell, current Director General, noted that IUCN tries to link environment and development, with "sound science, socially delivered." It attempts to match policy and action, empower communities and influence decision-makers.
One of its commissions is the World Commission on Protected Areas (WCPA).

World Commission on Protected Areas

This is a "World support system for PAs" offering research, information, advocacy and consultancy.
The Commission has a Chair (Adrian Phillips), an Executive (David Sheppard), staff, and over 1400 members
Commission activities include: publishing a Parks journal and newsletter, defining protected areas, monitoring their numbers and distribution, suggesting new ones.

RAMSAR Convention on Wetlands of International Importance Especially as Waterfowl Habitat.

This Convention was approved in Ramsar, Iran in 1971. Contracting parties undertake to use wisely all wetland resources under their jurisdiction and to designate for conservation at least one wetland of international importance under criteria provided by the Convention. Nearly 100 contracting states have designated more than 800 wetlands. Nations facing economic constraints have had difficulty in meeting their obligations. As a consequence, in 1990 parties voted to establish a Wetland Conservation Fund, built on mandatory and voluntary contributions, with an annual budget of approximately $660,000. Parties meet at least every three years, and the Secretariat is provided by IUCN, the World Conservation Union.

The Convention Concerning the Protection of the World Cultural and Natural Heritage.

Adopted by UNESCO in 1972, and by 1997 ratified by 151 State Parties. The Convention is managed on a day to day basis by the World Heritage Centre, established in 1992, and located in Paris. The governing body is the World Heritage Committee made up of 21 representatives from the State Parties to the convention, which is responsible for implementing the convention and deciding whether a site will be accepted for inscription on the World Heritage List. The Committee follows the state of site conservation, allocates funds for repair or restoration, for emergency action if sites are in immediate danger, for technical assistance and training, and for promotional and educational activities. Potential sites are nominated by State Parties and evaluated by two advisory bodies – the International Council on Monuments and Sites (ICOMOS) and the World Conservation Union (IUCN). Selection criteria are revised regularly by the committee to match the evolution of the world heritage concept itself. Recognises natural sites, cultural sites, mixed sites, cultural landscapes. By 1997 there were 506 sites in 108 countries.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention in force since 1975 and currently ratified by 111 States, establishes lists of endangered species for which international commercial trade is either prohibited or regulated via permit systems to combat illegal trade and over-exploitation. A Conference of the Parties is held every two years; non-governmental organisations have been well-represented at Conference meetings. The Convention includes species in three appendices, with progressing levels of restriction on their trade. Inclusion of species in the most restrictive categories requires a two-thirds majority of the Parties to the Convention; the least restrictive inclusions may be made by a single party. National "Management Authorities" and "Scientific Authorities" must be

Convention; the least restrictive inclusions may be made by a single party. National "Management Authorities" and "Scientific Authorities" must be designated by each state to grant and review the Convention permits; records of permits granted are supposed to be transmitted annually to the Convention Secretariat for review. The Convention has financed population studies of particular species to attempt to curb further species endangerment. The Secretariat is provide by UNEP.

The Convention on the Conservation of Migratory Species of Wild Animals.

The Convention, in force since 1983, obligates parties to protect endangered migratory species and to try to conclude international conservation agreements for the conservation of vulnerable species that are not yet endangered. No such agreements have come into force, but several are likely to be implemented by the mid-1990's. The 36 contracting parties do not yet include several countries of major importance for migratory birds. Some 51 migratory species are listed as "endangered" by the Convention, including four species of whales, several species of antelopes, 24 bird species, and six marine turtles. The Convention precludes commercial taking of listed species; it also encourages member states to conserve and restore habitat areas for migratory species. The Secretariat is provided by UNEP.

The Convention on Biological Diversity

In 1992, at the U.N. Conference on Environment and Development, in Rio de Janeiro, 150 States signed the Convention on Biological Diversity. While the Convention is a global treaty, it emphasises decision-making at the national level. Each nation that ratifies the Convention is required to develop and implement a national strategy for the conservation of biodiversity and sustainable use of natural resources. Each nation is also required to report periodically to the Conference of the Parties that administers the Convention on measures which it has taken for the implementation of the provisions of the Convention.
"The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding."
Article 8 of the Convention, on in-situ conservation, calls upon each Contracting Party to "establish a system of protected areas where special measures need to be taken to conserve biological diversity" and to "develop, where necessary, guidelines for the selection, establishment and management of protected areas where special measures need to be taken to conserve biological diversity."

Insert Article 8

Other Conventions: Antarctica

NGOs:
WWF – The Worldwide Fund for Nature

UNEP, UNDP, GEF, World Bank, aid agencies

The United Nations Development Programme assists developing countries and countries in transition to strengthen their capacities to achieve sustainable human development. UNDP is the United Nations Organization which provides the largest source of grant technical assistance for development (US$2.1 billion in 1996), and the main organ entrusted with coordination of development assistance provided by the organizations of the United Nations system. It operates through a network of 134 country offices covering some 174 countries and territories.

EXAMPLES

LEBANON

Lebanon is a member of IUCN. Several Lebanese are members of the WCPA Regional Rep is ?, and there is a regional staff person at IUCN Gland

REFERENCES

IUCN Bulletin
IUCN-WCPA newsletter
McNeely, J. (1993)
Parks journal
Thorsell, Sawyer. (1992)
WCPA brochure

OTHER INFORMATION

Addresses for IUCN, WCPA

ACTIVITIES

Identify the international conservation agencies described above that are operating in Lebanon. What projects are they undertaking? Do they have implications for your PA?
Consider the existing or potential relevance of these international conservation agencies to your PA. Egs. Does it your PA have or deserve international status? Could it benefit from international support?

6. THE GLOBAL PATTERN OF PROTECTED AREAS IN THE 1990s

OBJECTIVES

Introduce World Conservation Monitoring Centre and its data base on protected areas
Describe the IUCN classification of protected areas
Describe the number, extent, and spatial pattern of protected areas around the world.
Describe the number, extent, and spatial pattern of protected areas in the Middle East

INFORMATION

World Conservation Monitoring Centre (WCMC)

The WCMC, based in Cambridge, UK, is a joint venture between three parties: IUCN, UNEP and WWF. The Centre provides information services on the conservation and sustainable use of species and ecosystems and supports others in the development of their own information systems. WCMC is expanding its information services by using international communications networks – especially the Internet, allowing WCMC to access and be accessed electronically by other users of the network.

IUCN Categories of PAs

The current IUCN-WCPA categories and management objectives of protected areas are:
1. Strict protection – a) Strict Nature Reserve
b) Wilderness Area
11. Ecosystem conservation and recreation (National Park)
111. Conservation of natural features (Natural Monument)
1V. Conservation through active management (Habitat/Species Management Area)
V. Landscape/seascape conservation and recreation (Protected Landscape/seascape)
V1. Sustainable use of natural ecosystems (Managed Resource Protected Area) (IUCN, 1994)

Table summarising distribution of PAs by regions of the world.
Table summarising distribution of PAs by countries in the Middle East.
Table of World Heritage sites, Biosphere Reserves, Ramsar sites in the Middle East.

REFERENCES

Dean, 1993
IUCN, 1994
IUCN, 1997
IUCN, 1998

ACTIVITIES

7. PROTECTED AREA INITIATIVES IN LEBANON

OBJECTIVES

Note historical initiatives regarding PAs in Lebanon
Describe the Protected Areas Project
Identify other government initiatives relevant to PAs
Indicate some NGO activities relevant to PAs

INFORMATION

Historical Initiatives

Recognition of the importance of the Cedars of Lebanon, and their designation for protection by the Emperor Hadrian.

Recent initiatives by the Ministry of Agriculture and other agencies

Ministry of Agriculture, with the assistance of FAO, undertook reforestation of cedar on terraces on Barouk Mountain, between 1960 and 1975.

UNDP, Biological Diversity Project

UNDP is assisting the Government of Lebanon through 2 major projects for Biodiversity Conservation: The GEF Protected Areas Project and the Biodiversity Enabling Activity Project.
The Biodiversity Enabling Activity Project will follow up the results of a biodiversity country study and develop a strategy and action plan for biodiversity conservation.

Protected Areas Project

"The project will put into place an effectively managed system of protected areas to safeguard endemic and endangered species of flora and fauna, conserve their habitats and incorporate biodiversity conservation as an integral part of sustainable human development."
The project, which started in November 1996, will test a specific model of three demonstration parks namely; Arz Al-Shouf, Horsh Ehden and the Palm Islands. The Ministry of the Environment, local non-governmental organizations and in-country scientific institutions will cooperate and coordinated their activities to promote both the short term and long term ecological and economic objectives of biodiversity conservation. It will also incorporate educational and sensitization components directed towards the local communities, and will reach out to the public and decision makers with documentary films and TV spots, thus aiming to promote national reconciliation by bringing people and institutions together for the conservation of nature."

The Azrz Al-Shouf PA protects 55,000 ha. 5% is forest, including 550 ha of Cedrus libani, or 25% of remaining cedar in Lebanon.
The Horsh Ehden PA
The Palm Islands PA

Other Government Projects

NGO Projects – include:

Green Line
founded 1991 -"is a non-political association independent of any government, group, or individual. It embraces the principle of environmentally sound development in the developing world. Green Line brings together all those who are concerned with preserving the past, conserving the present, and giving the future a better chance."
It has the following objectives:

- expose environmental threats
- popularize environmental awareness
- contribute towards a scientific framework for a sustainable environmental management policy

Role in protected areas: scientific documentation and monitoring of these areas.

Friends of Nature:
Society for Protection of Nature and Natural Resources in Lebanon:
Created in 1984, the aims of the SPNL include conservation, education, environmental planning and establishing a representative system of national parks and protected areas. SPNL became the National Lebanese member of IUCN in 1993

EXAMPLES

REFERENCES
Abu-Izzeddin, F. (1997a) (1997b)
Dean, F.A. (1993)
Green Line. (1997) brochure
SPNL. Brochure
UNDP

OTHER INFORMATION
List of Protected Areas in Lebanon
Diagram of administrative structure of Protected Areas Project

ACTIVITIES

8. THE VALUES AND USES OF PROTECTED AREAS

OBJECTIVES

Emphasise that protected areas are a multiple use resource
Identify 20 values and uses of PAs
Provide examples of such values and uses
Emphasise that values and uses have changed historically and will do so in future
Consider the relative importance of these values and uses in Lebanon
Note that some values and uses depend on others
Identify values and uses that may conflict with each other
Question whether PAs can protect these values and sustain these uses
Consider which values and uses each PA in Lebanon can protect and sustain

INFORMATION

Protected areas are a multiple use resource

Twenty values and uses of protected areas:
Providing an environmental benchmark against which to judge other environments
Preserving unique and spectacular environments
Preserving representative environments
Preserving the gene pool
Saving endangered species
Ensuring the right of every species to live
Scientific research
Providing harvestable resources for local use
Maintaining fluid resources useful elsewhere
Recreation
Tourism and its economic benefits
Interpretation and education
Vicarious appreciation
Psychological benefits
Spiritual and religious benefits
Preserving historical and cultural resources
Artistic inspiration
Advertising and media use
National identity
International status

Examples of Values and Uses

Conflicts between Values and Uses

Conflicts often arise in trying to maintain all the above values and uses in one protected area. For example, there is often a conflict between preserving the ecological value of an area and using it for tourism. Accordingly, some values and uses may have to be given higher priority than others,
Or some values and uses may have to be forgone in order to have others. In large protected areas, some values and uses may be maintained in one zone and other values and uses in another zone. Some values and uses may be achieved at one time, eg. a particular season, and others at another time. Resolving conflicts between values and uses is an important function of management.

LEBANON

REFERENCES
MacKinnon, et. al. 1986

OTHER INFORMATION

Illustrations of Lebanese money showing cedar trees, the flag, and a postcard

ACTIVITIES

Rate the importance of the above 20 values in Lebanon
Identify which, of the above 20 values, each protected area in Lebanon possesses.
Identify which of the 20 values are in conflict with each other, and suggest how that conflict might be resolved.
How might the ranking of these values by PA managers, politicians, the general public vary, and what are the PA management implications of any variances?

MODULE B – PLANNING PROTECTED AREAS

9. OVERVIEW OF PROCEDURES FOR ESTABLISHING, PLANNING AND MANAGING PROTECTED AREAS

OBJECTIVES

Emphasise the institutional context of PAs
Review the typical sequence of institutional actions taken to implement PAs
Provide examples of these procedures

INFORMATION

The normal sequence of procedures for establishing, planning and managing PAs is as follows:

- Legislation
- Policy
- Agencies
- Planning
- Management
- Monitoring and revision

EXAMPLES

LEBANON

Various laws have been passed to enable the designation and protection of protected areas
The Ministry of the Environment has been established, and plays a key role in the designation and protection of protected areas
Other agencies, eg. Ministry of Agriculture, also are involved with protected areas
NGOs have been allocated responsibility for managing the protected areas
Management plans for three protected areas are being prepared
Management of the protected areas is now being undertaken

REFERENCES
MacKinnon et al. 1986.

OTHER INFORMATION

ACTIVITIES

10. PLANNING A SYSTEM OF PROTECTED AREAS

OBJECTIVES

Help answer the question: How many PAs should be located where?
Stress a systems approach to PAs
Describe a theoretical, island biogeography, approach to planning a PA system
Note pragmatic approaches to locating PAs
Describe the biophysical region representation approach
Provide national and regional examples of the representation approach
Explain the intent of buffer zones, biosphere reserves, and greater park ecosystems
Emphasise the importance and means of linking PAs

INFORMATION

Introduction

"A system plan is the design of a total reserve system covering the full range of ecosystems and communities found in a particular country. The plan should identify the range of purposes of protected areas, and help to balance different objectives. The plan should also identify the relationships among the system components – between individual areas, between protected areas and other land uses, and between different sectors and levels of the society concerned. A system plan should show how various stakeholders can interact and cooperate to support effective and sustainable management of protected areas. Lastly, a system plan should be a means to establish the priorities for a workable national system of protected areas" (Davey, Phillips.1998)

Some practical reasons for taking a systems approach to planning include:

- It helps relate protected areas to national priorities, and to give a clear sense of priority among

different aspects of protected area development;

- It may facilitate access to international and national funding. A systems approach should help countries and donors in defining priorities for investment in protected areas and increase the level of confidence in the efficient use of funds and resources. It can also assist donors in asking the right questions about protected areas;
- It gets away from a case by case, ad hoc, approach to resource management decision making;
- It can target proposed additions to the protected area estate in a more rational and persuasive manner than ad hoc planning. It can also help priority setting, for example for planning for species management regimes;
- It can facilitate integration with other relevant planning strategies, such as those for national tourism, national biodiversity conservation or sustainable development;

- It can help resolve conflicts. It can assist in making decisions relating to trade-offs. It helps clarify roles and responsibilities of different stakeholders. It facilitates diverse stakeholder involvement;
- It provides a broader perspective for addressing site-specific issues, such as tourism management;
- It enhances the effectiveness and efficiency of the way in which budgets are developed and spent;
- It may assist in meeting obligations under international treaties;
- It assists countries in being more proactive in conservation management, and in developing strong, relevant protected area systems that will work;
- It encourages consideration of a "system" which incorporates formal protected areas and areas outside of protected areas;
- It provides a structured framework for countries to consider a system of protected areas, ranging from areas managed for strict conservation to areas managed for a range of conservation and appropriate ecologically-sound activities;
- It assists protected area agencies in putting the case for protected areas in a range of forums and helps build political support for protected areas as a worthwhile concern;
- It helps to define a better process of decentralisation and regionalization of protected area activities, resources and responsibilities, including the involvement of NGOs and the private sector. The plan can provide a framework for cooperation and help identify how other sectors can contribute to conservation and improve the management of protected areas; and
- It helps foster transboundary collaboration." (Davey and Phillips, 1998)

<u>There are at least five key characteristics of a system of protected areas:</u>

- Representativeness, comprehensiveness and balance;
  - Including highest quality examples of the full range of environment types within a country; includes the extent to which protected areas provide balanced sampling of the environment types they purport to represent
- Adequacy;
  - Integrity, sufficiency of spatial extent and arrangement of contributing units, together with effective management to support viability of the environmental processes and/or species, populations and communities which make up the biodiversity of the country.
- Coherence and complementarity;
  Positive contribution of each site towards the whole
- Consistency;
  Application of management objectives, policies and classifications under comparable conditions in standard ways, so that the purpose

of each unit is clear to all and to maximise the chance that management and use support the objectives

- Cost effectiveness, efficiency and equity
  Appropriate balance between the costs and benefits, and appropriate equity in their distribution; includes efficiency: the minimum number and area of protected areas needed to achieve system objectives. (Davey and Phillips, 1998)

Theoretical Approach: Island Biogeography

"Island biogeographic theory is concerned with the distributions of plants and animals on oceanic islands and island-like areas on the mainland such as mountain tops, lakes, and isolated forest patches (Diamond, 1984). It has been found that the number of species and, to a certain extent, the actual species inhabiting islands, is highly predictable and dependent on the size of the island and its relative remoteness from colonising sources. The number of species stabilises when the rate of local extinctions equals the rate of new immigration. The former is related to island size while the rate of immigration depends on the proximity and richness of the coloniser land mass."

"According to the theory of island biogeography, small protected areas isolated by modified habitats behave like 'islands' and will lose some of their original species until a new equilibrium is reached, dependent on the size, richness and diversity of the area, and its degree of isolation from other similar habitats. Larger reserves lose fewer species at a slower rate, but any loss of natural habitat will lead to some loss of species." (MacKinnon et. al. 1986)

The theory of island biogeography suggests certain guidelines for planning protected areas.
Protected areas should be as large as possible and preferably should include thousands of individuals of even the least abundant species. They should be of a compact shape with biogeographically meaningful boundaries.Protected Areas should encompass as wide a continuous range of ecological communities as possible as few species are confined to a single community and few communities are independent from those adjacent to them. Precautions should be taken against protected areas becoming completely isolated from other natural areas. If possible, they should be located in clusters rather than dispersed, or they may be joined by corridors of semi-natural habitats.

