

IUCN
1970
YEARBOOK

International Union for Conservation of Nature and Natural Resources

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Annual report of the
International Union for Conservation
of Nature and Natural Resources
for 1970

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(Charles A. Voucher/World Wildlife)

INTRODUCTION

IUCN is a Union of nations, government departments, non-political organizations and international bodies formed in 1948 to initiate or promote scientifically-based action that would ensure perpetuation of the living world - man's natural environment - and the natural resources on which all living things depend.

The Union is concerned with the quality of life, with the physical, educational, social and aesthetic values which add richness, meaning and satisfaction to human experience.

Conservation in the sense used by IUCN can be defined as management (which includes surveys, research, policy, administration, preservation, utilization, and implies education and training) of the resources of the environment - air, water, soil, minerals and living species including man - so as to achieve the highest attainable quality of human life.

The objectives of IUCN, which are defined in its Statutes, can be restated as follows:

1. To provide a continuing review and assessment of world environmental problems.
2. To formulate and promulgate statements of policy on topics of importance for the conservation of natural resources based on the best scientific evidence.
3. To promote research and new techniques relating to the conservation of nature and natural resources.
4. To provide advice to governments and organizations concerning the conservation of nature and natural resources.
5. To assist governments, on request, in developing national policies of conservation and to assist in their execution by providing advice and establishing cooperative programmes with other international agencies.

IUCN relies on a large volunteer group of commission and committee members, now numbering more than 400, and a small professional staff to give effect to its objectives. Six commissions serve the following fields: ecology, survival of endangered species, national parks, environmental policy (including law and administration), education, and landscape planning (including environmental design).

When the General Assembly in New Delhi adopted the new programme for the three years beginning with 1970, it signalled the end of "business as usual" for the Union. It recognized that 1970 and the years that will follow would be different from those that have gone before. It recognized that IUCN could not fulfil the obligations of its Statutes without substantial changes in its programme and staff which would permit a deeper and wider involvement in attacks on the root causes of fundamental conservation problems, as well as carrying forward its older well-established activities.

There have been many changes within IUCN during the year just past, and these are reflected in this publication, the Yearbook for 1970, the first of its kind for the Union.

This book replaces the Annual Report, which has been published in the same format as the IUCN Bulletin each year since 1961, when the Union moved its headquarters from Belgium to Switzerland.

The Yearbook provides space within which the past year's work can be summarized, and each project comprising the major action programme of the Union can be treated adequately. It provides room for review and comment on problems which beset mankind - not all problems, certainly, but some of those which are of paramount interest to scientists and laymen who are concerned at man's rapid and massive modification of the natural environment, and his excessive impoverishment of the earth's natural resources. The Yearbook represents a significant change from the past, and symbolizes, as well, a major turning point in IUCN's history.

IUCN AND THE WORLD WILDLIFE FUND

Since 1961, IUCN has enjoyed a symbiotic relationship with its sister organization, the World Wildlife Fund, with which it works closely throughout the world on projects of mutual interest.

The World Wildlife Fund (WWF) is an international charitable organization dedicated to saving the world's wildlife and wild places, carrying out the wide variety of programmes and actions this entails. WWF was established in 1961 under Swiss law, with headquarters also in Morges. Its aim is to support the conservation of nature in all its forms - landscape, soil, water, flora and fauna - by raising funds and allocating them to projects, by publicity and by education of the public and young people in particular. For all these activities it takes scientific and technical advice from IUCN.

Although WWF may occasionally conduct its own field operations, it tries as much as possible to work through competent specialists or local organizations.

Among WWF projects, financial support for IUCN and for the International Council for Bird Preservation (ICBP) have highest priority, in order to enable these bodies to build up the vital scientific and technical basis for world conservation and specific projects. Other projects cover a very wide range - from education, ecological studies and surveys, to the establishment and management of areas as national parks and reserves and emergency programmes for the safeguarding of animal and plant species threatened with extinction.

WWF fund-raising and publicity activities are mainly carried out by National Appeals in a number of countries, and its international governing body is made up of prominent personalities in many fields.



(G.C. Vienne/World Wildlife)

REVIEW OF WORLD CONSERVATION PROBLEMS

When the history of our time is written, without doubt 1970 will be recorded as the year when the environment of man, and the degradation it has suffered at the hands of man, came to world-wide notice among literate people.

It was the year in which decades of patient scientific work, as well as decades of angry protestation, at last won recognition.

It was the year in which environmental tragedies were widely featured in the public press in many countries.

It was the year when the bitter fruits of environmental abuse were a common harvest. It was also the year when men took feeble and mincing steps toward correction and prevention of environmental problems, although many authorities - by published accounts, at least - clearly recognized that powerful strides were needed instead.

Man's impact on the global environment is nothing new, of course. Nor is his concern with environmental matters. But wide public recognition of the problems and wide public concern are recent social phenomena. Unquestionably these have been stimulated by publicity and awareness of the accumulated unfavorable impact of exponential growth, which is still only slightly felt or dimly perceived in many parts of the globe.

It is not our purpose to attempt explanations of how or why this has occurred, but rather to examine the problems - somewhat cursorily - in an effort to put them into perspective, to separate heat from light, and to evolve through the exercise a rational framework for IUCN programmes and activities. This review is a mandate set out in Article I of the Union's Statutes, and from it flows not only our programme, but our priorities as well. It must be added that the capacity of the Union to make a significant contribution ultimately determines the precise elements within its programme, and the priorities assigned.

Nor is it our intention to offer a philosophical platform for the viewpoints expressed, since it must be assumed that members of the Union need no indoctrination in conservation concepts. In any case, we deal with facts from which conclusions may be clearly inferred, and about which by consensus there can be little argument.

Population pressures on the environment

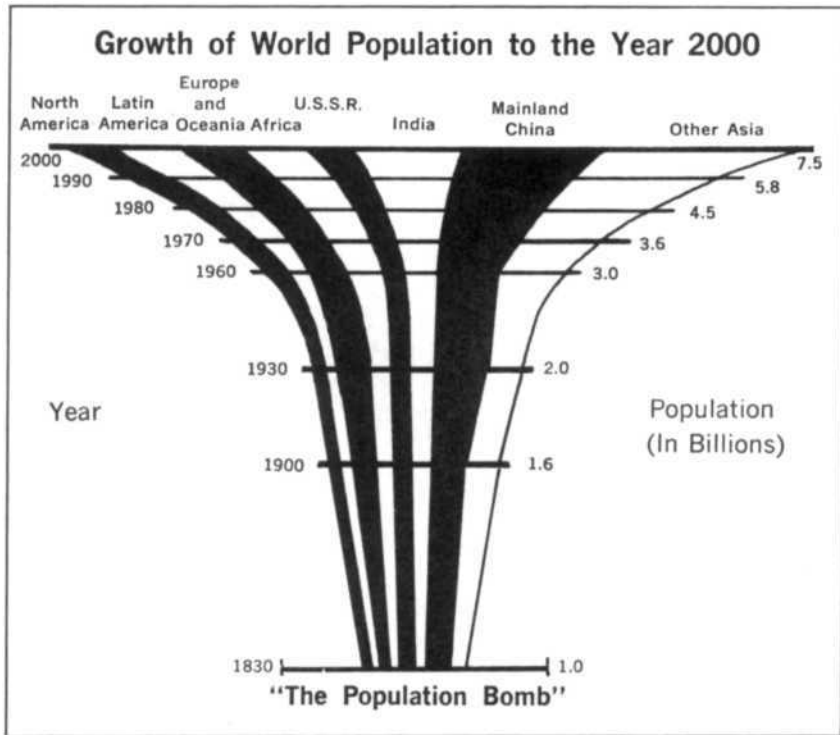
It is not possible to discuss today's most perplexing environmental problems without first recognizing that the root cause of most of them throughout the world is population pressure, the increasing impact of man on the natural resources. In fact, as indicated by agreement of the 10th General Assembly, we regard human population growth as the most urgent problem affecting the natural environment. Directly or indirectly, it is the fact that there are too many people in the world, now about 3.6 billion, that must be charged with the pollution crises, the overgrazed ranges, the overcut forests, the overharvested fisheries, the erosion and destruction of habitats, the loss of species, and the lowering of qualitative values in the lives of millions of people. In terms of mouths to be fed and market/service/social demands to be met, over-population creates inescapable disturbances and pressures on the biosphere. There can be no question that an ever-growing crisis will be widely felt.

Population growth is thus of deep concern to IUCN. Although action programmes in human fertility control are not directly within our scope, this subject is intimately connected with rational use and conservation of natural resources. IUCN therefore supports and welcomes expanded work in this field by those organizations which are equipped to cope with it. As a scientific organization, we are fully convinced that a proper balance between man and his environment must be achieved. It is clear that acceptable control techniques must be found - but they will be found only if a sufficiently high level of effort is maintained.

Meanwhile, conservation efforts must be doubled and redoubled, in order to preserve, protect and reclaim those environmental values that inevitably will be subject to sharply rising human pressure.

Concurrent and enlightened co-operation in the technical and social sciences can do much to help minimize the destructive impact of 7 billion people who probably will be living 30 years from today, well within the life span of most of us.

The fact that world population growth is creating serious environmental problems is accepted by most enlightened sectors of the population, but the concept of rising standards of living as an equally rising source of world problems is not widely understood. In fact, the contrary is often believed.



Clearly the effects of affluence and rising standards and their impact on natural resources must be thoroughly appreciated, for it is in this very trend that large-scale potential danger lies, as well as some of the most difficult and perplexing social and economic problems.

Effects of technological change

In many countries where simple agriculture or animal husbandry is the primary activity, there is great pressure for the development of electric power, transportation and new industries and the production of consumer goods. Furthermore, industrialized countries are constantly seeking wider markets for their consumer goods, and the countries which produce only a small part of their manufactured needs are a natural target for market development.

The future impact of these activities on the consumption of natural resources will be very great indeed and the threat of widening pollution ever-present. Where little industry is now in operation, and where there is

no large-scale outpouring of waste products, toleration of these conditions can be anticipated. It is earnestly hoped, of course, that pollution by industry will not be accepted as part of the price of economic activity. It need not be.

But technological change always seems to bring with it new orders of environmental disruption. Consider the changes caused and still being caused by the automobile - not only through pollution and consumption of almost unimaginable quantities of iron ore, coal and other raw materials, but in the very fabric of the social and physical structure of many countries. Changes of this order - like interstellar distances - are almost impossible to fully comprehend, particularly if considered only on a local or national scale rather than on a global scale. It is unlikely that the earth could withstand many more technological changes such as those induced by the automobile, but there will certainly be changes and their results may be far-reaching.



Unplanned developments in response to human pressure can defeat the aims of technical societies by destroying both the landscape and the amenities of urban living. (*U.S. Department of Housing and Urban Development*)

Technology obviously requires great quantities of resources and such is man's devotion to machines that the price of keeping them fed usually seems to be ignored.

It is reported that the United States, which has the world's highest level of consumption, uses about 40 percent of the world's scarce or irreplaceable mineral resources. This single statistic holds frightening implications for the rest of the world as other societies attempt more and more to increase their own consumption of these resources in pursuit of a rising standard of living.

In another direction, technological changes in such relatively simple applications as mechanization of agriculture in some countries - which is conceded as necessary for higher food production - will bring powerful social problems, for machines do reduce the opportunities for human employment. Standard economic dogma holds that these disruptions are only temporary, but where there is already a serious gap between the number of jobs and the number of men, theoretical promises are of no comfort.

