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**Food and Agriculture Organization of the  
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**WILDLIFE CONSERVATION FOR  
SUSTAINABLE DEVELOPMENT IN ARAB COUNTRIES**

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## *Preface*

The study on Wildlife Conservation for Sustainable Development in Arab Countries is a cooperative endeavour carried out by the Joint ESCWA/FAO Agricultural Division and the Forest Resource Division (Forest and Wildlands Conservation Branch) of FAO. The study was based on a mission to Egypt, Jordan, Lebanon, Oman, Saudi Arabia and the Syrian Arab Republic during June and July 1994.

The study reviews the current status of biodiversity with special reference to wildlife protection and identifies the countries or regions that have achieved actual progress in conserving their wildlife resources. It also investigates modalities that will facilitate communication among conservation professionals nationally, regionally and globally. It recommends actions to improve management of wildlife resources to save species, stabilize populations and increase distribution through effective short/medium/long-term actions, strategies and policies. The study also emphasizes the importance of making wildlife conservation an integral part of sustainable dryland development in the region.

The study was prepared by Faisal A. Dean, Environmental Consultant, and presented to the Inter-Agency Expert Consultation on the Management and Sustainable Development of Drylands in the Arab World, held in Aleppo in November 1994. The Consultation was organized by the FAO Regional Office for the Near East, ESCWA, the Arab Organization for Agricultural Development, the Arab Centre for the Study of Arid Zones and Dry Lands and the International Centre for Agricultural Research in Dry Areas.

The views expressed in this document are those of the author and do not necessarily reflect the views of the United Nations Secretariat.

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## EXPLANATORY NOTES

The term "Near East" refers here to all member countries of the League of Arab States, as well as Cyprus, Turkey, the Islamic Republic of Iran, Afghanistan and Pakistan. It is to be noted, however, that this designation does not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning its legal status or the delimitation of its frontiers and boundaries.

Bibliographical and other references have, wherever possible, been verified.

## EXECUTIVE SUMMARY

"Wildlife conservation for sustainable development in Arab countries" is a review of the status of wildlife conservation in selected Arab countries of the Western Asia region, based on an ESCWA/Food and Agriculture Organization of the United Nations (FAO) mission to Egypt, Oman, Saudi Arabia, the Syrian Arab Republic, Jordan and Lebanon during 1994.

Arab countries are beginning to take an active interest in wildlife conservation, and the fact that this subject is now being discussed by the agricultural/livestock sector is an encouraging development. However, wildlife populations are still at critical levels throughout the region, and wildlife conservation continues to be the most neglected segment of dryland development. The consensus of opinion among conservationists is that not enough is being done to halt the rapid destruction of wild habitats that harbour rare and endangered species of flora and fauna.

All Arab countries are strongly encouraged to study, discuss and implement the recommendations listed below as they apply to their individual and collective needs.

### A. Adopt a systems perspective

#### 1. Key point

A single-discipline approach cannot solve the wildlife conservation problems of the Near East region. There is a pressing need to address a broader set of questions and adopt an integrated approach to problem-solving: a systems perspective.

#### 2. Action

(a) Implement the Food and Agriculture Organization of the United Nations (FAO) 1994 "A systems perspective for sustainable dryland development in the Near East region";

(b) Distribute responsibility for the conservation of natural resources among all sections/sectors of Government; restricting the implementation of conservation to one ministry/organization is counter-productive;

(c) Support the preparation of national environmental action plans;

(d) Utilize the national conservation strategies of Oman and Jordan as references and guides in the development of action plans and strategies for other countries in the region.

### B. Improve agricultural practices

#### 1. Key point

Unsuitable agricultural practices in the Near East are having a serious environmental impact: water resources are being wasted, living species are being poisoned, and 407 million goats and sheep, 78 million head of cattle and 14 million camels are being allowed to destroy prime rangelands, thereby promoting desertification.

#### 2. Action

(a) Stop wasteful water use as part of the conservation effort;

- (b) Halt the use of harmful insecticides, herbicides and fungicides;
- (c) Discontinue the subsidization of all unsustainable livestock projects;
- (d) Appeal to princes and tribal leaders to reduce their herds of domestic livestock and introduce gazelles for wildlife ranching;
- (e) Focus on pastoralists as agents of conservation by training them to benefit from their wildlife resources without destroying them.

#### C. Increase the number of protected areas/reserves

##### 1. Key point

The region lacks a representative system of protected areas for conserving indigenous species of flora and fauna, and for reintroducing animals from captive breeding centres.

##### 2. Action

- (a) Establish more protected areas to conserve indigenous wildlife;
- (b) Conduct comprehensive field surveys to collect basic data;
- (c) Employ more flexible concepts for protected area management;
- (d) Conserve areas outside the protected areas in each country;
- (e) Visit Oman, Saudi Arabia and Jordan and study their reserves;
- (f) Encourage Egypt, the Syrian Arab Republic and Lebanon to establish more reserves.

#### D. Promote public awareness

##### 1. Key point

There is very little public understanding of the connection between wildlife conservation and human welfare, with the result that there is no broad-based political will to support enabling legislation or to increase budgetary resources for conservation.

##### 2. Action

- (a) Strengthen national and regional environmental awareness campaigns;
- (b) Reach people through the media of radio and television and inform them of the importance of conserving the environment for their own welfare;
- (c) Enact enabling legislation and provide more budgetary resources to conserve wildlife species and their habitats, to expose threatening environmental problems, and to find solutions;
- (d) Assign a high priority to programmes designed to change people's attitudes towards the environment;
- (e) Encourage Governments and non-governmental organizations (NGOs) to collaborate.

#### E. Implement existing legislation

1. Key point

In most Arab countries the existing wildlife protection laws are not being implemented. Hunting restrictions are routinely ignored, and many of the parks and reserves are subjected to the indiscriminate harvesting of wood and to grazing.

2. Action

(a) Implement existing laws through the ministry of the interior and the police departments—especially those laws that apply to hunting regulations or moratoriums;

(b) Update hunting regulations in all Arab countries to accommodate the needs of both the wildlife species and their human hunters;

(c) Support and encourage both the Syrian Arab Republic and Lebanon in their efforts to implement a five-year hunting moratorium beginning in 1995;

(d) Train security officers to recognize instances of environmental abuse;

(e) Provide immigration officers with charts of illegal wildlife;

(f) Join the Convention on International Trade in Endangered Species.

F. Prepare a directory of Arab conservationists

1. Key point

The lack of cooperation between government officials, wildlife researchers and the staff of conservation organizations is largely due to a lack of communication; this has seriously undermined wildlife conservation efforts in the region. Arab conservationists simply do not know who their colleagues are in the region, nor do they know anything about the work being done by these individuals.

2. Action

(a) Prepare a directory of Arab conservationists which contains the names, addresses, and telephone and fax numbers of important Arab players in wildlife conservation;

(b) Include in this directory the field of specialization, research and projects of each individual to encourage cooperation and discourage monopolization;

(c) Publish the directory in Arabic and English and distribute to all the individuals listed in the directory as well as to all government ministries, NGOs, universities, United Nations organizations and embassies in each of the Arab countries.

G. Hire qualified Arab experts

1. Key point

The lack of confidence in and information about qualified Arab conservationists has resulted in a regional brain drain.

## 2. Action

- (a) Hire Arab experts who are qualified and who speak the language to implement local and regional wildlife conservation projects;
- (b) Hire generalists with a broad spectrum of experience in preference to specialists with narrow expertise;
- (c) Hire staff from the growing number of young men and women dedicated to the growth of conservation;
- (d) Finance the participation of more Arab nationals in international activities and meetings in order to improve global networking and cooperation;
- (e) Refer to the above-mentioned conservation directory to locate qualified individuals.

### H. Establish a regional conservation training centre

#### 1. Key point

The Arab countries need one or more regional training centres to upgrade the skills of park rangers, scientists and government officials involved in nature conservation and wildlife management.

#### 2. Action

- (a) Review the steps already taken by Jordan, Saudi Arabia and Egypt towards the establishment of a conservation training centre;
- (b) Benefit from the experience of the National Commission for Wildlife Conservation and Development (NCWCD) in Saudi Arabia, which hosted a regional training workshop in 1993;
- (c) Consider the arguments for locating such a centre in Jordan, which has the facilities and staff of the Royal Society for the Conservation of Nature (RSCN) in place to conduct training courses. The ease with which Arab nationals may enter Jordan and its central location are significant assets.

### I. Expand and upgrade eco-tourism

#### 1. Key point

Nature tourism can create revenues that could be of economic significance to local and rural economies.

#### 2. Action

- (a) Provide tourist agencies with a list of parks that are open to visitors;
- (b) Facilitate transportation and accommodations for tourists visiting the sites;
- (c) Combine historical and/or archeological tours with nature tours;



- (d) Learn from the lessons of Ras Mohammed National Park in Egypt;
- (e) Transform the Giza Zoo in Cairo into an effective eco-tourist site that combines tourism with environmental education.

#### J. Support international conservation organizations

##### 1. Key point

Arab countries should support international wildlife conservation organizations such as the World Conservation Union (IUCN), the World Conservation Monitoring Centre (WCMC), and BirdLife International—even though there are no qualified Arab conservationists on the staff of these organizations.

##### 2. Action

- (a) Allocate funds to support the work of the IUCN, the WCMC and BirdLife;
- (b) Promote the appointment of qualified Arab staff to the headquarters of these important organizations in order to improve regional representation;
- (c) Translate IUCN, WCMC and BirdLife publications into Arabic;
- (d) Commission the WCMC to prepare computerized country profiles;
- (e) Establish regional offices of the IUCN, the WCMC and BirdLife.

#### K. Reduce the captive breeding of wildlife

##### 1. Key point

The dramatic increase of the Arabian oryx and the gazelle in captive breeding centres is causing serious overcrowding, excessive inbreeding, and an increased susceptibility to disease.

##### 2. Action

Revise the management plans of wildlife breeding centres to allow for a controlled rate of reproduction in line with reintroduction plans.

#### L. Donate and exchange captive bred animals

##### 1. Key point

The donation and exchange of animals among Arab countries are essential to avoid inbreeding at any one location, to increase the distribution of wildlife species throughout the area, and to improve regional cooperation among the countries involved.

##### 2. Action

Distribute the Arabian oryx from Shomari in Jordan and the Reem and Idmi gazelles from Thumamah in Saudi Arabia to properly managed reserves in the region.

## INTRODUCTION

### A. Scope and objectives

This report evaluates wildlife conservation in six Arab countries in the Western Asia region based on an ESCWA/FAO mission to Egypt, Oman, Saudi Arabia, the Syrian Arab Republic, Jordan and Lebanon during June and July of 1994. Discussions with conservation officials, visits to protected area sites, and the review of pertinent literature from each country, as well as from FAO, the United Nations Development Programme (UNDP), the IUCN, the WCMC and BirdLife International form the basis of this report and are the sources of its recommendations.