Pragmatic approach: save what is left

In countries where little natural environment remains; therefore, representation of many biophysical regions of the country in protected areas is impossible, then a more pragmatic approach to planning a system of protected areas is necessary. This usually involves identifying any areas with natural values, and degraded areas where natural values might be restored, that might become part of a

This usually involves identifying any areas with natural values, and degraded areas where natural values might be restored, that might become part of a system of natural areas, that while not representative of the country's biophysical regions, will still contribute to the conservation of biodiversity and sustainable development.

Biophysical Regions Representation Approach

As noted by Davey and Phillips, this is the preferred approach to planning a system of protected areas. It involves identifying the biophysical regions of the area of interest (eg. world, nation, province, local area), then trying to establish at least one protected area in each biophysical region to represent it.
Numerous national and provincial agencies have adopted this as their basic approach to planning and implementing a system of protected areas. While there may me arguments about how many biophysical regions exist in an area, and how well a particular protected area would represent one of them, this is a relatively straight forward approach, that can be explained quite simply and cartographically to the public, politicians, businesses etc.

Gap Analysis

"Once assembled, geographic data should be systematically examined to assess which community types are least well represented in the region by being protected within existing natural areas such as Wilderness, Parks, Research Natural Areas, etc. Such analyses should be integrated across entire regions and all ownerships and attempts to assess the extent to which surrounding private lands act to enhance or reduce the persistence of threatened elements of diversity present within public lands. Those community types deemed to be underrepresented or threatened by fragmentation and isolation should then become a priority for reserved status and more intensive monitoring." (Alverson, W.S. et al. 199?, p.97)

Buffer Zones

The 4th World Congress on National Parks and Protected Areas noted (McNeely, 1993, 153)
"The first priority for protected area managers must be to secure full control of the core area and apply protection legislation vigorously. Subsequently a variety of buffer zone initiatives may serve to compensate local communities for loss of access to resources, thus diminishing conflict with protected area objectives.

"Initiatives on buffer zones have often not been based on a sound understanding of social and economic issues and have not applied the lessons learned from rural development. They have sometimes competed for resources with conventional approaches to the management of core areas."

Biosphere Reserves

"Biosphere Reserves are recognised areas of representative environments which have been internationally designated within the framework of UNESCO's Man and the Biosphere Programme for their value for conservation through providing scientific knowledge, skills and values to support sustainable development" (Bridgewater, et.al. 1996)

Biosphere Reserves are nominated by national governments but must meet agreed criteria and adhere to a minimum set of agreements before being admitted to the worldwide network. In particular, each Biosphere Reserve should perform three complementary functions: a biodiversity conservation function (with a focus on conserving a representative sample of major ecosystems); a development function (with a focus on humans in the biosphere, emphasising an integrative role for local communities); and a logistical function (combining conservation research, education, training and monitoring.

Biosphere Reserves are a special kind of conservation area – traditionally a nested series of zones with differing management intensities (core area, buffer zone, and transition zone), designed to include humans within an overall conservation framework. (See diagram) They may comprise any mix of terrestrial and/or marine elements."

Greater PA Ecosystems

In recognition of the fact that a protected area is often only a part of a regional ecosystem, some protected areas (eg. Yellowstone National Park, USA; Georgian Bay Islands National Park, Canada) have identified the regional ecosystem within which the PA lies as the "greater park ecosystem". This emphasises the impact of the greater park ecosystem on the park, and vice versa, and the desirability of land use planning and management on a regional ecosystem scale, involving many stakeholders.

Corridors and Greenways

Bennett, A.F. (1997):
"The concept of providing "corridors" of habitat to connect natural environments and populations that would otherwise be isolated by human impacts was one of the earliest practical recommendations arising from worldwide concern over the ever worsening loss and fragmentation of natural habitats (Diamond, 1975). The concept has been highly successful in catching the attention of planners, land managers and the community, and a wide range of "wildlife corridors", "dispersal corridors", "greenways" and "landscape links" are now being developed throughout the world. Such connections may be implemented at a range of

scales – from local links between small forest fragments in farmland, to national and international links between major reserves and protected areas. However, the concept has not been without scepticism, criticism and debate. Concerns have been raised about whether there is sufficient scientific evidence in support of the proposed benefits of corridors; whether there any be negative effects that outweigh any conservation benefits; and that scarce conservation resources may be better spent in other ways."
"Three important points can be made in order to promote understanding of this issue: the focus should be on "connectivity" not corridors per se; movement and population continuity are fundamental to the survival of species in patchy environments; and connectivity is important at a range of spatial scales."

Networks

Ultimately, it is desirable for maximising biodiversity conservation to link all protected areas in a network.

Trans-boundary protected areas

"With the exception of a few islands States, no country can plan its protected area system without collaborating with its neighbors. It is necessary therefore that as part of each country's national system plan, a review should be undertaken of the conservation needs of areas of land and sea which adjoin other States. This should lead to proposals for transboundary protected area collaboration with one or more neighboring countries as part of the national system plan. Such collaboration will be facilitated when it takes place within the framework of bilateral or multilateral cooperative agreements for conservation, including global treaties like the Ramsar and World Heritage Conventions." (Davey, Phillips, 1998)

In 1997, there were 140 trans-boundary PAs in 100 countries, representing 12% of PAs and 1% of the earth's surface.

Numerous benefits have been realised by bi-national management and cooperation, including:

- sustainable development of border regions within national planning systems
- wildlife and genetic pool maintenance
- species management, particularly migratory patterns and flyways
- integrated tourism management
- resource and area aquisition
- water-basin management
- fire control
- poaching control
- co-operative research policies
- information and GIS exchanges

- opportunities for environmental interpretation and education
- attracting international funding

"In some cases, border protected areas have served as "peace parks" and have decreased political tensions and national conflicts."

"To work well, border protected areas must have the appropriate institutional structures and, above all, legally-binding regulations and compatible legislation between the border countries. The range of institutions created varied widely from parks liaison committees to more elaborate interstate cross border management groupings, and to complex linkages of international committees, national committees (bringing in ministries and international funding agencies) and local bodies." (McNeely, 1993, 155)

The following guidelines have been proposed (Thorsell, 1990) to promote effective management of trans-frontier reserves:

- Review existing protected areas along the border of the nation
- Examine potential border areas to complement the existing protected area system
- Formulate cooperative agreements for integrated management of border protected areas
- Identify practical management activities in border parks to facilitate more effective conservation
- Design joint visitor use facilities and programmes
- Formulate cooperative research programmes and share results
- Build on bilateral and international agreements related to boundary cooperation
- Prepare joint nominations of border parks meriting inclusion on the World Heritage List

EXAMPLES

Global regions representation planning, IUCN, UNESCO

IUCN recognises a hierarchy of biophysical regions of the world, originally delimited by Udvardy
(1975) (See maps) IUCN advocates the maintenance of existing protected areas representing some of these regions, and the establishment of new protected areas to represent the remaining biophysical regions that lack them.

IUCN's Natural Heritage section is conducting a systematic review of the World Heritage natural site system, to see how well it represents various aspects of the worlds biophysical diversity, such as forests, wetlands, fossil sites, and other geological and physiographic phenomena. (Refs) This will help in reviewing nominations of new sites, to see if they would improve the representation of the world's biodiversity in the World Heritage site system.

National system planning: the example of Canada

Canada has been divided into 39 biophysical regions and it is intended that there be at least one national park to represent each of these regions.
Canada has also been divided into 29 marine regions, and it is intended that there be at least one
National marine conservation area to represent each of these regions

Provincial, regional and local system planning: the example of Ontario, Canada

Ontario's natural diversity has been defined to incorporate representative geological and ecological features and landscape. The province has been divided into 14 biophysically distinct site regions. It is intended that there be at least one wilderness class provincial park to represent the biophysical diversity in each of these site regions, and other classes of provincial park to achieve other objectives.

Planning a System of Protected Areas in Saudi Arabia (Abuzinada, A.H. 1991)

"At the outset, it was decided that Saudi Arabia's system of protected areas should have two major objectives:

- the representation and conservation of the full range of the Kingdom's physiographic and biological diversity, and
- the creation of reserves where the use of resources can be properly regulated, so as to develop solutions for sustaining rural productivity.

Certain criteria emerged from these guiding principles which were used to design the framework for a functional and representative national system plan. The system was to be of adequate size to underwrite the nation's ecological viability and the durability of its development. In addition it should ensure:

- adequate coverage of the country's physiographic diversity, especially in view of anticipated climatic changes;
- adequate coverage of the Kingdom's ecological diversity, based on a reliable spatial analysis of the plant communities;
- adequate coverage of species diversity, based on the natural ranges of a representative selection of species of high conservation interest;
- high coverage of key biological areas, such as wetlands, mangroves, juniper forests; and
- and as equitable distribution as possible of protected areas throughout the Kingdom's administrative regions."

LEBANON

REFERENCES

Abuzinada, A.H. (1991)
Bridgewater, P., Phillips, A., Green, M., Amos, B. (1996)
Canada (1991)
Child, G., Grainger, J. (1990)
Davey, A., Phillips, A (1998)
MacKinnon, et.al. (1986)
Thorsell, J. (1990)
Udvardy (1975)

OTHER INFORMATION

ACTIVITIES

Divide Lebanon into its terrestrial biophysical regions and identify which ones are represented by protected areas, and which ones need to be represented.
Divide the marine area adjacent to Lebanon into biophysical regions and identify which ones are represented by protected areas, and which ones need to be represented.
Which protected areas might be suitable core areas for Biosphere Reserves?
How might the protected areas of Lebanon be linked to enhance protection?
What potential is there for international trans-border protected areas in Lebanon?

11. PLANNING THE MANAGEMENT OF PROTECTED AREAS

OBJECTIVES

Explain why protected areas have to be managed
Consider planning as a process
Describe the stages of preparing a management plan
Emphasise the importance of public involvement in the process

INFORMATION

Why manage protected areas?

Protected areas need to be managed because:
ecological processes have often become unbalanced due to past human impacts;
human uses of protected areas may cause unacceptable impacts unless they are managed
Therefore, the Caracas Action Plan (McNeely, 1993) stated that:
"As an essential prerequisite for effective management, prepare a management plan for each protected area setting out what needs to be done, why, by whom, when and with what resources."

The Stages of the Management Planning Process

Thorsell (1996) has identified the following stages of the management planning process:

Form the planning team
Gather basic background information
Field inventory
Assess limitations and assets
Review regional interrelationships
State the objectives of the area
Divide the area into management zones
Review the boundaries of the area
Design the management programmes
Prepare integrated development options
Outline financial implications
Prepare and distribute a draft plan
Analyse and evaluate the plan
Design schedules and priorities
Prepare and publish final version of the plan
Monitor and revise the plan

Planning as a process

Planning is a dynamic process, taking from several months to years, involving repeated consultation with stakeholders.

Identifying stakeholders

Stakeholders of a protected area can be defined as those people or organisations which have a direct (ownership, lease, grazing rights, staff etc.) or indirect (e.g. visitor, environmental group, educational institution, neighbour etc.) interest in the protected area, or receive some benefit from, or make some contribution to the protected area. Even people who may illegally use the protected area (e.g. people who habitually graze goats in the protected area) are stakeholders for the purpose of planning.

Planning stakeholder consultation

The identification of stakeholders will probably reveal a large number of stakeholders ranging in significance for the protected area from very important to of minor importance. Accordingly, it is necessary to rank the identified stakeholders in order to establish the most important and plan the consultation with them. The ranking should be based primarily on an assessment of the degree to which the particular stakeholder is in a position to influence the management of the protected area, for better or worse, including influencing the planning process. Also, a relevant consideration is the known extent to which a stakeholder feels they should be consulted, not withstanding that you may not regard them as important stakeholders. Any person or organisation that could undermine any part of the planning process, and government approval of the plan, needs to be regarded as a possible key stakeholder.
A variety of methods are available for consulting stakeholders, as indicated below:

- individual interviews
- public meetings
- drop in centres with exhibits
- mail and telephone surveys
- interactive internet sites
- field trips

Stakeholders should be consulted as early as possible in the planning process, and on several occasions during the process.

The legal and policy context

The planning must be undertaken with a thorough understanding of, and compliance with any legislation and policies pertaining to the protected area.

Identifying protected area objectives

While legislation and policies may indicate the basic objectives for protected areas, it is important to state clear, detailed, and measurable objectives for each protected area early in the planning process.

The ABC method of inventorying protected area resources

The ABC method involves inventorying:

- Abiotic features and process in the area
- Biotic features and processes in the area
- Cultural features and process in the area

The features and process are mapped, usually in a Geographic Information System (GIS).
Opportunities and constraints are noted.
Optimum locations for boundaries, zones and protection and development are determined.

Planning natural resource conservation

Planning for natural resource conservation can be undertaken in the following stages:

Figure

Planning cultural resource conservation

Planning for cultural resource conservation can be undertaken in the following stages

Figure

Planning visitor management

Planning for visitor management can be undertaken in the following stages:

Figure

Zoning

Most PAs are zoned, i.e. divided into regions, to distinguish those regions that are most natural from those that are least natural, and those regions that will receive maximum protection and minimum visitation from those that may be developed and have high levels of visitation.

Planning in a regional context

It is important to plan a protected area in its regional context, i.e. with reference to environmental values, land uses, communities and economic activities in the surrounding area.

EXAMPLES

The Dana Nature Reserve Management Plan, Jordan (The Royal Society, 1996)

The Management Plan of the Dana Nature Reserve was prepared by a UNDP/World Bank GEF Project for the Royal Society for the Conservation of Nature (RSCN) which has been responsible for managing the reserve since 1989. The management plan is one of the first of its kind in Jordan and in the Middle East. The RSCN intends to use it as a standard for planning all other protected areas in the country. The plan is structured following the guidelines of the Nature Conservancy Council (UK), but the structure was modified to suit the Jordanian context. The management plan for this nature reserve comprises nine sections, as follows:

- General information: where is the reserve, how big it is, maps, legal issues, fixed assets.
- Environmental information: climate, geology, flora, fauna, culture, history, socio-economics.
- Evaluation (against standard NCC criteria): how important is the reserve from a conservation point of view.
- Management objectives: what we want to achieve
- From objectives to actions: how we will achieve it.
- Zoning plan: areas with different uses within the reserve – recreation and grazing.
- Tourism development plan: how visitors can enjoy the reserve without damaging the environment.
- Management actions: over 100 action points described in detail for the reserve staff.
- Five year work plan: summary tables with all action points, computer code, party responsible, timing for implementation.

The plan does not review all existing information on the reserve, such as complete species lists and specialised maps, which is kept at the Dana Centre.

LEBANON

Stakeholders identified in the Arz Al-Shouf PA area by training course participants:

- Neighbouring villages
- Minister of Environment
- Project coordinator
- Farmers
- Woodcutters
- People collecting plants for food, medicine
- Goat owners and herders
- Local, regional and international visitors
- TV stations
- Army
- Ministries of Environment, Agriculture, Public Works, Tourism
- Al Shouf Cedar Society
- PA Management team
- Local landowners
- Tourism industry
- Media
- Environmental NGOs
- Scouts
- Research institutions
- Schools, universities
- Religious groups
- Artists
- Hunters
- Restaurant and hotel owners.

REFERENCES

MacKinnon et. al. (1986)
McNeely (1993)
The Royal Society (1996)
Thorsell, J. (1996)

ACTIVITIES

MODULE C – MANAGING PROTECTED AREAS

12. MANAGING NATURAL RESOURCES IN PROTECTED AREAS

OBJECTIVES

Provide some principles for managing PAs
Identify the main natural resource problems requiring management
Provide some solutions to the main natural resource management problems

INFORMATION

Principles for Managing Pas

book "Wilderness Management" offer eleven principles of wilderness management, as follows:

1. Wilderness is one extreme on the environmental spectrum.
2. The management of wilderness must be viewed in relationship to the management of adjacent lands.
3. Wilderness is a distinct, composite resource with inseparable parts.
4. The purpose of wilderness management is to produce human values and benefits.
5. Wilderness preservation requires management of human use and its impact.
6. Wilderness management should be guided by objectives set forth in area management plans.
7. Wilderness preservation requires a carrying capacity constraint.
8. Wilderness management should strive to selectively reduce the physical and social-psychological impacts of use.
9. Only minimum regulation necessary to achieve wilderness management objectives should be applied.
10. The management of individual areas should be governed by a concept of non-degradation.
11. In managing use, wilderness-dependent activities should be favoured.

Natural Resource Management Problems

The following are natural resource management problems typical of protected areas:

Species are endangered
Species are overabundant
Exotic species are eliminating endemic species
Extirpated species need reintroducing
Disease

Fire
Species are moving outside the PA where they are threatened or causing problems
Pollution
Some information on each of these problems and their solutions is provided below.

Species are endangered

Many protected areas are established to protect endangered species of flora and fauna. A management strategy must be developed to guide the protection of such species.

