



Comment

Nomads: destroyers or conservers?

It is often stated that nomads do not voluntarily manage and conserve their habitat, and that, except in times of famine, they do not exploit wild foods as supplements to their milk and meat diet. Neither statement is true.

The margins of the seasonally inundated wadi (seasonal watercourse) habitat are very suitable for the rapid growth of large quantities of annual grasses. Several of these grasses are exploited widely for their seeds.

Panicum laetum (kreb in arabic) and *Eragrostis tremula* (abun mahodge) are the most important species, and are harvested annually by the women and children, famine and good years alike. In favourable years, they collect enough wild grass seeds to feed themselves throughout the year, as well as provide a surplus for marketing against cloth, tea and sugar.

Arab nomads (as distinct from Fulani or Peul) realize the value of these grasses, and during the ripening and harvesting periods everybody is banned from letting livestock graze or trample the verdant pasture. Access to the wadi is allowed only for watering the animals. Contravention of this unwritten law may lead to heavy fines (paid in livestock), imposed by traditional tribunals.

Unfortunately, once the wild grass harvest is in, the nomads behave quite differently. As the water dries up in the temporary pools between the dunes, the nomads move into the wadis, digging numerous shallow wells to exploit the upper rain fed nappe.

They take over the wadis *en masse*, and their livestock strip them bare of edible vegetation. Branches are cut down for browse, bark stripped for rope-making, and trees felled to provide building material. The destruction stops only when the wells run dry and the nomads leave for the permanent wells of the south.

The importance of the wadi habitat cannot be overstated. It acts as a physical barrier to desert encroachment and pro-

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"Situation even more serious than expected"

Addax, oryx on the brink

The remaining populations of addax and scimitar-horned oryx are being reduced so fast that in five years they will be beyond recovery, IUCN surveys reveal. In Sudan, addax and oryx are so scarce that they are probably irrecoverable already.

Surveys of actual and potential habitats of the two species in Chad, Mauritania, Niger and Sudan, were carried out by IUCN in 1975 with support from UNEP and WWF.

A panel of experts met with the IUCN surveyors on 22 January, and agreed that "the situation is even more serious than expected". Immediate action is needed if viable populations of addax and scimitar-horned oryx are to persist.

The objectives of the surveys were: to identify the areas in the Sahara Desert and Sahelian zone where addax, oryx and associated species (such as dama gazelle and dorcas gazelle) still live; to determine those areas most suitable for protection; to suggest additional protective measures; and to prepare for more detailed studies on a country-by-country basis.

This is what the surveys found:

Chad

Both addax and scimitar-horned oryx are locally common but the centres of concentration are fairly small.

Extensive surveys put the addax population at around 2,500 and oryx at 5,000 head. Dorcas gazelle are still common north of the 14th parallel, dama gazelle less so, but widespread. Cheetah are on the decline.

Mauritania

The situation is catastrophic. In the last 15 years, dama gazelle and oryx have almost disappeared. There are still some dorcas gazelle, and addax are locally common near the Mauritania-Mali border. However, numerous motorized hunting expeditions are organized each year and quick protective action is essential.

Niger

Surveys in Niger reported a decline in the formerly abundant oryx population. Their main zone of concentration is between the Tadress-Termit and southern Ténéré. There may be some left, east of the Vallée de l'Azaouak. Addax seem more widespread and are reported from

the Bilma and Ténéré ergs and also from the sector north west of the Air Massif. Unless something is done quickly the oryx as a viable population will be irretrievably lost.

Sudan

An extensive aerial survey revealed a few dorcas gazelle and one dama gazelle. There are no reliable reports more recent than 1973 on the occurrence of oryx, or more recent than 1968 on that of addax. None were seen.

Guns and wells the threat

Hunting with vehicles and modern weapons is the main direct threat to the desert and sub-desert fauna. It is practised mostly by the employees of oil and mining companies and by military and administrative personnel, even in countries where the species hunted are protected by law.

However, addax and oryx are also suffering from the more general impact of competition with nomadic peoples and their domestic animals. Both species are particularly vulnerable when at the southern limits of their range where competition is inevitably at its sharpest. Unfortunately, the area of overlap is being increased, largely by the sinking of deep concrete wells, which extends the northern range of the nomads.