Environmental pollution

As a world-wide problem, pollution is second only to population growth. Pollution is largely a result of human activity: thus the problem has grown with population increases, and its various manifestations are most noticeable in thickly-settled and industrially-advanced regions of the world.

Although some degree of environmental pollution has been a condition of almost all societies for centuries, it has been seriously aggravated by high and usually uncontrolled industrial and technical activities occurring since the end of World War II.

Most of the major rivers of Europe and the United States are heavily polluted. Major cities all over the world have polluted air. Oil pollution is a common occurrence along coastlines and even in the open sea. Biologically harmful substances such as heavy metals and pesticides have been dispersed over vast areas and into ecosystems thousands of miles from the point of origin. Thus, for example, we find accumulations of radioisotopes in Arctic lichens, an important food of grazing animals in the far north, and pesticide residues in the bodies of Antarctic penguins.

Scientists and conservationists have fought long and hard against the uncontrolled use of pesticides and other toxic substances which are produced and sold in enormous quantities throughout the world. In the face of accumulating evidence of widespread damage to species and ecosystems and the potential threat to biomes, control measures are at last being taken in a growing number of countries and the trend seems to be toward even



Water pollutants-whether poisons, excess nutrients, domestic, animal or industrial wastes, or simply the debris of human activities - take an enormous toll of living resources and impinge on the quality of life. (*U.S. Fish and Wildlife Service*)

closer and wider regulation. But there is faint hope that the problem will be brought under full control in the near future since the demand for inexpensive and easily applied chemicals to eliminate unwanted or dangerous pests and disease vectors will grow rather than diminish.

This is an area that will require constant monitoring. It will also need the enlightened co-operation of all agencies concerned, the chemical industry, regulatory authorities, and users. Chemical controls have a justified place, of course, but they are not a panacea. Research is needed not only to develop more selective and less persistent substances (and to refine and perfect methods of biological controls) but, especially, reliable and complete ecological data on effects of these substances must be accumulated and evaluated before these materials are widely marketed. Regulation and education is needed to govern use, and whenever possible nature's own methods should be encouraged.

The most common environmental pollutants are municipal and industrial wastes, pumped into the air and water and disposed of on land. World-wide statistics are not available but figures for certain countries indicate staggering quantities are involved. Indeed they are so great that the natural recycling processes and the biological production of entire seas and huge lakes have been seriously impaired. These conditions are well-known and need not be elaborated here.

It should be noted, however, that some significant action programmes to control waste disposal and other sources of pollution have been intensified or started in a number of countries.

In the past few years much has been published about environmental misuse. Two admirable and thoroughgoing studies, which we commend to the attention of IUCN members and affiliates, are the First Annual Report of the Council on Environmental Quality, which was transmitted to the U.S. Congress in August 1970, and the Report of the Study of Critical Environmental Problems (SCEP), published in 1970 under the title "Man's Impact on the Global Environment", by the Massachusetts Institute of Technology (MIT 162). Both of these publications not only assess the problems but make recommendations for action. The chapter on Monitoring in the MIT publication is particularly pertinent.

Land use problems

Among the many environmental problems of 1970 few appear more difficult to solve than those firmly enmeshed with established patterns of life - patterns and customs, both social and economic, which are to some degree practised by men everywhere. Whatever their culture, men have usually considered that the resources of the earth were put there for man's exclusive use, and the distinction between use and abuse has not really been clear, particularly when viewed from a national rather than from a global standpoint. True, former societies, such as certain Indian tribes on the American continent, as well as "primitive" societies in Asia and Africa, for example, have husbanded these resources with care. But modern men, primitive and otherwise, generally exhibit no such wisdom. It should be added, perhaps, that even if given wisdom some societies might still indulge in destructive practises as far as their environments are concerned, simply because the alternatives are beyond their reach, or because it is easier or more rewarding in the short term, or even, perhaps, as a perverse response to outside pressure.

Thus we find a wide range of environmental problems which stem from bad land uses undertaken to meet the needs of the day. Included among them are such diverse malpractises as wide deforestation schemes in the wet tropics on soils known to deteriorate after exposure and the creation of slums and "slurbs" in the industrialized regions; strip mining and destruction of oceanic islands; excessive or other harmful forms of timber harvesting and the draining of wetlands without ascertaining consequences that impair the water regime of the different biological cycles, both of which affect large and often widely separated areas; exposing marginal lands to overgrazing or putting them under the plough;

building cities on flood plains and construction of dams and other works without consideration of the various ecological results, and so on, *ad infinitum*.

Special note should be made of the sad, smaller losses to our natural heritage sacrificed in the name of "progress", losses scarcely noticed by the onrushing world but depriving scientists, educators, and conservationists of extremely useful resources, which on balance may prove to be many fold more important than the supposed benefits. A marsh filled here, a bit of relict forest cut there... a clear stream polluted, a unique geological or biological treasure inundated... a rare species finally made extinct: for every such loss the earth is diminished. Some part of its beauty and wonder is gone, and who can say what incalculable scientific assets may also be gone forever. It is disheartening that so few men who hold positions of influence care or even want to understand the tragedy of these losses. Sad to say, in many countries it may be politically unsafe to raise the necessary note of alarm.



Careless timber cutting and bad grazing or agricultural practices have made millions of acres virtually useless. Much can be reclaimed, however, by careful restorative planting programmes. (*Tennessee Valley Authority*)

Impact of development and exploitation

Development and exploitation are of course part of the activity pattern of modern civilisation. Where oil is found, men will find a way to get it to market. When electricity is wanted, men will find a way to produce it. Where an expressway, tunnel, canal or pipeline is considered necessary, incredible obstacles can be overcome to build it. And usually - not always, but usually - little, if any, thought is given to the question of effects on the broad environment. In computing the ratio of benefit to cost, in money units, the loss of the natural values in terms of their ecological, scientific, aesthetic and educational values is rarely considered. A part of this difficulty lies in the fact that there is no universally recognized, standardized way to measure these often priceless values in terms of national currencies.

It is heartening to note that significant progress has been made during the year in a number of countries to correct long-standing environmental troubles, forestall others, or to improve the handling of matters related to the environment. The United Kingdom, for example, established a Department of the Environment through the reorganization of three ministries, and created a Royal Commission on Environmental Pollution. France created a Ministry of Environment. Important administrative and legislative actions were taken in the USA, at both Federal and State levels, including establishment of the Environmental Protection Agency and operation of the Council on Environmental Quality. Under the National Environmental Policy Act of 1969 all federal agencies are now required to prepare, for review and public comment, statements on the environmental consequences of proposed projects. These, and scores of other actions by governments around the world reveal the growing concern now widely felt, and acknowledge, in part at least, that policies accepted in past decades are inadequate for these times.

Modern societies, wherever they are, make an enormous impact on the natural world. People and their needs, whether these needs are real in the sense of being absolutely essential, or induced by some technical achievement and thus felt to be essential, result in the steady reduction of field and forest. Every year, thousands and thousands of acres are put under concrete and asphalt. It is estimated, for example, that 11 per cent of the land area of England and Wales is under "concrete" today, and that this figure will rise to 16 per cent by the year 2000. Similar losses are felt in other industrialized countries throughout the world. Unfortunately, most of these losses are not compensated for by the kind of careful and intelligent land-use planning that might preserve the landscape and make life more agreeable in the vast and growing urban milieus.

Loss of habitat, species and wild areas

Growth in land-use, from development, expanding agriculture, and activities associated with the taking of natural resources, has resulted in particular difficulties for wildlife, a direct concern of IUCN. Some wild creatures can exist and thrive, even near urban population centers, provided they have adequate habitat to give them shelter and the ecological resources to maintain their food supply. But with loss of habitat the wild animals and birds perish, and only those species survive that can adapt to man's artificial environment. Loss of habitat, compounded by



Little by little, wild land habitats of myriad species of animal life are converted to human uses. This is the major reason for the decline of species. In India, for example, in the last four decades the number of tigers has dropped from some 40,000 to under 3,000 today. (Z. Futehally/ World Wildlife)

hunting pressure and the deleterious effects of pollution, now finds hundreds of species of plant and animal life in danger of extinction. This is unquestionably a serious problem. Quite apart from scientific, educational, ethical, moral and aesthetic considerations, the "wild" has always supported and nourished the settled world in ways too numerous to list. Threatened species, which have been monitored for years through IUCN's Red Data Book system, are a biological measure of the impact of man on his environment. This system is expanding, and in the future it will be refined as a more precise instrument to monitor changes and effects.

Loss of habitat has been mentioned as one of the problems of today's world. Related to this trend is the loss of wilderness, which is diminishing under steady invasions.

Remote areas of the world once were considered safe, in the sense that their very distance from population centers and lack of transportation facilities served to protect them from exploitative development. Today, however, few areas of the globe cannot be penetrated easily by aircraft, hovercraft, or other motorized vehicles able to operate without prepared facilities. A decade ago, some of the most remote regions of the Arctic north were covered by teams exploring for oil. Now some of these same areas are being surveyed for the construction of roads and pipelines, which will end forever their wilderness character.

Already the deep scars of erosion follow the tracks of vehicles which have crossed the tundra, and litter and junk have come to a once pure and pristine land. Fragile ecosystems, such as the tundra, have survived centuries of use by careful men - there have not been too many of them - but careless men and their machines, and a massive programme to exploit the land, constitute a grave danger. Urged by the prospect of mineral wealth, timber, power, water, new farm land, lucrative tourism, and the like - and what has aptly been called the "tyrannical ambition of civilization to conquer every niche of the whole earth" - there is little hope that large parts of the remaining wilderness can survive without the strongest kind of protective action.

This is particularly true of tropical areas where population pressures are growing at rates higher than elsewhere. Resources such as timber and wildlife have felt the impact increasingly. Forests have been cleared to open lands of marginal value for agriculture. Islands, particularly those offering opportunities for tourism, have suffered some of the worst features of "development". Exploitation - unfortunately, usually without consideration of long-term effects - seems too often to be the primary consideration.

National parks

Fortunately the national park movement has spread widely since the idea was given form and meaning at Yellowstone in 1872. At the present time, more than 1200 national parks and equivalent reserves are under protective management throughout the world. The United Nations List of National Parks and Equivalent Reserves (Second Edition) records 1204 parks and reserves in 93 countries. However, a number of new parks have been established since the List was published, and more are planned.

This is a very salutary trend for it is clear that the greater the world-wide loss of wild areas and natural wonders, marine and terrestrial, the greater the importance and value of every additional area protected. Parks which

meet the criteria established for the List hold an enormous potential for scientific, social and human benefit and it is earnestly hoped that not only can their numbers be increased, but also that they can be brought under some form of co-ordinated management that will assure adequate levels of protection for the priceless natural and cultural assets they contain.

This is an urgent matter, and becomes more so with each passing year. Because of their very attractions, parks everywhere are under rising pressure of one sort or another. In some cases, as in the United States for instance, their popularity with tourists threatens the values the parks were created to protect. In other countries, poaching of the wild animals or non-conforming uses of the land itself are ever-present dangers, while lack of funds and staff for management and protection, properly designed and installed facilities, and master-planning are a continuing difficulty. None of these problems are simple or easy to solve because almost without exception they are tied in with complex and frequently sensitive economic, social or cultural conditions in the countries in question. Establishment and maintenance of national parks represents a high order of social consciousness and responsibility, but since the values usually protected often involve assets that have been used or exploited by people without any regulation, sometimes for centuries, adequate protection is often virtually impossible.

Problems and programmes take many shapes and varied directions. In the final analysis, our deep concern is for the quality of life: Quality of life. Rich, healthy, full and diverse, in all its forms and vibrant beauty. This is our heritage. It is not too late to protect it, to save *it*, to reclaim it.