The objectives of the study include the following:

- (a) Review the current status of biodiversity, with special reference to wildlife protection in the Arab countries;
- (b) Identify the countries or regions that have achieved actual progress in conserving their wildlife resources;
- (c) Facilitate national, regional and global communication among conservation professionals;
- (d) Improve the management of wildlife resources to save species, stabilize populations and increase distribution through effective short-, medium-, and long-term actions, strategies and policies.

Incorporate wildlife conservation as an integral part of sustainable dryland development in the region.

In order to optimize and sustain the use of these biological resources, the FAO Near East Regional Office (RNEA), the Economic and Social Commission for Western Asia (ESCWA), the Arab Organization for Agricultural Development (AOAD), the Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD), and the International Centre for Agricultural Research in Dry Areas (ICARDA) will hold a ministerial conference on the management and sustainable development of drylands in the Arab world in 1995.

A preliminary expert consultation meeting was held at the headquarters of ICARDA in Aleppo, Syrian Arab Republic, from 10 to 13 November 1994. Senior national technical officers, professionals from international agencies, and a consultant met to review reports, make adjustments, submit proposals for the development of drylands in the Arab world, and prepare synthesis reports for the conference. The Joint ESCWA/FAO Agriculture Division (JNEA) and ESCWA provided the meeting with the material covering the topic of natural resources protection and wildlife development. The lengthy discussions about wildlife conservation in the Arab region reflected the concern of all of the participants at the meeting.

### B. Systems perspective

The difficulty in implementing any comprehensive wildlife conservation programme relates not to the wildlife involved, but to the competition from a growing human population that feels it should have priority access to the resources being conserved. That is the reason why many conservation efforts have failed in the past, and why a systems perspective is so important in dealing with this issue.

The systems approach allows complex biological, physiochemical, social and economic factors to be considered in an integrated manner; in other words, nothing that will affect the success of a policy is omitted from a planner's thinking. A systems perspective helps decision makers and their technical advisors cope with the complex—and often messy—reality of stressed human and natural systems (Squires, 1991).

All too often a narrow set of questions is asked by specialists who know more and more about less and less. This is described as the "reductionist" approach to problem-solving, and it has not worked for wildlife conservation. This approach is the product of a fragmented academic system that continues to isolate one discipline from another, and an outdated recruitment system that selects applicants with narrow specializations and rejects those with multidisciplinary backgrounds.

There is an urgent need to ask a broader set of questions and adopt an integrated approach to problem-solving, rather than depending exclusively on an accumulation of multidisciplinary approaches. The solutions to the loss of biodiversity lie in the interface between people and their environments, and it will be up to the "generalists" to find these workable solutions.

One example illustrating this point relates to the difficulties surrounding the Arabian oryx. After it was eliminated from the wild by hunters, and with its survival in the balance, oryx captive breeding projects began to crop up in Arabia and the United States. From a few captive collections in the 1960s, numerous new herds were established. To the delight of everyone the oryx bred very well and was an easy animal to manage; in fact, they bred too well, and the captive breeding centres began to suffer from overcrowding, inbreeding and outbreaks of disease. Oryx breeders, both Arab and American, found themselves overrun with animals that had nowhere to go. Thus, the specialists who bred the oryx, gazelle, ostrich, houbara, and other Arabian wildlife have in fact solved only part of the overall problem. It will now depend on the broader skills of the generalists to link the captive breeding projects with the establishment of protected areas, the participation of local communities, public awareness and government support.

## I. REGIONAL PROFILE

### A. Historical overview

The first organized human societies evolved in North Africa and the Middle East. The most famous were the Egyptian, Babylonian, Phoenician, Carthaginian, Roman, Byzantine and Arab empires. They all prospered because their peoples mastered the skills of irrigation, agriculture, plant and animal domestication and hunting and fishing. Their activities covered a mosaic of landscapes that included deserts, oases, drylands, wetlands, mountains, plateaus, plains, lakes, lagoons, marshland and tropical forests, as well as the coastlines along the Mediterranean Sea, the Red Sea, the Indian Ocean and the Gulf.

The continuous improvement and widespread use of these skills eventually took their toll on the available resources, either degrading or completely depleting them; the landscape and natural resources of the region were dramatically altered, and the process of desertification set in. For hundreds of years desertification was viewed primarily as an inevitable consequence of climatic change. However, a number of early Arab scholars also attributed this transformation to poor land management.

A number of these early cultures made efforts to allocate and control the use of the diminishing resources of their arid region. These controls related to, for example, the strict rationing of water, access to grazing, the cutting of trees, firewood collection and agricultural land ownership. Unfortunately, these controls did not apply to everyone, and many rural inhabitants unwittingly destroyed their forests through cutting clearings for timber and charcoal. They were followed by herdsman whose goats, sheep, cattle, and camels grazed and browsed on the remaining vegetation. Because nature has long been looked upon as a commodity, these harmful practices have continued and have even increased with the need to grow more food and build more housing.

The mountains of Lebanon are an example of this environmental degradation. The entire range was once carpeted with a rich stand of cedars whose height, strength, and utility became legendary throughout

the Old World. The slopes of this range were also filled with pine, fir, juniper, and oak. The felling of the trees began as early as 3,000 B.C., when the Phoenicians began a lucrative trade in cedar wood with the pharaohs of ancient Egypt, the Assyrians, King Solomon and many others. It is reported that the Roman Emperor Hadrian (A.D. 117 to 138) was struck by the destruction of these forests during a visit to the eastern realm of his empire. He ordered nearly 100 rock inscriptions to be placed in Mount Lebanon designating the surviving forests as "imperial domain". Today only scattered remnants of these once extensive forests endure, and to quote Eric Ekholm: "Five thousand years of service to civilization has left the Lebanese highlands a permanently degraded vestige of their former glory".

## B. Protected areas

### 1. The traditional *hima*

The practice of preserving land as *hima* has helped sustain rural societies in the Arabian Peninsula for many centuries. The concept of *hima* was in practice before the advent of Islam, but it was Islamic law (shariah) that gave it a more solid legal standing throughout the regions conquered by Muslims. According to these laws, *hima* is defined as any area that is protected from unregulated exploitation in the form of grazing, tree cutting, hunting, farming, or settlement, and is set aside by the governing authorities for purposes pertaining to the public good. It may be characterized by preservation or sustainable use, or by a combination of the two. This versatile institution for regulating the use of scarce resources provides a sound basis on which to protect areas in Saudi Arabia and elsewhere.

The *hima* system and variations of it were widely practiced in and around the Arabian Peninsula. Wilkinson (1978) describes the practice of communal range control by villagers of the eastern oases of what is now Oman, and Thessiger (1959) remarks on areas there called *hawtah*, where hunting, cutting and grazing were proscribed. Similar social regulations governing rangeland were recorded in what is now the Syrian Arab Republic, locally named *mahmia* or *mara*, and in the Kurdish areas of what is now Iraq and Turkey, where they were referred to as *koze* (Draz, 1978). Hobbs (1985) describes a tradition of "lineage reserves" among nomads of the eastern deserts of Egypt. These are just a few examples of the many variations of the same communal land use theme.

Beginning in 1240, under the reign of Abdallah Abu Zakaria of the Hafside dynasty, hunting reserves were maintained at Lake Ichkeul in Tunisia, and their management continued through the period of the Ottoman Empire into the twentieth century. During the eighteenth and nineteenth centuries, the establishment of forests and hunting reserves was facilitated across the region by Article 1243 of the Ottoman civil code, within the body of Islamic law, which stipulated that the land and the associated trees growing wild in the mountains were not to be possessed and should remain ownerless.

It was not until this century, however, that the region witnessed the establishment of the first modern national parks and protected areas. Good examples were to be found in Algeria as early as 1920, in Iran in 1927, and in Morocco in 1942. Other countries have since followed suit. At the present time, virtually every country in the region has some kind of protected area(s).

### 2. Modern protected areas

In response to growing local awareness and international pressure, many countries in the region have begun to establish a modern system of protected areas in an effort to combat habitat destruction and the loss of biodiversity.

In the Near East, the institutions responsible for environmental affairs and the management of national parks and protected areas vary considerably. These activities are usually the responsibility of the ministry of agriculture, but the ministries of environment, interior, finance, defence, housing and tourism have also played important roles. In some countries national parks and protected areas are under the administration of the office of the prime minister or head of State. In Jordan protected areas are the responsibility of the Ministry of Agriculture, but are administered by an NGO, the Royal Society for the Conservation of Nature (RSCN). In most cases, however, there is insufficient coordination and cooperation among the different government agencies.

Legislation pertaining to national parks and protected areas developed in a piecemeal fashion, and tended to concentrate on the protection of a few outstanding sites of scenic or recreational value. In many cases the legal basis for protection was either insufficient or totally lacking; in such situations the institutions responsible for protected areas remained weak and failed to secure influence over other branches of Government, resulting in a distinct handicap for their administration and staff, especially where the need to protect them clashed with the perceived needs of their human populations. In these cases, the managers of protected areas devoted most of their energies to combating the threats posed by human activities. This approach has resulted in the virtual exclusion of the traditional land users from such sites. Local people have generally been resettled on the periphery of the protected areas and encouraged to take part in agricultural or reforestation projects. Some exceptions to this are found in Egypt, Yemen, and the Arabian Peninsula, where, because of strong traditions of private ownership and the communal *hima* system, any change in land use patterns have to be agreed to at the local level first.

Protected areas in the region are often subjected to damaging pressures from government agencies that carry out large-scale development efforts (e.g., agricultural land reclamation and industrial and urban expansion) in areas which have been declared legally protected. The destruction resulting from these activities is often irreversible, and valuable habitats and species are lost. Areas subject to these incursions are usually found in the lower-income countries of the region, where the demand for development is most pressing and where protected area requirements are seen as a low priority.

### 3. Protected area coverage

According to the latest estimates in the 1990 *United Nations List of National Parks and Protected Areas*, the protected areas total about 48.5 million hectares (ha), or just 3.78 per cent of the total area of the Middle East/North Africa region (as described in the table below).

Of the 24 countries and provinces listed in the table, only 3 have at least 10 per cent of their land area under protection as recommended by the Bali Action Plan of 1982. The coverage within the remaining countries varies from a maximum of 13.36 per cent in Oman to 0 per cent in Iraq, the West Bank and Gaza Strip, Morocco and the Sahara, the Spanish territories and Yemen.

One of the most encouraging trends of the past 30 years is the steady growth in the number and size of protected areas in the region, clearly showing that as a group these countries are moving in the right direction.

Only 10 countries in the region are implementing comprehensive systems plans for protected areas; 7 others have conservation action plans that are incomplete, inadequate or not being implemented. The remaining countries appear not to have any such plans; instead, protected areas have been selected and established on an individual basis to protect specific areas of interest. It is to be expected that such a compilation of protected areas does not necessarily cover all major or critical habitats, nor is it fully representative or geographically balanced.

Site protection is implemented in about one third of the countries of the region. The remaining countries vary in the degree of protection they provide; some receive practically no protection at all, mainly as a result of insufficient or nonexistent financial resources and/or inadequate staff training.