Reserves not enough

The Morges meeting recognized that the future of both pastoralism and wildlife depends on the establishment of sustainable forms of land-use, and that although more reserves are urgently needed they are not in themselves sufficient.

At present, the only properly guarded reserve with substantial populations of addax and oryx is the enormous (4,892,500 ha) Ouadi Rimé—Ouadi Achim Faunal Reserve in Chad. The government of Chad recently gave further expression of its commitment to this reserve by allocating an extra 30 wardens to it, bringing up the total to 80.

Recommendations agreed at the meeting will be included in the project report.

IUCN Programme

The progress report on the Programme adopted by IUCN's 12th General Assembly continues below.

In this issue we report on the Central America programme and the Tropical Rain Forest campaign. We also have further information on the South Pacific programme.

Tropical Rain Forest campaign

The main thrust of IUCN's contribution to the IUCN/WWF 1975-76 Tropical Rain Forest campaign is the conservation review of the world's tropical rain forests. This is being conducted by Dr Tim Whitmore, and was touched on in last month's *Bulletin* (p. 8).

Conservation review of tropical rain forests

The principal objectives of the review are:

1. To prepare a description of the range of variation of tropical rain forest with maps showing the distribution of the various types.

2. To relate this description to the distribution of protected areas that at present afford effective protection.

3. To propose additional areas that may qualify for protection so as to ensure that the whole range of variation is afforded protection.

Each of three tropical rain forest regions—African, Indo-Malayan (Asia-Pacific), and American—is being reviewed separately. Within each review, a report is presented on each country.

The review of tropical rain forest in the Asia-Pacific region is the first of the three to be completed.

Whitmore distinguishes 13 main tropical rain forest formations in the region: 12 everwet—tropical lowland evergreen rain forest (lowlands to 1200 m), tropical lower montane rain forest (1200 to 1500 m), tropical upper montane forest (1500 to 3000 m), tropical subalpine forest (3000 m to treeline), heath forest, forest over limestone, forest over ultrabasic rocks, beach vegetation, mangrove forest, brackish water forest, peat swamp forest, and freshwater swamp forest; and one seasonally dry—tropical semi-evergreen rain forest.

The occurrence of these formations is given for each country. The areas affording effective protection (existing and proposed) are described, and the extent to which they include the different formations is discussed. A summary is then given of those matters requiring urgent action.

These urgent action proposals are briefly described here. It is stressed that the conservation review from which they are taken is a first draft.

1. Peninsular Malaysia

- a. Taman Negara National Park (4343 sq km, or four per cent of the area of the country) is to lose land to flooding when two dams in the south east are completed. The possibility of adding a compensatory area near the centre where the Park is unsatisfactorily narrow needs urgent investigation. Alternatively, a managed buffer zone should be established to protect first the southern and eventually the northern boundaries.

- b. Endau-Rompin is a proposed National Park in the south (spanning the Johore-Pahang border), almost as large as Taman Negara. Logging has penetrated it from several directions, destroying most of the species-rich and very grand lowland dipterocarp forest. Viable stands, including those in the richest valleys, should be protected from further logging.

- c. Much of the Krau Game Reserve (ca. 520 sq km, in the middle of the country), which complements Taman Negara and is still largely under virgin evergreen rain forest, should probably be totally protected.

- d. Sungei Menyala, a tiny patch of virgin forest where observation plots of inestimable global value have been maintained since 1947-49, needs securing from continuous agricultural threat.

2. Sarawak

- a. Eight proposed conservation areas need to be firmly established in time to be written into the State land use development plan.

- b. A vegetation map and development plan is needed for Gunung Mulu National Park, the largest of these areas. Gunung Mulu includes all the major vegetation types of Sarawak and is one of the most important Parks on the Sunda shelf.

3. Sabah

Two proposed conservation areas, Danum Valley and Klias Peninsula, need urgent investigation. Danum Valley is a little known and very inaccessible area of 29,000 ha enclosed by high country. It is in the heart of the Ulu Segama forest reserve in the east of the country, and contains a concentration of orang utan. The proposed Danum Valley reserve, considered a minimal area for orang utan conservation, is licensed to the Sabah Foundation for logging. Klias Peninsula is an area of 350 sq km in the south west of Sabah, bordering Brunei Bay. Two separate blocks have been proposed as conservation areas, one mainly mangrove forest, the other more varied and including peat swamp forest as well as mangrove. There have been suggestions that a wood chip factory should be set up to exploit the mangrove forests.