NEW DIRECTIONS

The record of the Union as the focal point of the international conservation movement is a proud one. For more than two decades it has provided a forum for discussion of problems in this field and has enabled a conservation philosophy to be evolved through the mutual interaction of interested groups. At the same time it has engaged in conservation action programmes which have influenced nations to preserve substantial areas as national parks and as strict nature reserves, to take other steps to halt the destruction of threatened species of plants and animals, and to keep open options for continued diversity in the natural world.

At the end of 1969, IUCN took the major decision of enlarging its Secretariat, adding strong professional competence to create a centre of excellence which can provide wider objective scientific analyses of the environmental problems. The intention is to maintain IUCN's leadership in conservation matters and to so strengthen the organization that it can meet the challenge of the rapidly deteriorating world situation; Dr. Gerardo Budowski (Venezuela) as Director General and Mr. Frank G. Nicholls (Australia) as his deputy were given the task of executing this new programme and in the nine months since they took office, radical reorganization of the programmes, method of working and resources of the Union has taken place. At the end of 1970 the new Secretariat comprised twelve professional officers with a broad spread of scientific competence and national origins, and a supporting staff of similar size. Its activities have considerably increased the effectiveness of the network of some 400 specialists from all over the world who contribute voluntary services through membership of the six Commissions of the Union.

The activities of IUCN have been brought into project form and many new projects have been formulated. Rigorous selection has been practised to stretch the limited resources to the best advantage. Necessarily, many

deserving project ideas have been deferred until sufficient staff and money become available.

The principal direction in the Union's work programme is to use information from all sources, including its own network of contacts, as the input for continuing analysis which can direct attention to conditions and areas of most urgent conservation interest, to use the results of such analysis to develop action programmes, and then to stimulate appropriate agencies to adopt and carry out these programmes. Without dissipating its efforts through too wide a dispersal of its activities, the Union concerns itself with the broad gamut of environmental problems, concentrating on those avenues where it believes it has special competence or where it can most satisfactorily complement the efforts of other agencies. To this end close links have been instituted with UN agencies and other international bodies concerned with the environment.

The new organization is characterized by flexibility, to adapt rapidly to opportunities for action as they arise. Wherever possible it is establishing co-operative projects and acting catalytically to stimulate others to function rather than embarking on the work itself.

This short period has been productive but the major outcome of many of the new initiatives will not be apparent for some time yet. We believe that in the re-evaluation and realignments now in progress in this field internationally, IUCN will continue to occupy a special position and serve a unique role in world conservation.

REVIEW OF UNION ACTIVITIES

Early in 1970, IUCN Headquarters in Morges burgeoned with activity as the Union, nourished with increased financial support, set about the task of revising and building its internal structures in accordance with the programme mandate of the 10th General Assembly. Major changes were necessary, as had been clearly foreseen, to enable the Union to cope with the new dimensions of its task.

Long before the programme recommendations were proposed to the members in New Delhi, the way had been charted through wide-ranging discussions, and the basic outlines of the new structure, in terms of actual needs, had been defined. It was obvious that the staff in Morges required added strength not only in scientific manpower, but also to provide strong lateral co-ordination. Virtually every environmental conservation problem is an interdisciplinary matter, and has aspects and overtones in which several Commissions are vitally interested. It was clear, as well, that action programmes were needed, often urgently, and that this involved close liaison with the World Wildlife Fund and intergovernmental organizations, and, inescapably, a great amount of staff work. Much of this, of course, would devolve on the Commissions and their Executive Officers who are key elements in the staff structure.

In 1968 an Executive Secretary had been employed to handle the voluminous work of the Survival Service Commission. Then in February, 1969, an Executive Officer for the Commission on Education was added. In mid-1969, an Executive Officer for the Landscape Planning Commission was employed. With a full-time officer for the Legislation Commission based in Bonn, four of the six Commissions had at least a nucleus staff at the outset of 1970.

The new IUCN programme, however, called for greatly increased work, especially in such areas as participation with technical assistance organizations, in environmental monitoring activities, and in the formulation and management of projects. It was immediately apparent that full-time Executive Officers were urgently needed for the Commission on Ecology, and the International Commission on National Parks. A search for qualified individuals was started, but to bridge the gap, several officers were assigned to handle the affairs of these two Commissions in Morges, as an additional duty. This was an unsatisfactory solution, but a necessary action in the circumstances.

At the end of March, management of the Union's affairs at Morges was transferred from the retiring Secretary General, Mr. E. J.H. Berwick (UK), to Dr. Gerardo Budowski, the new Director General appointed by the General Assembly. With full and willing co-operation, the transition was a smooth one, accomplished with minimum interruption to the flow of work.

With the arrival of Dr. Budowski and his deputy, Mr. Nicholls, a month later, the full change-over to a new programme footing began in earnest. Offices vacated by the World Wildlife Fund (which moved in April to its new Morges headquarters, "La Gracieuse") helped ease the space problem which had been acute for many months.

Following a meeting of the ICNP in late April, activity rose to a peak in May with the 48th meeting of the Executive Board, which considered and approved many of the detailed plans that were developed in accord with the General Assembly's directives. With these approvals, IUCN was fully launched on its new course and faced a continuing upward spiral in activity.

There was no opportunity to go about the job in the way a business would while tooling up to produce a new model. There was no period of relaxed transition, no pause, no time for easy adjustment to new faces, new missions, new methods. Quite the contrary. The changes had to be started and carried forward in the midst of major on-going activity, onto which, almost daily, new problems and new projects were piled, with urgent pleas for a share of time which was difficult to find. A major staff realignment established a Research and Planning Group under Dr. Raymond F. Dasmann (USA), who joined the Secretariat in mid-year as Senior Ecologist. By the end of the year the Secretariat had begun to feel relatively comfortable under the load. Procedures were established and understood, and the staff, now used to working together, felt the traditional *esprit de corps* and an eagerness to get on with the job. But more important, 'the Union could look back on a year of solid accomplishment which geared it for greater action in a world that desperately needs all the intelligent scientific and technical help it can get.

CONSERVATION - BROAD ISSUES

The 10th General Assembly, which, significantly, was held in a region of the world where representative problems of the earth and its living communities are in focus, set the stage for deeper involvement of IUCN in conservation's broadest issues and highest forums. Following its mandate, IUCN has moved ahead to embrace in a major way the important and much needed role of generalist, as well as specialist; by strengthening its staff and its ability to utilize the incomparable resource of scientific and expert capability represented by its Commissions, it came into the forefront of major conservation action movements. At no time in the Union's 22-year history has it been better able to advance, through working programmes, the aims and purposes of its Statutes.

UN Conference – 1972

Following active participation in the Council of Europe's 1970 Conservation Conference - that organization's first full-dress meeting on the subject - the Union began taking part in a series of meetings in New York and Geneva in anticipation of the June 1972 United Nations Conference on the Human Environment in Stockholm. Strong contacts were established with the UN organizing group, and with the Conference Secretary General, Maurice F. Strong of Canada, who visited Morges in September. It is anticipated that fruitful associations will continue during the preparatory phases, and through the Stockholm meeting, and that from its deliberations, world-wide directions will emerge to sustain and improve the human environment.

Particular areas in which IUCN has been active include formulation of a proposal for the institution of a World Heritage foundation. (See project No. 1-2). It is foreseen that this will lead to a global system of safe-guarding outstanding areas of scenic beauty, geological interest, biological or historical-archaeological value. The Union has worked on preparation of suitable draft conventions of international agreements on environmental matters for consideration at the Conference, and undertaken the preparation of a number of papers.

The MAB Programme

In October 1970, the Programme Commission of the Sixteenth General Conference of UNESCO approved unanimously the new Man and the Bio-

sphere Programme (MAB). The programme marks a major new venture for UNESCO and can bring important gains in scientific understanding of the structure and functioning of the biosphere and of man's inter-relationship with his natural environment.

Although a draft programme was presented to the General Conference, it was agreed in advance of the discussion by the Programme Commission that this served only as a framework or model of the final programme. Details of the new programme will be determined by an International Co-ordinating Council made up of scientific representatives of 25 nations. IUCN along with ICSU, FAO, WHO, WMO and UNESCO will be represented on this Council.

During the course of the debate it was made clear by Mr. René Maheu, Director General of UNESCO, and through strong interventions by representatives of member states, that IUCN along with ICSU and the concerned UN agencies will have major roles in the actual conduct of the long-range programme.

It is expected that the International Co-ordinating Council will meet in the second half of 1971 to initiate the new programme. It was agreed that the programme may be modified in accordance with any recommendations made by the UN Conference on the Human Environment to be held in Stockholm in June 1972.

11th General Assembly (IUCN Project No. 1-1)

Planning for the 11th General Assembly and 12th Technical Meeting was advanced considerably. It will be recalled that at close of the 10th General Assembly, Canada extended an invitation to the Union to hold its next meeting at Banff in September 1972, which invitation was accepted with enthusiasm.

In November, the Executive Board decided on the theme "Development for Conservation", and fixed the dates for 10-16 September, 1972.

During the following months, in co-operation with the organizing committee of the host country, details of the agenda and general arrangement were worked out.

In the months ahead a great deal of work will be required, in particular to refine the scope, form and content of the Technical Meeting, and to co-ordinate the work of some of these sessions so that maximum advantage will accrue from the earlier UN Conference at Stockholm, and from the Second World Conference on National Parks which will follow almost immediately (21-26 September) at Yellowstone and Grand Teton National Parks in the USA.

World Heritage (IUCN Project No.1-2)

Environmental experts have long been concerned that the pressure of population and the increasing tempo of development throughout the world are causing rapid encroachment on natural areas and cultural sites of outstanding interest and value to mankind. This concern has led to proposals that some form of foundation be created to provide for the safeguarding of these areas on behalf of the community of all men. IUCN has taken the initiative to crystallize ideas in this context. In May the Executive Board endorsed the proposal, and during subsequent months preliminary plans were formulated for an action programme that would lead to establishment of a world foundation as part of the outcome of the 1972 UN Conference on the Human Environment. In the autumn, a high-level task force was established, and conversations started with interested organizations, including the Secretariat of the Stockholm Conference. Under the proposal, three categories of areas would be included:

1. Natural areas of outstanding interest and value to mankind as a result of their unique geology, physiography, vegetation or wildlife. These will serve as centres for public visitation and for such outdoor recreation as would not impair the values that are being protected. In this category would be included areas that are now designated as major national parks and other areas suitable for such designation. Examples might well include Serengeti and Albert National Parks in Africa; Kaziranga, Ujung Kulon, and Mt. Everest in Asia; Jasper and Grand Canyon in North America.

2. Natural areas of outstanding scientific interest and value to mankind that represent unique or otherwise important examples of natural ecosystems which would serve as centres for scientific investigation (biosphere reserves). Public use of such areas would be restricted to activities that would not interfere with scientific values or studies. In this category would be areas now designated as strict nature reserves and other areas suitable for such designation. Examples might well include the Galapagos, Aldabra, portions of Antarctica, and sections of most of the larger national parks and wilderness regions of many countries.

3. Areas of unique historical, archaeological, or architectural value to mankind. These would be made available to public visitation and tourism with provisions for strict care of the values concerned. Examples are numerous: the Pyramids, Angkor Wat, Macchu Pichu, Chichén Itza, Teotihuacán, the Acropolis, Mt. Olympus, portions of Mecca and Jerusalem, etc.

As this report is written, considerable interest in the proposal has been voiced at high levels.