**Table.** Protected areas of the Middle East and North Africa

Country	Area (square kilometres)	Total protected area (hectares)	Total protected area (percentage)
Afghanistan	636 265	183 629	0.29
Algeria	2 381 745	12 699 849	5.33
Bahrain	691	1 325	1.92
Cyprus	9 251	94 428	10.21
Egypt	1 002 270	801 000	0.80
Iraq	434 924	541	—
Islamic Republic of Iran	1 648 184	7 851 684	4.76
Israel	20 770	225 066	10.84
West Bank and Gaza Strip	10 161	—*	—
Jordan	83 750	119 829	1.43
Kuwait	24 280	30 000	1.24
Lebanon	10 452	4 512	0.43
Libyan Arab Jamahariya	1 759 540	172 870	0.10
Morocco	446 550	388 886	0.87
Morocco and the Sahara	266 769	—	—
Oman	212 379	2 836 900	13.36
Qatar	10 360	100	0.01
Saudi Arabia	2 144 969	21 210 740	9.89
Spanish territories	32	—	—
Syrian Arab Republic	185 680	103 240	0.56
Tunisia	164 150	190 204	1.16
Turkey	778 000	1 525 531	1.96
United Arab Emirates	86 449	14 650	0.17
Yemen	485 273	—	—
<b>Total</b>	<b>12 802 894</b>	<b>48 454 984</b>	<b>3.78</b>

\* An em dash (—) indicates that the amount is nil or negligible.

### C. The causes of wildlife depletion

The primary causes of wildlife depletion in the Arab region are habitat destruction and species decimation caused by uncontrolled hunting, excessive grazing, deforestation, the indiscriminate spraying of

insecticides, and the inappropriate development of fragile areas. The wildlife resource base of the region is being depleted at a rate that is undermining efforts to conserve its diversity.

## 1. Uncontrolled hunting

The imperative to hunt for food diminished thousands of years ago with the advent of agriculture and livestock husbandry, but the thrill of the hunt did not. The powerful urge to shoot, trap, catch and kill wildlife continued to occupy the minds of men throughout the region. Falconry reached new heights of popularity among all classes of Arab society, and whether rich or poor, the annual houbara season was anxiously anticipated. The elaborate hunts of early rulers—from the Babylonians to the Arab Umayyads and Abbasids—were conducted on a massive scale which contributed greatly to the extinction of a number of birds and mammals. Completely gone are the onager, ostrich, wild bull and Asiatic lion. Saved from the brink of extinction were the oryx, gazelle and leopard.

The ancient hunting excesses set the stage for the Arab rulers of today, giving them an excuse to repeat these destructive precedents. Unfortunately, the situation today is far worse than at any time in the history of the region: wildlife populations are a fraction of what they once were, and further, owing to advanced technology in the form of shotguns, rifles, all-terrain vehicles and radar, hunters now have a grossly unfair advantage. The absence of enforceable hunting laws that apply to everyone makes matters worse. The "hunt", with its rules and ethics in other parts of the world, has therefore been allowed to deteriorate into a series of "massacres" in the Middle East. This has opened the door to unwanted publicity for the region in the form of news reports painting a negative picture of the Arabs in general. The "sheikhs", as most Arabs have come to be known in the West, need to rethink their priorities and support wildlife and habitat conservation before their sport becomes a thing of the past. Arab leaders need to serve as positive role models to the millions of young men in the region who mistakenly equate the massive destruction of wildlife with sport.

From September to November, and again in April and May, hunters all over Lebanon—on rooftops, along roads and in moving cars—shoot migrating birds of prey, vultures and storks as the exhausted birds try to find a safe spot to rest for the night. This is a completely wasteful exercise, as these birds of prey are never eaten because their meat is considered unclean. Other species of birds such as ducks, geese, sandgrouse, francolins, partridges, quail and the few remaining populations of resident birds are considered a delicacy and readily shot by the thousands. In 1994 the Government of Lebanon passed a moratorium on shooting to conserve wildlife.

## 2. Excessive grazing

It would be simplistic to blame the domestic goats, sheep, cattle and camels for the destruction of rangelands, forests and valleys when it is actually the absence of a management plan for utilizing these areas that is the cause. Aside from controlling the grazing schedule, a planned reduction in the numbers of grazing goats, sheep, cattle and camels would be a wise (and is a necessary) step.

The devastating effect of centuries of indiscriminate grazing by large herds of goats in a mountainous country are easy to see in Lebanon. Goats can still be found in all forest land, protected or not, and the practice of cutting branches and entire young trees to feed them is weakening and eventually killing off entire forests; there are no seedlings or young trees to be seen in the forests grazed by goats. The only spontaneous regeneration of Lebanese cedars is found in the Shouf area of central Lebanon, where goats have been excluded for the past 15 years.

In the Dhofar region of Oman a more recent crisis has arisen. The slopes of Jabal Qara and Qamar have always attracted local herds of cattle during the lush monsoon season. In 1973 the total number of livestock were estimated to be between 12,000 and 20,000. However, during the past decade there have been not only more cattle, sheep and goats grazing this area of Dhofar, but also large herds of camels that forage the area all year; the estimates for 1993 were 250,000 head of cattle, 80,000 camels, and 70,000 to 80,000 sheep and goats. The effect of this livestock migration from other provinces of Oman to Dhofar has been disastrous, to the point that the water catchment area of Salalah, Oman's second largest city, is threatened.

### 3. Deforestation

The entire region was once covered with vegetation that reflected the climate and annual rainfall of each area. From the thick stands of hardwoods in the mountains of Lebanon, the Syrian Arab Republic, Jordan and Saudi Arabia, to the softer and adaptable pines of lower elevations, to the countless shrubs, grasses and legumes of the more arid plains and deserts, there was a much more impressive vegetative cover than what is left today. In addition to the destructive practices already described, the ancient builders of ships and temples, the Ottoman Turks, the British and the French cut down the forests of Lebanon, the Syrian Arab Republic and Palestine to build their railways and warm their troops.

In Lebanon burned stands of oak and pine dot the landscape, not as a result of the war, but rather the work of arsonists who take advantage of a legal loophole that permits the felling of dead trees. In the valleys the charcoal makers cut trees and export charcoal by the truckload to neighboring countries. This practice has become even more common since the United Nations drug-eradication programme began in the Bekaa Valley in 1993, prompting a number of ex-cannabis farmers to buy power saws, move to the hills, cut down trees and make charcoal.

### 4. Indiscriminate spraying

When pesticides were first introduced in the early part of the twentieth century, they were hailed as the ultimate weapon in the fight against agricultural pests. Contrary to those predictions, the intensive use of insecticides, herbicides and fungicides have resulted in the death and destruction of a wide spectrum of beneficial species of birds and insects. Further, the harmful pests have remained, and, with no competition and an immunity to the insecticides, have become even more destructive.

The benefits of chemical agriculture are short term, while their harmful effects are long term. They upset the balance of nature and therefore are not "sustainable". The only beneficiaries of chemical agriculture are the manufacturers and agents/distributors of these products. It is the agents who provide the technical advice to the agricultural community in the Arab countries, and their advice is always to use more and more of these chemicals.

The Near East region is also the dumping ground for some of the most dangerous pesticides manufactured; one example is parathion, the use of which is prohibited in most Western countries. Unless the Governments of this region stop the indiscriminate importation and use of pesticides, wildlife conservation and human health will continue to suffer.

An alternative to the indiscriminate spraying of poisons is integrated pest management (IPM), an effective combination of observations and alternative pest control methods that will either minimize or completely eliminate the need for the dangerous chemicals in use today. The Ministry of Agriculture in Oman has already begun restricting the use of chemicals and finding safe alternatives to them.



## 5. Inappropriate development

The worldwide need for development poses a threat to the conservation of important ecological and landscape features of open spaces. However, the threat is compounded in Arab countries because of the absence of comprehensive and enforceable plans for development. This circumstances has led to the environmentally destructive and visually irritating growth of concrete buildings, industrial complexes and agricultural projects. The buildings lack a continuation of the architectural heritage of the country, the industrial complexes tend to be too close to the sea or to rivers, and the agricultural projects are artificially maintained through excessive water use, improper tillage, and the application of chemicals.

The health of wildlife populations serves as an important indicator of the well-being of the environment. If inappropriate development destroys wildlife, then it will most likely do the same for human populations. This vital connection is all too often overlooked by decision makers in Arab countries.

### D. The value of wildlife conservation

#### 1. Ethical considerations

In a modern world where science provides a wealth of facts and solutions to specific problems, one must not underestimate the power of religion in providing an ethical basis for conservation, nor should one hesitate to utilize laws derived from it to enhance such activities. Islamic law, or shariah, embodies deeply rooted traditions spread over a vast portion of the earth, including most of the countries of the Near East region. The principles governing water use, which have been developed and applied under conditions of great scarcity, appear to serve well as a basis for the allocation of other resources such as rangelands, woodlands, and wildlife, which are now becoming progressively more scarce. According to Othman Llewellyn, "traditional institutions such as the *hima*, land grants, leases and grants of usufruct, inviolable zones, and charitable endowments can have new and creative applications for the conservation and sustainable utilization of natural resources in protected areas".

Safei Hamed effectively summarizes man's responsibility for the welfare of the earth's natural resources in saying that "the Muslims' attitudes toward their environment follow directly from a belief in God's ownership of the universe on the one hand and in an assigned economic trusteeship of man on the other. Also, a devout Muslim believes that the world was created for man to use, to transform and to enjoy; that every person is the rightful owner of his/her own work, yet his enjoyment of this cultivation and harvesting has to be conditioned by the overall interest of society; and that judging the appropriateness of actions affecting natural resources is not drawn in the light of simplistic formulas and production capacity alone. It is rather drawn in the light of a comprehensive system of facts, human values, and Islamic ethics".

While the debate over economic values as determinants of public policy is still ongoing in the West, it is important to remember that centuries ago Islamic scholars concluded that economic values alone are not an adequate measure of the public good. They believed that spiritual, cultural and ethical considerations must play a role in the decision-making process. The Near East region must measure the need for conservation, utilizing all the parameters available including (but not restricted to) economic values.

#### 2. Economic considerations

According to *Global Biodiversity: Status of the Earth's Living Resources*, a publication compiled by the WCMC in 1992, "a growing literature in applied economics is demonstrating that techniques are available for obtaining concrete estimates of the value of many different facets of the environment, including the more intangible aspects of environmental quality, such as clean water, clean air and better views. These

methods can be applied to biodiversity, but are subject to major limitations and problems of interpretation. One of the major difficulties is that they are based on the premise that value is determined by human willingness to pay. The range of human values can be very broad and consequently difficult to measure".

The above reference goes on to say that the total economic value of an environmental resource may be broken down into a range of use and non-use values. The direct use of ecosystem outputs in non-consumptive, consumptive or productive activities is the impact that is most commonly measured in valuation exercises. Included in direct uses would be the harvesting of wild species for use as food, fuel, shelter or medicine. Other activities such as eco-tourism involve a direct "transaction" between people and biological resources, and fall into this category of direct use values. Some direct uses of biological resources in areas such as commercial logging, agriculture or fishery activities generate products which are exchanged in the market-place, while the products of other activities such as subsistence hunting and gathering go largely unmarketed. In the latter case, although these non-marketed resources have no financial value (cash price in exchange), they do have economic value as they are important to society.