4. Brunei

No urgent action has been proposed. However, it is suggested that the whole of Ulu Temburong (that is, the Batu Apoi Forest Reserve in the east of the country) be considered as a National Park—as is Bukit Peradayan. Ulu Temburong is an uninhabited area, not easily accessible.

5. Indonesia

There has been an enormous enlargement of the timber industry since the late 1960s. Numerous large concessions have been allocated, and most of the commercial (that is, lowland) rain forests of the nation are now under licence. Nature reserves have come under pressure. For example, Way Kumbas, 130,000 ha of lowland rain forest in south Sumatra, has been entirely excised, one third of Kutei (ca. 200,000 ha in Kalimantan) has been excised, and a sawmill built on the edge of Gunung Leuser reserve. The security in perpetuity of the existing reserves is not yet assured. An overall review of the status of each reserve is probably desirable, followed by preparation of a revised country report. There is currently a lull in the rate of logging, but when world trade picks up again the industry will recover. Gunung Leuser, Kutei and Cibodas-Gunung Gede (1040 ha in Java) require the most urgent attention.

This summary of urgent action proposed in the conservation review of tropical rain forests in Asia and the Pacific will be concluded next month. We also hope to give a progress report on the active projects within the Tropical Rain Forest campaign.

Central America

The Central America programme is concerned primarily with follow-up of the Central American Meeting on Management of Natural and Cultural Resources, held in San José, Costa Rica, 9-14 December 1974 (see *Bulletin*, Vol. 6, p. 7).

A key element of this was to have been the extension and enlargement on a regional basis of the UNDP/FAO project "Wildland management and environmental conservation", or alternatively the establishment of a new UNDP/FAO regional project. Unfortunately, UNDP is unable to fund either activity.

However, IUCN will continue to give what support it can through this programme to the implementation of the San José recommendations, especially those on the establishment and management of pilot national parks, frontier parks and other protected areas.

At present there are three projects in the programme, all of which also fall within the Tropical Rain Forest campaign (see below). They are:

□ *Tortuguero National Park, Costa Rica*

Tortuguero National Park extends inland from the Caribbean coast, and covers 19,500 ha, including beaches 22 km long, swamp forest, palm swamps, and hills. The forest belongs to the tropical wet zone, and is broken by numerous lagoons, rivers and channels.

The National Park protects an important area of tropical rain forest and various threatened species, such as river turtles, American crocodile, spectacled caiman, tapir, jaguar, ocelot and manatee. The beaches in the park provide one of the most famous nesting sites for the green turtle in the Caribbean.

The Park is under heavy pressure from illegal timber exploitation and poaching. Squatters are trying to settle inside its boundaries. The Park has received official status only recently (see *Bulletin*, Vol. 7, p. 6).

It is hoped that eventually a contiguous section of forest and beach in Nicaragua will be protected, and that the two areas will form a frontier park, as proposed at San José. In the meantime, help is being given to Costa Rica's National Parks Department to secure Tortuguero from current threats.

□ *Montecristo Cloud Forest, El Salvador*

This proposed reserve contains an almost undisturbed flora and fauna, with a very high diversity of plant and animal species, many of which are of a very local character. Oaks, pines, giant ferns, orchids and bromeliads cover about 209 ha and provide the only remaining habitat in the country for howler monkeys, mountain lion, brocket deer, quetzal, toucans and the El Salvador hairy woodpecker.

The Montecristo cloud forest area, also known as Trifinio, extends into Honduras and Guatemala. The forest, which has a low regeneration capacity, is located on a watershed of vital importance for all three countries, as it controls and assures the regular flow of high quality water for the lowlands.

The objective of the project is to develop a management plan for the cloud forest reserve, and also to encourage the authorities in Guatemala and Honduras to protect their parts of the area. Trifinio (Montecristo) was proposed as a trilateral frontier park by the San José meeting.