The United States National Park Service Management Policies (1988) state, with respect to threatened or endangered plants and animals:
"Consistent with the purposes of the Endangered Species Act (16 USC 1531 et seq.), the National Park Service will identify and promote the conservation of all federally listed threatened, endangered or candidate species within park boundaries and their critical habitats. As necessary, the Park Service will control visitor access to and use of critical habitats, and it may close such areas to entry from other than official purposes. Active management programs will be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are the lead agencies in matters pertaining to federally listed threatened and endangered species. The Park Service will cooperate with those agencies in activities such as the delineation of critical habitat and recovery zones on park lands and will participate on recovery teams.
The National Park Service also will identify all state and locally listed threatened, endangered, rare, declining, sensitive, or candidate species that are native to and present in the parks, and their critical habitats. These species and their critical habitats will be considered in NPS planning activities. Based on an analysis of the status of state and locally listed species throughout their native ranges and throughout the national park system, the National Park Service may choose to control access to critical habitats or to conduct active management programs similar to activities conducted to perpetuate the natural distribution and abundance of federally listed species. The Park Service will cooperate with the agencies responsible for state or locally listed species,
Plant and animal species considered to be rare or unique to a park will be identified, and their distributions within the park will be mapped.
All management actions for the protection and perpetuation of special status species will be determined through the park's resource management plan."

IUCN and Conservation International publish the Red List of Threatened Animals.
The IUCN Species Survival Commission (SSC) has Specialist Groups which prepare Actions Plans that represent the best assessment available of international conservation priorities for groups of species. Publications exist on many endangered mammals, on Marine Turtles, and are being prepared on Palms, and on Mediterranean Island Plants.

Species are overabundant

In many protected areas, historical interventions by people (for example, predator control) have disrupted the natural balance between species of fauna, and between the fauna and their environment, leading to overpopulation of certain species, manifested by, for example, overgrazing or disease. Accordingly a management strategy must be developed to guide any activities to address such problems.

The United States National Park Service Management Policies (1988) state, with respect to the control of unnatural concentrations of animals:
"Natural processes will be relied on to control populations of native species to the greatest extent possible. Unnatural concentrations of native species caused by human activities may be controlled if the activities causing the concentrations cannot be controlled."

"The decision to initiate a control program will be based on scientifically valid resource information obtained through research. Planning and implementation of control actions will comply with established planning procedures, including provision for public review and comment." "The need for, and results of, controlling animal populations will be evaluated and documented by research studies and in the natural resource management plan. Such studies will assess the impacts of the control methods on nontargeted as well as targeted components of the ecosystem."

"Other management measures that may be used as necessary separately or together include live trapping for transplanting elsewhere, gathering of research specimens for NPS and cooperating scientists, public hunting on lands outside the park, habitat management, predator establishment, sterilization, and destruction by NPS personnel or their authorized agents. In controlling wildlife populations, highest priority will be given to encouraging public hunting outside the parks and live trapping within parks for transplanting elsewhere."
"The National Park Service will consult, as appropriate, with other federal land-managing agencies, the U.S. Fish and Wildlife Service, state agencies, native American authorities, and others regarding programs to control populations of fish and wildlife, research programs involving the taking of fish and resident wildlife, and cooperative studies and plans to guide public hunting outside park boundaries."

Exotic species are eliminating endemic species

"Invasive organisms are increasingly being recognized as one of the most serious threats to biodiversity. Increased degradation of protected areas has prompted profound changes in the biotas of protected areas. Invasive species will accelerate extinction rates and commit the reserve management to large and continued expenditure. These problems will be exacerbated by climate change. In some areas, such as oceanic islands, invasive species are the single greatest threat to biodiversity. The importance and management of invasive species has been given inadequate attention." (McNeely, 1993, 45)

The 4th World Congress on National Parks and PAs recommended that:

- governments put into place legislation (eg. quarantine) to reduce the impacts of invasive species;
- managers of protected areas require practical guidance on recognizing and managing introduced species;

Extirpated species need reintroducing

"Many species, most obviously the large mammals whose taxonomy and distribution are relatively well researched, have been eradicated from all or part of their historical range. With the increasing fragmentation of landscapes and habitats, species loss is likely to accelerate and the need to reintroduce species will grow."(McNeely, 1993, 44)

The 4th World Congress on National Parks and PAs recommended that reintroductions take place only:

- with the permission and involvement of the government agencies of both the recipient and the donor countries;
- where the original causes of extinction have been identified and either eliminated or controlled;
- when the habitat requirements of the species are satisfied and likely to remain so in the forseeable future;
- when fully supported by local populations;
- using a recognized protocol – involving an initial feasibility study, a reintroduction phase and subsequent monitoring – and supported by long-term funding and training of local personnel;
- by agencies with a proven ability to plan, undertake, and follow-up the reintroduction plan.

(McNeely, 1993, 44-45)

Disease

Flora and fauna of protected areas may suffer from endemic or exotic diseases that may threaten their survival and the survival of other species in the protected area, or adjacent areas. Policies are needed to indicate whether such diseases will be controlled, and, if so, how.

Fire

"Management of fire-affected ecosystems is very complex. The degree to which fire should be allowed or even used as a management tool will vary greatly between ecosystems and depend on the specific management objectives of a given site. Fire patterns should be carefully monitored. Ideally all fires should be mapped on overlay sheets recording their date, extent and degree of burn, to build up a fire history picture that can be related to floral and faunal conditions on the ground and give the manager a clearer understanding of these relationships."
"Small-scale fires which recur at a natural rate are not only a feature of evolution and diversity but also a factor of biological rejuvenation. However, large-scale fires with an unnatural rate of recurrence are a crude disruption which causes degradation of soil, flora and fauna. Most fires today are man-caused as a result of criminal or accidental acts and can be disastrous to protected areas."
"In many Mediterranean ecosystems, fire can have positive effects on vegetation and fauna but can also have negative effects of soil erosion and degradation of lands already subjected to heavy human impact. Here an intermediate regime of fires only every 5-6 years, accompanied by light grazing, favours good habitat conditions, preservation of early stages and maintenance of high biodiversity."
"Social education is a major factor in fire prevention. Precaution and prevention is always better than curbing the fire when it has started."
"Good fire management involves actions in advance (grazing, removing organic material, pre-burning, fire corridors, vigilance, and preparatory measures), during (fire fighting) and after a fire (promoting habitat recovery). Reseeding may be necessary to speed up recovery in some destroyed habitats."
Monospecific forests are fragile and are particularly susceptible to fire damage, being poor in biological diversity. Burned areas can mar the aesthetics of the landscape."
"Fire fighting ability should be developed along with other factors of success such as weather forecasting, first aid brigades, fire brigades, help from army and volunteer bodies, redoubled surveillance by land and air, good access to fire prone areas, sufficient supplies of water, legislation, criminal investigation, research, monitoring etc." (McNeely, 1993, 171)

According to Hendee et.al., there are five theoretically available policy alternatives with respect to fire:

- Fire exclusion
- No fire control programme
- Management of lightning-caused fires

- Prescribed fire
- Mechanical manipulation of vegetation and fuels

Combinations are obviously possible.

According to Hendee et.al., a wilderness fire management plan should include some, or all, of the following elements:

- Objectives or introduction
- Descriptions and maps of landscape units
- Fire history and natural fire regime
- Fuels
- Weather regime
- Potential impacts outside the wilderness
- The action plan
- Line responsibility
- Cooperation
- Information program
- Literature
- Approvals

To determine the fire history and natural fire regime of a protected area requires information on:

- Causes of past fires
- Seasonal, geographic, and long-term patterns of lightning ignitions
- Character of past fires – i.e. their type, intensity, ecological effects, and return intervals.
- Characteristics return intervals for specific vegetation types and physiographic situations.
- Typical sizes of burns
- Fire exclusion programs – extent of their application and degree of success
- Natural fuels mosaic – before and during fire protection.

<u>Species are moving outside the PA where they are threatened or causing problems</u>

No protected areas are self-contained ecosystems, and in many protected areas there is a migration of fauna from the protected area to adjacent areas, where the fauna may have unacceptable impacts on the environment, communities or economy. Management strategies are needed to deal with such problems.

Pollution

Many protected areas suffer from pollution. Pollution can be categorised spatially as:

- Global – eg. acid rain from air pollution caused in other countries
- Local pollution – eg. drift from the spraying of pesticides, discharges from wastewater treatment plants.
- In-park pollution – eg. exhaust from vehicles, oil from motor boats, sewage from resorts,tourist garbage (McNeely, 1993, 125)

There should be a waste management plan for each protected area. It should encourage:

- a reduction in waste production
- appropriate waste disposal, preferably outside the PA
- recycling
- public education to minimise waste production and inappropriate disposal

Cave Management

The U.S. National Park Management Policies (1988) state, with respect to cave management:
"Caves will be managed to perpetuate their atmospheric, geologic, biological, ecological, and cultural resources in accordance with approved cave management plans (action plans appended to approved resource management plan). Natural drainage patterns, air flows, and plant and animal communities will be protected.
Developments, such as artificial entrances, enlarged natural entrances, pathways, lighting, interpretive devices, ventilation systems, and elevator shafts, will be permitted only where necessary for general public use and when such development will not significantly alter any conditions perpetuating the natural cave environment or harm cultural resources. No potentially harmful development or use will be undertaken in, above, or adjacent to caves until it can be demonstrated that it will not significantly affect natural cave conditions, including sub-surface water movements. Developments already in place above caves will be removed if they are significantly altering natural conditions.
Caves or portions of caves will be closed to public use, or use will be controlled, when such actions are required for human safety or the protection of cave resources. Some caves or portions of caves may be managed exclusively for research, with access limited to approved research personnel."

EXAMPLES

The Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996).

This plan aims to "protect and manage the Cypress (Cupressus sempervirens) population and the Mediterranean Semi-Arid Forest so as to minimise direct damage caused by human activity, and to control the expansion of non-indigenous species of trees by eradication of the more invasive species (Acacia lancifolia) and control over the less invasive ones (Pine and Cypress). Accordingly, the following actions are prescribed:

- clarify the Ministry of Agriculture roles and responsibilities with regards to the management of forest areas
- prepare watershed management and forest conservation project
- semi-intensive use zone – adopt measures to prevent forest fires
- establish tree nursery in Dana Village
- Cypress forest – check and maintain fence
- Cypress forest – eradicate introduced Arizona Cypress
- include outstanding Cypress trees in the protected area
- extend the western end of the fence along the north-eastern boundary of the reserve
- change the official denomination of the Cypress Forest
- protect Oak forest
- introduced species – control Aleppo Pine and Italian Cypress
- introduced species – eradicate introduced Acacia trees
- introduced species – eradicate introduced trees at Rummana campsite
- discuss implementation of the Grazing Scheme with resident Bedouins
- review the overall design of the Grazing Scheme
- mark zone limits at key sites
- conduct periodic controls of holders of seasonal grazing permits
- review and renew seasonal grazing permits
- monitor number of livestock
- monitor grazing exclosures
- establish permanent soil erosion monitoring system
- establish permanent vegetation monitoring system
- maintain the Fujej-Al Barra road
- intensify patrols of semi-intensive use zone at peak times
- promote the use of alternative fuel resources in the reserve

Reintroduction of the Arabian Oryx to Oman (Dean, 1993)

It was in Oman that the last wild herd of Arabian oryx were eliminated from Arabia in 1972. However, ten years prior to that event "Operation Oryx" was organized by a group of international wildlife organisations to capture some of the remaining wild oryx in Arabia, and send them to the USA to establish a captive breeding herd. The capture effort did not go well, but gifts from neighbouring

Arab countries gave the organisers enough animals to send to the Phoenix Zoo in Arizona. One of the primary aims of that rescue operations was to eventually re-establish a free living herd in the deserts of central Oman. By 1980 the oryx had bred so well in captivity, that preparations were underway to bring some of them back to their native land. The site that was chosen for their reintroduction is a distinct ecological unit of about 25,000 sq.km. at the eastern side of the Jiddat-al-Harasis. In 1980, 1981 and 1983 a total of 17 oryx were made available from the USA, and in 1984 one young male was donated by the Royal Society for the Preservation of Nature in Jordan. After a period of habituation and social organization, two herds were released in 1982 and 1984. The results were most encouraging and it is now clear that captivebred oryx can make the necessary physical, physiological, behavioral and social changes needed to lead an independent existence in their native habitat. It is not easy to predict rates of increase for oryx living in the wild where erratic rainfall can produce great year to year variations in breeding rate and carrying capacity, however, a net rate of increase of 10-15% per annum may be obtainable. The latest estimate at the end of 1992 puts the number of Arabian oryx living free in Oman at 130, the vast majority of them born in the wild.

LEBANON

REFERENCES

Dean, F.A. (1993)
Hendee, J.C. et.al. (1976)
MacKinnon et.al. (1986)
McNeely (1993)
Royal Society et. al. (1996)
U.S. Department of the Interior (1988)

OTHER INFORMATION

ACTIVITIES

Discuss the applicability of the management principles in Lebanon
Identify the main natural resource management problems in each PA
Suggest solutions to each natural resource management problem

13. MANAGING CULTURAL RESOURCES IN PROTECTED AREAS

OBJECTIVES
Identify the types of cultural resources in PAs
Provide some cultural resource conservation principles.
Identify the main cultural resource problems requiring management
Provide some solutions to the main cultural resource management problems

INFORMATION

Introduction

"Protected areas usually include both natural and cultural heritage values. Heritage values include archeological, historical and ethnographical features. They show the cultural diversity of our planet and help us understand the relationship between people and the environment. These heritage assets are an integral part of protected areas and they contribute substantially and positively to their knowledge, interpretation and value. The value and conservation of the natural and cultural heritage must be taken as the basis for sustainable development of protected areas.
Protected area managers should inventory the cultural assets of each area. These cultural assets must then be taken into account in the appropriate zoning plans for protected areas with a view to their proper conservation, administration and management."(McNeely, 1993, 169)

Types of Cultural Resources

The United States National Park Service (1988) states the following with respect to cultural resource identification and evaluation:

"The National Park Service will identify and evaluate the cultural resources of each park as required parts of the park's information base. The resulting inventories will provide the substantive data for nominating resources to the National Register of Historic Places; for general park planning and specific cultural resource management proposals; for land acquisition, development, interpretation, and maintenance activities; and for compliance with legal requirements."

"The following cultural resource inventories will be maintained for the national park system: (1) a List of Classified Structures encompassing historic and prehistoric structures; (2) a Cultural Sites inventory consisting of both prehistoric/historic archeological resources and ethnographic resources (cultural and natural) associated with contemporary native Americans and other ethnic groups; and (3) a National Catalog of Museum Objects encompassing all cultural and natural history objects in NPS collections."

"To assist in management decisions about the treatment and use of cultural resources, all resources will be professionally evaluated and categorized according to criteria of significance established by the National Park Service and listed in the Cultural Resources Management Guideline."

"Submerged Cultural Resources: The National Park Service will identify, evaluate, register, monitor, and protect the submerged cultural resources in its custody. Each park with submerged cultural resources will develop a program to protect them and to provide for their interpretation to the public."

"Policies to preserve the archeological heritage are more likely to succeed when they take into account the social, symbolic and aesthetic values ascribed to heritage sites by the people who use them, and when they provide an economic incentive for them to preserve them." (Stanley-Price, 1998)

Cultural Resource Conservation Principles

The Burra Charter (Marquis-Kyle, Walker, 1992) offers the following conservation principles:

Article 2: The aim of conservation is to retain the cultural significance of a place and must include provision for its security, its maintenance and its future.

Article 3: Conservation is based on a respect for the existing fabric and should involve the least possible physical intervention. It should not distort the evidence provided by the fabric.

Article 4: Conservation should make use of all the disciplines which can contribute to the study and safeguarding of a place. Techniques employed should be traditional but in some circumstances they may be modern ones for which a firm scientific basis exists and which have been supported by a body of experience.

Article 5: Conservation of a place should take into consideration all aspects of its cultural significance without unwarranted emphasis on any one aspect at the expense of others.

Article 6: The conservation policy appropriate to a place must first be determined by an understanding of its cultural significance.

Article 7: The conservation policy will determine which uses are compatible.

Article 8: Conservation requires the maintenance of an appropriate visual setting: e.g., form, scale, colour, texture and materials. No new construction, demolition or modification which would adversely affect the setting should be allowed.

Environmental intrusions which adversely affect appreciation or enjoyment of the place should be excluded.

Article 9: A building or work should remain in its historical location. The moving of all or part of a building or work is unacceptable unless this is the sole means of ensuring its survival.

Article 10: The removal of contents which form part of the cultural significance of the place is unacceptable unless it is the sole means of ensuring their security and preservation. Such contents must be returned should changed circumstances make this practicable.

Article 11: Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

Article 12: Preservation is limited to the protection, maintenance and , where necessary, the stabilisation of the existing fabric but without the distortion of its cultural significance.

Article 13: Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric and only if returning the fabric to that state reveals the cultural significance of the place.

Article 14: Restoration should reveal anew culturally significant aspects of the place. It is based on respect for all the physical, documentary and other evidence and stops at the point where conjecture begins.

Article 15: Restoration is limited to the reassembling of displaced components or removal of accretions in accordance with Article 16.

Article 16: The contributions of all periods to the place must be respected. If a place includes the fabric of different periods, revealing the fabric of one period at the expense of another can only be justified when what is removed is of slight cultural significance and the fabric which is to be revealed is of much greater cultural significance.

Article 17: Reconstruction is appropriate only where a place is incomplete through damage or alteration and where it is necessary for its survival, or where it reveals the cultural significance of the place as a whole.

Article 18: Reconstruction is limited to the completion of a deleted entity and should not constitute the majority of the fabric of the place.

Article 19: Reconstruction is limited to the reproduction of fabric, the form of which is known from the physical and/or documentary evidence. It should be identifiable on close inspection as being new work.

Article 20: Adaptation is acceptable when the conservation of the place cannot otherwise be achieved, and where the adaptation does not substantially detract from its cultural significance.

Article 21: Adaptation must be limited to that which is essential to a use for the place determined in accordance with Articles 6 and 7.