In the Near East region, especially in the Arab countries, the low population level of wildlife species as they exist today does not allow for their exploitation in any consumptive manner—that is, for hunting, trading or ranching. The only economic benefits that can be calculated for their presence must therefore depend on the intangible aspects of environmental quality and the tourist revenues they create for the communities around them. This does not preclude the possibility of consumptive commercial use through the harvesting or culling of excess populations of wildlife in the future through controlled hunting. In fact, the managed hunting of excess gazelles has been successfully implemented in one country of the region and has, over the last few years, generated substantial income for the conservationist groups there.

In the Syrian *badia*, or semi-arid rangelands, each Bedouin family consumes 300 woody shrubs (roots and all) per year to prepare tea and food. More is needed during cold winters for heating. If solar heaters are introduced to reduce the consumption of vegetation, then economists should be able to calculate the benefits of this substitution in financial terms that Governments and donor agencies can appreciate, and therefore implement.

## II. COUNTRY PROFILES

### A. Countries with successful programmes

#### 1. Oman

The Sultanate of Oman, covering an area of 212,450 square kilometres (k<sup>2</sup>), was one of the first countries in the region to embark on a long-term programme to survey its natural resources, especially the flora and fauna, and to publish the results in a systematic fashion. In addition to the *Journal of Oman Studies* a number of well-written and superbly illustrated books have been published that introduce the reader to Omani wildflowers, and to the local birds, butterflies and other wildlife. Booklets for children have also been produced in Arabic and English. Realizing that time is of the essence, the Government has allowed plans for establishing protected areas and reintroducing wildlife species to proceed with an urgency that is uncharacteristic of a region preoccupied with unbridled development. The moving force behind this unique conservation movement has been Sultan Qaboos bin Said. In a region where emulating the leadership is actively practiced, the example set by the Sultan promotes conservation.

Even though interest in conservation initially spread from "up to down" in Oman, it is now showing definite signs of changing to a "down to up" campaign through citizens who support conservation and report

illegal hunting, and through the members of the Omani Consultative Council who discuss issues relating to the environment.

In 1987 a study was completed by the IUCN that reviewed the natural resources of Oman and suggested a system for nature conservation areas (NCAs) that would both provide appropriate designations to different categories of reserves and indicate the type of management appropriate for each. The study also proposed a new legal framework for nature conservation and an administrative framework for running the reserve system.

In 1993 the Ministry of Regional Municipalities and Environment established a new General Directorate of Nature Protectorates that will manage protected areas and wildlife conservation in Oman. The Directorate has a staff of more than 25, and there are plans to increase this number to 512, to be distributed all over Oman. The Ministry has jurisdiction over 43 municipalities, each of which has an environmental officer. It will be their responsibility to oversee wildlife conservation.

The Ras al-Hadd Reserve for the nesting of the green, olive ridley, hawksbill and loggerhead turtles issued permits to 10,000 people in 1993 who wanted to visit and observe the sea turtles. The Oryx Project at Jiddat al-Harasis has actually been upgraded from a "project" to a "nature protectorate" and continues to be off-limits to most visitors. The Wadi Serin Reserve for conservation of the Arabian tahr is one of the more physically inaccessible reserves, and likely to remain so. Few people have actually seen the elusive tahr.

## 2. Saudi Arabia

With an area of 2.2 million km<sup>2</sup>, Saudi Arabia covers the major portion of the Arabian Peninsula and has a remarkably varied and internationally significant biological diversity. This biodiversity is enhanced by the convergence of three terrestrial biogeographic realms providing African, Eurasian, and Indo-Malayan flora and fauna.

The Kingdom of Saudi Arabia has a long tradition of locally established and managed protected areas (*hima*); however, it has no recent history of a national system of reserves to serve its present-day environmental and economic needs. Both here and in most of the other countries of the region, this represents a serious omission in the process of development planning, especially considering that Saudi Arabia has undergone unprecedented economic and industrial development within the span of a single generation.

The three main organizations concerned with conservation and the environment are the National Commission for Wildlife Conservation and Development (NCWCD), the Meteorology and Environmental Protection Agency (MEPA) and the Ministry of Agriculture and Water (MAW).

The NCWCD was established in 1986 with a strong mandate to create and manage protected areas. Although implementation is still in its early phase, eight terrestrial reserves have been established extending over 51,000 km<sup>2</sup>. In the next 10 years Saudi Arabia is planning to complete a comprehensive system of protected areas. As the system evolves it will both benefit the country and greatly contribute to closing a major gap in the world's protected area network.

The King Khaled Wildlife Research Centre in Thumamah is doing excellent work utilizing a small but dedicated foreign staff with assistance from two Saudi Arabian graduate students. The challenge for these

scientists is to determine (through the evaluation of karyotype\*) the species and relationship between the various gazelles in captivity in Saudi Arabia and the Gulf. Once these determinations are made, the gazelles can be released in homogeneous groups.

A 1994 aerial survey of Harrat al-Harra Reserve counted about 1,000 gazelles—mostly Reem, but also a small, indigenous group of Idmi. Seen during the survey as well were a few wolves, Ruppell's and red foxes, hyenas, and 10,000 to 11,000 grazing camels.

The Ministry of Agriculture and Water's General Administration of National Parks is responsible for the management of the Asir, Hassa, Saad and Thumamah national parks. These parks serve primarily as recreational areas for Saudi Arabian citizens, but they also fulfil the important role of conserving the indigenous flora and fauna of the country.

### 3. Jordan

Jordan, covering an area of 89,210 km<sup>2</sup>, has three main regions that lie in a north-south alignment and include a tropical desert in the central Ghor or rift valley, escarpments and mountain highlands east of the Ghor, and desert plains in the Syrian *badia*. Jordan is at the crossroads of several biogeographical regions.

The protection of wildlife is the responsibility of the Forestry and Range Department of the Ministry of Agriculture. The Ministry has delegated the establishment and management of protected areas to an NGO, the Royal Society for the Conservation of Nature (RSCN). The RSCN was established in 1966 to conserve nature and natural resources, and is financed by both government and private donations. It primarily supervises and enforces conservation and hunting laws, establishes protected areas, and reintroduces endangered and locally extinct species to their natural habitats. The RSCN is the largest NGO in Jordan, and through its public awareness division promotes the establishment of wildlife conservation clubs at schools throughout the country; by 1994 it had established over 150 such clubs. It also publishes the quarterly *El-Reem* magazine in Arabic.

The Shomari Reserve near Azraq was the first area in Jordan to be declared "protected" by royal statute. Established in 1965, it is currently home to one of the largest herds of Arabian oryx in the world. The 2,200 ha fenced Reserve has nearly 200 Arabian oryx of all ages as well as a small herd of Reem gazelle. Water and occasional forage is provided to the oryx at one location, and they are randomly captured and checked for diseases and parasites. Their breeding activities are uncontrolled, however, and their numbers pose a threat to the Reserve as well as to the health of the herd. In the past Shomari supplied a few oryx to Oman and Bahrain; the Reserve should continue to provide the Arabian oryx to neighbouring Arab countries, whether through donation or exchange.

Dana Reserve is located in the south of Jordan overlooking Wadi Araba, and is in its first year of implementing a World Bank/Global Environment Facility (GEF) project to conserve natural resources, establish tourist and picnic sites, revitalize the production of the terraced land near the local village, supervise the construction of a research and education centre, and oversee the restoration of the privately owned village houses. It is an ambitious three-year project which, along with the Azraq Oasis Conservation Project, could set the course for future conservation activities in the region.

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\* The number and structure of the chromosomes in the nucleus of a cell obtained from blood samples.

Two species of deer, the roe and persian fallow, both inhabited the oak forests of northern Jordan where the 1,300 ha Zoubia Reserve is located. The roe has already been reintroduced, and the persian fallow will be released as soon as the Research and Survey Section of the RSCN completes its habitat assessment of the Reserve. The team conducting the survey was completely made up of Jordanians, an encouraging indicator of local self-sufficiency.

## B. Countries facing constraints

### 1. Egypt

Egypt has an area of 1,002,270 km<sup>2</sup> and over 52 million people, most of whom live on a narrow strip of land on either side of the Nile and in the fertile Nile Delta. Man has been cultivating the Nile Valley for at least 18,000 years in what has become a man-made ecosystem. This Valley is described by some as the largest desert oasis in the world, yet it still harbours a significant amount of wildlife such as the great waterfowl flocks of the Delta. Egypt's biological diversity is illustrated by up to 2,085 plant species, 431 recorded bird species and 150 land mammals, and the country's coastal lakes and lagoons represent 25 per cent of the total Mediterranean wetlands. Since the construction of the Aswan Dam, additional lake habitats have been created. An extremely rich ecosystem exists in and around the Red Sea, and includes coral formations, mangrove stands and many Afro-tropical fauna and flora.

In 1979, the Egyptian Wildlife Service (EWS) was established under the authority of the Ministry of Agriculture and was given the responsibility of managing natural protectorates and wildlife research. In 1982, however, the Egyptian Environmental Affairs Agency (EEAA) was created and is now the main administrative body responsible for the enforcement of environmental protection and conservation. This came about because Egypt recognized that resource-based tourism (eco-tourism) was essential to its economic development. The Department for Protected Area Projects of the EEAA is the coordinating and regulatory body representing the Government in projects such as the Ras Mohammed National Park. Currently being put into effect is a management plan for Ras Mohammed that was prepared with technical aid from the European Union. It is important to note that most of the developers around the Ras Mohammed area now realize that the future success of their hotels and resorts is largely dependent on the sun, the beaches and the health of the marine ecosystem. These investors are keen to conserve their world-famous area and to keep the tourists coming.

Considering both the importance of creating environmental awareness and the fact that over 6 million people visit the Giza Zoo each year, serious consideration should be given to upgrading this unique area in the heart of Cairo from a nineteenth-century "zoo" to a twenty-first century "bio-park". For the past 100 years the Giza Zoo has served both the people of Egypt and visitors from Arab and African countries through its 80 acres of animal exhibits. Unfortunately, during the past 40 years or so it has suffered from financial hardships, and the animals and structures all show the signs of forced neglect. The lack of concern for the future of this once well-run zoo is a reflection of the population's general lack of interest in conserving the environment. It is therefore an excellent place to begin exhibiting the plants and animals that clearly show the interrelatedness between man and his environment. Public awareness and eco-tourism can work together both to enlighten and to please.

### 2. Syrian Arab Republic

The Syrian Arab Republic has an area of 185,680 km<sup>2</sup> and is made up of three biogeographic regions: the coast along the Mediterranean Sea, the sub-steppe or fertile crescent, and the steppe or semi-arid *badia*.

The Ministry of Agriculture through its Forestry Department is responsible for the protected areas; these consist of State forest protection zones, green belts, enclosed rangelands, and protected public waters. The main areas include the following:

- (a) Troja (Um al-Tuyour), a land and marine park near Lattakia;
- (b) Slonfa, containing cedar and fir trees;
- (c) Furunluck;
- (d) Tuleilah (near Palmyra), containing range flora and gazelle;
- (e) Lake Assad, a 600 ha island;
- (f) Jebal Abdulaziz, a 4,000 ha forest;
- (g) Belaas, Abu-Rahmain, Al-Bustan and others.