□ *Monteverde Cloud Forest Reserve, Costa Rica*

Although Monteverde was not proposed as a protected area at San José its value is unquestioned. When enlarged from its present 1944 ha to a proposed 6070 ha, the reserve will protect more than 2000 species of plants, 300 species of birds and 100 species of mammals.

Birds such as the black guan, great green macaw, resplendent quetzal, bare-necked umbrella bird and three-wattled bellbird depend on its middle-elevation forests. The elfin woodland that clings to the ridge tops supports the world

population of the rare golden toad, *Bufo periglenes*. The scenery is striking and birds like the quetzal are easily observed.

Like Montecristo, the Monteverde forest is essential for watershed protection. Straddling the Pacific-Atlantic divide, the forest secures irrigation water for the Pacific lowland during the long dry season, and protects both the Atlantic and Pacific lowlands from flooding during the wettest months.

South Pacific Programme

Arrangements have now been made with the South Pacific Commission to conduct the Second Regional Symposium on Conservation in the South Pacific. The first symposium, sponsored by the South Pacific Commission and IUCN, was held in Noumea, New Caledonia, in 1971. The second will be held, under the same sponsorship, in Apia, Western Samoa, 14-19 June 1976, and will be preceded, 9-11 June, by an intergovernmental conference to consider a convention on conservation in the South Pacific.

The draft agenda for the symposium follows:

Theme: Conservation and Ecodevelopment in the South Pacific

Monday, June 14

Appointment of Committees.

Discussion of report of regional survey on ecosystem conservation in the South Pacific, with particular reference to national parks and reserves.

Background report by Dr Arthur Lyon Dahl, SPC.

Tuesday, June 15

Discussion on traditional practices and ecodevelopment in the South Pacific. Background reports by Dr Jimoh Omo-Fadaka and Mr Robert Allen, IUCN.

Discussion on critical marine habitats and the means for their conservation. Background reports by Dr G. Carleton Ray, The Johns Hopkins University, US.

Wednesday, June 16

Discussion of role of national, regional and international institutions in conservation and ecodevelopment. Background reports on SPC Special Project and IUCN South Pacific Programme.

Discussion of legal measures for conservation: world parks, law of the sea, islands for science, etc.

Background report by IUCN Environmental Law Centre.

Thursday, June 17

Meetings of Committees on Research and Conservation, Ecodevelopment, Role of Institutions, Legal Problems.

Reports from Committees and discussion.

Reports of Resolutions Committee and adoption of Resolutions.

Thoughts on MSY

The approval of Resolution 8 on maximum sustainable yield by the 12th General Assembly at Kinshasa has put IUCN on record on a subject that will require continuing inquiry and discussion.

The practice of single-species management of wild living resources has been based on the concept that each species population, considered as a resource stock, is capable of producing a potential maximum sustainable yield (MSY) for human exploitation. This idea is often carried further with the implication that this potential MSY, if not "harvested by man", is wasted. Much of current practice in fisheries and wildlife management is based on this concept, as is the management of other wild land resources.

Many things are left out in this approach—primarily that all species exist as components of ecosystems, and such components interact. The effects of cropping and removing a high percentage of any species population can have immediate effects on the populations of predators dependent upon that species—along with scavengers, parasites, and organisms of decay and recirculation which make use of the so-called "harvestable surplus". Populations of existing or potential competing species may be favoured, along with populations of species upon which the species being cropped normally feeds. These are obvious interactions. Other effects which are more subtle can also be anticipated.

Broader considerations

IUCN has proposed a more conservative approach to the management and utilization of wild species, based on broader ecosystem considerations and on continuing survey, monitoring, analyses, and assessments of the consequences of any planned or ongoing utilization scheme. The risk of any irreversible change or long-term adverse effect brought about through utilization is to be minimized. The sum totals of consumptive and non-consumptive values available from any ecosystem are to be optimized.

This approach can only be regarded as a step forward from what had become increasingly rigid dogma. Although its application to whaling and exploitation of other marine resources would bring obvious benefits, we are a long way from understanding how to achieve (or perhaps reinstate) a sustainable, dynamic balance between humanity and the biosphere of which we form a part.

We do not know how to utilize natural resources and still leave the ecosystems of which they form a part in an optimum state. Consequently, if we pursue the prudent path, we may feel impelled to build such a large safety factor into any plan for cropping and using a species that the entire scheme becomes economically unfeasible. This means not utilizing the resource at all, a recommendation acceptable only for certain species or in certain protected places.