Article 22: Fabric of cultural significance unavoidably removed in the process of adaptation must be kept safely to enable its future reinstatement.

Article 23: Work on a place must be preceded by professionally prepared studies of the physical, documentary and other evidence, and the existing fabric recorded before any intervention in the place.

Article 24: Study of a place by any disturbance of the fabric or by archaeological excavation should be undertaken where necessary to provide data essential for decisions on the conservation of the place and/or to secure evidence about to be lost or made inaccessible through necessary conservation or other unavoidable action. Investigation of a place for any other reason which requires physical disturbance and which adds substantially to a scientific body of knowledge may be permitted, provided that it is consistent with the conservation policy for the place.

Article 25: A written statement of conservation policy must be professionally prepared setting out the cultural significance and proposed conservation procedure together with justification and supporting evidence, including photographs, drawings and all appropriate samples.

Article 26: The organisation and individuals responsible for policy decisions must be named and specific responsibility taken for each such decision.

Article 27: Appropriate professional direction and supervision must be maintained at all stages of the work and a log kept of new evidence and additional decisions recorded as in Article 25 above.

Article 28: The records required by Articles 23, 25, 26 and 27 should be placed in a permanent archive and made publicly available.

Article 29: The items referred to in Articles 10 and 22 should be professionally catalogued and protected.

Cultural Resource Management Problems

Lack of information on the cultural resource
Natural deterioration of the cultural resource, eg. through weathering
Unintentional human impacts on the cultural resource, eg. through tourism
Intentional human impacts on the cultural resource, eg. theft of artifacts.
Appropriation of cultural resources, eg. the artifacts and stories of one group being taken over by another group

Solutions to Cultural Resource Management Problems

Lack of information on the cultural resource: conduct a systematic inventory, initiate research.
Natural deterioration of the cultural resource: accept deterioration as natural, protect resources from forces of nature.
Human impacts on the cultural resource: prohibit or limit public access to the resource, and certain types of behavior.
Appropriation of cultural resources: restore artifacts and responsibility for cultural heritage to rightful owners.
Prepare and implement a cultural resource management plan.

Management of Cultural Resource Structures

The U.S. National Park Service (1988) identifies various options for managing cultural resource structures:

1. Preservation: A structure will be preserved in its present condition if (1) that condition allows for satisfactory protection, maintenance, use and interpretation, or (2) another treatment is warranted but cannot be accomplished until some future time.
2. Rehabilitation: A structure may be rehabilitated for contemporary functional use if (1) it cannot adequately serve an appropriate use in its present condition, and (2) rehabilitation will not alter its integrity and character or conflict with park management objectives. Rehabilitation does not apply to prehistoric structures.
3. Restoration: A structure may be restored to an earlier appearance if (1) restoration is essential to public understanding of the cultural associations of a park, and (2) sufficient data exist to permit restoration with minimal conjecture.
4. Reconstruction: A vanished structure may be reconstructed if (1) reconstruction is essential to public understanding of the cultural associations of a park established for that purpose, (2) sufficient data exist to permit reconstruction on the original site with minimal conjecture, and (3) significant archeological resources will be preserved in situ or their research values will be realized through data recovery. A vanished structure will not be reconstructed to appear damaged or ruined. Generalized representations of typical structures will not be attempted.

5. Ruins: The stabalization of ruins will be preceded by studies to recover any data that would be affected by stabalization work. Ruins and related features on unexcavated archeological sites will be stabalized only to the extent necessary to preserve research values or to arrest structural deterioration. Archeological ruins to be exhibited will not be excavated until adequate provisions are made for data recovery and stabalization. Structures will not be deliberately reduced to ruins, nor will missing structures be reconstructed to simulate ruins.
6. Earthworks: Appropriate vegetation will be maintained when necessary to prevent erosion of prehistoric and historic earthworks, even when the historic condition might have been bare earth. Because earthwork restorations and reconstructions can obliterate surviving remains and are often difficult to maintain, other means of representing and interpreting the original earthworks will receive first consideration.
7. Submerged Cultural Resources: "Submerged cultural resources will be left in place unless removal of
artifacts or intervention into fabric is compellingly justified by overriding protection, research, or interpretive requirements. No submerged cultural resource will be removed if its preservation would be adversely affected or unless provision has been made for its appropriate conservation and curation. All such resources collected from park waters will be managed within NPS museum collections. The National Park Service will not permit treasure hunting or salvage activities at or around shipwrecks or other submerged resources.
Programs will be conducted to enhance public understanding of submerged cultural resources. Parks may provide recreational diving access to submerged resources not susceptible to damage or the removal of artifacts from such access.
The National Park Service will take care to ensure that activities by other agencies in coastal areas or along major rivers do not inadvertently impact submerged cultural resources."

EXAMPLES

LEBANON

REFERENCES

Burra Charter, Australia
IUCN Nepal (1996)
Marsh, J.S., Fialkowski, J. (1995)
McNeely, J. (1993)
Stanley-Price, N. (1998)
United States Department of the Interior. (1988)
Von Droste, et.al. (1995)

OTHER INFORMATION

ICOMOS
World Heritage

ACTIVITIES
Identify the main cultural resources in your PA
What threats are there to these cultural resources?
What could be done to eliminate these threats?
Find out how archeological and historical sites in Lebanon, eg. World Heritage sites such as Baalbeck, are being managed.

14. MANAGING RECREATION AND TOURISM

OBJECTIVES

Define recreation, tourism and ecotourism
Provide a framework for planning and analysing recreation and tourism
Identify types of tourism impacts on the environment and means of measuring them
Offer criteria for judging what tourist activities are inappropriate in PAs
Review the concepts for determining the level of tourism impacts acceptable in PAs
Stress the monitoring of tourism and updating of plans and management
Stress the need to consider tourist safety

INFORMATION

Definitions:

Recreation – an activity undertaken for pleasure near to home in less than a day

Tourism – the phenomena associated with people travelling for pleasure far from home for more than a day

Ecotourism – tourism based on nature that does not degrade nature, that educates the tourist, and provides benefits to local communities

Framework for Planning and Analysing Tourism

The following diagram provides a framework for planning and analysing recreation and tourism in a PA:

DIAGRAM

Tourism Impacts on the Environment

All recreation and tourism has impacts on the environment.
These impacts depend upon:

- the characteristics of the recreation
- the characteristics of the environment
- the management of the recreation and the environment.

The main characteristics of the recreation are:

- numbers of visitors
- recreation activities of visitors (eg. walking, boating, camping, driving)

- characteristics of these activities (motorised/non-motorised, behavior)
- time of use (day, season)
- duration of each activity (hours, days)
- persistence of activity (number of years)

The main characteristics (components and processes) of the environment that can be impacted
by recreation are indicated in the following diagram by Wall ()

DIAGRAM

Criteria for Judging what Activities are Appropriate

☑ CheckBox6

Impact on the environment
Effects on culture and heritage
Quality of experience
Economic effects, costs and benefits
Public safety
Equity and access
Social effects, quality of life
Education and awareness
Level of use, quantity, frequency, timing
Physical setting, activity suited to it; dependency on being in a PA

Concepts for Determining Acceptable Level of Impacts

Carrying Capacity: the recreation (tourism) opportunities that can be supplied without degrading the environment or visitor experience

Level of Acceptable Change (LAC): the recreation (tourism) opportunities that can be supplied without exceeding a level of acceptable change in the environment or visitor experience. To apply this concept:

- Develop a consensus using scientific information on the environment and visitors, and public consultation, on environmental and recreation objectives for the PA

- Define measurable standards of environmental and recreational characteristics and quality to be achieved

- Compare actual characteristics and quality of environment and recreation experience with standards

- Identify any aspects of environment or recreation experience not up to standard
- Manage to improve environment and recreation experience so that both meet the standards

Monitoring of Tourism

Collect information continuously on the number and characteristics of visitors to the PA
Collect information on the impact of visitors on the environment, and on the quality of
their experience.

The World Tourism Organization and UNEP (1992) advocate collecting information on the following:

- Basic entry figures indicating the number of visitors by entry gate and arrival mode (air, automobile, bus)
- Travel patterns and visitor activities (viewing, camping, picnicking, walking, fishing, education, etc.)
- Periods of use so that peak periods can be accommodated
- Visitors' places of origin, to clarify the market area and the staff's language requirements
- Visitors' lengths of stay
- Levels of visitor satisfaction and suggestions for improvements

Methods of counting and collecting information on visitors include:

- observing number of tourists passing through entrance gate
- counting admission tickets
- mechanical devices, like turnstiles, footpads
- electronic and photographic devices, egs. Electric eyes, car counters, video cameras
- conducting interview, telephone and mail surveys
- observing visitor behavior
- gaining information from local tourist businesses

Managing Sport Hunting in Protected Areas

Most protected areas do not allow sport hunting. However, if sport hunting is permitted there must be satisfactory measures for:

- determining the methods of hunting
- delimiting the area in which hunting is allowed
- controlling the number of license hunters using the area
- limiting the hunting period

- setting balanced quotas and bag limits
- optimising off-take
- controlling the quota of harvestable animals
- controlling the age/sex classes of animals hunted
- monitoring off-take for numbers, quality and hunter effort
- controlling the types of firearms and ammunition used
- having trained staff to dispatch injured animals
- instituting safeguards to prevent accidents to hunters, other visitors or staff
- protecting protected species in the hunting area
- providing facilities for the cleaning of trophies and for the storage and utilization of carcasses
- collecting revenues (licence fees and kill or bag takes).

(WTO, UNEP, 1992)

Visitor Safety and Protection

The United States National Park Service Management Policies (1988) state with respect to visitor safety:

"The saving of human life will take precedence over all other management actions. The National Park Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees. The Park Service will work cooperatively with other federal, state, and local agencies, organizations and individuals to carry out this responsibility. However, park visitors assume a certain degree of risk and responsibility for their own safety when visiting areas that are managed and maintained as natural, cultural or recreational environments."

"The National Park Service will strive to identify recognizable threats to the safety and health of persons and to the protection of property, by applying nationally accepted codes, standards, engineering principles, and the requirements of the "Loss Control Management Program Guideline" (NPS-50). Where practicable and not detrimental to NPS mandates to preserve park resources, known hazards will be reduced or removed. Where it would be inconsistent with congressionally designated purposes and mandates and where otherwise not practicable to make physical changes, efforts will be made to provide for persons' safety and health through other controls including closures, guarding, signing, or other forms of education. The National Park Service recognizes that the environment being preserved is a visitor attraction but that it also may be potentially hazardous. The recreational activities of some visitors may be of a high-risk, high-adventure type and pose a high personal risk to participants, which the National Park Service has neither the authority nor the ability to control physically."

EXAMPLES

The Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996).

This plan aims "to encourage the development of sustainable tourism in the reserve and to manage visitors so as to minimise damage to the habitat." Accordingly, the following actions are prescribed:

- promote the creation of an "information hub"
- prepare and implement reserve's interpretive plan
- develop preliminary sign system
- develop and equip Dana Visitor Centre
- recruit the Interpretation team and provide training
- inform visitors of Wilderness zone regulations and code of conduct at the Tower gate
- print existing trail leaflets – wilderness zone
- protect archeological sites
- prevent vehicle access and establish controls on visitor access to the Dana-Feinan track
- develop booking system for guided walks
- supervise construction of bus/car park at Dana Village
- identify local contractors for provision of refreshments and handicraft outlets
- supervise construction of picnic site at the Tower
- mark trail system in the Dana terraced gardens
- maintain the Fujej-Al Barra road
- maintain roads, trail and signboard system
- establish monitoring system to assess the impact of visitors
- monitor reserve safety
- keep records of visitors/accounts
- recruit new staff locally
- promote the publication of results of survey and research
- cement factory – negotiate removal of crusher from the skyline
- control off-road driving in Wadi Araba
- develop appropriate waste management system standards for all reserve facilities
- develop a solid waste management system in Al Barra in collaboration with visitors
- intensify patrol of Semi-Intensive Use Zone at peak times

LEBANON

See latest Tourism Plan for Lebanon, and guidebooks to Lebanon

REFERENCES

Boo (1990)
Ceballos-Lascurain, H. (1996)
Jousiffe, A. (1998)
Royal Society (1996)
The United States, Department of Interior (1988)
WTO, UNEP (1992)
Wall, Wright

OTHER INFORMATION

ACTIVITIES

Apply the Framework for Analysing and Planning Tourism to your PA
Consider what detrimental impacts tourism is having in your PA and how you can counteract them.

15. INTERPRETATION AND EDUCATION

OBJECTIVES

Define: interpretation, education, communication
Identify purposes of interpretation
Provide a framework for planning and analysing interpretation and education
Identify various methods of interpretation
Emphasise monitoring of interpretation and education to evaluate and improve

INFORMATION

Quotation

"No man can reveal to you aught but that which already lies half asleep in the dawning of your knowledge. The teacher who walks in the shadow of the temple, among his followers, gives not of his wisdom but rather of his faith and his lovingness. If he is indeed wise he does not bid you enter the house of his wisdom, but rather leads you to the threshold of your own mind."
Kahil Gibran

Definitions:

Interpretation: The communication of facts, meanings, concepts and relationships concerning the natural environment and cultural heritage of the PA to the public in an informal, discretionary way

Education: The communication of information concerning the natural environment and cultural heritage of the PA in a formal, obligatory way, especially to students.

Purposes:

Make the PA more attractive to the visitor
Make this visitor experience more enjoyable
Help people learn about the PA (what they want to know, and what they should know)
Modify visitor behavior to help achieve management objectives (eg. reduce impacts)
Extend the benefits of the PA to more people
Increase public support for PAs
Increase revenue by selling interpretive products and services

The Caracas Action Plan (McNeely, 1993) recommended that:
"Protected area agencies, non-governmental organizations, universities and schools cooperate in site-based education for visitors about the value of protected areas, and their role in sustaining society."

Principles of Interpretation

Beck and Cable (1997) offer the following 15 principles to guide interpretation:

- To spark an interest, interpreters must relate the subject to the lives of visitors
- The purpose of interpretation goes beyond providing information to reveal deeper meaning and truth
- The interpretive presentation - as a work of art - should be designed as a story that informs, entertains and enlightens
- The purpose of the interpretive story is to inspire and to provoke people to broaden their horizons
- Interpretation should present a complete theme or thesis and address the whole person
- Interpretation for children, teenagers, and seniors – when these comprise uniform groups – should follow fundamentally different approaches
- Every place has a history. Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful
- High technology can reveal the world in exciting new ways. However, incorporating this technology into the interpretive program must be done with foresight and care
- Interpreters must concern themselves with the quantity and quality (selection and accuracy) of information presented. Focused, well-researched interpretation will be more powerful than a longer discourse
- Before applying the arts in interpretation, the interpreter must be familiar with basic communication techniques. Quality interpretation depends on the interpreter's knowledge and skills, which should be developed continually
- Interpretive writing should address what readers would like to know, with the authority of wisdom and the humility and care that comes with it
- The overall interpretive program must be capable of attracting support – financial, volunteer, political, administrative – whatever support is needed for the program to flourish
- Interpretation should instill in people the ability, and the desire, to sense the beauty of their surroundings – to provide spiritual uplift and to encourage resource preservation
- Interpreters can promote optimal experiences through intentional and thoughtful program and facility design

- Passion is the essential ingredient for powerful and effective interpretation – passion for the resource and for those people who come to be inspired by the same.

The U.S. National Park Service "Interpretive Equation".

The U.S. National Park Service, when training interpreters, uses the following "Interpretive Equation":

(Kr +Ka) + AT = IO

Where: Kr = Knowledge of the resource
Ka = Knowledge of the audience
AT = Appropriate technology
IO = Interpretive opportunities

Framework for Planning Interpretation and Education

The planning and analysing of interpretation and education in a PA can be undertaken using the framework indicated in the following diagram:

DIAGRAM

Interpretation Messages

Protected area information services should at least provide visitors with information on the following:

- What there is to see and do
- How visitors can see what they want
- What visitors are looking at
- How visitors should behave in the protected area
- Why the protected area has been created
- What is there to encourage visitors to return to the protected area
- How visitors can help the protected area.

Methods of Interpretation and Education

Personal and impersonal
Talks, guided walks
Publications, brochures, field guides, books
Signs and exhibits
Visitor Centres
Education Centres
Films, videos, slides
Education kits

Monitoring and Evaluating

Collect information on the use of interpretive services
Evaluate the effectiveness of interpretation, visitor satisfaction and learning
Consider which interpretation methods give the most "Bang for the buck."

EXAMPLES

The Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996).

This plan calls for the preparation of a comprehensive Interpretation Plan, which should:

- illustrate the overall philosophy of interpretation in the Reserve;
- define quality standards of visitor information and visitor facilities;
- provide practical guidelines for the development of an appropriate and consistent visitor information and interpretation system for the Reserve;
- include annual work programmes for the Interpretation Officers (IOs);
- include guidelines for the preparation of the interpreters/naturalist guides workplan, which should be designed and managed by the IOs themselves. It should include routine work (short and long guided walks, evening camp presentations), organisation of special events and education programmes for the boy scout camp, and visits by special interest groups, etc;
- include the design and location of a comprehensive and consistent regional and local sign system to help visitors reach the reserve and to direct them to the main access points.

The plan states that interpreters/guides will provide the following services for visitors:

- guide groups of visitors along the trails;
- provide interpretation on wildlife, geology, archeology and other features of the reserve;
- guarantee the security of visitors and first aid emergency assistance;
- provide information on nature conservation issues at large, and activities of the Royal Society for the Conservation of Nature.