None of these areas is managed according to the standards required for a protected area, owing to the lack of financial resources to establish a park or reserve and the absence of qualified rangers and staff to manage the resources and facilities. The few employees of the Ministry of Environment and the Ministry of Agriculture who are responsible for wildlife and protected areas do not know where to go for technical help, and depend instead on "self-education" to learn more. There is a need for a national or regional training centre to prepare rangers for conservation work.

The harm done to wildlife conservation by professional bird hunters, who shoot more than 500 small birds per day, is often overlooked. Their impact on the bird population is equal to the harvest of the thousands of amateur hunters who kill 10 to 15 birds each per outing. The birds that they shoot are primarily shrikes (*asfour al-teen*), which are collected by dealers who specialize in exporting them to nearby countries. In addition to the hunters there are bird trappers who can bag upwards of 600 larks (*matwak*) per night by shining projector lights on the resting migrants and then throwing nets over them. The birds are usually put into windowless rooms for holding, and many suffocate on top of one another; those that remain alive are sold to dealers. Live birds are also sold in the old souk (or market-place) in Damascus—mostly partridge, sandgrouse, doves, hoopoe, bulbul and goldfinch. The outlawing of these activities and the implementation of the five-year moratorium declared by the Minister of Agriculture are strongly recommended.

Between 1905 and 1926 a unique collection of African and Indian wildlife trophies were collected by Husain Beik Ibish of the Syrian Arab Republic and Prince Yusef Kamal of Egypt during their hunting safaris. The collection was once housed in what constituted a private museum, which was open to the public. At present the 1,200 mounted heads and skins are rapidly deteriorating in a damp, dark room in the old Ibish home in Damascus. They require proper restoration, measurement, accurate classification and cataloguing before they are destroyed by time and moisture.

### 3. Lebanon

Lebanon is one of the smallest countries in the region, with a total area of 10,450 km<sup>2</sup>. The country consists of a narrow coastal strip that is 225 km long, a high mountain range running parallel to the coast, the trough-like Bekaa Valley, and the Anti-Lebanon mountain range forming much of the border with the Syrian Arab Republic. The mountain slopes are largely barren, with only scattered surviving remnants of the once extensive stands of cedar, fir and juniper renowned in biblical accounts. The total remaining forest cover is 76,950 ha, largely comprising scrub and degraded woodland, with only 300 ha of closed cedar forest.

In the hill country near Beirut, the privately owned slopes were successfully planted with a tall elegant tree, the stone pine *Pinus pinea*, from 1860 onwards. Edible pine seeds are extracted from the pine cones

each year, while the spent cones and pruned branches provide a much-needed source of fuel for the mountain villagers. Although the pressures of development, the ravages of war, and the unenforceability of forest protection laws have taken their toll, the sweet scent and cool shade of these man-made pine forests once attracted tourists, Lebanese and foreigners alike, to the mountains each summer in search of respite from the heat of the desert, the humidity of the coastal areas and the noxious fumes of the city. They were an excellent example of sustainable development which gave rise to eco-tourism that benefited local inhabitants.

Recommendations have been put forth by the Government and by NGOs, foremost among them the Society for the Protection of Nature in Lebanon (SPNL) and the Friends of Nature (FON), to set up a series of protected areas in the country. The sites recommended include the Palm Islands off the shores of Tripoli; Horsh Ehdin, a mountain forest ecosystem of cedar and fir in the north; the Barouk, Ain-Zahalta and Maasir cedar forests in the Shouf mountains (which would form the largest protected area in Lebanon); Bentaël Park; Wadi Jahanam; the Kammoua, Dhunniye, Bsharre, Tannourin, and Jaj cedar forests; Tyre Sandy Beach; and the remnant marshlands of Ammik in the Litani River Valley. Ammik is of international importance, as it is the only wetlands of its type in Lebanon and is also one of the principal bird migration routes in the Near East. Along with the rest of Lebanon it continues to be under threat from the widespread indiscriminate and uncontrolled shooting of all migratory birds; estimates indicate that between 15 million and 20 million birds are shot by Lebanese hunters each year. In 1994 a hunting moratorium was imposed by the Government for the entire country and was praised by conservationists worldwide.

A project proposal entitled "Lebanon: protected areas for sustainable development" was recently prepared by IUCN and UNDP/GEF for the establishment of three demonstration protected areas in Lebanon. In addition to conserving biodiversity, the project would serve to hasten reconciliation among the Lebanese, after 17 years of civil war, by bringing people together from all over the country and involving them in a common cause.

### **III. EFFORTS TO SAVE, STABILIZE AND INCREASE WILDLIFE POPULATIONS**

#### **A. Short-term activities to save wildlife species**

##### **1. Protected areas: allocation**

There is a general lack of awareness among many Governments in the region of the importance of wildlife conservation and the need to allocate protected areas. Some countries have identified the most important centres of biodiversity and have proceeded with the allocation and establishment of parks and reserves. However, information gaps still exist, and comprehensive field surveys are needed to collect baseline ecological data to correctly identify additional habitat types that require protection.

It is significant to note that many conservation agencies in the West insist on preparing feasibility studies based on selection criteria prior to moving ahead with the allocation of areas for protection. Wise as that may be for them, it is not the most effective course in the Near East region. If Arab Governments and conservationists do not move fast, there is a strong possibility that most of the potential areas could go to developers who might unwittingly destroy the flora and/or fauna that needs to be conserved. It would be wiser to earmark these potential areas for protection first; once this was done, the authorities could proceed with all the required detailed studies establishing the appropriate management category, and classify the area accordingly; otherwise, the area could be released to development.

## 2. Public awareness

The importance of embarking on a conservation awareness campaign in every Arab country needs to be stressed again and again. If humanity robs the landscape of its remaining plants and animals, it is safe to predict that people will lose their only source of clean air, pure water and edible food. The issue is really very straightforward, and must be explained to everyone in a language and style they can understand and remember.

As mentioned before, in the light of the need for increased environmental awareness, serious consideration should be given to upgrading the unique and extremely popular Giza Zoo to a modern "bio-park". Its long history and its 80 acres of animal exhibits make it the ideal place to illustrate the interrelatedness of plants and animals, and hence between man and his environment; every effort should therefore be made to restore this landmark in a manner reflecting present concerns.

## 3. Existing legislation

In most Arab countries laws for the protection of wildlife exist but are not implemented. Many of the parks and reserves are protected in name only, with hunters and grazing animals encroaching on areas that are legally protected.

There is a need to implement existing laws through the ministries of interior and police departments, to train security officers to recognize environmental abuse, to provide immigration officers with charts of illegal wildlife, and to join the Convention on International Trade in Endangered Species (CITES).

## 4. Captive breeding centres

The increase in the number of captive bred animals has become a serious problem because the reintroduction of these animals into the larger protected areas has not kept pace with their ability to reproduce.

The Arabian oryx in Shomari (Jordan) and the Reem and Idmi gazelles in Thumamah (Saudi Arabia) need more outlets for reintroduction. The release of the Arabian oryx in Jiddat al-Harasis (Oman), and the oryx and gazelle in Hawta, Harrat al-Harra and Mahazat Assaid (Saudi Arabia) are good examples of the type and scale of reintroduction that are desperately needed throughout the region.

## 5. National cooperation

Conservationists tend to monopolize certain disciplines and/or activities within their country, and take offence when others promote or discuss the matter. This type of competition or rivalry is harmful to the growth of conservation in Arab countries. Such behaviour can be readily observed between government ministries and agencies that are entrusted with overseeing different aspects of the environment and its conservation, between NGOs that compete for recognition and financing, and between individuals who see themselves as the only reliable source of information on wildlife, protected areas, pollution, and environmental education. The harm that rivalry does to a country can be immense. The solution requires a positive attitude, professional maturity and better communication among the members of the conservation community.

Compiling a directory of Arab conservationists is an essential first step in overcoming the obstacles to better communication. Many conservationists in the region do not know of each other, even though they may live and work in the same country. The names, addresses, telephone and fax numbers, and activities



of all the important players in the field of wildlife conservation must be made available to facilitate increased cooperation and coordination.

## B. Medium-term strategies to stabilize wildlife populations

### 1. Protected areas: management plans

Management plans are strategies that guide the management of all protected areas, regardless of size. These plans determine how the resources are managed, how the area is used, and how the necessary facilities are developed to support this management and use. Central to such a plan is a statement of goals and measurable objectives that form the framework for determining what actions to take, when to take them, and the budget and personnel needed to implement them. Management plans will need to be published in both Arabic and English, and a brief executive summary of the plan must be drawn up for the general public, decision makers and potential funding sources.

The preparation of the plans just described is the responsibility of the parks themselves or the protected area management and staff. Supporting them would be scientists from local or regional universities who would conduct field studies that would provide accurate biological information to answer some or all the following questions:

- (a) What plants, animals and other natural resources are present?
- (b) What are the numbers and distribution of each species present?
- (c) Who eats what, competes with what, and depends on what?
- (d) What are the requirements of the species of special management value?
- (e) What sort of colonization, succession and invasion of species exists?
- (f) Are the natural processes of change contrary to the management objective(s)?
- (g) How will the park affect the local economy and society?
- (h) How do hunting, cutting and grazing affect the ecology?

A number of Arab countries are compiling inventories of species within their protected areas and in the country as a whole; if properly stored, the results of this research will add to the database of information available to managers, conservationists and funding agencies. Unfortunately, few mechanisms exist for making sure that scientific findings are disseminated to help identify other valuable habitats, or are fed back to management to allow the results to be integrated into management plans for protected areas. These problems are primarily caused by the lack of communication between government institutions, management agencies and scientists.

### 2. Training courses

The present level of training provided to people directly employed in protected areas throughout the region is inadequate. A major goal for every country should be to train a sufficient number of qualified staff each year to manage the protected areas. In Saudi Arabia the NCWCD holds annual training sessions lasting two or three weeks for its rangers. Both theory and fieldwork are offered to the participants, who are encouraged to suggest solutions to problems.

The urgent need for more training courses in Arab countries was unanimously endorsed by all the participants of the Regional Forum of North Africa/Middle East Technical Experts convened by the IUCN Commission on National Parks and Protected Areas (CNPPA) Working Session at Etna Regional Park in Sicily in October 1992.

The following recommendations for the design of an effective training programme were presented to the above-mentioned Forum by the working group of Dean, Sagi, Fawaz, Dikyar and Evans:

- (a) Determine specific needs and tailor the training courses to those needs, bearing in mind the limitations of the staff;
- (b) Include all levels of staff in training activities, with emphasis on recruiting and training local people to work in the protected areas;
- (c) Involve scientists from local universities, as well as experienced protected area managers from the region in the programme;
- (d) Follow up with on-site evaluations to determine the effectiveness of the training courses and the need for change;
- (e) Provide moral and financial incentives for participants of the training courses so that they can take pride in who they are.