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News from Members

News from Members is a new section of the *Bulletin*. Its object is to provide members of IUCN with news about the activities of other members of IUCN. Its success will depend on membership participation, and we invite all members to send information which would be of interest to other members to Special Assistant for Membership, IUCN, 1110 Morges, Switzerland.

43rd State member of IUCN

In a letter dated 27 January 1976 from the Minister for Rural Development, the Islamic Republic of Mauritania became the 43rd State member of IUCN.

In 1975 there were four new State members: Libyan Arab Republic, Mongolia, Oman and Pakistan.

IUCN State Membership (1 February 1976)

Year of Adhesion

1973	Australia
1973	Bangladesh
1949	Belgium
1961	Benin
1958	Cambodia
1968	Canada
1965	Chad
1951	Denmark
1964	Ecuador
1966	Ethiopia
1967	Finland
1958	Germany, Federal Republic of
1970	Greece
1973	Iceland
1969	India
1974	Iran
1963	Italy
1961	Ivory Coast
1963	Kenya
1969	Lao People's Democratic Republic
1975	Libyan Arab Republic
1949	Luxembourg
1961	Madagascar
1961	Malaysia
1976	Mauritania
1975	Mongolia
1958	Morocco
1974	Nepal
1949	Netherlands
1974	New Zealand
1973	Norway
1975	Oman
1975	Pakistan
1960	Republic of South Viet-Nam
1963	Senegal
1957	Sudan
1949	Switzerland
1962	Thailand
1967	United Kingdom of Great Britain and Northern Ireland
1973	Venezuela
1973	Western Samoa
1967	Zaire
1965	Zambia

Salim A. Ali receives Getty Conservation Prize

Dr Salim A. Ali, 79, India's celebrated ornithologist, has been awarded the J. Paul Getty Wildlife Conservation Prize for 1975.

The \$50,000 Prize was awarded in February in Washington, DC. The largest ever for wildlife conservation, the prize was first established by Mr Getty in 1974 and was awarded in that year to Felipe Benavides of Peru.

An international jury, chaired by HRH The Prince of the Netherlands, President of the World Wildlife Fund, selected Dr Ali from 475 nominees from 53 countries. He is president of the Bombay Natural History Society and has published over 200 scientific articles and six books, among them the ten-volume "Handbook to the Birds of India and Pakistan" which was co-authored with Dr S. Dillon Ripley.

Dr Ali also led research into bird ecology and migration demonstrating the importance of the Indian sub-continent in world bird movements. In 1973 he was made a Member of Honour of the World Wildlife Fund, and among many other honours, he has received the Padma Bhushan, one of India's highest awards.

2nd World Conference on breeding endangered species in captivity

Following the first conference in Jersey in 1972, a second conference on breeding endangered species in captivity will be held at the London Zoo 6-8 July 1976 sponsored by the Zoological Society of London and the Fauna Preservation Society.

Aimed at establishing clear scientific patterns of the basic principles involved in encouraging endangered species to breed in zoos and wildlife parks, the conference will treat the main topics of behavioural, genetic and general management. The proceedings will be published as a special section in Volume 17 of the *International Zoo Yearbook*.

Further information is available from Conference Secretary, Dr Michael Brambell, The Zoological Society of London, Regent's Park, London NW1 4RY, England.

Sierra Club

The Sierra Club through its Legal Defense Fund is engaged in still another effort to preserve a unique wilderness area. At stake is the Siskiyou Mountain region of northwestern California, a hitherto remote area in a heavily populated state.

Proposed as an addition to the national wilderness preservation system, the Siskiyou Mountains not only retain a distinc-

tive flora and fauna, but include the traditionally sacred "high country" of the Yurok, Tolowa and Karok Indians. The mountains area furthermore supports remaining populations of the rare wolverine and fisher in California.

The area is under Forest Service jurisdiction in the Six Rivers and Klamath National Forests, but is now threatened by a proposal for logging as well as construction of a road across the high country to connect the towns of Gasquet and Orleans and facilitate exploitation of the area. The Sierra Club, along with other conservation agencies, including the Siskiyou Mountains Resource Council, are opposing the Forest Service proposal, at present through administrative channels.