To implement the concept of the World Heritage it will be essential, of

course, that action be taken at the highest international level to establish standards of quality for the inclusion of areas within the system, and standards for the management, maintenance, use, and protection of the areas that will be included. Funds and trained personnel will also have to be provided, initially at least, to assist some nations to establish and maintain areas suitable for inclusion. IUCN is preparing to assist in developing such standards and in making recommendations for the inclusion of appropriate areas within the system.

International Youth Conference on the Human Environment (IUCN Project No. 1-3)

With special attention of the Commission on Education, IUCN assisted the International Youth Federation for Environmental Studies and Conservation in its joint efforts with the Environic Foundation International to organize an International Youth Conference on the Human Environment. This is scheduled to be held in Canada, 20-30 August, 1971, at McMaster University, Hamilton, Ontario. UNESCO and the Government of Canada are co-operating as co-sponsors, and the Secretary General of the UN Conference, Mr. Maurice Strong, has warmly endorsed the effort.

Some 300 young people from a large number of countries are expected to attend.

The conference is intended to be the focal point of a broad programme of involvement of young people and youth organizations in environmental issues. It is also expected that major youth inputs for the Stockholm meeting will be an outcome.

Development of conservation intelligence system and situation review

Effective conservation decisions require up-to-date information. Not only are facts on fauna, flora, habitats, and general environmental matters essential, but regional and even world-wide patterns must be considered for proper assessment of some problems. Similarly, information on past and present conservation projects must be known, and sources of expert information immediately available.

This kind of scientific support has been developed by IUCN over the years in connection with its Red Data Book projects and other activities. However, to meet the expanding needs of IUCN in providing a global oversight of conservation matters, this support is being broadened and strengthened.

The scope of the system encompasses the collection, storage, and

retrieval of information on natural resources; their management and productive use; past and present conservation efforts; and problems relating to the proper ecological balance of the biosphere. The goal is to help IUCN achieve the stature of the most important conservation center in the world. To this end, the system provides material, information, and bibliographical services in IUCN's fields of activity to the Secretariat and all IUCN Commissions.

In order to promote expansion and intensification in the dissemination of information to the world's conservation community, a situation review reporting on the status of conservation on a world-wide basis is planned for publication at intervals.

Co-operation with other documentation centers is being increased to augment IUCN data and avoid unnecessary duplication.

Multilingual dictionary of conservation and environmental terminology (IUCN Project No. 1-4)

This project covers the preparation of a multilingual dictionary of conservation and environmental terms in English, French, German, Russian and Spanish. Effective international co-operation is often impeded by lack of agreement on interpretation of terms, not only by those speaking different languages, but often by those speaking the same language. International agreement on these basic terms is thus of great importance.

Dr. L.K. Shaposhnikov (USSR), Chairman of the IUCN Commission on Education, first proposed this project in 1969 at the 45th meeting of the IUCN Executive Board, and it was approved in principle at that time. Subsequently, a working team was established in the Central Laboratory for Nature Conservation of the USSR in the Ministry of Agriculture, Moscow. The team has drafted a selection of terms in the following categories: 1. General Terms; 2. Land; 3. Water; 4. Vegetation; 5. Fauna; 6. Landscape; 7. Protection; 8. Legislation and Administration. Translation is proceeding, and special consultants for English, French, Spanish and German have been appointed.

The dictionary will consist of two basic parts: An Annotated Glossary and an Alphabetical Index. It will include special terms commonly used by scientists and specialists, terms of broad and complex meaning not normally included in specialized dictionaries, terms differently interpreted and understood, and terms having specific national applications for which translation into other languages is difficult. Taxonomic names, names of minerals, soil types, etc., all of common usage, will be excluded.

It is hoped that the project can be completed in 1972. Commercial publication is being considered.

Monitoring of species populations and biotic communities (IUCN Project No. 20-1)

There is an increasing recognition of the need for monitoring, on a global scale, of selected environmental parameters to provide up-to-date information on the status and trends of world-wide environmental health. The health of biotic communities is a critically important component. Certain species, such as those at the top of food chains, are particularly good indicators of the health of entire biotic communities. Sample areas of ecosystems are required for continuing study to ensure the effectiveness of such monitoring.

IUCN's work on conservation requires that it keeps track of situations calling for conservation action as part of the objectives defined by its Statutes with a view to promoting such action. Such activities have long formed the hard core of IUCN's programme.

IUCN has been involved in census of rare and vanishing species for many years, the results being published in its Red Data Book series. It has also decided to have the IUCN Secretariat devote greater attention to depleted species and wildlife statistics to accumulate population data on species whose numbers are being depleted to a degree that threatens to place them on the endangered list.

IUCN also has been concerned with recording and appraising, on a continuing basis, fragile ecosystems of special value to science. Thus the UN List of National Parks and Equivalent Reserves covers data on many ecosystems throughout the world that are already being conserved; the MAR list covers wetlands, the TELMA list covers peatlands, and the AQUA list covers freshwater lakes. Some of these activities have been developed as co-operative ventures with the International Biological Programme (IBP). Recently IUCN agreed to accept continuing responsibility for work started by IBP/CT to inventory and monitor sample ecosystems available for scientific research with a view to ensuring that adequate samples of all the world's ecosystems are conserved for scientific purposes.

Recent decisions, culminating in the formation of a Marine Habitats Committee within the IUCN Commission on Ecology, involve monitoring of marine habitats including coastal and estuarine areas. IUCN also has had a long-standing interest in island ecosystems and already another IBP-IUCN effort has compiled a list of scientifically-valuable islands.

Other IUCN activities are concerned with the conservation of landscapes of special interest and the establishment of a World Heritage to safeguard areas and sites of special scientific and cultural value.

Existing and projected activities of various bodies throughout the world concerned with different aspects of this topic have recently been summarized in a report by the Smithsonian Institution. It is clear that IUCN work in this field should be dovetailed into new activities now being planned at the international level, particularly since measurements of biological parameters should be correlated with physical changes in the environment which involve elaborate measurement facilities. IUCN therefore welcomes its activities becoming part of a world programme of monitoring involving a central co-ordinating machinery, such as, for example, the International Council of Scientific Unions (ICSU) proposal for its Special Committee on Problems of the Environment (SCOPE).

This project will be developed in close collaboration with UNESCO as part of the Man and the Biosphere Programme.

Relevant decisions concerning intensification and expansion of these activities were taken by the 10th General Assembly, the 48th Meeting of the Executive Board in May, 1970, and recent meetings of the Survival Service Commission.

The current and planned investigations relate to information needed for conservation action programmes involving management, legislation and education. Special attention will be given to presenting results with these end-uses in mind.

The project involves the expansion, improvement and operation of the IUCN network for gathering information on the status of species populations, biotic communities and representative ecosystems; the further development and operation of IUCN data-handling machinery concerned with this field of activity; arrangements for analysis and appraisal of the data; arrangements for a continuing situation review and inventory; and methods of displaying, publishing and otherwise using the resulting information in setting priorities for and designing conservation action programmes.

These are seen as a series of interlinked continuing tasks, some aspects of which are closely related to other IUCN projects.

The execution of the tasks under this project will involve close co-operation between the Research and Planning Group of the IUCN Secretariat and the Executive Officers of ICNP, SSC and the Commission on Ecology.

Initial attention will be given particularly to activities connected with:

1. The four Red Data Book volumes concerned with threatened species of vertebrates.
2. The proposed Amber List of depleted species of vertebrates.
3. The UN List of National Park and Equivalent Reserves.
4. Co-operation with IBP/CT in the Checksheet Survey.

5. Development of monitoring of biotic communities involving threatened and depleted species of animals and plants, particularly those in tropical rain forests.

Wherever possible the projects in this group will be carried out as co-operative ventures with international agencies such as FAO and UNESCO and other appropriate bodies, including the ICSU groups, IBP and SCOPE; and ICBP. WWF support will be available.

CONSERVATION OF BIOTIC COMMUNITIES

Second World Conference on National Parks (IUCN Project No. 25-1)

This conference, which has been planned for several years as a major part of the National Parks Centennial Year in the United States, will be an occasion for a world assessment of the past 100 years of effort in the national park movement which began with the formation of Yellowstone National Park in 1872.

The Conference will be even more important, however, as an opportunity for world experts to explore together, in a time of great change, how national parks and equivalent reserves can better fulfil their diverse and valuable social purposes, and how their enormous scientific potential can be realized.

Theme of the Conference is: National Parks - A Heritage for a Better World.

The Conference will be held 21-26 September 1972 at Grand Teton National Park in Wyoming, USA, with certain activities being planned for Yellowstone National Park in connection with the Centennial observance. The two parks are essentially contiguous.

In June, members of the IUCN Executive Board and Secretariat and the ICNP met with US officials and conservation organization representatives to determine the themes and scope of the conference.

It was agreed that IUCN, the Department of the Interior, and the National Parks Centennial Commission would sponsor the event, with UNESCO, FAO and the Natural Resources Council of America as co-sponsors.

At this time planning is well advanced with details being co-ordinated between IUCN and the National Park Service of the USA. Constant liaison is maintained with the co-sponsoring organizations.

Two book projects in connection with the Conference were started during the year. Following a recommendation of the ICNP at its April meeting in Morges, the Executive Board approved preparation of a volume reviewing park principles and practise on a world basis, to be carried forward under the general supervision of Professor Jean-Paul Harroy, Chairman, ICNP (IUCN Project No. 25-2). Late in the year it was agreed that a second book in the nature of a commemorative volume should be prepared for the Conference (IUCN Project No. 25-3).

UN List of National Parks and Equivalent Reserves

After several years of exacting labour, largely by Sir Hugh Elliott, IUCN's scientific editor, the English translation of this basic IUCN reference volume was published in 1970. Two English versions were produced, an official volume for distribution in the UN system through ECOSOC, and a version for public sale.

The new English edition updates the first edition which was published by IUCN in French in 1967 after years of painstaking work by Professor Harroy. Considerable new data gathered by Professor Harroy is included, along with new maps. Relevant information from available IBP/CT check-sheets is also incorporated in individual park listings.

As an on-going activity (IUCN Project No. 20-6), data for a third edition in loose-leaf form are being accumulated. Plans to utilize the computer facilities at the Nature Conservancy's Monks Wood Experimental Station (UK) for data storage and handling have been discussed. Properly developed, this would enormously facilitate issuance of new sheets, and print-out of up-to-date sections by country or region.

The UN List is a basic tool in a great many conservation programmes, and its use is continually expanding.

IUCN/IBP-CT (Conservation of Terrestrial Communities)

For several years it has been tacitly understood that IUCN would take over certain parts of the CT Section activity when the International Biological Programme concluded its work in July 1972. Parts of this Section are closely related to activities of the Union, and clearly it would be advantageous to carry forward this part of the IBP effort. To this purpose, several meetings were held during 1970 to discuss the proposal that IUCN take over as soon as possible the computerized Check-sheet Survey.

IUCN wishes to use the results of the IBP/CT Check-sheet Survey for two main purposes: (a) to clarify new reserve requirements (as a basis for action to have these reserves set aside), and (b) to improve the UN List of National Parks and Equivalent Reserves.

It is hoped that 3000 - 5000 check-sheets will have been completed by 1972, although in mid-1970 only about 500 had been processed.

IUCN agreed to assist in getting the check-sheets completed, and at its suggestion a modified check-sheet was adopted to simplify and speed the work.

Mr. Frank G. Nicholls is acting as liaison between IUCN and IBP/CT and will be assisted by the expanded IUCN secretariat.