The IUCN members from the region at the meeting in Sicily also recommended that the IUCN should approach a number of agencies and institutions around the world with protected area training capabilities to organize appropriate training courses and workshops for the region. These workshops would be designed to upgrade the skills of protected area managers, staff, researchers and government officials. The course work would cover basic principles of wildland management, management according to the objectives for sustainable development, the human factor, administration and the financial management of protected areas.

The need to develop a regional conservation training centre in one of the Arab countries has been under discussion for a number of years. Jordan, Saudi Arabia and Egypt have taken steps towards establishing such a training centre, but no final decisions have yet been made. The arguments for locating the centre in Jordan are the most persuasive, considering the facilities and staff already in place to conduct this type of a training course. The relative ease with which Arab nationals may enter Jordan and its central location in the region adds to its appeal.

### 3. Local involvement

The Third World Congress on National Parks held in Bali, Indonesia in October 1982 gave particular attention to the relationship between protected areas and human needs, demonstrating that protected areas are not only of aesthetic significance but are also vital to sustainable forms of development.

The establishment of protected areas for wildlife is often in direct conflict with the economic interests of local communities; many are denied access to a resource that they have traditionally exploited. In some regions of the world the situation has deteriorated in recent years, with rising rural populations and increased poverty. Several programmes have attempted to counteract this trend by diverting some of the revenue generated by the sustainable management of wildlife populations into the hands of the communities where these populations are concentrated. These programmes are mostly in Africa and South America, where wildlife populations are still large enough to allow sustainable use.

The traditional custodial approach, whereby the beneficiaries of a natural resource are also its guardians, no longer functions to protect that resource. The reasons for this are the increasing numbers of humans, the greater mobility of these populations and their livestock, and the changing socio-political environments.

The most effective way of increasing local participation is to develop local organizations such as NGOs, to awaken the interest of local people through activities that would highlight the natural resource(s) in their area, and the means of protecting, enjoying and benefiting from it/them; this is integrated resource-use planning.

#### 4. Availability of information

The scope and availability of information on wildlife conservation and the descriptions of protected areas vary from one country to another. In the six countries visited by the ESCWA mission, the descending order of availability of such information was as follows: Oman, Saudi Arabia, Jordan, Egypt, Lebanon and the Syrian Arab Republic.

*The Protected Areas of the World* (volume 2: Palaearctic) (IUCN, 1991) was compiled by the WCMC in collaboration with the IUCN-CNPPA. A uniform format was used throughout, starting with area, continuing through policy and legislation, international activities, administration and management, systems reviews, other relevant information, addresses and references, and ending with an annex of protected area designations, as legislated, together with a list of the authorities responsible for their administration. This format allows the reader to go through the document, country by country, comparing and contrasting, without getting too bogged down in papers and reports. The list of references is comprehensive for anyone requiring more detailed information.

A new edition of *The Protected Areas of the World* that reviews the information on Arab countries and brings them up to date needs to be prepared by the WCMC. The absence of editorial inputs from Arab countries is evident; they should play a more active role in the preparation and financing of this important publication.

The International Council for Bird Preservation (ICBP), in cooperation with the Ornithological Society of the Middle East (OSME), initiated a project called the Important Bird Areas (IBAs) in the Middle East. The aims were to identify all sites of regional importance to wild bird populations, and to produce a book by early 1994 which summarized key information for the conservation of these sites. The book has just been published and should be distributed widely and used as a guide by conservation, planning and land-use agencies. Since the project started in October 1991, participants have compiled data on 85 sites out of the estimated total of about 450 IBAs that exist in the region. The IBAs are being identified and chosen as objectively as possible for (a) species threatened with global extinction, and there are 23 of those species in the Middle East, and (b) species which congregate in large numbers at one place—such as seabirds and waterfowl—and are therefore vulnerable to any site destruction.

There is a pressing need to establish and expand existing biodiversity databases in all Arab countries. The tremendous power and versatility of personal computers and the software developed to meet the needs of wildlife conservationists have been a great boost to scientists everywhere. However, the tendency among visiting scientists to use protected areas in Arab countries as a laboratory and then leave and publish their papers outside the host country is a sore point with many conservation organizations. This has led to stricter control by Arab Governments and organizations of the use of data collected in their country.

#### 5. Regional cooperation

Local and regional experts should be utilized for project implementation, thereby minimizing the unfortunate practice of hiring large numbers of foreign experts, managers and consultants where local and/or regional expertise exists. The foreign experts' long-term presence, high salaries and lack of ability to communicate in Arabic to local staff and rural inhabitants foster a palpable resentment towards them.

The region must acknowledge the existence of the growing number of its own educated young men and women who are capable and willing to undertake wildlife conservation work. The absence of a directory of Arab conservationists allows this unfortunate practice to continue.

Some effective ways to activate regional cooperation include the following:

- (a) Establish regional training centre(s);
- (b) Study wildlife projects in Oman, Saudi Arabia and Jordan;
- (c) Create more trans-boundary reserves;
- (d) Exchange captive bred animals with other Arab countries.

### C. Long-term policies to increase wildlife distribution

#### 1. Reintroduction

The reintroduction of the Arabian oryx to Oman was the first large-scale project of its kind in the Arab region. In anticipation of their extinction in the wild, "Operation Oryx" was organized in the 1960s by a group of international wildlife organizations to capture some of the remaining wild oryx in Arabia and send them to the United States to establish a captive breeding herd. The capture effort did not go well, and it was gifts from neighbouring Arab countries that gave the organizers enough animals to send to the Phoenix Zoo in Arizona. One of the aims of that rescue operation was to re-establish a free living herd in the deserts of central Oman, and by 1980 the oryx had bred so well in captivity in the United States that preparations were made to bring some of them back to their native land. It was in Oman that the last wild herd of oryx was eliminated from Arabia in 1972. The site that was chosen for their reintroduction was a distinct ecological unit of about 25,000 km<sup>2</sup> on the eastern side of the Jiddat al-Harasis. In 1980, 1981 and 1983 a total of 17 oryx were made available from the United States, and in 1984 one young male was donated by the RSCN 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 captive bred oryx can make the necessary physical, physiological, behavioural 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 to 15 per cent per annum may be attainable, according to Mark Stanley-Price. The latest estimate at the beginning of 1994 puts the number of Arabian oryx living free in Oman at over 160, with the vast majority of them having been born in the wild.

Reintroductions of gazelles at Hawta and Harrat al-Harra in Saudi Arabia, as well as the release of oryx into large fenced areas at Mahazat Assaid in Saudi Arabia and Shomari in Jordan, have also taken place.

#### 2. Non-protected areas

The protection of natural resources and open landscapes in the face of overwhelming development pressures is a very difficult task. However, that should not stop conservationists from adopting innovative methods aimed at finding ways to integrate development with the needs of nature and presenting their positions in a language that planners and developers understand. Once this hurdle is overcome, Arab countries will not have to restrict their options for reintroduction to protected areas, but could look to reintroducing wildlife populations throughout the country. In doing so, they would be joining the ranks of the developed nations, which, having degraded their landscapes, realized the need to conserve what remained.

### 3. Eco-tourism

Eco-tourism, or nature tourism, is an important component of the tourism industry and the one most likely to create revenues that could be of economic significance to local and rural economies. However, a concerted publicity campaign will be required to inform national tourist organizations, local and international hotel chains and airline offices about the wildlife reserves and scenic spots that are open to visitors. At the same time, arrangements should be made to facilitate transportation and accommodations for tourists wishing to visit these nature sites. It may prove both necessary and convenient to combine nature stops with tours of the more popular historical and archaeological sites.

The development of tourist facilities in south Sinai is proceeding at an unprecedented pace. Sharm al-Sheikh is only 4 1/2 hours from most European cities, and the area provides tourists with vacations that combine sun, desert, beach and diving. Since 1992 the Ras Mohammed National Park and the protected areas of Nabq and Abu Ghalum have comprised the Ras Mohammed National Park Sector. The staff of the Park regularly inspect developed sites and have initiated working partnerships with investors and hotel and resort managers in the area. Investors no longer proceed with shoreline developments unilaterally; the health of wildlife is their profit.

Even though there is a growing commitment among the Arab countries of the region to support conservation of the environment, and thereby promote eco-tourism, their financial outlays for parks and protected areas have not been adequate by any measure. The financial involvement of the private sector in protected areas has also been very limited. This is due to the fact that most of the land in the region is effectively owned and managed by the State. This leaves little room for private organizations to own and manage protected areas in a way that would conserve wildlife and habitats. There are isolated examples of individual interest in establishing protected areas in Saudi Arabia, Kuwait and Lebanon; however, it remains a risky and expensive investment for the private sector—one that requires assurances of a reliable source of income from its wildlife conservation/eco-tourism investment.

### 4. Sustainable policies

To incorporate conservation activities into national sustainable development requires the activation of a political will that can transcend the boundaries of government bureaucracy and give the conservation of nature the priority it deserves and the funding it requires. The formulation of such a political will could become a reality when the Governments of the region correlate conservation of wildlife with sustainable human development. The emergence of national plans of action or national conservation strategies are indicators of that trend.

One effective way of integrating biodiversity in national planning is to legislate that no development project should be implemented unless a proper environmental impact assessment is first carried out. In addition, there continues to be an urgent need for re-evaluating all development plans, past and present, in the light of emerging conservation needs—water resources being the most critical—and stressing to all concerned the enormous costs that will be incurred if conservation of the environment is not integrated into national development. Once Governments modify their national income accounting system to reflect true economic loss, and improve their institutional framework and legislation, then the movement towards sustainable policies will gain ground.

### 5. International cooperation

Although many countries of the region have signed relevant international treaties (Ramsar, World Heritage Convention, Barcelona Convention and Bonn Convention), this has not led to a corresponding

coordination of regional conservation activities, except in the Barcelona Protocol on Specially Protected Areas and the Red Sea and Gulf of Aden Pollution Action Plan. Some countries have strong links with international agencies, and this has resulted in marine protection projects that involve the Syrian Arab Republic, Egypt, Turkey and Saudi Arabia. A preliminary trans-frontier initiative exists at Gebel Elba between Egypt and Sudan. Political instability has delayed implementation, however.

Funds generated by international organizations such as UNDP, FAO, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP), the World Bank, the IUCN, the World Wildlife Fund (WWF), and the ICBP have not played a major role in aiding protected areas—except in the case of the Global Environment Facility's US\$ 6.3 million support of the Azraq Conservation Project and the Dana Reserve Project in Jordan. These two projects are in the first year of implementation and, if successful, could give a much-needed boost to the international funding of integrated conservation projects.

International agencies can play a much larger role in supporting protected areas by sharing their expertise and providing financing to the countries concerned. In some countries which have had their debts rescheduled, notably Egypt and Morocco, debt-for-nature or debt-for-development conversions are theoretically possible. However, no country in the region has so far attempted to benefit from this type of transaction.

#### IV. CONCLUSIONS AND RECOMMENDATIONS

##### A. Adopt a systems perspective

###### 1. Key point

A single-discipline approach cannot solve the wildlife conservation problems of the Near East region. There is a pressing need to ask a broader set of questions and adopt an integrated approach to problem-solving: a systems perspective.