The guides are also expected to inform visitors about reserve regulations, ensure that damage to the natural habitat is minimised, and ensure that visitors do not enter the Exclusive Protection Zone

LEBANON

REFERENCES

Beck, L., Cable, T.T. (1997)
Edwards
Ham, S.H. (1992)
Journal of Interpretation
MacKinnon et.al. (1986)
Marsh
Palmer et.al. (1995)
Sharpe, G.W. (1982)
The Royal Society (1996)
Thorsell
Tilden, F. (1957)

OTHER INFORMATION

ACTIVITIES

Consult the inventory of natural and cultural resources for your PA and suggest topics worthy of interpretation.
Who is already coming, or might in future come, to your PA seeking interpretation services?
How could you deliver your interpretation services most effectively?
How could you use interpretation to help resolve some of the management problems in your PA?
How will you assess the effectiveness of your interpretation services?

16. RESEARCH AND MONITORING

OBJECTIVES

Define research and monitoring
Explain the need for research and monitoring
Outline potential research topics
Describe how to manage a PA research programme
Describe how to manage a PA monitoring programme
Emphasise the need to communicate and use the results of research and monitoring

INFORMATION

Definitions of research and monitoring

Research can be divided into academic research and applied research. Academic research seeks to advance the frontier of knowledge for its own sake. Applied research is oriented toward or determined by managerial concerns. It can be divided into three overlapping areas:

1. Scientific and cultural research, which encompasses the natural sciences; history, archeology and related fields; and technical disciplines such as historic preservation, curation, and data management.

2. Social science research, which focuses on protected area conservation as a socio-economic process revolving around the allocation of scarce resources and the management of human behavior.

3. Operations research, which tries to make management more effective and efficient.

The Need for Research and Monitoring

According to Harmon (1994): "establishing a partnership between researchers and managers has become crucial to the success of protected areas. Research in the natural and social sciences provides managers with vital information on the presence or absence of species and their needs, geophysical characteristics of the area, new interpretations of cultural resource material, trends in ecosystem change, social characteristics of resident and neighboring human communities, economic values of the protected area, tendencies in recreational use and tourism, the effectiveness of training programs – the list could go on and on. For their part, researchers are increasingly attracted to protected areas as "laboratories" for scientific and cultural work. To make optimal use of these laboratories, researchers need the logistical and political support only managers

can give. Research also often gains in relevancy from the practical discipline imposed upon it by real-life management constraints.
A mutually supportive research-management partnership offers both sides valuable insights that can broaden their perspectives and make them more creative and flexible. This, in turn, translates into the protected area becoming more responsive to the changing needs of society."

Potential Research Topics

A list of research topics should be prepared and updated regularly for each PA. The topics should be categorised according to:

- type of research: biophysical science, social science, operations research
- urgency, e.g. immediate, within 2 years, 5 years
- qualifications needed for undertaking the research
- projected cost of the research

Examples of biophysical research needed in most PAs:

Inventory – of species, geology, soils, water
Trends – changes in species, soils, water, climate
Species needs – especially endangered species, habitat, shelter, food, minerals, water
Ecological relationships – soils and vegetation, vegetation and wildlife, predators and prey
Manipulations of ecosystems – impacts of management actions, eg. fire control, introduction or extermination of species.
Indirect impacts on PA – eg. air and water pollution, hunting on adjacent lands

Examples of social science research needed in most PAs:

Resident and neighboring populations – local use of the PA, attitudes to the PA
Economic valuation – PA's economic benefits and costs, tourism revenues, local benefits
Recreation and tourism – use of the PA, potential use, attitudes and satisfaction of users
Education – educational use of the PA, effectiveness of interpretation
History of the area and its people
Management and administration – effectiveness of laws, policies, management, public participation, training

Managing a PA research programme

Thorsell (1992) offers the following guidelines for managing research in PAs:

- Require approval of all research projects before they commence
- Monitor activities of researchers in the field
- Devote special attention to the collection of specimens
- Minimize the disruptive effects of social and anthropological research
- Return financial benefits from research activities to local communities
- Record all research undertaken in the PA
- Consider the appointment of a staff research scientist
- Ensure that social and economic research programmes are given adequate attention
- Promote the use of the protected area as a site for research activities
- Identify the information needed for management of the park and include a section on research and monitoring in the management plan.

Harmon (1994) offers the following suggestions for getting the most research and management for the least money:

- Provide basic research facilities, eg. somewhere to stay, somewhere to work, and a basic reference collection of publications and specimens.
- Establish formal ties with at least one university or research facility. The formal ties can be specified in a Memorandum of Understanding.
- Obtain a low cost-computer, to compile and store basic information on the PA, such as natural and cultural resource inventories, visitor-use statistics, land tenure records, etc.

Managing a PA Monitoring Programme

Principles to guide research and monitoring efforts. Alverson et al. (199, p.103) offer the following principles for research and monitoring, especially in wild forests:

- Inventory and monitoring efforts should be expanded and systematised to place them on the best scientific footing and ensure a continual yield of high quality and timely information.

- Research and monitoring programmes should employ the best contemporary scientific knowledge and methodology. To ensure this quality, such programs should undergo periodic peer review.

- Research and monitoring should emphasize those elements of diversity thought to be vulnerable to extirpation, sensitive to man-made disturbances, or key stone species with cascading effects on other elements of diversity.

- Inventory and monitoring efforts should be extended to include other important but obscure groups of organisms.

- Where possible, use demographic structure or other early warning signs to assess changed ecological conditions rather than simply population numbers

- Monitoring should occur at a hierarchy of geographic scales.

- Inventory and monitoring efforts should include entire guilds or communities in cases where such sampling is efficient

- The results of research projects and monitoring efforts should be closely integrated with forest management.

Communicating Research Results

The cost and effort of research is wasted if the results are not communicated effectively to those who could use them for decisions or actions. Therefore:

- Set up formal procedures in PAs for the transfer of research information to the PA staff.

- Require researchers to give oral presentations about their research to PA staff

- Ensure that PA libraries receive, catalog, and file appropriately copies of all research reports

- Require research reports to have short summaries in non-technical language.

- Work with the researchers and the media to inform PA users and the public about research in the PA

- Relay research results through interpretation publications and programmes

- Encourage PA staff to talk to researchers and obtain research information to assist them with their work.

Example of Specifications for Research Reports

To aid in producing reports of a professional quality, minimise editing, and facilitate printing, all reports should be submitted by the required date to: _____ according to the following specifications

- 3 copies, on A4 size paper, in a binding
- on computer disk, in Microsoft Word, version 7 or later version
- margins of at least 2 cm all around
- minimum size 10 font
- in English, American spelling
- with references indicating author, title, publisher, place of publication, date
- with all maps, diagrams, and photographs "camera-ready" for reproduction
- with colour graphics understandable when reproduced in black and white

Research Ethics

Guidelines should be prepared to ensure research is undertaken in an ethically and sensitive manner, especially where people are involved. Many national research agencies already have such guidelines that could be revised to make them more suitable for use in PAs.

State of the Protected Area Reporting

It is recommended that reports be prepared annually that systematically indicate the state of each PA.
These can be prepared by the agency managing the PA, but in some cases NGOs have undertaken to do this.

EXAMPLES

Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996)

This Management Plan includes a list of Research Priorities. The list is introduced with the following statement:
"Full details and background information on each project are found in the references cited, all documents are available from RSCN. Interested parties should contact RSCN Research and Survey Section and the Management of Dana Reserve. Other projects outside of the present list will also be considered, if fully compatible with the conservation objectives of the reserve. Management-oriented projects will have a higher priority."

The list of research projects is categorised as follows:

Botany and Forestry
Soil Science
Water Bodies
Zoology
Local Community and Visitor Use

Examples of research projects in each of these categories follow:

Detailed study on the impact of grazing on tree regeneration (Bensada et al. 1995)
Assessment of the current rates of soil erosion and to evaluate the uses of selected species to control the process (Bensada et al. 1995)
In depth studies on the ecology of key water bodies indicated in the baseline water survey (Di Micco et al., 1995)
Understanding the ecology of the wolf (Chilcott et al., 1995)
Determine parameters to assess the impact of visitors on the ecosystem for the establishment of a permanent monitoring system.
(Could include complete 1 page list?)

This Management Plan also includes a Monitoring Plan for the Reserve. It was prepared on the basis of monitoring and management recommendations produced as part of the baseline ecological surveys in the Reserve. The Table of Contents of this Monitoring Plan follows:

Plan for a repeat survey of Lesser Kestrel
Plan for a repeat survey of Tristram's Serin
Plan for a repeat survey of key breeding raptors
Plan for long-term monitoring of the ibex
Carnivores monitoring recommendations
Monitoring of Mustelids, Viverrids and Porcupine

Grazing exclosures monitoring
Bedouin and flock monitoring
Monitoring of key water bodies
Ranger training for monitoring

Monitoring for Ecosystem Integrity in Canadian National Parks (Woodley, Theberge, 1992)

"Ecological integrity is defined as a state of ecosystem development that is optimized for its geographic location, including energy input available water, nutrients and colonization history. For national parks, this optimal state has been referred to by such terms as natural, naturally evolving, pristine and untouched. It implies that ecosystem structures and functions are unimpaired by human-caused stresses and that native species are present at viable population levels."

Monitoring of ecosystem integrity in Canadian national parks involves two approaches, as indicated in the diagram that follows:

Possible Cases of Cause and Effect Relationships	Monitoring Approach
Case 1: Known stress Known effect	Threat Specific Monitoring - prediction of response creative scenario writing
Case 2: Known stress Unknown effect	- statistical approaches - feedbacks and lags
Case 3: Unknown stress Known effect	Ecosystem Integrity Monitoring - a suite of indicators - hierarchical approach
Case 4: Unknown stress Unknown effect	- stress ecology, landscape ecology - conservation biology, structure and function

Key considerations in designing a monitoring program for ecosystem integrity include:

- Basic deficiencies exist in ecosystem science
- Catastrophe and surprise characterize most ecosystems
- Stresses on ecosystems operate differently at various spatial and temporal scales
- A range of related social factors must be monitored
- Measures must be customized for specific ecosystems

A framework for monitoring specific threats in parks follows:

Identification of stresses and threats	- from literature, park staff, etc ecological integrity monitoring
Park Conservation Plan	
Development of a stress-response model	- consideration of relationships, timing and synergistic effects, intensity and other related factors
Application of specialized techniques to determine the most sensitive and and appropriate indicators	- feedbacks and tags - signal to noise ratios - kinetic models - creative scenarios - biological indicators
Monitoring program	- sampling program, - sampling variance - data handling
Assessment and feedback	

The following measures are suggested for ecosystem monitoring:

- Primary productivity, e.g. amount of organic matter produced
- Nutrient cycling and losses, e.g. increased losses of calcium, potassium
- The rate of decomposition, e.g. decreases due to acid precipitation
- Species diversity or species richness, e.g. changes in species diversity
- Retrogression, e.g. reversion to earlier stage of succession
- Habitat fragmentation, e.g. a threat to wildlife
- Minimum viable population, e.g. of key species like top predators, rare species
- Minimum area requirements, e.g. calculation of minimum area needed by species
- Population dynamics of selected species, e.g. changes in population

Woodley and Theberge also note that "a monitoring base will allow managers to track both the state of the park's environment and specific threats to the park. A monitoring database could easily form the basis for the required "State of the Parks Reports" and have tremendous value for "State of the Environment " reporting."

LEBANON

REFERENCES

Harmon, D (1994)
Woodley, S., Theberge, J. (1992)

OTHER INFORMATION

Parks Ontario, Catalogue of Research Needs (excerpt)
Example of a Memorandum of Understanding

ACTIVITIES

Systematically identify the biophysical, social, and management issue research needed in your PA
Develop a strategy for informing people of your research needs
Design forms for applying to do research, and recording research projects.

17. MANAGING PROTECTED AREAS IN A REGIONAL CONTEXT

OBJECTIVES

Emphasise the importance of managing the PA in its regional context
Identify approaches to managing PAs in a regional context
Identify common trans boundary management issues
Provide guidance on consultation with adjacent communities

INFORMATION

Greater Protected Area Ecosystem Management
Regional Socio-economic Conditions and Processes
Trans Protected Area Boundary Issues
Consultation with Adjacent Communities

The Caracas Action Plan (McNeely, 1993) called on those involved with PAs to:

- "Work with local communities to determine how management of the protected area can help meet local needs.
- Develop an understanding of local resource issues through building on local knowledge and perception of needs.
- Develop consultative processes that encourage competing groups to identify optimal management solutions acceptable to a majority.
- Promote attitudes among protected area managers that encourage recognition of the need of local communities for equitable and sustainable development.
- Seek the support of local communities in promoting protected areas by offering opportunities for influencing decision-making, for example, through representation on local protected area management boards and at public debates on management issues.
- Based on examples of success, publish guidelines for establishing co-management and co-financing arrangements that take into account all interested groups.
- Develop participatory research, involving local people and institutions, as a tool for planning, a means of sharing basic information, and a mechanism for building working relations among interest groups."

The 4th World Congress on National Parks and PAs suggested the following guidelines to bring about effective participatory planning:

McNeely, 1993, 84.

EXAMPLES

LEBANON

REFERENCES

McNeely, 1993

OTHER INFORMATION

ACTIVITIES

MODULE D – MANAGING THE PROTECTED AREA INSTITUTION

18. MANAGING THE PROTECTED AREA INSTITUTION

OBJECTIVES

Stress the importance of having a mission, objectives and targets
Review the roles and responsibilities within the PA institution
Provide guidance on preparing work plans
Emphasise the need, and means for evaluating institutional effectiveness.

INFORMATION

Introduction

"An effective protected area institution is one which:

- is responsive to the needs of its stakeholders;
- can attract and retain the right staff;
- is able to develop a positive attitude and commitment of the staff at all levels;
- ideally has a strongly decentralised structure, where field level staff have a say in decisions which affect their activities;
- has a strong sense of identity, particularly at the field level, so that the field level staff feel part of the whole;
- has institutional transparency and effective information flow between and within all levels of the institution;
- has a stable and long term funding base (reliance on government subventions for viability of an organisation may be less suitable than parastatal arrangements where there is greater ability to raise and retain revenue);
- has an appropriate balance between centralised and decentralised decisions;
- has a good system of evaluation and monitoring;

Also of importance:

- effective protected area management requires stable institutions: since the institutional environment must encourage the right staff to stay in the right jobs, there is a need for long term continuity, both in institutional and staff terms;
- strong and effective leadership is crucial within a protected area agency

- while it is preferable to work through established institutions, it should also be recognised that sometimes there are dysfunctional institutions which are an obstacle to progress;
- it is essential to focus on mechanisms for achieving objectives, not just arguing for new or changed organisations: more complex institutional arrangements are not necessarily better;
- it is important to develop a sense of ownership among different institutions towards the whole protected areas system and not only specific areas; and
- it is desirable to cultivate an institutional memory in protected area institutions, based upon learning from experience, sharing experience, valuing the role of others, and making efficient use (but not relying on) outside consultancy expertise." (Davey, Phillips, 1998).

Mission, Objectives, Targets
Structure of the Agency
Roles and Responsibilities
Work plans
Evaluating Agency Effectiveness

EXAMPLES

LEBANON

REFERENCES

Davey, Phillips (1998)
Royal Society (1996)

OTHER INFORMATION

The Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996)

This Management Plan includes a Five Year Work Plan, excerpts of which follow: "Management actions are summarised here in the form of a five year workplan. Each management action has a Reference Number and details about implementation are found in the previous section of this plan. For each action, the party with primary responsibility for implementation is indicated first and is followed by other parties responsible in order of priority."

Actions are made the responsibility of:

Reserve Manager
Reserve's Ranger
Locally recruited workforce
Interpretive Officer

RSCN Director General
Director of Conservation
Research and Survey Section staff (Headquarters)
Reserves Section staff (Headquarters)

Actions are ranked in order of priority:

1. Essential, must be completed within the period indicated
2. Should be completed within the period indicated
3. Preferable if resources allow

Actions are grouped, as in previous section of plan:

Habitat and Species Management
Visitor Services, Interpretation and Education
Equipment and Machinery
Public Relations, Administration and Personnel
Research, Survey and Monitoring
Socio-Economic Development

Examples of these management action summaries are provided below:

Habitat and Species Management
Visitor Services, Interpretation and Education

ACTIVITIES

19. PERSONNEL MANAGEMENT

OBJECTIVES

Identify the roles and responsibilities of PA staff
Provide guidance on hiring, administering, evaluating and rewarding staff
Provide guidance on using volunteers in PAs

INFORMATION

The 4th World Congress on National Parks and PAs recommended that:

> "governments staff protected area agencies adequately with people having appropriate abilities in natural and social sciences, education, community relations, gender sensitivity, management and conflict resolution; and specifically increase the number of women involved in protected area based education and management. Personnel should also be included from communities surrounding protected areas, and particularly indigenous communities." (McNeely, 1993, 50)

PA staff should be as professional as possible. The Congress defined a protected area professional thus:

> "A Protected Area Professional is an individual who exhibits knowledge, skills, and commitments beyond employment to effectively manage and maintain the integrity of heritage resources according to statutory requirements and stated objectives within a code of conduct."

Roles and Responsibilities
Hiring Staff
Administering staff
Evaluating and rewarding staff
Volunteer recruitment and management

EXAMPLES

LEBANON

REFERENCES

McNeely, 1993
Mossman, 1987

OTHER INFORMATION

ACTIVITIES

20. FINANCIAL MANAGEMENT AND REVENUE GENERATION

OBJECTIVES

Emphasise the need for sound financial management of PAs
Indicate how to prepare a PA budget
Indicate means for revenue generation

INFORMATION

Financial Planning and Management

Mossman (1987) offers the following guidelines for financial planning and management:

1. The same principles apply to financial planning as to any other form of planning.

2. Each country will have its own regulations and guidelines to be followed, however, they bwill generally follow the pattern below.