Conservation of specific biotic communities

IUCN has long been concerned with conservation of specific biotic communities, and over the years has sponsored many action programmes. Some of these have been of continuing interest: wetlands, humid tropics, and island communities, to name three. During 1970 these interests were pursued with special emphasis on Madagascar, the Kaziranga Sanctuary in Assam, and the Ivory Coast, and steps were taken to broaden the Union's capability to deal with marine, polar and mountain problems - all of which are under increasing pressure of development and exploitation.

Madagascar

Probably the major emphasis was devoted to Madagascar, (IUCN Project No. 34-1) where several years of effort came to a focus in the International Conference on the Rational Use and Conservation of Nature, held at the University of Tananarive, 7-11 October. This conference was convened by the Malagasy Republic in close co-operation with IUCN, which handled all technical aspects. Co-sponsors were UNESCO, FAO, the World Wildlife Fund, the International Council for Bird Preservation, the International Biological Programme, the Natural History Museum of Paris, the University of Tananarive, and ORSTOM, the Overseas Scientific and Technical Research Organization of France.

Some 200 participants from 17 nations were present. IUCN President Mr. Harold J. Coolidge headed the IUCN group, which included Dr. Budowski and Dr. Patrick de Rham from the staff at Morges.

It was clearly evident that the basic problem facing Madagascar is how to preserve the unique flora and fauna from further destruction in an island that is, actually, a small sub-continent and offers such a high proportion of endemics and specific adaptations.

About nine-tenths of Madagascar's original forest has been replaced by grass or a secondary vegetation of little value. The growing cattle population is an ever-increasing threat to the little that remains. As a result, the

recommendations of the Conference put special emphasis on conservation of the flora and fauna as intimately linked with good use of land. The Conference also made clear that conservation is an essential ingredient in development plans; strong recommendations were made to that effect. A series of unique habitats also were singled out and the strongest action was recommended to afford them the protected status they urgently deserve.

The follow-up should become a case study in the history of conservation. There are many assets for success, even though some of the adverse factors appear at present to be overwhelming.

Details of this follow-up programme are now being prepared by Dr. de Rham, with assistance of a Madagascar project committee. This is expected to include a comprehensive land-use plan, recommendation for a strengthened and expanded system of national parks, reserves and sanctuaries, the formulation of necessary legal measures, and supporting educational materials.

Kaziranga

Kaziranga Wild Life Sanctuary, one of the most interesting and best-managed reserves in Asia, has been the subject of concern because of its special needs for development and protection, and the variety of interests proposing assistance projects. Brought into focus by the ICNP at its April meeting, and later by discussion of the Executive Board, these matters were placed under a special IUCN Kaziranga Working Group, headed by Dr. Luc Hoffmann, WWF Vice-President, with Dr. de Rham handling staff action. The group aimed in particular to co-ordinate international assistance and to work with Indian authorities on long-term management plans which take into account a wide range of ecological and social factors. During the year, a consolidated position was developed on such matters as wardening, road construction, ecological changes due to periodic flooding of the reserve and related control measures, use by livestock, tourism, tiger control, and participation by UN agencies. Difficult questions involving human occupation and uses and inclusion of adjacent areas into the ecological unit are unresolved. The group will continue working, and hopes to be able to develop a co-ordinated plan for the reserve.

Tropical rain forests

IUCN is concerned with arranging for the conservation of representative examples of various ecosystems. Among these, considerable attention is currently being directed to tropical rain forests with their diverse flora

and fauna. These forests everywhere have been under severe exploitive pressure, not only for the timber resources they contain, but even more by destruction of habitats to open marginal areas for agriculture or pasturage. These areas usually cannot sustain long-term agriculture, and eventually revert to secondary bush of very little value. Lands to be opened should be selected with great care, and rain forests maintained under good management. Losses, however, have been enormous in the last decade. IUCN has sought to develop a system of tropical rain forest National Parks including as many large undisturbed ecosystems as possible.

Tai Forest Reserve

For several years, considerable interest has been devoted to the Tai Forest Reserve (IUCN Project No. 41-1) in south-western Ivory Coast. This is a large area (425,000 ha) between the Sassandra and Cavally rivers, containing one of the last relatively undisturbed lowland rain forests in Africa west of the Dahomey gap. Both flora and fauna are rich and of great scientific interest. Mammals include elephant, pigmy hippopotamus, giant forest hog, and eight species of higher primates. Several of these animals are endangered species.

The Tai forest has been an established reserve since 1933. Until recently the area was naturally protected by its remoteness from large urban centres, the scarcity and the bad quality of the roads and the very low density of the indigenous population. All this is now changing rapidly. A deep seaport is being completed in San Pedro, new access roads have been built and more are planned. Settlement of peoples of ethnic origin foreign to the region is being encouraged. This development is the most serious long-term threat to the sanctuary. For the present, however, major concern stems from the activities of the big timber companies. A sawmill has been built close to the reserve at Zagné, attracting an important labour force, and the forest along the Guiglo-Tai road is being felled.

As a first step in preparation of a conservation plan for the Tai Reserve, IUCN's Research and Planning Group at the end of 1970 developed a project to survey the situation carefully and make recommendations for its management. WWF co-operation was assured for financial assistance in sending an expert to the area in the spring of 1971 to establish contacts between IUCN-WWF and the Ivory Coast authorities responsible, and to begin the survey work.

It is hoped that the Tai Reserve can be managed under a plan similar to that being established for the Gunung Loeser Reserve in North Sumatra and successfully carried out in the Ujung Kulon Reserve in Java.

Hawaii, Galapagos

In line with its interest in fragile ecosystems, the Union took part in a number of projects related to islands. It was one of many sponsors of the Colloquium on Endangered Species of Plants and Animals in Hawaii, which was convened by the Smithsonian Institution in Washington D.C. in May. The Galapagos, one of the world's most remarkable biological resources, was the subject of several actions. In December, Director General Budowski visited the Galapagos - he is a Board member of the Charles Darwin Foundation - to investigate, among other things, opportunities for development of "Scientific Tourism." The premise behind this IUCN effort, which is expected to become a project in 1971, is that increasing tourism is bound to come, and rather than letting it grow in disorder with related undesirable effects, steps should be taken now to establish necessary controls. This is foreseen as a co-operative effort between tourist organizations, governmental authorities and conservationists to develop carefully controlled scientific and educational visitation plans which will protect the physical and living resources from impact harm.

Islands for science.

On a broader scale is the Union's concern with Pacific islands, which stems from the Pacific Science Association's recommendation that IUCN should develop an international treaty or convention extending a conservation status to the Pacific islands similar to that provided for Antarctic islands by the Antarctic Treaty.

The 10th General Assembly of IUCN accepted this mandate and the responsibility of inviting the Governments concerned to conclude an appropriate convention which will set aside certain "islands for science". Selection of these islands would be based on consultations with IBP/CT, to review a provisional list of 39 islands put forward at a meeting of specialists at Koror, Palau Islands, in 1968. Selection of the islands, definition of the desired form of protection, and preparation of a draft convention should be ready for presentation to the Regional Symposium on the Conservation of Nature at Noumea in August 1971.

The subsequent phase is the launching of a far-reaching programme of research along the lines laid down in the description of Project 20 in the UNESCO draft programme for the Man and the Biosphere. IUCN and UNESCO, together with the Pacific Science Council, are expected to work in close collaboration on the implementation of such a programme.

Non-marine wetlands

Due mainly to their exceptionally high productivity, non-marine wetlands have a multiplicity of values: for science, ecological understanding and education, and many kinds of economic return, including fisheries, water supplies, flood-control and human recreation.

On the other hand, for many reasons - including attempts to remove health hazards and annoyances, and the mounting pressure to open up flat and fertile land for cultivation by the easiest and cheapest methods available - the number of wetland areas has sharply decreased, especially in the last fifty years. Remaining areas throughout the world are still under constant threat from drainage and pollution, which may be deliberately planned or arise incidentally from ill-considered peripheral development. IUCN, in collaboration with other organizations dedicated to an ecological approach to the world's problems, has sought for many years to encourage a new outlook towards the management of wetlands. There is no doubt that with proper planning and modern technical methods, their conservation is not only feasible but can be achieved in such a way as to ensure maximum satisfaction of human ecological requirements.

Since 1961 IUCN, through its Commission on Ecology, has co-sponsored three major projects aimed eventually at covering non-marine wetlands on a global basis. These are Project MAR "for the conservation and management of temperate marshes, bogs and other wetlands"; Project AQUA "for the conservation of aquatic habitats (lakes and rivers)"; and Project TELMA "for the conservation of all actually or potentially peat-forming ecosystems." The common basic aim of all three projects is to identify and obtain international recognition of wetland sites of international importance, bearing in mind the formula established, and success in this regard achieved by the List of National Parks and Equivalent Reserves. The position reached in the three projects is as follows:

1. MAR was launched at the MAR Conference (November, 1962) under the joint sponsorship of IUCN, the International Council for Bird Preservation (ICBP) and the International Wildfowl Research Bureau (IWRB). Of the thirteen resolutions adopted, several have been wholly or partially implemented, notably-

- (a) Resolution 9: Compilation of a list of European and North African wetlands of international importance. This was entrusted by IUCN to IWRB and resulted in the publication in 1965 of the "MAR List" (IUCN Publication New Series No. 5), which it was agreed should be based primarily on the ornithological value of the selected sites, since birds are the best known and most readily assessable indicator species.

- (b) Resolution 12, which called for the promotion of further international

and regional conferences, as a basis for extending and strengthening the project, has been implemented *inter alia* by the Technical Meeting on Wetlands Conservation organized by IUCN's Commission on Ecology and held at Ankara in October 1967. As a result, a first list of internationally important wetland sites in south-western Asia was drawn up, as well as a number of general and specific recommendations.

Material for revised or additional MAR lists is contained in the proceedings of the Ankara, Noordwijk and Leningrad meetings (the last named not yet published) and papers prepared by Mr. Atkinson-Willes and Dr. Szijj for a Conference at Ramsar, Iran, early in 1971. Additional material is included in papers already published in "British Birds" on the Camargue, Coto Doñana, Tunisian wetlands, Majorca and Po Valley.

2. AQUA: The tripartite initiation of this project was confirmed by the sponsoring bodies in three stages, by the Societas Internationalis Limnologiae (SIL) at Salzburg in September 1959, the Commission on Ecology of IUCN at Zurich in May 1961, and the Freshwater Productivity Section of the International Biological Programme (IBP/PF) in 1964. The first objective, the preparation of a list of sites of international importance, undertaken jointly by Professor H. Luther, on behalf of SIL and IUCN, and Dr. J. Rzóška, Scientific Coordinator of IBP/PF, was completed and published in provisional form by the IBP Central Office in August 1969, with the financial assistance of IUCN.

The scientific version of the AQUA list comprising about 650 items in 76 countries, now in press, is three times the size of the provisional list already published and should become a major source book on aquatic sites, valid for the next three or four years. Co-ordination with the UN List of National Parks and Equivalent Reserves has already been affected, but not yet with CT check-sheets, or with MAR or TELMA sites.

3. TELMA was launched at a Technical Meeting in June 1967, under the joint sponsorship of UNESCO, the Productivity and Conservation of Terrestrial Communities Sections of IBP (PT and CT) and the Commission on Ecology of IUCN. Some of the introductory material of the TELMA publication is now in draft and will be included in the IBP/CT progress report which is to be published soon. The list itself, through the contribution of a number of countries, notably Canada, the UK, Scandinavian countries, Czechoslovakia and Japan are known to be in an advanced state of preparation, is not likely to be collated before the end of 1971. The ultimate aim is a source book on the same lines as that of Project AQUA.