###### 2. Action

(a) Study and implement the FAO 1994 "A systems perspective for sustainable dryland development in the Near East region";

(b) Distribute responsibility for the conservation of nature and natural resources among all sections and sectors of Government; restricting conservation activities to one ministry/department or NGO will limit its effectiveness;

(c) Support the preparation of national environmental action plans that incorporate environmental conservation as an integral part of each public and private institution;

(d) Utilize the national conservation strategies of Oman and Jordan as references and guides for similar action plans and strategies developed for other countries in the region.

## B. Improve agricultural practices

### 1. Key point

Unsuitable agricultural practices in the region are seriously affecting the environment: water resources are being wasted, living species are being poisoned, and 407 million goats and sheep, 78 million head of cattle and 14 million camels are being allowed to destroy prime rangelands and are increasing grazing pressure on the remaining marginal drylands, thereby promoting desertification.

### 2. Action

(a) Stop wasteful water use in agricultural, industrial and housing projects as part of the larger conservation effort;

(b) Halt the use of harmful insecticides, herbicides and fungicides that poison the land, water and food. Outlaw the importation of certain pesticides whose use is prohibited in the country of manufacture;

(c) Adopt the integrated pest management (IPM) techniques now widely used to control insects and diseases in agriculture;

(d) Investigate the destruction caused by improper land cultivation, and encourage the notion that technology exists to assist nature—not to conquer it;

(e) Encourage the increased use of cereal products and discourage the excessive consumption of meat and animal products;

(f) Discontinue support for livestock projects that are unsustainable and destructive to the environment;

(g) Enforce laws prohibiting grazing in forests and protected areas unless grazing is controlled and part of a management plan;

(h) Focus on pastoralists as agents of conservation by encouraging and training them to benefit from their wildlife resources without destroying them. As participants they can make the difference between the success or failure of most conservation projects;

(i) Appeal to princes and tribal leaders to reduce their grazing herds in favour of intensive livestock husbandry and/or the introduction of wildlife ranching projects with gazelles.

## C. Increase the number of protected areas/reserves

### 1. Key point

The region lacks a representative system of protected areas for conserving indigenous species of flora and fauna, and for reintroducing animals from captive breeding centres.

### 2. Action

(a) Establish more protected areas to conserve indigenous wildlife;

(b) Conduct comprehensive field surveys to collect basic data, without which management plans cannot be prepared;

(c) Visit Oman, Saudi Arabia and Jordan and study their established parks and reserves;

(d) Encourage Egypt, the Syrian Arab Republic and Lebanon to regulate hunting, control development, and support local NGOs around protected areas;

(e) Employ more flexible concepts for protected area management, including those that integrate conservation, traditional land use and development. Rigid plans that contain excessive restrictions and prohibitions should be avoided;

(f) Conserve areas outside protected areas in each country through appropriate zoning to discourage the over-exploitation of certain sensitive areas;

(g) Refrain from using protected areas for military exercises which harm the environment; where such activities are inevitable, appropriate safeguards should be adopted to protect the natural resources.

#### D. Promote public awareness

##### 1. Key point

There is very little public understanding of the connection between wildlife conservation and human welfare; as a result, there is no broad-based political will to support enabling legislation or to increase budgetary resources for conservation.

##### 2. Action

(a) Strengthen national and regional environmental awareness campaigns;

(b) Reach people and influence their understanding of wildlife conservation through the media of radio and television; otherwise, most citizens will continue to look upon conservation as a costly luxury. When people understand that their future is threatened, they will influence their Governments to give nature conservation priority and funding;

(c) Enact enabling legislation and provide more budgetary resources to conserve wildlife species and their habitats, expose threatening environmental problems, and find solutions;

(d) Assign high priority to programmes that change the attitude of people towards the environment;

(e) Encourage Governments and NGOs to collaborate and share the responsibility for promoting wildlife conservation as one of the foundation blocks of sustainable development in arid lands.

#### E. Implement existing legislation

##### 1. Key point

In most Arab countries the existing laws for the protection of wildlife are not implemented. Hunting, grazing and wood-gathering restrictions, whether inside and outside protected areas, are routinely ignored. Most parks are protected in name only.



2. Action

- (a) Implement existing laws through the ministries of interior, police departments or security forces;
- (b) Update hunting regulations in all Arab countries to accommodate the needs of both the wildlife species and their human hunters;
- (c) Support and encourage both the Syrian Arab Republic and Lebanon in their efforts to implement a five-year hunting moratorium beginning in 1995;
- (d) Train security officers to recognize illegal activities that result in the abuse of the environment;
- (e) Provide immigration officers with charts of birds, mammals and plants that are illegal to harvest, transport or trade;
- (f) Join the Convention on International Trade in Endangered Species for more international support in the effort to curb illegal trade in wildlife.

F. Prepare a directory of Arab conservationists

1. Key point

The lack of cooperation between government officials, wildlife researchers and the staff of conservation organizations is largely due to a lack of communication; this has seriously undermined efforts directed towards the conservation of wildlife in the region. Arab conservationists simply do not know who their colleagues are in the region, nor do they know anything about the work that these individuals are doing.

2. Action

- (a) Prepare a directory of Arab conservationists that contains the names, addresses, telephones and fax numbers, e-mail addresses, and activities of the important Arab players in wildlife conservation—those living both inside and outside the region;
- (b) Reduce unproductive rivalry among conservationists who tend to monopolize certain disciplines and/or activities. This rivalry can be seen between government ministries and agencies that are entrusted with the environment and its conservation, between NGOs that compete for recognition and financing, and between individuals who see themselves as the only reliable source of information on wildlife;
- (c) Publish the directory of Arab conservationists in Arabic and English, and distribute it to all the individuals listed therein, as well as to all government ministries, NGOs, universities, United Nations organizations, and embassies in each of the Arab countries.

G. Hire qualified Arab experts

1. Key point

The lack of confidence in and information about qualified Arab conservationists, coupled with the low salaries paid, has resulted in a regional brain drain.

## 2. Action

(a) Hire Arab experts who are qualified, who know the area, and who speak the language to implement local and regional projects. Not everyone in the region speaks a foreign language, and the absence of communication between foreign experts and local staff is a waste of time and money—a net loss to the conservation effort;

(b) Hire generalists with a broad spectrum of experience in preference to specialists with narrow expertise;

(c) Hire fewer foreign experts, managers and consultants, except where absolutely necessary;

(d) Hire staff from the growing number of young men and women who are capable and willing to undertake wildlife conservation work, and allow these younger professionals to exercise a greater influence over the growth of conservation in their countries;

(e) Finance the participation of more national staff members in international activities and meetings that improve global networking and cooperation;

(f) Introduce qualified Arab men and women to recruiters from regional and international agencies;

(g) Refer to the directory of Arab conservationists for locating qualified individuals.

### H. Establish a regional conservation training centre

#### 1. Key point

Arab countries need a regional training centre to upgrade the skills of park rangers, scientists and government officials in nature conservation and wildlife management.

#### 2. Action

(a) Review the steps already taken by Jordan, Saudi Arabia and Egypt towards establishing such a conservation training centre, as well as the facilities and staff that they can allocate to it;

(b) Benefit from the experience of the NCWCD in Saudi Arabia, which hosted a regional training workshop in collaboration with UNESCO in 1993. Other sponsors of the workshop included the Saudi Arabian National Council for Education, Culture and Science, the Gulf Cooperation Council (GCC), and the Arab Bureau for Education;

(c) Consider the arguments for locating the centre in Jordan, which has the facilities and staff of the RSCN to conduct training courses. The ease with which Arab nationals may enter Jordan and its central geographic location are assets that make it a good host for a regional training centre.

### I. Expand and upgrade eco-tourism

#### 1. Key point

Nature tourism is an important component of the tourism industry, and the one most likely to create revenues that could be of economic significance to local and rural economies.

## 2. Action

- (a) Inform national tourist organizations, airlines and hotels about wildlife reserves and scenic spots that are open to visitors;
- (b) Facilitate transportation and accommodations for tourists visiting these sites, and train private tour guides to recognize local flora and fauna;
- (c) Combine historical and archaeological tours with stopovers at nature parks and reserves;
- (d) Visit Ras Mohammad National Park in Sinai (Egypt) and learn from the lessons of that tourist area on the Red Sea;
- (e) Transform the Giza Zoo in Cairo into an effective eco-tourist site that combines tourism with environmental education.

## J. Support international conservation organizations

### 1. Key point

Arab countries should support international wildlife conservation organizations such as the IUCN, the WCMC and BirdLife International—even though there are no qualified Arab conservationists represented on the staff of these organizations.

### 2. Action

- (a) Initiate the annual allocation of funds to support the work of the IUCN, the WCMC, BirdLife International and other conservation organizations around the world;
- (b) Promote the appointment of qualified Arab staff at the headquarters of these important centres. The absence of qualified Arab staff, trainees and researchers is very obvious and is a costly omission for Arab countries. Arab countries need to be seen and heard in the corridors of international conservation organizations. Their inputs are essential for balanced publications that define them and their activities to the world;
- (c) Translate into Arabic the North Africa and Middle East section of the IUCN/WCMC *Protected Areas of the World* and BirdLife International's *Important Bird Areas of the Middle East 1994*. Copies should be made available to all individuals involved with protected areas, to universities, and to libraries in the region;
- (d) Commission WCMC to prepare computerized country profiles to expand the database of information in each Arab country and bring it up to date in the presentation of pertinent information;
- (e) Establish regional offices of the IUCN, the WCMC, and Birdlife International within North Africa and the Middle East in order to help the region move towards closer cooperation in conservation activities and to guide subsequent regional programmes.

## K. Reduce the captive breeding of wildlife

### 1. Key point

The dramatic increase of the oryx and the gazelle in captive breeding centres is causing serious overcrowding, excessive inbreeding, and increased susceptibility to disease.

### 2. Action

Revise the management plans of wildlife breeding centres to allow for a controlled rate of reproduction in line with plans for reintroduction. The Arabian oryx at Shomari in Jordan and the Reem and Idmi gazelles at Thumamah in Saudi Arabia have already exceeded the optimum holding capacity of these reserves.

## L. Donate and exchange captive bred animals

### 1. Key point

The donation and exchange of animals are essential to avoid excessive inbreeding, to increase the genetic distribution, and to improve regional cooperation in the field of wildlife conservation.

### 2. Action

(a) Distribute the Arabian oryx from Shomari in Jordan to properly managed protected areas in other countries of the region. The Syrian Arab Republic has already requested the transfer of oryx from Jordan;

(b) Distribute the Reem and Idmi gazelles from Thumamah in Saudi Arabia to protected reserves in the region. The gazelles bred in Thumamah have been genetically selected to breed true to type, that is, hybrid elements have been eliminated from the herds.