3. Know your own procedures, plan ahead – monitor expenditure.

4. Identify longer term goals; list in order of priority, estimate cost of each, provide adequate and relevant justification.

5. Annual estimates; usually divided between capital items, and administration and maintenance:

   (a) Capital:
   List in order of priority, detail costs, provide supporting information and evidence of why it is needed, show you know what you are talking about and that it has been properly thought through (including flow on costs, i.e. extra maintenance).

   (b) Administration and Maintenance:
   Calculate out all costs associated with running the park. List headings and work through methodically, e.g. staff, numbers and wages plus allowances, part time staff hours, etc.
   Provide supporting evidence in the form of notes attached to estimate sheets.
   Put yourself in the position of controlling authorities, ask yourself, "Why does he want all this money?" The person with the best reasons and the supporting data usually does better than a person less well prepared.

Once an allocation has been made, go back to your estimates and re-arrange in terms of the finance provided. This becomes your budget. It will probably be less than you wanted.

6. Your financial planning should be tied into the management and working plans. This should provide your longer term direction and justification.

7. Spending the money – controls are needed.
   - Assess seasonal spending patterns
   - Assess regular spending patterns
   - Assess wages

   Divide and allocate accordingly, as you need to be able to keep pace with the level of spending throughout the year.

Preparing a Budget for a Protected Area
Accounting
Revenue Generation from Fees
Revenue Generation from other Sources

The Caracas Action Plan (McNeely, 1993) urged those involved with PAs to:

- Include strategies and investment plans for the financing of protected areas in the national system plan.

- Where feasible, develop innovative financing mechanisms such as debt-for-nature swaps, trust funds, and earmarked taxes.

- Develop means such as service fees and voluntary "green taxes" to capture the potential contributions of environmentally sensitive corporations and individuals.

- Establish concessions for products and services produced by protected areas, including payments from hydro-electric generating facilities, which benefit from the watershed protection services provided by the protected area.

- As a supplement to budget allocation, introduce concession and entrance fees and reinvest them in management.

- Work with non-governmental organizations to develop funding campaigns, special tours, trust funds, and the sale of arts, crafts and souvenirs to support protected area management."

Revenue Generation

The 4th World Congress on National Parks and Protected Areas (McNeely, 1993, 103) dealt with funding mechanisms for protected areas, and concluded as follows.

1. National public sources of funding.

"National public funds for protected areas should be allocated from the national tax base following the concept that the "beneficiary pays", i.e. the environmental goods and services provided by protected areas are national assets which should be included in national accounting systems.
Furthermore, government agencies such as hydrologic services, public works divisions, land reform agencies and planning agencies, as well as universities and private investors (concessionaires), are important co-investors in protected areas. However, national public funds are more available for the establishment of protected areas (e.g. construction work) than for the long-term operation and maintenance, in particular for training, research, interpretation and education.
Funding needs for protected areas should be determined based on both direct and indirect analysis of the goods and services which these areas provide. The budget process for protected areas sgould include research into direct and indirect revenue analysis.
Dedicated funds based on user fees should contain mechanisms for chanelling funds into parks. People are more willing to pay if they know the money is reinvested in the protected area system. Countries should consider imposing a tax on inbound tourists, the proceeds from which should go into a fund dedicated exclusively for conservation of biodiversity. User fees should be set up to create a "win-win" situation in which both the national system and the local park where the fee is collected are able to benefit from sharing income from fees on a percentage basis.
Capital investment should produce attractions for tourists which do not have negative impacts on the protected area. Better design and concentration of facilities can enhance conservation and increase capacity to derive income from tourism."

2. Private sources of funding.

Private funds are more available for privately owned reserves than for national parks. The amount of funding available from a private source depends on how closely the activities for which funds are sought relate to the activities which the funder prefers to fund. Private funders tend to view their contributions as business ventures; they expect their investment in protected areas to finance long-term sustainable income. It is reasonable to expect that private sources can account for approximately 25% of the funding needs for a protected area. Yet the availability of private funds for general operation of

protected areas is almost non-existant except for special cases like planning and start-up, establishment of trust funds, or collaboration with NGOs.. Operational management costs (as opposed to capital costs) are the responsibility of the government; they should not be the focus of private fundraising. The kinds of protected area investments which private funders find attractive include:

- land acquisition
- environmental education
- research
- special infrastructure, like visitor centres
- species-specific management
- community outreach
- interpretive/promotional materials and campaigns
- training
- restoration"

3. International sources of funding.

4. Trust funds.

Currently existing sources of funds for trust funds include:

- The GEF
- USAID (but solely in situations involving debt-for-nature exchanges)
- The Enterprise for America Initiative (USAID) and its PL-480 programme)
- Other bilaterals, e.g. Paris club (through debt swaps)

Items which trust funds could finance include:

- park rangers
- vehicle depreciation and maintenance
- fuel
- infrastructure maintenance
- road maintenance
- uniforms
- brochures/publications/public awareness materials
- discretionary funds for community development projects
- administrative expenses

The 4th World Congress on National Parks and Protected Areas (McNeely, 1993, 186) offered the following principles for the implementation and application of cost recovery and revenue enhancement:

- Governments must recognise and accept their financial responsibilities for monitoring, research, education and stewardship of their

designated protected areas, over and above the income potential of those areas.

- The direct beneficiaries of protected area values should pay a fair share opf the costs of providing necessary services and should be made aware of how their fees are being used for that purpose.

- Private direct beneficiaries of protected areas, such as the tourism industry, should contribute to the recovery of park operating costs.

- User fees should reflect a realistic analysis of operating costs with consideration given to local economic circumstances, other local conditions, nearby alternatives and management objectives.

- Provision for revenue enhancement and cost recovery should be considered early in the planning process for protected areas.

- Fee collection systems and alternatives should complement protected area management objectives and economies.

- All revenues should be used specifically for protected area purposes.

- System-wide stewardship requires an equitable distribution of user-fee revenue, regardless of source. However, consideration should be given to returning a portion of the revenues to the specific area where it was generated, in order to better motivate park management and improve the morale of park staff.

- In categories of protected areas where sustainable utilization of resources is permitted, a reasonable portion of the proceeds obtained from the utilization of these resources should be dedicated for area stewardship.

EXAMPLES

Dana Nature Reserve, Jordan, Management Plan (Royal Society, 1996)

This Management Plan includes a Business Plan. The plan summarises the budget of the Reserve for a particular year in a computerised data base. The data base Table:

Lists every item in the Reserve that involves an expenditure, eg. salaries, or generates income, eg. permits
Gives every item a reference number
Specifies the number of each item, eg.1 reserve manager, 3500 permits
Specifies the rate for each item, eg. ranger salary at 1800, permit at 5

Indicates the total expenditure or income for each item for the year
Indicates the total expenditure, total income, and balance for the Reserve for the year.
(Include the Table ?)

LEBANON

REFERENCES

McNeely, J., 1993
Mossman, 1987
Royal Society, 1996.

OTHER INFORMATION

ACTIVITIES

21. INFORMATION MANAGEMENT

OBJECTIVES

To emphasise the importance of information management
Review the types of information
Provide guidelines for information management in a PA agency
Describe means for providing the public with information
Describe computer databases
Outline the use of web sites

INFORMATION

The 4th World Congress on National Parks and PAs noted that:

> "Individuals and organizations involved in protected areas work need information on which to base their decisions. Information on protected areas must be equally accessible to all interested parties, integrated with other relevant information, and available in a form that is useful."

The Congress recommended "protected area and protected area system managers:

- Identify the minimum information required for efficient management of the areas and the system;
- Identify where this information can be obtained, and implement research and monitoring programmes to obtain it;
- Identify the best means of managing protected areas information given the limitations of time and budget; and
- Foster improved information management at the site level, through strategies for information handling and exchange."

Types of Information
Sources of Information
Computer Databases
Providing Information to the Public
Protected Area Websites

EXAMPLES

LEBANON

REFERENCES
McNeely, 1993
Mossman, 1987

OTHER INFORMATION

List of Web Sites Dealing with PAs

Some Tips on Report Writing (Mossman, 1987)

1. Who will read it? A report is not a literary effort. Its purpose is to communicate ideas, facts and opinions. Outline the points and then start writing.
2. Get attention quickly. "Background material" on the first page is usually well known. Boil it down or leave it out. State the report's purpose in a few words, itemise, and then come to grips with the facts.
3. Make it objective. People are seldom interested in what we think, and would rather read what we know. Don't write reports with the idea of making an impression. Let the report sell itself.
4. Practice restraint. Your report need not be stuffy, but it should take a conservative approach to the problem under consideration. Avoid extravagant statements, unless they are supported by facts.
5. Spell it out. The typical executive is too busy to take time digging out pertinent information from a deluge of words. List facts in 1-2-3 order, set off with headings.
6. Document the report. One of the best ways to make a report inviting to read is to use attachments rather than incorporating the exhibits in the report itself. Refer to exhibits by number for easy reference.
7. Break it up. Long paragraphs are poison. Hold them down to a few lines, and provide key paragraphs so that the reader will know what it is all about. Indent and underscore important points – important to the reader, that is, not just to you.
8. Clinch each important point. To make doubly sure the reader does not "slide off", indent and underscore key points. Make sure they are clearly stated.
9. Give it plenty of air. A good report invites reading. Don't crowd a lot of words into a little space. Leave margins of the right for notations. Make plenty of copies.
10. Button it up. Conclude the report with a brief summary of its points, and if desirable offer recommendations. If they are rejected don't let it throw you. Only those responsible for the entire operation have the overall perspective needed to make important policy decisions.

Writing a Press Release (Mossman, 1987)

Press releases should be concise and factual statements with the most important material placed at the beginning, and the least important paragraphs at the end. Good photographs are usually eye-catching and helpful.

When writing a press release keep in mind the following questions:

1. Who? The person, group, or organisation that is the subject of the story.
2. What? The event that is the subject of the story.
3. Where? The location of the event.
4. When? The time of the event.
5. Why? The reason of the event.
6. How? The way the event came about.

ACTIVITIES

Provide examples of press releases. Try writing a press release about your PA, and have your colleagues critique it.
Evaluate a report using the Tips on Report Writing

22. COMMUNICATIONS

OBJECTIVES

Indicate the importance of communication
Review the types of communication
Provide a model for developing a communications strategy
Indicate the main methods of communication
Emphasise the importance of evaluating communication effectiveness

INFORMATION

A protected area communication strategy
Internal communication
External communication
Sender, message, receiver model
Methods of communication
Evaluating communications

Public relations has been defined as "planned, persuasive communications designed to influence significant publics." (Marston, 1979), or as: "the planned effort to influence opinion through good character and performance, based upon a mutually satisfactory two-way communication." (Cutlip and Center, 1978)

According to Kaiza-Boshe (1992), the person responsible for public relations has responsibility in three areas:

- To facilitate and ensure an inflow of representative opinions from the organization's constituent publics so that policies and operations may be in tune with the needs and and view of these publics.
- To counsel senior officials on ways and means of maintaining or reshaping operation or communication policies to gain public acceptance.
- To devise and carry out programs that will gain wide and favorable interpretation of the organization's policies and operations.

The need for public relations derives from the following:

- Usually, protected areas are public trusts, and, therefore, whatever is done in the protected area in the way of management must be acceptable to the public.
- Although management of protected areas is carried out in trust for the people, protected areas are not set aside through the people's initiative. Protected areas are set aside upon government initiative; thus, the establishment of a protected area initially imposes a choice that people must approve in retrospect.

- Establishment of protected areas results in the withdrawal of certain resource utilization rights such as prohibiting hunting and firewood collection; therefore, managers must justify the costs of protected areas to affected people.
- Protection of resources, just like any other public activity, cannot be achieved without the cooperation of the public.
- Protected areas are run with public funds, that is, the taxpayer's money, and therefore, the managers are accountable to the people.
- Protected areas provide services such as sport hunting, photographic tours, education, and other tourist activities; therefore, like any other institution offering such services, there is a need to establish good relations with the users.

EXAMPLES

LEBANON

REFERENCES

Cutlip, S.M., Center, Y.H. (1978)
Kaiza-Boshe, T. (1992)
Marston, J.E. (1979)

OTHER INFORMATION

ACTIVITIES

23. COOPERATIVE MANAGEMENT AND PARTNERSHIPS

OBJECTIVES

Explain the need for cooperative management and partnerships
Present types of cooperative management and partnerships
Identify potential co-managers and partners
Offer guidelines for co-management and partnerships

INFORMATION

The need for co-operative management and partnerships
Potential partners
Managing partnerships

EXAMPLES

LEBANON

REFERENCES

OTHER INFORMATION

ACTIVITIES

24. CONFLICT RESOLUTION

OBJECTIVES

Identify types of conflict encountered in managing PAs
Provide principles for conflict resolution
Provide a procedure for conflict resolution

INFORMATION

Introduction

The 4th World Congress on National Parks and PAs recommended that:
"protected area agencies develop the long term capacity to resolve conflicts (including special training for managers and special staff devoted to conflict resolution), and develop structures to promote cooperation and understanding among all interested parties."
(McNeely, 1993, 34)

Types of Conflict

Protected area conflicts can occur:

- within the protected area (e.g. between visitors involved in different activities)
- between the protected area and adjacent areas and communities.

Conflicts between the protected area and adjacent areas and communities can occur:

- when the protected area is being established (eg. local opposition to creating a PA)
- after the protected area has been established (eg. over access to traditional resources in the PA)

It has been noted (Lewis, 1996) that conflicts between protected areas and adjacent areas and communities
usually relate to:

- a lack of attention to the process of involving local people and others who care about the protected area in the planning, management, and decision-making for the area, and/or
- people in nearby communities having needs (e.g., for grazing land, firewood, building materials, fodder, medicinal plants, and hunting) that conflict with the objectives of the protected area.

Principles for Resolving Conflicts

Lewis (1996) has suggested three principles to guide conflict resolution:

1. Focus on underlying interests – focus on people's fundamental interests and concerns, rather than positions.
2. Involve all significantly affected stakeholders in a fair and respectful process – involve all with an interest at stake, and consider their interests seriously.
3. Understand the power that various stakeholders have, and take that into account when trying to resolve a conflict. There are many kinds of power including:
    - power of position – having authority to make or influence decisions
    - power of knowledge – having information
    - personal power – being personally forceful/persuasive
    - economic power – having financial resources
    - political power – having a supportive constituency or access to political leadership
    - legal power – having a good legal case, expert legal council, or access to the courts
    - coercive physical power – having police or military backing or weapons
    - family power – being from a well connected family
    - group power – being a member of an ethnic, religious or other group that has power.

A Procedure for Resolving Conflicts

Lewis (1996) suggests the following procedure for conflict resolution:

1. Getting started/determining roles:

    - Somebody has to initiate the procedure for conflict resolution.
    - PA staff might assume one or more of the following roles: advocate, arbitrator, convener, expert, decision-maker, mediator, negotiator, stakeholder.
2. Assessment – this involves the systematic collection of information to be used in designing the conflict resolution process. Questions commonly asked to collect this information include:

    - What are the issues at stake in this conflict?
    - Who are the significantly affected stakeholders – individuals or groups?
    - Who are their leaders/spokespeople?
    - What are their underlying interests? What do they want and need?
    - What positions have they adopted? What are they asking for to try and get their needs met?
    - What other positions might serve their interests?

- How much and what kind of power do they have? How might their power affect the conflict resolution strategy?
- What are their incentives and disincentives to resolve the conflict?
- What are the relationships between the stakeholders? How well do they communicate with one another? How much trust is there between the stakeholder groups? Is there a need for some sort of neutral mediator to help resolve the conflict?
- What is known/unknown about the scientific and technical aspects of the conflict? How much information do the various stakeholders have? What additional information needs to be collected and/or disseminated to help all the stakeholders participate effectively and to arrive at a good solution?
- What is the institutional/legal context for the conflict and what institutional/legal avenues are there for resolving it? Is there an existing forum for resolving the conflict (one that includes all stakeholder groups)? If not, what kind of forum(s) would be most useful?
- What resources are available to deal with the conflict (financial/human/institutional)?

3. Involving affected stakeholders – this is the problem solving and/or negotiation phase. It might involve:

   - having stakeholders communicate with decision-makers through interviews, surveys, open houses.
   - having stakeholders involved in negotiation with decision-makers
   - consensus building forums, advisory groups, task forces, management committees.
   - mediation, or third party assistance, especially when:
     - the conflict is particularly adversarial,
     - the situation is extremely complex
     - there is a great deal of mistrust among the stakeholders
     - communication between stakeholders has broken down

   When a large number of stakeholders one should try to:

   - select representatives of types of groups.
   - involve those who have the ability to thwart a proposed solution
   - involve groups which lack power and may have been excluded in the past.

   It is important to build trust using the following strategies:
   - build personal relationships
   - establish process groundrules that are likely to create trust among the stakeholders
   - start with small issues that are easily settled

- take a unilateral action that inspires trust in other stakeholders, eg. enact a new policy.
- stand by agreements that are made.

4. Implementation and evaluation

It may be useful to have some sort of document explaining and/or formalizing the settlement that has been reached, e.g. a memorandum of understanding, a policy or a plan outlining how solutions to the conflict will be implemented.
Communication is imperative during the implementation phase.
Consider establishing a management committee or some other forum to monitor the conflict resolution agreement and its implementation, as well as to keep stakeholders involved on a day to day basis in protected area management.