To advance co-ordination of these activities, a Working Group, consisting of representatives nominated by FAO, IBP, ICBP, IUCN, IWRB, SIL, and UNESCO, will be set up to provide for consultation between the various interested organizations and to define action needed in relation to various

aspects of wetlands conservation. The first meeting is planned for March, 1971.

The terms of reference of the Working Group are:

1. To provide a mechanism for consultation between various organizations interested in wetlands.
2. To provide IUCN and other organizations concerned with advice in connection with the co-ordination of activities affecting Projects AQUA, MAR and TELMA.
3. To provide IUCN and other organizations concerned with general advice in matters relating to wetlands, and in particular, in matters relating to the proposed Wetlands Convention and any other action necessary for the implementation of wetlands conservation measures.

IUCN Secretariat will provide an executive officer to service the Working Group, and to follow-up specific action decided on by the Working Group.

New habitat committees

As previously noted, IUCN took steps during 1970 to increase its effectiveness in considering problems related to several other types of habitats. Proposals to organize three new Committees within the Commission on Ecology were approved, and chairmen selected for two. The new groups will be a Committee on Arctic Habitats, to be chaired by Professor W.A. Fuller (Canada); a Committee on Mountain Habitats, which will be headed by Professor Kh. P. Mirimanian (USSR), and a Committee on Marine Habitats. An initial organizational meeting of the latter group was held in December.

In addition to maintaining watching and consultative briefs, these groups will have special interests in projects related to the three habitats, and will work with the Secretariat during the lifetime of the projects.

CONSERVATION OF TAXONOMIC GROUPS

Red Data Book

IUCN has had a long-standing concern with rare and endangered species of plants and animals. This concern has been expressed through the work of the Survival Service Commission, and in the publication of the Red Data Book on rare and endangered species.

Originally begun as a private publication for IUCN's internal use, to fill needs not being met, the Red Data Book was opened to public subscription in 1966. It has become the universally recognized standard reference publication on rare and endangered species, and one of the accepted tools in the monitoring of biotic communities.

At present, five volumes are published:

I Mammalia

II Aves (compiled by ICBP)

III Reptilia and Amphibia

IV Pisces

V Angiospermae

Volumes 3 and 5 were first published in 1970.

All volumes are in loose-leaf form. Beginning in 1971, new and replacement sheets will be issued periodically and sold at an additional charge rather than being included as a service in the original cost of each volume.

Depleted species

A depleted species may be defined as one whose populations are declining at a rate greater than the species can sustain. If the populations have already been heavily depleted and continue to decline at a rate substantially greater than can be sustained, the species' survival may be threatened and it will then be eligible for inclusion in the Red Data Book.

For some time the SSC has been under pressure to include within its programme those depleted species whose status has not yet reached the critical point where their survival is actively threatened. It has been argued that by confining its attention to species that are seriously threatened, the Commission is losing opportunities to save depleted species when conservation action might be easier and more effective. The fact is that the Commission already devotes considerable time to depleted species but is unable to accept responsibility for them officially when its resources are inadequate to cope effectively with threatened species.

Early in 1969, the IUCN Executive Committee recommended that a new section be created to deal with this problem and in particular to

prepare an Amber Data Book on the depleted species. No action was taken on the proposal because funds were not available for that purpose. Reconsideration of the project was made possible as a result of the expanded programme of IUCN.

The Executive Board at its 48th Meeting in May 1970 endorsed the proposal that a depleted species activity be established within the IUCN Secretariat and that this should be combined with work on animal population statistics. Lack of funds for this purpose precluded employment during 1970 of a qualified statistical officer and compiler for the proposed Amber Book.

By the year's end, however, negotiations were well started for the secondment of an expert to IUCN from the USA.

Survival of the kouprey (IUCN Project No. 19-1)

The kouprey *Bos sauveli* is the rarest living bovid. As a very primitive form of ox it is of considerable scientific significance, not only to zoology and ecology but also to future domestic livestock production.

For a number of years the status of the kouprey has been of concern to the SSC and IUCN as a whole. Because of the experience accumulated on this subject, the Union is the most appropriate organization to initiate action to ensure the kouprey's survival.

The kouprey occurs in Cambodia, with a few animals thought to be in Thailand and Laos; its numbers have declined from an estimated 650 - 850 to less than 100 in 1969.

In July, 1969, the SSC agreed that a capture operation should be mounted for the purposes of establishing one or more captive breeding herds and that a Kouprey Project Group, under the Chairmanship of Dr. P. Pfeffer (Paris Museum of Natural History) should be formed. Dr. Pfeffer is well known to Cambodian officials and has considerable knowledge of the kouprey and its habitat. In November, 1969, a detailed WWF Project was prepared for a two phase captive operation. The Union's President, Mr. Coolidge, in consultation with the Cambodian Minister of Agriculture and the Forestry Department, prepared a plan for an ecological study of the kouprey by a joint Cambodian/IUCN field team. The project was to be co-sponsored by FAO and UNESCO, and the proposal was approved by the Cambodian Council of Ministers in January 1970. Under the terms of this proposal, the project was to have started in April, 1970, under Dr. Pfeffer's leadership, but the outbreak of hostilities in Cambodia and the change of Government prevented implementation of the plan.

In May, 1970, the IUCN Executive Board, at its 48th Meeting, approved the action that had been taken on the matter to date, agreed that Dr. Pfeffer

should leave for Cambodia at the first favourable opportunity "to take whatever steps he can to help save the kouprey", and re-established the original Kouprey Project Group as an IUCN Task Force.

A special fund with contributions from the WWF (International), the Fauna Preservation Society, and the Paris Museum of Natural History, has now been established to finance immediate action when it can be taken.

Polar bears (IUCN Project No. 10-1)

The polar bear is listed in the IUCN Red Data Book of threatened species and is subject to heavy sport-hunting. It is an important source of meat and hide to the Eskimo, as well as being the principal predator of seals. Until relatively recently, little scientific data has existed on the species' ecology, population dynamics and breeding biology.

IUCN acted as the receiving and co-ordinating agency for international exchange of information from September 1965, when the arctic nations met at Fairbanks, Alaska, to consider the future conservation of the polar bear, until the end of 1967. In January 1968, the IUCN organized the first working meeting of polar bear specialists at Morges for scientists from each of the 5 arctic nations, to review current research activities and needs, and to consider more effective scientific co-operation on a continuing basis. A Polar Bear Group was formed as a result of the initial meeting with the principal purpose of collecting data on the polar bear's natural history as a basis for future management.

The second working meeting of the Group was held in February 1970, also in Morges, in order to review progress, to co-ordinate research activities for the next biennium, and to discuss items of particular relevance to future study and management.

Considerable progress and good co-operation between the five groups of scientists was reported. Plans for continuing established lines of research as well as new investigations were agreed to. February 1972 was fixed as the date for the third meeting of the Group.

Participating governments played an important role in supporting the meetings and in co-operating in the follow-up. However, the meetings would not have been possible without the financial support of the Conservation Foundation (Washington, D.C.).

Conservation of crocodilians (IUCN Project No. 26-0)

The crocodilians represent a valuable national asset of many countries, both as a tourist attraction and as a source of high-grade leather available for exploitation on a strictly limited and rational basis. Like other predators

and scavengers they have an important ecological role. Furthermore, the crocodilians are of immense scientific interest as the only surviving members of the archosaurian group of reptiles which included the dinosaurs and flying reptiles - the dominant forms of vertebrate life throughout much of the Mesozoic period.

The main cause of the rapid and dangerous decline of crocodilians in recent years has been the uncontrolled killing of these animals for the leather trade. Hitherto, rational management has been the exception rather than the rule and in some countries crocodiles are still classed as "vermin". As a result, some 14 out of the 21 existing species are already considered by the Survival Service Commission as seriously threatened with extinction.

Crocodilians are essentially inhabitants of restricted areas; they do not migrate and their conservation is a local and national problem. Special approaches must therefore be made to the governments of countries where breeding populations are still to be found. This seems particularly important in the case of certain countries and regions (such as Colombia and West Africa) where several species are indigenous.

At its 23rd meeting held in Bonn in August, 1969, the IUCN Survival Service Commission decided to establish a Crocodile Specialist Group, its main object being first to collect the necessary information for the Red Data Book volumes and second to suggest positive steps for preventing such extinction. Members of the Group worked during 1970 to prepare information on the national and regional levels, and a working meeting of specialists was planned for March, 1971. It is hoped this meeting will lead to international group activities similar to those of the Polar Bear and Marine Turtle Groups, serving to correlate existing information on the status of the various species, to determine national and international research, conservation and management priorities, and to devise mechanisms for co-operation and co-ordination of effort in these fields.

Non-human primate conservation (IUCN Project No. 16-1)

The IUCN Commission on Ecology and Survival Service Commission have recognized the necessity and urgency of promoting the conservation of non-human primates, and the matter has been discussed at various meetings over the past several years. Destruction of habitats with increasing human population pressure, coupled with harvesting of many species for bio-medical studies and research and for the pet trade, has caused the depletion of non-human primates throughout the world.

Following discussion at the SSC meeting in July, 1969, a Primate Group was formed under the chairmanship of Professor Dr. D. Starck (Frankfurt University, and President pro-tem of the International Primatological

Society). Mrs. Barbara Harrisson was designated to act as secretary of the Group for one year. She undertook to assemble relevant background information on the present situation of non-human primates throughout the world. The resulting paper "Conservation of Non-Human Primates in 1970" provided background for the first meeting of the Primate Group (Zurich, August, 1970) and will be published in "Primates in Medicine" (Karger, Basel/New York, in press).

The Group recommended that a more adequate machinery be established within IUCN to deal with conservation of non-human primates, and that progress and results be reported at a second meeting of the Group scheduled to be held at Portland, Oregon (USA) in August, 1972 in conjunction with the 3rd International Primatological Congress.

Accordingly it was proposed that a scientific Co-ordinator be designated to work full time in co-ordinating and promoting non-human primate conservation. At the end of 1970, funds were being sought for the office.

The tasks to be undertaken include:

1. Definition of field projects required to fill gaps in knowledge of the ecology, present status and population dynamics of certain primate species, and action to promote such projects.
2. Action to support the formation of reserves for threatened primate species and to promote adequate protection in existing reserves.
3. Action to improve existing methods for procurement and usage of primates as a resource. (Co-operation will be sought from national and international bodies, institutions and industries already concerned with the preservation, exploitation or management of natural resources in the tropics or having a user-interest in the continued availability of non-human primates.)
4. Data collection on all matters relating to non-human primates to provide background material for use by national and international bodies and agencies, the compiler of Volume 1 of the Red Data Book, and generally by IUCN.
5. Action in relation to the implementation of recommendations of the Primate Group, including arranging appropriate meetings and compiling reports.
6. Action to secure support from foundations and other interested agencies for specific projects in non-human primate conservation.
7. Preparation of an identification manual for primates.

The scientific Co-ordinator will undertake some of these tasks and will co-operate with the Secretariat of IUCN wherever possible in the remaining tasks. All interventions, applications for funding and other policy aspects will be the responsibility of the Secretariat. Members of the Primate Group will, of course, contribute to the work.

For several years the vicuna, which is native to the high plateau of the central Andes of South America, has been listed in the Red Data Book under category 2. This indicates that while the animal is not under immediate threat of extinction, it occurs in such small numbers and/or in such a restricted or specialized habitat that it could easily disappear. The vicuna thus has been of great interest to IUCN, WWF, FAO, and other international agencies which have recognized its value and sought its protection.

Primarily because of their fine wool, vicunas have been under severe pressure. One animal produces between 150 to 200 grams of wool annually, and from governmental statements on the amounts of wool exported, it has been computed that from 1950 to 1970 about 400,000 vicunas were killed. Today it is believed the world population of vicuna does not exceed 15,000 animals, most of which are in Peru. About 1000 vicuna are thought to be in Bolivia, with perhaps several hundred in Chile and a few in Argentina.