Annex

**MISSION REPORT**

**INSTITUTIONS AND INDIVIDUALS CONTACTED DURING THE MISSION  
29 MAY to 29 JULY 1994**

**UNITED KINGDOM**

31 May:

**BirdLife International**

Mr. Richard Porter, Middle East Representative

Mr. Mike Evans, Middle East Representative

Mr. John Fanshawe, Development Programme Manager

1 and 2 June:

**World Conservation Monitoring Centre**

Dr. Mark Collins, Director

Mr. Donald Gordon, Protected Areas

Mr. Ian Barnes, GIS Officer

**ITALY**

6 to 9 June:

**Food and Agriculture Organization of the United Nations (FAO), Rome**

Mr. Christian de Greling, Wildlife and Protected Areas Management Officer

Mr. El-Hadji Sene, Chief, Forest Conservation and Wildlands Branch

Mr. Ahmed Chikhaoui, Chief, Near East and Europe Desk

Dr. Samir Badawi, Chief, West Africa, Latin America/Caribbean Desk

**EGYPT**

11 June:

**Wildlife Consultants**

Mr. Sherif Baha El Din and Mrs. Mindy Baha El Din

12 June:

**Giza Zoological Gardens**

Dr. Mohammed Habshi Ali, Director

**Egyptian Wildlife Service**

Dr. Mervat Gayyed, Director

13 June:

**FAO Representation, Egypt (P.O. Box 100, Dokki, Egypt)**

Dr. Khalil Choueri, Representative

Mr. Abdulla Tahir Bin Yehia, Programme Officer

**FAO Near East Regional Office (RNEA)**

Mr. Nour-Eddine Gaddes, Range Management/Fodder Production Officer

Dr. Antoine Kharrat, Agricultural Education, Training and Extension

14 June:

**Cairo University, Faculty of Science**

Dr. Kamal-eldin Hasan Al-Batanouny

**Friends of Trees**

Mrs. Asma El Halwagy

15 June:

**Egyptian Environmental Affairs Agency (EEAA)**

Dr. Esam Elbadry, Director of Natural Protectorates Department

General Ahmad Shehata, EEAA Officer

Dr. Michael Pearce, Director of Ras Mohammed National Park

**SULTANATE OF OMAN**

18 June:

**Oman Natural History Museum**

Mr. Michael Gallagher, Curator

19 June:

**Ministry of Regional Municipalities and Environment**

Mr. Ali Al-Kiyumi, Deputy Director General of Nature Protectorates

Dr. Mehdi Ahmed Jaafar, Director General of Public Relations and Guidance

Mr. Ahmad bin Ali Al-Sharyan, Director General of Environmental Affairs

**Office of the Advisor on the Environment, Diwan Affairs**

Dr. Ian McLeish, Assistant Director

20 June:

**Ministry of Regional Municipalities and Environment**

Dr. Sadiq Al-Muscatti, Director General of Nature Protectorates

Mr. David Insall, Development Adviser

21 June:

**Ministry of Agriculture and Fisheries**

Mr. Ahnaf bin Omar Al-Zubaidi, Adviser to the Minister

Dr. Tarek Musa Al-Zadjali, Director General of Research

22 June:

**Embassy of the United States of America**

Mr. Matthew Lussenhop, Counsellor for Press and Cultural Affairs

Mr. Stephen P. O'Dowd, Second Secretary, Economic and Environmental Affairs

**Ministry of Regional Municipalities and Environment**

H.E. Sheikh Amer bin Shuwain Al Hosni, Minister

Dr. Mehdi Ahmed Jaafar, Director General of Public Relations and Guidance

Staff Reporter (interview)

**KINGDOM OF SAUDI ARABIA**

25 June:

**National Commission for Wildlife Conservation and Development (NCWCD)**

Dr. Abdulaziz Abuzinada, Secretary General

Dr. Eugene Joubert, IUCN Senior Consultant

Mr. Mohammed Al-Toraif, Director of Protection Department

Mr. Omar Khushaim

Mr. Abdulaziz Al-Mohanna, Director of Information and Documentation

Mr. Nasser Hassan, Supervisor of Training for Rangers

26 June:

**Ministry of Agriculture and Water (MAW)**

Dr. Abdullah bin Mo'ammar, Deputy Minister of MAW

Mr. Abdu Al-Assiri, Range and Forestry Department

Dr. Mostafa El-Shorbagy, FAO Range Management Expert

Mr. Aquil Khan, Director General of Project Implementation

Mr. Khalid Al-Mubarak, Director General of National Parks

Mr. Abdul Hakeem Nasser, Manager, Parks Maintenance and Operation

Dr. Amin Abusinena, FAO Programme Coordinator

27 June:

**King Khaled Wildlife Research Centre (KKWRC), Thumamah**

Dr. Jacques Flamand, Project Director

Dr. Tim Wachter, Wildlife Biologist

Dr. Nigel Brown, Senior Veterinary Officer

Mr. Bill Flavell, Principal Laboratory Manager

Dr. Kevin Dunham, Ecologist

Mrs. Fay Robertson, Botanist

## SYRIAN ARAB REPUBLIC

28 June:

### **Wildlife Conservationists**

Mr. Walid Attar, Ex-hunter and dedicated conservationist  
Mr. Bassam Attar, General Manager of Arabian Agritechno Company

29 June:

### **Office of the FAO Representative in the Syrian Arab Republic**

Dr. Adnan Al-Faris, Programme Officer  
Mr. Muzaffer Dogru, CTA Forestry

### **Ministry of Environment**

H.E. Mr. Abdul Hamid Al-Mounajjed, Minister

### **Damascus University**

Dr. Anwar Al-Khatib, Faculty/Botanist  
Dr. Mohammed Nimeh, Faculty/Zoologist

30 June:

### **Office of the United Nations Development Programme (UNDP) Resident Representative in the Syrian Arab Republic**

Mr. El Balla Hagona, Deputy Resident Representative

### **Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD)**

Dr. Muhammad Wardeh, Director of Department of Animal Wealth  
Dr. Yusef Barkoudah, Consultant

2 July:

### **Office of the Director of Badia, Rangeland and Sheep (Palmyra)**

Mr. Abdul Khalek Asaad, Director

### **Office of the Director of Security in Palmyra Governorate**

Brigadeer General Sabra, Director of Security

3 July:

### **Private Exhibit of Game Animals of Husain Beik Ibish**

Ziad Beik Ibish, son of collector

### **Office of the FAO Representative in the Syrian Arab Republic**

Mr. Taher Talahiq, Head of Mission of Palmyra Protectorate  
Dr. Doug Williamson, Zoologist



4 July:

**Office of the FAO Forestry and Food Security in the Mediterranean and Near East Region Project (GCP/INT/539/ITA)**

Dr. Benedetto Cavalcaselle, Senior Forestry Expert

Mr. Franco Paolinelli, Arid Zone Forestry Expert

Mr. Toni Ettel, Forestry Officer

Mr. Abul Gasim Seifeldin

5 July:

**Forestry Department of the Ministry of Agriculture**

Dr. Farouk Al-Ahmad, Director of Forestry

Mr. Haitham Said Hajali, National Coordinator of FAO Projects

Mr. Haitham Yanis, Forestry Officer

6 July:

Public taxidermist exhibit at a cultural centre in Damascus

Open wildlife market at the old souk in Damascus

**HASHEMITE KINGDOM OF JORDAN**

7 July:

**Economic and Social Commission for Western Asia (ESCWA)**

Dr. Sami Sunna, Director, Joint ESCWA/FAO Agriculture Division

Mr. Mahmood Ahmad, Resource Planning Economist

Mr. Ibrahim Ghandour, Senior Economic Affairs Officer

**Royal Society for the Conservation of Nature (RSCN)**

Mr. Essa Shaheen, Director General

Mr. Adnan Budieri, Head of Research and Surveys

Mr. Khaled Irani, Head of Reserves

Mr. Chris Johnson, Director of Conservation

9 July:

**Department of Forests and Afforestation of the Ministry of Agriculture**

The Director

Mr. Maher Abu-Jaafar, Assistant Director

Dr. Saud Al Abbadi, Head of Range Section

Mr. Mahmoud Abu-Sitta, Assistant to the Director of Badia and Rangelands

**Department of Environment of the Ministry of Municipal and Rural Affairs and the Environment**

Dr. Saleh Al-Share', Director

Mr. Khalaf Al-Oklah, Chief of Nature Conservation

Mr. Ra'ed Bani Hani, Nature Conservation Section

10 July:

**Azraq Oasis Conservation Project**

Dr. Ghaith Fariz, National Coordinator/Project Manager

Mr. Yaseen al Zo'bi, Environmental Impact Assessment/Ramsar

11 July:

**UNDP, Jordan**

Mr. Rafik Shukor, Deputy Resident Representative

**RSCN**

Mr. Anis Mo'asher, President

**ESCWA**

Mr. Mohammad Wahhab, Environmental Coordinator

12 July:

**Zoubia Wildlife Reserve**

Mr. Mahmoud Doumi, Reserve Manager

Mr. Nasser Abbasi, Assistant Reserve Manager

Mr. Musa Al-Kudah, Guard

**RSCN Research and Survey Team (R/S)**

Mr. Adnan Budeiri, RSCN Head of Research and Survey Section

Mr. Ayman Abu-Hantash, R/S staff (fauna)

Mr. Ibrahim Khodr, R/S staff (flora)

Ms. Marina Shbat, Researcher

Ms. Sawsan Abu Jamaa, Researcher

Ms. Diana Percy, Volunteer

13 July:

**Dana Reserve**

Mr. Edoardo Zandri, Dana Scientific Coordinator

Mr. Khaled Irani, RSCN Head of Reserves

Mr. Chris Johnson, RSCN Director of Conservation

14 July:

**ESCWA**

Dr. Sami Sunna, Director, Joint ESCWA/FAO Agriculture Division

Mr. Mahmood Ahmad, Resource Planning Economist

Mr. Ibrahim Ghandour, Senior Economic Affairs Officer

## LEBANON

18 July:

**FAO Representation, Lebanon**

Mr. Amor Ben Romdhane, FAO Representative

Mr. Makram Lamy, Assistant FAO Representative

Ms. Mira Haddad, Personal Assistant to FAO Representative

19 July:

**Ministry of Agriculture, Lebanon**

Mr. Abdulla Sawwan, Public Relations Officer

Mr. Mahmoud Sabra, Director of Rural Development and Natural Resources

20 July:

**Society for the Protection of Nature in Lebanon**

Mr. Asaad Serhal, Secretary General

Ms. Bahana Harake, Coordinator

**Green Line**

Dr. Shady Hamady, Secretary General

21 July:

**Ministry of Environment, Lebanon**

Mr. Elias Matli, Director General

22 July:

**Ministry of Agriculture, Lebanon**

H.E. Adel Cortas, Minister

Dr. Sultan Haidar, Special Advisor to the Minister for the Hermel Project

Mr. R.A.J. Roberts, FAO Rome

25 July:

**Council for Development and Reconstruction**

Mr. Fadel Shalak, Director

26 July:

**UNDP, Lebanon**

Mr. Hendrick van der Kloet, Resident Representative

Mr. Mounir Tabet, Consultant

**FAO Representation, Lebanon**

Ms. Mira Haddad

## ITALY

27 and 28 July:

### **FAO, Rome**

Mr. Christian de Greling, Wildlife and Protected Areas Management Officer

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