EXAMPLES

See case studies in Lewis (1996)

LEBANON

REFERENCES

Bingham, G.A. (1986)
Crowfoot, J.E., Wondolleck, J.M. (1990)
Fisher, R., Ury, W., Patton, B. (1991)
Lewis, C. (Ed.) (1996)
McNeely, J. (1993)

OTHER INFORMATION

ACTIVITIES

Identify conflicts within your PA, and between your PA and adjacent areas and communities.
Describe the procedure you could follow to resolve each of these conflicts.
Note how conflicts in other situations, e.g. political, trade, union-management, are peacefully resolved.

25. LEGAL MATTERS

OBJECTIVES

Emphasise that PAs have a legal context
Indicate the levels and types of legislation applying to PAs
Provide guidelines for law enforcement in PAs

INFORMATION

The Caracas Action Plan (McNeely, 1993) Recommendation 4 stated that:

"Protected areas require a mutually reinforcing system of international and national environmental law for their establishment, maintenance and management. International treaties establish a harmonized set of obligations with regard to areas within national jurisdiction and activities having effect beyond national jurisdictional boundaries. These obligations must be reflected in national legislation; otherwise, the treaties cannot be implemented. In turn, innovative national legislation provides a basis and impetus for further international law. The dynamic interaction between the two levels is thus conducive to further progress.
Both the international and national, as well as the sub-national, systems of environmental law must be strengthened if designated protected areas are to be managed effectively."

"Legislation for protected areas should provide a general framework as to how an area, or different classes of areas, should be protected. This guidance provides the foundation for the policy framework within which more detailed programmes and area plans can be elaborated." (MacKinnon et. al. 1986)
The principal legislation may provide for the preparation of more specific subsidiary documents framed within the spirit of general legislative policy guidelines.

International

National

The 4th World Congress on National Parks and PAs recommended:

- "states establish, improve and maintain, at all levels of government, national legal instruments which:
    - integrate conservation and development;
    - establish protected areas and provide that, once established, they cannot be abolished except by procedures stricter than those required for their establishment; and

- provide for innovative techniques such as contractual agreements, easements, economic incentives, non-site-specific measures, including the protection of habitat types;

- "planning laws be established, and the resources provided, to ensure that the requirements of protected areas management are taken into account in all development planning procedures."
- "legal instruments be developed along the lines of the biosphere reserve concept for the conservation and management of multiple use areas as autonomous planning units where activities that are compatible with the preservation of the natural environment remain authorised under the control of the protected area authority."
- "states ensure effective public participation in the planning and management of protected areas, by establishing adequate legal mechanisms which enable individuals, local communities and non-governmental organizations to challenge, if needed, administrative decisions and which require the suspension of activities until completion of the review of such decisions by the judicial or other appropriate authority."
- "states make legal provisions for the fiscal needs of each protected area, and explore innovative financing methods such as tax incentives and special funds."
- "the planning and management of protected areas be facilitated and strengthened by ensuring that legislation define clearly the management objective of a range of categories of protected areas, and by increasing the information on possible legal tools and techniques and improving the legal education and training of legal, management and enforcement professionals." (McNeely, 1993, 32-33)

Provincial

Local

There are laws that apply only to the PAs, such as a National Parks Law, and laws that apply to other sectors, as well as in PAs, eg.

- land use planning laws
- environmental laws
- natural resource conservation laws
- public health and safety laws
- pollution control laws
- building laws
- transportation laws
- heritage preservation laws

Legal rights and responsibilities of protected areas

Legal authority of rangers

Law Enforcement

Implicit in the creation of laws is their enforcement. PA legislation should specify the enforcement agency and detail the extent of the agency's powers. The amount of law enforcement power that will be delegated to a PA agency will vary from country to country.
Where PA staff are given law enforcement powers this necessitates special training. (MacKinnon, 1986)

A clear procedure should be established for, and be understood by PA staff at all levels to follow when encountering illegal activity in a PA. This might involve:

- recording the time, place and nature of the illegal activity, and, if possible, those engaged in it.

- informing the appropriate superior staff person of the illegal activity, and asking how to proceed.

- in the case of minor illegal activities, advising those responsible that they are involved in illegal activities, and must desist

- in the case of major illegal activities, prosecuting those involved in them

- publicising the prosecution of people involved in illegal activities to deter others from undertaking such activities

Legal Liability

PA agencies should determine their legal liability in the case of accidents (e.g. to staff or visitors), and take appropriate action to minimise the risk of accidents, the chance of being held liable for accidents, and being held responsible for financial compensation.

Evaluating Legislation

"There is a tendency for statutes and organisations to evolve in a somewhat ad hoc manner over time. In any protected areas programme, it is desirable to undertake periodic reviews and re-appraisal of the legislation and, as appropriate, streamline and restructure the legal and administrative arrangements, drawing on experience from other disciplines and situations and adapting these to local circumstances." (MacKinnon, et. al. 1986).

EXAMPLES

LEBANON

REFERENCES

MacKinnon et.al. 1986.
McNeely, 1993

OTHER INFORMATION

ACTIVITIES

26. EMERGENCY MANAGEMENT

OBJECTIVES

Emphasise the need for PA managers and staff to be prepared for emergencies
Identify the main types of emergencies in PAs
Describe an emergency response strategy
Review methods of visitor rescue
Emphasise the need, and ways to communicate risks to PA visitors
Note the importance of media relations in emergencies

INFORMATION

Inventorying risks in protected areas
Assessing and developing staff skills
Emergency response strategy
Visitor rescue
Communicating risks to visitors
Media relations in emergencies

EXAMPLES

U.S. Department of the Interior, National Park Service (1988)

The U.S. National Park Service Management Policies state the following with respect to Emergency
Preparedness, Operations and Medical Services:
"The National Park Service will develop a program of emergency preparedness in accordance with the Federal Civil Defense Act (50 USC 2251 et seq.), National Security Decision Directive 259 (Feb.4, 1987), departmental policy, and other considerations at the Washington, region and park levels. The purpose of the program will be to maximize visitor and employee safety and the protection of property. This program will include a systematic method of alerting visitors to potential disasters and evacuation procedures.

Superintendents may assist other agencies with emergencies outside parks. To the extent practicable, written agreements with such other agencies in accordance with the Federal Assistance and Interagency Agreements Guideline (NPS-20) must first be in effect. NPS employees who are outside the area of their jurisdiction and who are directed by their supervisors to provide emergency assistance to other agencies will be considered to be acting within the scope of their employment.

NPS emergency operations will be conducted utilizing the Incident Command System (ICS) of the National Interagency Incident Management System (NIIMS). Each park superintendent will develop and maintain an emergency operations

plan to ensure an effective response to all types of emergencies that can be reasonably anticipated."

"The National Park Service will make reasonable efforts to provide appropriate emergency medical services for persons who become ill or injured. An emergency medical services program will be maintained to provide transportation of the sick and injured and emergency prehospital care, which may range from minor first aid to advanced life support in various environmental settings. Transportation may include everything from patrol cars and ambulances to fixed-wing and helicopter air ambulances.

Qualified emergency medical services in local communities may be used if they can respond rapidly enough in life-threatening emergencies. Where such services are not available, the National Park service will make a reasonable effort to provide a level of emergency medical service commensurate with park needs.

Each superintendent will complete an emergency medical needs assessment and develop and implement
a program to meet those needs, in accordance with the "Emergency Medical Services Policy and Guideline (NPS-51)".

LEBANON

The typical approaches to dealing with emergencies in Lebanon

REFERENCES

U.S. Department of the Interior (1988)

OTHER INFORMATION

ACTIVITIES

Identify potential risks and emergencies in each PA
Develop an emergency response strategy for each PA
Draw up a plan for visitor rescue
Consider how to deal with the media in an emergency
Simulate an emergency in the PA and practice responding to it.

27. TRAINING

OBJECTIVES

Emphasise the need for, and importance of training
Describe a training strategy
Explain how to assess training needs
Review the ways of delivering training
Note the need for, and means of evaluating training

INFORMATION

The Need for Training

"Protected area management training is a priority. However, the need is broader than the traditional focus on resource use aspects, so as to give more emphasis to techniques of community involvement, expertise in negotiating and resolving disputes, and the development of managerial and information technology skills. Recent trends towards such a broader approach need support, as does the targeting of training to priority needs." (Davey, Phillips, 1998)

The management of the organisation want to know:

- what training is required
- how training should be delivered
- how the training improves the performance of the organisation

Staff expect:

- targeted and job related training (for now and the future) to equip them to meet the expectations of the organisation;
- defined outcomes as a result of training;
- quality assurance of training materials and delivery techniques;
- value for time spent in training.

A Training Strategy

A training strategy involves the following:

- Identification of the organisation's training needs
- Strategy for resourcing the training, eg:
- Funding the training
- Physical resources
- Human resources
- Development and delivery of the training
- Application of new competencies on the job
- Monitoring

Assessing Training Needs

To assess an organisation's training needs involves:

- Statement of the organisation's vision, mission, and key performance indicator's (corporate plan)
- Identification of competencies required for program delivery (current and future)
- Identification of current competence of staff (e.g. performance review, assessment of current competence)
- Identification of competency gap
- Plan for bridging the competency gap (workforce management plan – recruitment, outsourcing, job redesign or training))
- Organisation's training needs

Delivering Training

Ideally, training is delivered:

- As close to the workplace as possible in order to reduce the amount of time spent in travel and off the job;
- In conditions as close as possible to the normal work situation to ensure relevance of the training to the job using flexible methods, such as distance learning packages (self paced), open learning schemes and computer based training packages. The different learning styles and speeds of individuals are catered for.
- So that the relevance of the content and delivery standards are monitored against the module specification;
- By instructors who are trained as trainers and are also experienced in the subject matter.

Evaluating Training

Assessment of the individual's achievement of the learning outcome's (as prescribed in the specification) should be conducted during and following the learning process. Assessment should be criterion based and applied only by those who are competent in its use and who are authorised by the organisation to conduct assessments.
A final assessment of the application of the new competencies should occur during the performance review phase of program delivery where the delivery of the required job outcomes, to the required standard, is assessed.
Where work does not meet the agreed standards, the reason for this shortfall should be sought. If lack of competence is the reason, the extent of training required to become competent should be determined and the person either

referred to further practice under the guidance of a supervisor or mentor or the workforce management planning process should be revisited.

EXAMPLES

Countryside Commission (UK) Good Training: Codes of Practice:

Three sectors have a role to play in training:

- employers and managers
- educators and trainers
- staff and volunteers

Code of good training practice for employers and managers:

- work to a training policy and strategy
- provide resources for training
- use blend of training sources and methods
- ensure the content is well balanced and use the training framework as a guide.
- work closely with local providers of education and training.

Code of good training practice for educators and trainers:

- work closely with local employers and staff
- liaise with other educators and trainers to provide a well-balanced range of training
- train people to work in an interdisciplinary way
- ensure staff have up to date training and experience in the subjects they teach.

Code of good training practice for staff and volunteers:

- find out about your organisation's training policy and the opportunities that are available
- use the training framework to assess your training needs
- be open to a variety of training methods
- be prepared to train others
- commit time and energy to self development

LEBANON

REFERENCES

ANZECC Working Group on Benchmarking and Best Practice for National Parks and Protected Area Management. (1996) Best Practice in Staff Training Processes. Australia.

Countryside Commission. (1990) Good Training: Codes of Practice. Countryside Commission, Cheltenham, U.K.

OTHER INFORMATION

ACTIVITIES

28. CONCLUSION

OBJECTIVES

To emphasise the main points of the manual
To provide an opportunity to evaluate the course
To develop personal actions plans
To identify additional training needs

INFORMATION

Summary of the Manual and the course
Evaluation of the course
Personal action plans
Identifying additional training needs
Recognising course participation, and training accomplishments

EXAMPLES

LEBANON

REFERENCES

OTHER INFORMATION

ACTIVITIES

Provide course participants with a course evaluation form for them to complete. Analyse the forms submitted and discuss the results with course participants so as to improve the course and plan other courses to meet training needs.

ACRONYMS

ACS – Arz-Al-Chouf Society
EPC – Environment Protection Committee
FOHE – Friends of Horsh Ehden
FON – Friends of Nature
GEF – Global Environmental Facility
GL – Green Line
ICOMOS – International Council on Monuments and Sites
IUCN – International Union for the Conservation of Nature and Natural Resources
LINE – Association Liban Nature Environnement
MAB – Man and the Biosphere Programme
MOA – Ministry of Agriculture
MOE – Ministry of Environment
NCSR – National Council for Scientific Research
NGO – Non-governmental Organization
NPS – National Park Service (US)
PA – Protected Area
PCC – Project Coordinating Committee
SPNL – Society for the Protection of Nature, Lebanon
UNDP – United Nations Development Programme
UNEP – United Nations Environment Programme
UNESCO – United Nations Educational, Scientific and Cultural Organization
WCPA – World Commission on Protected Areas
WCMC – World Conservation Monitoring Centre
WHO – World Health Organization
WWF – World Wide Fund for Nature

GLOSSARY

(Many of the following definitions are taken from the Australian Natural Heritage Charter, 1996)

Biological diversity (also known as biodiversity) - the variety of life forms: the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. It is usually considered at four levels: genetic diversity, species diversity, ecosystem diversity and community diversity.

Community – all the living parts of an ecosystem

Community diversity – the variety of communities in an area

Conservation – all the processes and actions of looking after a place so as to retain its natural significance and always includes protection, maintenance and monitoring.

Conservation management measures – the techniques for achieving conservation of biological diversity and geodiversity and may include physical intervention, binding legal agreements, planning instruments, land acquisition and the like.

Degradation – any decline in the quality of natural resources or the viability of ecosystems, caused directly or indirectly by human activities.

Disturbance – accelerated change caused by human activity, or extreme natural events.

Ecological processes – all those processes that occur between organisms and within and between populations and communities, including interactions with the non-living environment, that result in existing ecosystems and bring about changes in ecosystems over time.

Ecosystem – the dynamic interaction between the complex of organisms that make up a community with their non-living environment and each other.

Ecosystem diversity – the variety of ecosystems in an area

Earth processes – the interactions, changes and evolutionary development of geodiversity over time.

Evolutionary processes – genetically-based processes by which life forms change and develop over generations.

Genetic diversity – the variety of genetic information contained in the total genes of individual plants, animals, and micro-organisms in an area.

Geodiversity – the range of earth features including geological, geomorphological, palaeontological, soil, hydrological and atmospheric features, systems and earth processes.

Habitat – the structural environments where an organism lives for all or part of its life.

Indigenous species – a species that occurs at a place within its historically known natural range and that forms part of the natural biological diversity of a place.

Introduced species (exotic species) – a translocated or alien species occurring at a place outside its historically known natural range as a result of intentional or accidental dispersal by human activities.

Maintenance – the continuous protective care of the biological diversity and geodiversity of a place and is to be distinguished from repair. Repair involves restoration and reinstatement.

Modification – altering a place to suit proposed uses which are compatible with the natural significance of the place.

Monitoring - ongoing review, evaluation and assessment to detect changes in condition of the natural integrity of a place, with reference to a baseline condition.

Natural integrity – the degree to which a natural system retains its condition and natural rate of change
in terms of size, biological diversity, geodiversity and habitat.

Natural significance – the importance of ecosystems, biological diversity and geodiversity for their existence value, or for present and future generations in terms of their scientific, social, aesthetic and life-support value.

Organism – any living being.

Protection – taking care of a place by maintenance and by managing impacts to ensure that natural significance is retained.

Regeneration – the recovery of natural integrity following disturbance or degradation.

Restoration – returning existing habitats to a known past state or an approximation of the natural condition by repairing degradation, by removing introduced species, or by reinstatement.

Reinstatement (reintroduction) – to introduce to a place one or more species or elements of habitat or geodiversity that are known to have existed there naturally at a previous time but that can no longer be found at that place.

Preservation – maintaining the biodiversity and/or an ecosystem of a place at the existing stage of succession, or maintaining existing geodiversity.

Species diversity – the variety of species and their relative abundance in an area.

Succession – the natural changes over time where one community is replaced by another.

REFERENCES

Abu-Izzeddin, F. (1997a) Protected Areas Project – Revised Project Document. Ministry of Environment, Beirut, Lebanon.

Abu-Izzeddin, F., Anouti, S., Marsh, J., Hitchcock, P. (1997b) Protected Areas Project – Lebanon: Report of First Protected Areas Management Training Workshop, 24-31 October, 1997. Ministry of Environment, UNDP, IUCN, Beirut.

Abuzinada, A.H. (1991) Planning a System of Protected Areas in Saudi Arabia." Parks, 2 (2), pp.12-17.

Abuzinada, A.H., Child, G., Grainger, J. (1992) The Approach to Planning and Initiating a System of Protected Areas in Saudi Arabia. NCWCD, Riyadh.

Agardy, T. (Ed.) (1995) The Science of Conservation in the Coastal Zone: New insights on how to design, implement and monitor marine protected areas. IUCN, Gland.

Alleby, M. (1991) Oxford Concise Dictionary of Ecology. Oxford University Press, Oxford.

Alverson, W.S., Kuhlmann, W., Waller, S.M., Diamond, J. (199?) Wild Forests: Conservation Biology and Public Policy. Island Press, Washington.

ANZECC Working Group on Benchmarking and Best Practice for National Parks and Protected Area Management. (1996) Best Practice in Staff Training Processes. Australia.

Australian Heritage Commission. (1996) Australian Natural Heritage Charter: Standards and Principles for the Conservation of Places of Natural Heritage Significance. Australian Heritage Commission, Sydney.

Bagader, A.A., El Sabbagh, A.T.E., Al-Glayand, M.A., Samarrai, M.Y.I. (1994) Environmental Protection in Islam. IUCN, Kingdom of Saudi Arabia, Gland.

Bayer, M.Z., Istanbul, T., Akesen, A. (1991) National Parks and Protected Areas in Turkey. p.11.