The animals are legally protected in all four countries, but enforcement has been difficult to achieve and the wool has found its way to markets in Europe and the USA. However, action has been taken recently in the USA and Great Britain to prohibit imports of vicuna wool and this should result in some reduction of the pressure.

As previously noted, various scientists and organizations have been concerned with studies and projects on the vicuna over the past few years. IUCN has taken notice of the problem in resolutions passed by its General Assemblies as well as at the Latin American Conference on the Conservation of Renewable Natural Resources at Bariloche, 1968, and formed a Vicuna Group under its Survival Service Commission. The Group meets under the Chairmanship of Professor Dr. W. Herre. Considerable work has been done by such experts as Dr. R.K. Hofmann in Peru, and Dr. H. Jungius (formerly a UNESCO consultant in Bolivia, and now on the staff of WWF-International) who started work on a project towards the establishment of a national park in Ulla-Ulla in Bolivia, a project being sponsored by the Frankfurter Zoologische Gesellschaft and the WWF.

There is, however, a clear need to review the many diverse programmes of research and management that have been, or are being, carried out, and to appraise the current status of vicuña populations and habitats, as well as management problems and techniques, before a clear programme for future action can be formulated. An analysis and evaluation of trends is required as a sound basis for action to guarantee the survival of the species and to reintroduce it to selected habitats throughout its natural range. This would also guide the research necessary for supporting scientific management projects.

Late in 1970, discussions with WWF, FAO and others - including a thorough review at the FAO Latin American Forestry Commission meeting in Quito in November - led to formulation of the present project series. This project covers the preparation of a paper, by early summer 1971, reviewing research and management activities on the vicuna, with an appraisal of specific parameters affecting the vicuna population; using this paper as the basis for a technical meeting planned for August-September, 1971, to review the current situation and evolve the basis for effective vicuna management; and ultimately to formulate a long-term programme for conservation and management of the species. FAO and WWF are collaborating fully in this activity.

Status and management of threatened deer (IUCN Project Series No. 22)

The object of this series of projects is to ensure the survival and to improve the management of world threatened taxa of Cervidae.

There are nearly 900 threatened taxa of vertebrates in the Red Data Book. The SSC has long recognized the need to group species in action programmes and to promote national responsibility for threatened forms among governments, if the aim of ensuring the survival of these animals is to be attained.

Ultimately, the success of any conservation programme depends on the amount of sustained effort that can be devoted to it. The present project series envisages a member of the IUCN staff undertaking special responsibility for a group of threatened species and initiating appropriate study and conservation projects, with the advice and support of the SSC Specialist Group concerned.

The SSC's grouping of threatened species has been either geographical or systematic. In this case, a systematic group (the Cervidae) has been selected for attention for the following reasons: (a) the Cervidae are well represented in the Red Data Book (27 taxa); (b) a so-called world programme for threatened deer would have good fund-raising potential; and (c) most of these taxa are confined to two or three major geographical regions, and much of the experience gained in the collection of data and the formulation of corrective action for some species will often have ready application to others.

No other organization is planning to undertake a programme for these animals. Although the bulk of the projects in this series is expected to be initiated by the IUCN, every encouragement will be given to other international or national conservation organizations that are well placed, by virtue of their location, expertise or available resources, to undertake projects for the particular species involved.

The detailed objectives of this project series are:

1. To focus scientific and governmental attention on threatened Cervidae presently included in the Red Data Book.
2. To initiate collection of data on the status of these taxa.
3. To promote better management of these animals, with the immediate object of ensuring their survival, and the long-term object of ensuring their rational use as viable resources.

In general terms, the overall approach to these problems will require three phases of action, the first of which is expected to begin in 1971:

1. A survey of literature and establishment of contacts in the countries concerned, to supplement the information in the Red Data Book and to enable the compilation of an up-to-date dossier on the status of each taxon.
2. An analysis of these data to determine priorities for attention (action on certain species, at the present time, may prove to be undesirable or indeed impossible).
3. Approaches to all the governments concerned, informing them of the Union's interest in this subject and requesting information on the status of these species on a continuing basis. In the case of priority species, an offer would be made of specific technical advice or assistance.

Wolves

For centuries, in many parts of the world, wolves have been ruthlessly persecuted as "vermin" in the mistaken idea that they are harmful predators and dangerous to people. As a result some species are now extinct, and remaining races are seriously depleted or endangered. Two species, the red wolf and the maned wolf, are listed in the Red Data Book.

For several years the SSC has considered the advisability of forming a Wolf Group along the lines of several of the other specialist groups dealing with the problems of certain families of animals. The matter was discussed at the Zurich meeting of the SSC in August, and in November, the Executive Board approved formation of the Group under the chairmanship of Professor Douglas H. Pimlott (Canada). Representatives from 18 countries will probably be included in the Group, which will be established during 1971.

Whales (IUCN Project No. 21-1)

Whales have been the object of much attention in view of their commercial importance. In the past, a number of the great whales have been seriously depleted by over-exploitation. Eight taxa are currently listed in the Red

Data Book. Although the regulatory activities of the International Whaling Commission have reduced serious problems of over-exploitation, further international controls are required to ensure that regulations are observed and to enable depleted stocks to recuperate.

Precise information on whale populations is not readily available, although a great deal of data has been accumulated.

There is clearly room for a review of information on the current status of the various species and an assessment of the achievements and shortcomings of international regulation of whaling.

The ultimate objectives of IUCN and IWC are identical, namely to ensure that the utilization of the world's whale resources is rational. Differences arise only in regard to the speed with which it seems possible to attain these objectives. IUCN's interest includes a responsibility to draw the attention of IWC and its member governments to whale conservation matters which the Union considers are being neglected. The current project, which began late in 1970, involves the preparation of documentation for this and related purposes.

Cat conservation (IUCN Project No. 17-4)

Certain cat species are subject to exploitation for the fashion trade resulting in heavily depleted populations throughout many parts of their range; habitat destruction and social prejudices are responsible for the decline of many others.

Reports from field experts, game wardens and studies of pelt import statistics of the main fur manufacturing countries indicated some time ago that the rate of offtake of certain cat species was exceeding reproduction rate by a significantly high factor. No species can sustain this imbalance indefinitely. The Survival Service Commission, being aware of this situation, established its Cat Group in 1969 under the chairmanship of Professor Paul Leyhausen (Federal Republic of Germany), with the purpose of taking action to safeguard the most threatened species.

The Group has already been instrumental in providing the basic evidence for a moratorium on trade in certain species recommended by the International Fur Trade Federation; for devising and, in some cases, staffing projects on the status of leopard, cheetah, tiger, jaguar and ocelot and for stimulating studies on some of the rarer species of cats.

The work of the Group has expanded considerably and at the end of 1970 it was clear there was urgent need to carry out a number of additional tasks, including the following:

1. Definition, elaboration and co-ordination of field projects to fill gaps in knowledge of the ecology, status and population dynamics of certain cat species, and action to promote and fund such projects.

2. Scientific support of action designed to eliminate or diminish the threat to certain depleted cat species, including the provision of numerical data.
3. Collection of trade and other statistics which would provide information on the current utilization of certain cat species and which, together with information on the population dynamics of these species, would provide the basis for recommendations for cropping on a sustainable yield basis.
4. Background research to fulfil functions 1-3 above and to provide material for the information of interested parties, including the compiler of the IUCN Red Data Book.
5. Organization of meetings of the Cat Group if necessary and implementation of its recommendations.

At the year's end, funds were being sought to carry out this work.

Tigers

As a result of the resolution taken at the 10th General Assembly of IUCN which called for a complete moratorium on tiger hunting for a period of five years, IUCN is committed to conducting a census of the Indian tiger population within the next five years. Arrangements were pursued with the Smithsonian Institution for initiating a joint survey to be undertaken in the course of 1971/72 in conjunction with the Indian Government. The Bengal tiger was placed in the Red Data Book in 1970. Its numbers are considered not to exceed 3,000 for the entire Indian sub-continent.

A subsidiary project on tigers was begun in 1970. This was a man-eating tiger study undertaken in the Pakistan Sunderbans tidal jungle, in the delta of the Ganges and the Brahmaputra rivers (IUCN Project No. 17-1). It is estimated that fewer than 100 tigers exist in the 3,000 square miles of the Sunderbans. The East Pakistan Government plans to set aside two areas close to the Bay of Bengal, about 50 square miles each, as strict nature reserves.

The object of the survey is to make a detailed ethological assessment of the man-eating tiger problem, to determine the reactions of the local human populations to the threat, to find means of preventing man-eating and to make recommendations as to the management of the area for the common benefit of the tiger and the local inhabitants.

Phase 1 of this project began in November 1970 with the financial help of the World Wildlife Fund and the Forest Department of East Pakistan. Ethological and ecological studies were undertaken in order to determine the long-term measures required for solving the man-eating problem and

for ensuring the continued existence of a viable population of tiger in this area.

An attempt will also be made to estimate the remaining tiger population and to study the behaviour and ecology of the tiger in this difficult terrain of mangrove swamp and stretches of tidal water.

Phase 2. November 1971-October 1973. This phase will be prepared during the first phase. Its objective is to obtain a fairly complete knowledge of the ecology of the area, especially its large mammals, assess the merits of the current plans of the East Pakistan Government to establish two strict nature reserves with two national parks open to tourism adjacent to both, and if necessary to propose amendments, and to work out recommendations for the management of wildlife and tourism.

Marine turtles (IUCN Project Series No. 9)

The overall objective of this series of projects is to ensure international co-operation in effective conservation management of sea turtle resources.

In many parts of the world, marine turtles and their eggs form an integral part of the protein diet of indigenous peoples. Owing to serious over-exploitation, not only for their meat, but for their leather and calipee, most species are now in serious danger of extinction. The implementation of an effective sea turtle conservation programme would therefore represent a significant contribution to human welfare.

In the latter half of 1968, the Survival Service Commission recommended to the Union that a small working meeting of specialists in marine turtle research and management be convened early in 1969. The purpose of this meeting was to review existing information on marine turtles, to determine the national and international research and conservation priorities and to examine the scope for future cooperation in this field.

The IUCN Marine Turtle Specialist Group was revitalized and expanded considerably in the March 1969 meeting of world marine turtle specialists at Morges. This meeting, financed by WWF, was highly successful. It resulted in an unprecedented exchange of ideas and information among specialists who in most cases knew each other well through published writings but who had never previously met. Numerous resolutions were passed relating to sea turtle conservation in different parts of the world, a committee was appointed to evaluate the highest sea turtle research priorities, and a Scientific Co-ordinator was appointed to ensure that the resolutions were acted upon and the momentum of the group maintained. It was also decided to reconvene, if possible, in two years' time, to review progress made. The detailed deliberations of the meeting have been published in IUCN Supplementary Paper No. 20. Resulting directly from the meeting,

detailed accounts of individual turtle species throughout their known range are presently in preparation by some group members.

In the latter part of 1970, steps were taken to re-convene the Group in March, 1971. This meeting will review progress made by members since the first meeting, and decide upon its research priorities. Representatives of a large-scale commercial project for the captive raising of green turtles (Mariculture Ltd.), which activity has an important bearing on many conservation decisions, will be invited to discuss their project with members of the Group. It is also planned for a representative of the turtle soup industry to be present.