UK ratifies Wetlands Convention

The United Kingdom of Great Britain and Northern Ireland has ratified the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat. The ratification of 5 January 1976, which makes the UK the ninth Contracting Party to the Convention, also covers Antigua, the Bailiwick of Jersey, Belize, Bermuda, Cayman Islands, Falkland Islands and Dependencies, Gibraltar, Montserrat, Pitcairn Islands, Saint Helena and Dependencies, Solomon Islands, Turks and Caicos Islands and Brunei.

Acting Director General

New arrangements have been made by the Executive Committee of IUCN affecting responsibilities in the IUCN headquarters.

During the month of February, Dr Gerardo Budowski undertook special missions for IUCN, and it was agreed, at his request, that he should relinquish his duties as Director General at the end of February.

At the request of President Kuenen, Dr. Duncan Poore agreed to serve as Acting Director General, and Dr. Raymond Dasmann agreed to continue on a half-time appointment as Senior Ecologist.

The Executive Committee therefore, at its meeting 31 January-1 February, appointed Dr. Duncan Poore as Acting Director General as from 1 March 1976.

News has just been received of the death of Professor T. Harrison, co-chairman of the Marine Turtle Group and member of the Steering Committee of SSC (successor to the Alert Group), in a highway accident in Bangkok, Thailand, in January 1976. The next issue of the *Bulletin* will carry an obituary.

Books

1975 International Yearbook. Vol. 15

edited by Nicole Duplaix-Hall

Zoological Society of London, pp 462, £11 (UK), \$27.50 (US)

The fifteenth issue of the *International Zoo Yearbook* follows much the same arrangement as previous editions. There are three main sections: the first devoted to a special topic, the second concerned with new developments in the zoo world, and the third comprising the reference section.

The special topic for 1975 is small mammals in captivity; the presentation and content of the papers are good, although some contain quite a lot of anecdotal material.

In section two, the subsections on breeding and husbandry contain a very commendable portion of articles on threatened species. The subsections on conservation and education are still painfully thin, but include two extremely informative papers by René Honegger on the aquarium and terrarium as consumers of wildlife and the crocodile situation (including breeding success—all too frequently, lack of success—) in European zoos.

The *Yearbook's* articles never include a summary or abstract, which is a pity. Although many of these papers are quite short (two to four pages), the addition of an equally brief abstract will certainly be useful to the casual reader—including the casual reviewer.

This year, the reference section has no listing of zoos and aquaria of the world (together with that splendid annex on zoos that failed to answer the editorial staff's questionnaire), and for information on this topic the reader must refer to the *Yearbook* for 1974.

Colin Holloway

Los parques nacionales españoles

by Luis Blas Aritio

INCAFO, Madrid, in Spanish, pp 256, ptas 2,200

Los parques nacionales españoles has been published to explain the philosophy of Spanish national parks and their significance in the modern world. Aimed at increasing public awareness in Spain, it is the first to appear in a collection of *Naturaleza Española*.

The book is divided into three main sections: mountain parks, humid zone parks and parks in the Canary Islands. It provides 151 colour photographs representative of the parks' landscapes, their flora and fauna. The text is clear and instructive and offers historical, geological, floristic and faunistic information easily understood by the general reader.

Meetings of Executive Board Committees

The General Assembly at Kinshasa pointed out a number of areas in the organization, structure, financing, and management of IUCN which required immediate attention by the Executive Board. To cope with these issues a Task Force on Organization and Structure was constituted by the Executive Board under the chairmanship of Dr Lee Talbot, with Sir Peter Scott, Mr Theodor Swem and Dr Ashok Khosla as members. Also established was a Committee on Finance and Management, chaired by Mr Robert Boote and with Dr Luc Hoffmann and Dr D. von Hegel as members.

The Task Force met in Morges 13-14 December 1975, and prepared a report which was delivered to the Finance and Management Committee. This Committee, in turn, met in Morges 17-18 January and 28-29 February 1976. A report will be made to the Executive Board at its meeting in May. Progress is being made toward resolving IUCN's difficulties—particularly in the areas of short- and medium-term financing and the reorganization of the secretariat.