Beck, L., Cable, T.T. (1997) Interpretation for the 21st Century: Fifteen Guiding Principles for Interpreting Nature and Culture. Sagamore Publishing, Champaign, Illinois.

Bennett, A. (1997) Habitat Corridors: Their Role in Wildlife Management and Conservation. IUCN, Gland.

Boo, E. (ed.) (1990) Ecotourism: The Potentials and Pitfalls. World Wildlife Fund, Washington.

Bowles, M.L., Wheelan, C.J. (Eds.) (1994) Restoration of Endangered Species. Cambridge University Press, Cambridge.

Bridgewater, P., Phillips, A., Green, M., Amos, B. (1996) Biosphere Reserves and the IUCN System of Protected Area Management Categories. Australian Nature Conservation Agency, the World Conservation Union, and the UNESCO Man and the Biosphere Programme, Canberra.

Bruntland, G. (1987) Our Common Future. Oxford University Press, New York.

Canada. (1991) National Parks System Plan. Parks Service, Environment Canada, Ottawa.

Canada. (1995) Sea to Sea to Sea: Canada's National Marine Conservation System Plan. Department of Canadian Heritage, Ottawa.

Carew-Reid, J., Prescott-Allen, R., Bass, S., and Clayton, B. (1994) Strategies for National Sustainable Development – a handbook for their planning and implementation. IUCN and IIED, Gland and London.

Ceballos-Lascurain, H. (Ed.) (1996) Tourism, Ecotourism and Protected Areas. IUCN, Gland.

Child, G., Grainger, J. (1990) A System Plan for Protected Areas for Wildlife Conservation and Sustainable Rural Development in Saudi Arabia. NCWCD and IUCN, Riyadh.

Clark, T.W., Cragun, J.R. (1994) "Organizational and Managerial Guidelines for Endangered Species Restoration Programs and Recovery Teams." In: Bowles, M.L., Wheelan, C.J. (Eds.) (1994) Restoration of Endangered Species. Cambridge University Press, Cambridge, pp. 9-33.

Collins, P. (1995) Dictionary of Ecology and Environment. Peter Collins Publishing, Teddington, England.

Countryside Commission. (1990) Good Training: Codes of Practice. Countryside Commission, Cheltenham, U.K.

Cutlip, S.M., Center, Y.H. (1978) Effective Public Relations. Prentice-Hall, Englewood Cliffs, New Jersey.

Crowfoot, J.E., Wondolleck, J.M. (1990) Environmental Disputes: Community Involvement in Conflict Resolution. Island Press, Washington.

Davey, A.D., Phillips, A. (Series Ed.) (1997) National Systems Planning for Protected Areas. IUCN, Gland.

Davis, T.J. (Ed.) (1993) Towards the Wise Use of Wetlands: Report of the Ramsar Convention Wise Use Project. Ramsar, Gland.

Davis, T.J. (Ed.) (1994) The Ramsar Convention Manual: A Guide to the Convention on Wetlands of International Importance. Ramsar, Gland.

De Fontaubert, C., Downes, D.R. and Agardy, T.S. (1996) Biodiversity in the Seas: Implementing the Convention on Biological Diversity in Marine and Coastal Habitats. IUCN, Gland.

De Klemm, Shine, C. (1993) Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems. IUCN, WRI, UNEP, Gland.

Dean, F.A. (1992) "Arab Sheiks – Hunters and Conservationists." Landscape International, (Maryland) 3, (1).

Dean, F.A. (1993) Regional Review – North Africa and the Middle East. Prepared for IUCN Commission on National Parks and Protected Areas, Gland.

Diamond, J.M. (1976) "The Island Dilemma: Lessons of Modern Biogeographic Studies for the Design of Natural Reserves," Biological Conservation, 7, pp.129-146.

Dugan, P.J. (Ed.) (1993) Wetlands in Danger. Oxford University Press, Oxford.

Environment Canada. (1990) State of the Parks Report. Parks Service, Ottawa.

Evans, M. (1993) "Important Bird Areas in the Middle East" ICBP Newsletter 1, Cambridge.

Firouz, E., Hassinger, J.D., Fergusson, D.A. (1970) "The Wildlife Parks and Protected Areas of Iran",
Biological Conservation, 3 (1), pp.37-45.

Fisher, R., Ury, W., Patton, B. (1991) Getting to Yes: Negotiating Agreement Without Giving In. Penguin, New York.

Fisher, R.J. (1995) Collaborative Management of Forests for Conservation and Development. IUCN, WWF, Gland.

George Wright Forum, journal about science and protected areas.

Given D.R. (1994) Principles and Practice of Plant Conservation. Timber Press, Chapman and Hall, IUCN, Portland, USA.

Glowka, L., Burhenne-Guilmin, F., Synge, H., McNeely, J.A., Gundling, L. (1994) A Guide to the Convention on Biological Diversity. IUCN, Gland.

Grainger, J., Llewellyn, O. (1994) "Sustainable use: Lessons from a Cultural Tradition in Saudi Arabia." Parks, 4 (3), pp. 8-16.

Haddane, B. (1992) National Parks and Protected Areas in North Africa: Strategy, Management and Economic Aspects. Rabat, Morocco, 13pp.

Ham, S.H. (1992) Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets. North American Press, Golden, Colorado.

Hamadeh, S., Khouzami, M., and Tohme, G. (1996) Biological Diversity of Lebanon: Country Study Report. Ministry of Agriculture, Republic of Lebanon, and United Nations Environment Programme, Beirut.

Harmon, D. (Ed.) (1994) Coordinating Research and Management to Enhance Protected Areas. IUCN, Gland.

Hendee, J.C., Stankey, G.H., Lucas, R.C. (1978) Wilderness Management. U.S. Department of Agriculture, Forest Service, Washington.

Holdgate, M. (1996) From Care to Action: Making a Sustainable World. Earthscan Publications and IUCN. Gland.

IUCN (1980) World Conservation Strategy. IUCN, Gland.

IUCN/UNEP/WWF (1991) Caring for the Earth: A Strategy for Sustainable Living. IUCN, Gland.

IUCN (1994) Guidelines for Protected Area Management Categories. IUCN, Gland.

IUCN (1996) 1996 IUCN Red List of Threatened Animals. IUCN and Conservation International, Gland.

IUCN (1996b) 1996 IUCN Red List of Threatened Plants. IUCN, Gland.

IUCN (1997) United Nations List of National Parks and Protected Areas 1997. IUCN, Gland.

IUCN (1998) Draft Regional Action Plan for Protected Areas in the North Africa and Middle East Region. IUCN, Gland.

IUCN Nepal (1996) A Field Manual for Registration of National Heritage Sites. IUCN Nepal, Kathmandu.

Journal of Interpretation.

Jousiffe, A. (1998) Lebanon. Lonely Planet, Hawthorn, Australia.

Kaiza-Boshe, T. (1992) "The Role of Interpretation, Conservation Education, and Other Management Services." In Lusigi, (Ed.)

Kelleher, G., Bleakley, C., Wells, S. (Eds.) (1995) A Global Representative System of Marine Protected Areas: Volume 1 –Antarctic, Arctic, Mediterranean, Northwest Atlantic, Northeast Atlantic and Baltic. The World Bank, Washington.

Kemf, E. (Ed.) (1993) The Law of the Mother: Protecting Indigenous Peoples in Protected Areas. Sierra Club Books, San Francisco.

Lewis, C. (Ed.) (1996) Managing Conflicts in Protected Areas. IUCN Biodiversity Programme, IUCN, Gland.

LINE. (1997) La Lettre de LINE. Beyrouth.

Llewellyn, O. (1992) Conservation in Islamic Law. NCWCD, Riyadh.

Lucas, P.H.C. (1992) Protected Landscapes: A Guide for Policy-Makers and Planning. Chapman and Hall, London.

MacArthur, R.H., Wilson, E.O. (1967) The Theory of Island Biogeography. Princeton University.

Machlis, G., Field, D. (Eds.) (1992) On Interpretation. Oregon State University Press, Corvallis, Oregon.

MacKinnon, J. & K., Child, G., Thorsell, J. (1986) Managing Protected Areas in the Tropics. IUCN, Cambridge.

Marsh, J. (1983) "Research and Monitoring Needs in Managing Humans in Biosphere Reserves." In: Scace, R.C., Martinka, C.J. (Eds.) Towards the Biosphere Reserve: Exploring Relationships between Parks and Adjacent Lands. U.S. National Park Service, Washington, pp.73-82.

Marsh, J., Machlis, G. (1987) Introduction to Protected Areas Management and Planning for China's Reserve Managers: A Training Manual. World Wildlife Fund International, Gland.

Marsh, J. (1988) "Heritage Interpretation Evaluation: Needs and Methods." In: Lunn, J. (Ed.) Proceedings of the First World Congress on Heritage Presentation and Interpretation. Heritage Interpretation International, Edmonton, Canada, pp.47-55.

Marsh, J. (1992) "Marine Park Initiatives around the World." In: Graham, R. (Ed.) Marine, Lake and Coastal Heritage. University of Waterloo, Waterloo, Canada, pp.21-30.

Marsh, J., Elliott, N. (1994) Waste Management in National Parks and Federal Facilities in the North. Parks Canada, Ottawa.

Marsh, J.S., Fialkowski, J. (Eds.) (1995) Linking Natural and Cultural Heritage. Frost Centre, Trent University, Peterborough, Canada.

Marsh, J., Bengert, B. (Eds.) (1996) Trail Development and Tourism. Ontario Trails Council, Peterborough, Canada.

Marsh, J. (1997) "Universities and Research in Protected Areas." In: Lawrence, J., Nelson, J.G. (Eds.) Research in Protected Areas. Heritage Resources Centre, University of Waterloo, Canada.

Marsh, J.S. (1998) Training Manual for the Biodiversity Strategy and Action Plan of Lebanon. IUCN, Gland.

Marston, J.E. (1979) Modern Public Relations. McGraw-Hill, New York.

Marquis-Kyle, P., Walker, M. (1992) The Illustrated Burra Charter. Australian Heritage Commission.

McNeely, J.A. (1988) Economics and Biological Diversity. IUCN, Gland.

McNeely, J.A. (Ed.) (1993) Parks for Life: Report of the IVth World Congress on National Parks and Protected Areas. IUCN, Gland.

McNeely, J.A. (Ed.) (1995) Expanding Partnerships in Conservation. Island Press, Covelo, California.

McNeely, J.A., Miller, K.R., Reid, W.V.C., Mittermeier, R.A., Werner, T.B. (1993) Conserving the World's Biological Diversity. IUCN, WRI, WWF-US, The World Bank, Gland.

McNeely, J.A. (Ed.) (1995) Expanding Partnerships in Conservation. Island Press, Corvelo, California.

McNeely, J.A. (1997) Conservation and the Future: Trends and Options toward the Year 2025. IUCN
Biodiversity Policy Coordination Division, IUCN, Gland.

McNeely, J.A., Thorsell, J. (1991) "Guidelines for Preparing Protected Area System Plans." Parks, 2 (2),
pp.4-8

Ministry of Environment, Lebanon. (1998) First National Workshop on Biodiversity. Ministry of Environment – Lebanon, UNDP, GEF, Biodiversity, Beirut.

Moritz, T. (1996) Conservation Thesaurus. IUCN, Gland.

Mossman, R. (1987) Managing Protected Areas in the South Pacific: A Training Manual. South pacific Regional Environmental Programme, and IUCN.

Nash, R. (1982) Wilderness and the American Mind. Yale University Press, New Haven.

Paehlke, R. (Ed.) (1995) Conservation and Environmentalism: An Encyclopedia. Garland, New York.

Palmer, J., Goldstein, W., Curnow, A. (Eds.) (1995) Planning Education to Care for the Earth. IUCN, Gland.

Parks. IUCN, Gland

Pearce, D., Moran, D. (1994) The Economic Value of Biodiversity. Earthscan and IUCN, Gland.

Poore, D. (Ed.) (1992) Guidelines for Mountain Protected Areas. IUCN, Gland.

Porat, M., Agasi, V. (1992) Protected Areas in Israel. NRA and SPNI, Israel, 17pp.

Price, A., Humphrey, S. (Eds.) (1993) Application of the Biosphere Reserve Concept to Coastal Marine Areas. IUCN, Gland.

Royal Society for the Conservation of Nature, Hashemite Kingdom of Jordan. (1996) Dana Nature Reserve Management Plan. UNDP/World Bank GEF Project, Amman.

Runte, A. (1987) National Parks: The American Experience. University of Nebraska Press, Lincoln.

Salm, R., Clark, J. (1984) Marine and Coastal Protected Areas: A guide for planners and managers. IUCN, Gland.

Salm, R.V., Jensen, R.A.C., Papastavron, V.A. (1993) Marine Fauna of Oman: Cetaceans, Turtles, Seabirds and Shallow Water Corals. IUCN, Gland.

Saunders, D.A., Hobbs, R.J. (Eds.) (1991) Nature Conservation 2: The Role of Corridors. Surrey Beatty and Sons, Chipping Norton, New South Wales.

Scott, D.A. (Ed.) A Directory of Wetlands in the Middle East. IUCN and Wetlands International, Gland.

Sharpe, G.W. (1982) Interpreting the Environment. Wiley, New York.

Shryer, J. (1994) A Manual of Basic Protected Area Management Techniques for the Department of Wildlife and National Parks, Botswana. Worldwide Fund for Nature, Botswana.

Skibicki, A., Wilcox, K. (1996) ABC Resource Survey of the Georgian Bay Islands National Park Greater Ecosystem. University of Waterloo, Waterloo, Canada.

Society for the Protection of Nature and Natural Resources in Lebanon. (1998) Ark 2000. Newsletter.

Society for the Protection of Nature and Natural Resources in Lebanon. (1998) EcoVoices. Newsletter.

Speetjens, P. "Wildlife: Stop-off in Lebanon." The Daily Star, April 16, 1998, p.11.

Stanley-Price, M.R. (1986) "The Reintroduction of the Arabian oryx into Oman," International Zoo Yearbook. 24/5, pp.17.

Stanley-Price, N. (1998) "New Conceptions of Archeological Sites and their Management." Archeologie et Patrimoine, 8, January, pp.11-14.

Stevenson, L.H., Wyman, B. The Facts on File Dictionary of Environmental Science. Facts on File, New York.

Sulayem, M.S.A. (1991) Regional Review: North Africa/Middle East. IUCN-CNPPA, Gland.

Theberge, J.B. (1989) "Guidelines to Drawing Ecologically Sound Boundaries for National Parks and Nature Reserves." Environmental Management, 13 (6), pp.695-702.

Thorsell, J. (Ed.) (1990) Parks on the Borderline: Experience in Trans-frontier Conservation. IUCN, Gland.

Thorsell, J. (1992) "Guidelines for Managing Research in Protected Areas." In: Willison, J.H.M. et. al. (Eds.) (1992) Science and the Management of Protected Areas. Elsevier, New York, pp.175-179.

Thorsell, J. (1996) "A Practical Approach for the Preparation of Management Plans for Natural Heritage Sites", in: Ayyad, M.A., Kassas, M., Ghabbour, S.I. (Eds.) (1996) Conservation and Management of Natural Heritage in Arab Countries. Egyptian National Commission for UNESCO, Egyptian National MAB Committee,
Cairo, pp.11-26.

Thorsell, J., Sawyer, J. (Ed.) (1992) World Heritage: Twenty Years Later. IUCN, Gland.

Tilden, F. (1957) Interpreting Our Heritage. University of North Carolina Press, Chapel Hill.

Udvardy, M.D.F. (1975) A Classification of the Biogeographical Provinces of the World. IUCN, Gland.

UNDP. (1998) Lebanon after Rio: Prospects and Challenges. UNDP, Beirut.

United Nations Environment Programme. (1992) Convention on Biological Diversity. UNEP, Nairobi. (Available in Arabic).

UNESCO. (1995) Operational Guidelines for the Implementation of the World Heritage Convention. UNESCO, Paris.

UNESCO. (1996) Biosphere Reserves: Seville Strategy and the Strategy Framework of the World Network.
UNESCO, Paris.

United States, Department of the Interior. (1988) Management Policies. National Park Service, Washington.

Von Droste, B., Plachter, H., Rossler, M. (Eds.) (1995) Cultural Landscapes of Universal Value: Components of a Global Strategy. Gustav Fischer Verlag Jena, UNESCO, Stuttgart.

WHO, IUCN, WWF. (1993) Guidelines for the Conservation of Medicinal Plants. IUCN, Gland.

WTO, UNEP. (1992) Guidelines:Development of National Parks and Protected Areas for Tourism. WTO/UNEP, Madrid.

Woodley, S., Theberge, J. (1992) "Monitoring for Ecosystem Integrity in Canadian National Parks." In:
Willison, J.H. et al. (Eds.) (1992) Science and the Management of Protected Areas. Elsevier, Amsterdam,
pp. 369-377.

World Conservation Monitoring Centre. (1992) Global Biodiversity: Status of Earth's Living Resources. Chapman and Hall, London.

World Resources Institute, IUCN, UNEP. (1992) Global Biodiversity Strategy. WRI, Washington.

INTERNET SITES

Australian Natural Heritage Charter – www.erin.gov.au/portfolio/ahc/anhc.html

Convention on Biodiversity: www.biodiv.org

Global Environmental Facility: www.gefweb.org

ICOMOS: www.icomos.org.

IUCN, Switzerland: www.iucn.org
IUCN, World Commission on Protected Areas:

Ministry of Environment, Lebanon: www.moe.gov.lb

Society for the Protection of Nature, Lebanon: www.spnl.org.lb

TRAFFIC International: www.traffic.org

UNDP, Lebanon: www.undp.org.lb

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