The secretariat at Morges, although fewer in number than in the past, has

reorganized into three divisions—planning, operations and support. A fourth division—the Environmental Law Centre—remains headquartered at Bonn. Since the General Assembly, all efforts have been concentrated on carrying forward the programme approved at Kinshasa, and peripheral activities have been set aside whenever possible. The new programme coincides in large part with the major ecosystem conservation project supported by UNEP.

The need for a long-term answer to IUCN funding has been apparent to the members of IUCN, and the obvious means is to build up a substantial endowment fund. Nevertheless, IUCN is in the anomalous situation of being a membership organization in which the members provide only 16% of the operating budget (based on the programme and budget approved at Kinshasa). Although the General Assembly recognized the need for greater contribution from members, part of the problem can be met by a considerable increase in the number of member organizations. This is an effort to which IUCN's existing members could make an immediate contribution.

MSY (continued)

The MSY concept told potential exploiters that "there are x number of whales, fish, or whatever out there that can be safely harvested—go and get them!" Then it added, "but don't take x plus 1." Most exploiters, unfortunately, did not wait to hear the qualifying sentence and took as much as they could get. Whale populations are in trouble not because they have been managed on MSY principles, but because they have not been managed at all. The workings of the International Whaling Commission have only provided an institutional proof that there is no effective law of the sea, and in its absence advice from conservationists may well continue to receive its usual treatment.

One could question, seriously, whether *sustainable* yield of any wild species is attainable if the exploiting population does not form a functional part of the ecosystem to which the species belongs. Pre-industrial people formed such an ecosystem component and could take a sustainable yield of herbivores in the same way that a lion or a leopard might. Technological civilization, however, sets up a one-way flow of materials from an exploited ecosystem to some, often remote, part of the planet—a net drain of resources not balanced by human inputs to the system affected. To the extent that this can be compensated by the releases of nutrients from the lithosphere or their deposition from atmosphere or hydrosphere, it could be sustainable—at least in terms of total organic productivity, but not necessarily in terms of productivity of the exploited species. The process of

exploitation, considered alone, of any animal species, even at a low level, can establish behavioural patterns that force the species into less suitable habitats, or the use of the same habitats at times less favourable to the optimal functioning of the species.

Not "natural"

We have good reason to believe that humanity can manage certain ecosystems in such a way that their yield to mankind can be sustained and indeed enhanced over centuries or longer. The agricultural and aquacultural systems of some traditional farmers of Southeast Asia are evidence of this—although these are now threatened by the impact of high-technology agricultural systems that show no evidence of sustainability. Such agro-ecosystems, however, are not "natural" in the sense of the wild land or marine ecosystems which have been subjected to the impact of the belief that a "resource" unexploited by man is a wasted resource. If we wish to preserve the wild terrestrial and marine systems in a state resembling their unexploited (and unpolluted) condition, we must be prepared to find that the sustainable yield from any species is much less than a resource-hungry, over-peopled world would like to admit. The Kinshasa resolution has now raised this question. Let us hope that the debate will continue, not just among scientists but among all concerned with the law, economics, or simply the exploitation of wild nature.

R.F. Dasmann

Nomads (continued)

vides shaded, rich oases where desert wildlife can find water-rich food during the hottest months of the year. Clearly, their destruction by the nomads must be stopped.

However, it would be unwise to declare entire wadis out of bounds to the nomads and their herds. Such a policy would be difficult and expensive to enforce. And it might lead to environmental problems (overgrazing, for example) in the areas that the nomads would be obliged to go to.

In any case, the nomads' conserving relationship with the wild grasses suggests that a rigidly protectionist policy is probably unnecessary.

Strong and acceptable arguments can be put to the nomads, emphasizing that destruction of the wadis would mean the loss of a valuable food resource. In times of drought, the wadi habitat could be so impoverished that sand would cut its bed, blocking future rainy season water, and killing vegetation beyond the blockage, at the expense not only of the wildlife but of the nomads as well.

By using such arguments, which the nomads well understand, they can be brought to support a policy whereby parts of the wadis are declared sanctuaries from cattle and from destructive practices like debranching and debarking.

In this way, enough of the wadi habitat could be preserved for wildlife and in a relatively natural state, capable of regeneration and consolidation.

The nomads are destroying their environment. But the idea of its conservation is by no means foreign to them. Action based on recognition of this is more likely to succeed than action that assumes the contrary.

J.H. Newby

Gerardo Budowski to head Forest Sciences at CATIE

On 1 April 1976 Dr Gerardo Budowski, Director General of IUCN since 1969, will take up his new post as Head of the Department of Forestry at the Tropical Centre for Research and Training (CATIE) in Turrialba, Costa Rica, which is closely linked with the Organization of American States. Dr Budowski intends to shape the department along strong ecological and conservation-oriented lines.

Activities will deal primarily with research, graduate training and services to Middle America. A close cooperation is foreseen with FAO, UNEP, UNESCO and with various non-governmental organizations, particularly IUCN/WWF.

The programme will cover three broad types of activities:

- management of natural areas not suitable for crops, animal husbandry or timber on a sustained yield basis, with emphasis on biological aspects.
- management of forest lands for timber, chip and other wood products with special

Sudan's desert marches on

Sudan's desert is marching south slightly faster than 5 km a year.

A reconnaissance made towards the end of last year has found clear evidence that the desert's southern boundary has shifted southwards by an average of 90-100 km in the last 17 years.

The reconnaissance, made by Sudan's National Council for Research and Ministry of Agriculture, Food and Natural Resources, with the assistance of UNEP, compared the present boundary between true desert and *Acacia mellifera*-*Commiphora* scrub with its position when mapped by M. N. Harrison and J. K. Jackson in 1958 (see their *Ecological classification of the vegetation of the Sudan*).

Also observed was a corresponding

southward shift of the ephemeral winter vegetation known as "gizu", of great importance as browse for the camels of nomadic pastoralists. A relatively small area of gizu was found 80 km south of its position in 1964. This southward movement of 7 km a year may stop soon, however, since it appears that the gizu is now close to its southern limit.

Sand encroachment, moving ahead of the onward march of the desert, is also serious. Sand from the extensive Libyan Desert and the Jebel Abyan Plateau is being blown southwards on a broad front by the steady northerly winds. In some areas, there are signs of progressive abandonment of agriculture. In the northern Nile valley, large areas of agricultural land on alluvial soil have been abandoned already.

Fertilizer threat to ozone layer

Nitrogenous fertilizers are a threat to the earth's vital ozone shield, according to Dr Mostafa Tolba, Executive Director of UNEP.

Dr Tolba told an environmental management seminar in Geneva, January, that the use of nitrogenous fertilizers, considered essential to modern agriculture, raises the risk of a reduction of up to 30 per cent of the ozone layer.

Since the ozone layer screens the earth's surface from an excessive bombardment with ultra-violet radiation, such reduction could have serious consequences for life on earth.

Dr Tolba, who opened the seminar, pointed out the variety of threats to the ozone layer of the atmosphere as an example of an "outer limit" to various human activities.

The threat from fertilizers comes from the interaction between the nitrogen oxides, derived from fertilizer and ozone. Another potential threat is the use of fluorocarbons (freons) in aerosol spray cans. The attack on ozone from the exhaust

fumes of highflying supersonic transports like Concorde is perhaps less severe so long as their numbers and use are limited.

Further dangers to this protective layer come from atmospheric testing of hydrogen bombs, or worse still from their use in warfare. Added together this presents a frightening picture, which may be one more warning that we cannot continue with "business as usual".

The seminar was conducted by the Centre d'Etudes Industrielles in Geneva to provide an opportunity for executives from business and industry to be brought up to date on the state of the environment and on recent techniques for coping with environmental problems. Environmental management, as defined by the CEI, means much the same as ecodevelopment in the terms of UNEP and IUCN.

Guest lecturers from IUCN included W. E. Burhenne and R. F. Dasmann. Dr Amasa Bishop of ECE and Mr Peter Thacher of UNEP were involved in sessions on energy and the environment and the role of international organizations.

emphasis on reforestation and secondary forests within the humid region where complex stands are the rule.

c) development of ecologically sound agro-silvo-pastoral land-use schemes in the tropics.

At its February meeting, IUCN's Executive Committee expressed its appreciation to Dr Budowski for his many contributions during the past six years, and wished him success in his new endeavour.

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