ENVIRONMENTAL STUDIES

Evaluation of the ecological bases for the concepts of environmental quality (IUCN Project Series No. 11-0)

The idea that mankind is entitled to live in an environment of high quality has received much publicity in recent years. Concern for quality of the environment has begun to appear more frequently in programmes of national and international agencies. However, despite these expressed ideas, there has been little attempt to define the concept of environmental quality, even within one nation or culture, and virtually no attempt to explore the differences between nations and cultures. Indeed, there has been a widespread tendency to confuse environmental quality with freedom from pollution, partly because it is easier to identify negative than positive influences in an environment, and partly because pollution lends itself more readily to quantification.

The concept of environmental quality has more dimensions and parameters than the presence or absence of pollutants. Factors of light and shade, of climatic elements; the nature of land forms and water bodies and other physiographic features; the nature and arrangement of vegetation, and the presence or absence of various kinds of animal life; the arrangement and design of man-made structures; the existence of suitable living and working spaces; all these, and many more factors presumably contribute to man's evaluation of quality in an environment. Furthermore, the boundary conditions that limit the degree to which environments may be modified are the ranges of human tolerance for environmental factors

and the limits of tolerance of the organisms that comprise the ecosystems in which man exists. Obviously, a high quality environment will be one in which the limits of tolerance are not approached too closely.

Against this background, IUCN's Research and Planning Group has conceived a series of projects which ultimately could provide the keystone in the arch of environmental action programmes.

This series of projects is conceived to investigate the whole concept of environmental quality as it is related to ecological factors. This will include an investigation of human perception of environmental factors that are considered to contribute to or detract from quality in the environment, and a determination of the ecological factors that govern the operation of the environments in which man exists. The studies will involve comparisons between various ethnic, cultural and social groups within single nations, and comparisons between areas in which the ecosystems are similar but in which the human populations differ markedly in their ethnic origins, cultural or technological level.

At the close of 1970, the planning group had tentatively defined a variety of project studies, and was taking steps to explore objectives and methodology more fully.

Effects of recreation, tourism and related activities (IUCN Project Series No. 3-0)

This will be a series of projects initiated by IUCN as part of a broader project developed by UNESCO for inclusion in the Man and the Biosphere Programme.

Both positive and negative effects of tourist-recreation-oriented development may be readily observed in the islands of the West Indies. Many of the island states are heavily dependent upon income brought in by tourism. At the same time, tourist-oriented developments are sometimes destructive to the very environments that attracted tourism to the area initially, and the impact of a dependence on tourism on the social conditions of the local population is often adverse. It is obvious in this region that environmental and sociological factors are not given adequate consideration in planning for tourist-oriented developments, and adequate controls for environmental protection are lacking.

A project that will investigate the consequences of tourist-oriented development in the West Indies could develop guide-lines for planning and control that would be of value throughout the world.

In the last quarter of 1970, an initial project was prepared for further review and development in co-operation with the Caribbean Conservation Association, the IUCN Commission on Ecology and the Landscape Planning Commission.

It is proposed to investigate the effects on man and the environment of recreation, tourism, and related activities on selected islands in the Caribbean region. Studies would be initiated on one island in which the development of tourism has reached a high level (e.g. Barbados, Jamaica, St. Thomas). Social, economic and ecological consequences of this development would be investigated. Later, comparative studies would be carried out on islands representing different types of cultural backgrounds and ecological conditions. Recommendations for appropriate control of tourist-and-recreation-oriented development, backed by well documented case-studies, would be the ultimate result.

Scientific and educational tourism (IUCN Project Series No. 12-0)

This topic was discussed by the IUCN Executive Board in May 1970 and it was agreed that proper controls of scientific and educational tourism were desirable in relation to delicate ecosystems, especially islands, if conservation of these ecosystems was to be achieved. The problem was first brought under notice in relation to the Galapagos Islands, but undoubtedly it applies to other fragile ecosystems, such as the Seychelles, Aldabra and many others.

At the close of 1970, it was proposed that IUCN form a working group to examine this problem, to define objectives more precisely and consider methodology. This exploratory phase, to be carried out in 1971, would precede the formulation of a series of projects to be concerned with devising ways to channel the trend of increased tourism, particularly for scientific and educational purposes, in delicate ecosystems where increased tourism poses a threat of extensive damage. They will be concerned with bridging the gap between the users of resources, particular scientists and educators, and the managers who wish to keep the resources as highly productive as possible in perpetuity.

The use and role of fire in ecosystem modification (IUCN Project Series No. 2-0)

Fire has a long history of use in many regions of the world, and its effects on the environment have been profound. In tropical and Mediterranean zones especially, fire has been employed extensively for such purposes as range management, clearing land for pasture and cultivation, driving out game, protection of settlements and roads, and a variety of other reasons. In spite of the frequent and wide-spread occurrence of fire, conflicting data and opinions exist over its long-term effects, and the desirability, frequency, timing and intensity of burning under different environ-

mental conditions and for different management purposes. Since burning is such a well-established practise, it is necessary to reach a comprehensive evaluation of the character, behaviour and ecological effects of fire in different parts of the world.

During the planning meetings of the UNESCO MAB programme in November, 1969, a draft project on the Use and Role of Fire in Ecosystem Modification was prepared for inclusion. This is considered an appropriate area for IUCN action in collaboration with the UNESCO MAB programme and with FAO. The draft has therefore been submitted to the Ecology Commission for review, with the view to expanding or modifying it into a series of projects.

Action proposed might include projects related to the following:

1. Review of the incidence and distribution of fire (accidental and intentional, cyclical and sporadic, controlled and uncontrolled) in different environments.
2. Evaluation of the impact of fire and different burning practises on ecosystem components and processes, such as the floristic and physiognomic characteristics of vegetation, composition and abundance of macro-fauna and micro-organisms, soil structure and composition and the cycling of elements.
3. Research on burning practises compatible with the rational use and conservation of natural resources.
4. Studies on the feasibility of remote sensing by aircraft and satellites of the potential combustibility of vegetation.

Wildlife utilization and game ranching (IUCN Project Series No. 7-0)

Various forms of wildlife utilization for the commercial production of meat, hides, or other products, have a long history and are continuing today in many parts of the world. These vary from the carefully controlled fur seal harvest of the Pribiloff Islands to the completely uncontrolled killing or removal of wild animals in areas of Asia, West Africa and Australia.

Any use of wildlife based on the harvest or sale of animals that brings in a substantial income can, if properly controlled, be an important factor in encouraging wildlife conservation. Conversely, if uncontrolled, the same practise may lead to rapid wildlife depletion. It is important, therefore, to evaluate the various programmes for wildlife utilization that are being carried on throughout the world in terms of their economics, ecological consequences, and effects on conservation. Proposals for the cropping of wildlife can readily come into conflict with other proposals for its protection. It is essential to know to what extent these are compatible.

To this end, an initial project to analyze game ranching and wildlife utilization programmes in Africa was opened for discussion in early autumn, 1970, with Texas A & M University. It is hoped that the project can be started in 1971 in co-operation with FAO and that ultimately, through continued work, a substantial body of information can be developed on a worldwide basis.

Wildlife management in forest areas (IUCN Project No. 24-0)

Forestry is one form of land management that lends itself fairly readily to multiple use. Most Forest Services are well organized, well equipped and their senior staff, at least, has a basic ecological training. Nevertheless, in many parts of the world, forest wildlife is being depleted, often at an alarming rate.

The reasons for this situation include: a lack of wildlife training among staff, a reluctance to accept responsibility for a relatively minor forest product that requires considerable management effort, a reaction to the conflict that often arises between commercially productive forestry and the maintenance of wild browsing animals, and a failure to comprehend the potential values of this frequently neglected forest resource.

In many countries, the state Forest Service is the responsible authority for wildlife and even for national parks, and the subject is therefore of very considerable significance to world conservation. A comprehensive approach to the technical, educational and administrative problems involved is clearly essential.

In October 1970, the Secretariat proposed a study project be instituted to survey what present action is being taken or planned by international organizations, to investigate the problem at regional and national levels, and to identify areas for assistance programmes.

The principal objective of the proposed project would be the preparation of a set of minimum requirements for the organization of Forest Services and their forests in relation to wildlife, with adequate provision for staff training, research and management.

At the end of the year, the proposal was under review by the Commission on Ecology.

The role of exotic animals and plants in ecosystems functioning and stability (IUCN Project Series No. 5-0)

A feature of man's colonization and exploitation of the biosphere has been the disruption of existing patterns of species abundance and distribution. The change from natural diversity to monoculture and the introduction of exotic species has resulted in imbalances between populations and the environment, as well as more desirable increases in resource utilization. The

introduction by man of exotics has often been undertaken without a sound appreciation of all the factors involved, and not surprisingly this has led to both desirable and undesirable results.

The influence of man on species distribution is not only confined to deliberate introductions. Of equal importance are those introductions which occur as a result of man's mobility and his ability to drastically reorganize the appearance and boundaries of biosphere components. It is important to ensure that ecological consequences related to species distribution and abundance are fully considered in the planning of the many major development projects now contemplated or proposed.

The Ecology Commission has had a long-standing interest in the role of exotic animals and plants in ecosystem functioning and stability. During the 1960s a committee was appointed to investigate this problem, but because of lack of funds it was not possible to follow through with development of field studies and investigations relative to this subject.

During the planning meetings of the UNESCO MAB programme in November 1969, a draft project was prepared for inclusion in MAB. Since this is an appropriate area of action for IUCN, this draft is now being reviewed by the Ecology Commission with the view of expanding and revising it into a series of projects for which IUCN will seek active funding in 1971 as part of its contribution to the UNESCO programme.

Action proposed under the series would include:

1. Investigation of the factors leading to success or failure in species colonization and establishment in selected areas.
2. Study of the comparative performance and role in ecosystem functioning of exotic and endemic species.
3. Inventory and survey of the biota of separated areas before and after the lowering of biological barriers.
4. Development of methods for predicting the consequences or removing biological barriers or introducing species into new habitats.

PLANNING AND DEVELOPMENT

Liaison with development agencies - use of ecological principles in economic development (IUCN Project No. 8-1)

One of the objectives of the expanded IUCN programme approved by the 10th General Assembly was to promote the use of ecological principles in the formulation and execution of economic development projects. It is clear that such action is an essential ingredient in the overall objective of conservation of nature and natural resources.

This project is aimed at providing development agencies with materials and methods to assist in increasing the use of ecological principles in the planning and execution of their activities. It was conceived as the start of a series of IUCN actions needed to carry out the mandate of the General Assembly. The Conservation Foundation (Washington D.C.) is collaborating fully.

The first step occurred in mid-1970 when contact was established with the major development agencies, especially those involved in international projects. In September 1970, a Working Group of experts from these agencies plus ecologists, economists, social scientists and representatives from developing countries, was convened at FAO in Rome, with financial assistance from the Ford Foundation, to discuss the broad and urgent need for environmental considerations in development projects.

IUCN projects Nos. 8-2 and 8-3 reflect decisions taken at the September meeting. Definitive materials, described in following pages, will be produced under these projects. The effort will be carried forward in 1971 when steps will be taken to introduce the materials into active use. At the present time, a conference for this purpose is being considered for late 1971.

Ecological guidebook for development planners (IUCN Project No. 8-2)

This project is concerned with producing a short book which will present, through case histories and other illustrations, basic ecological and sociological concepts which should be considered by those proposing major modifications of natural systems as a part of economic development.

The need for such a book has been stressed by ecologists, sociologists, planners and administrators of agencies concerned with economic development and those concerned with conservation as a means for bringing about a working partnership between these groups. It would aid in the prevention of the environmental problems that have beset development projects in the past.

Proposals for this project stemmed originally from an international conference sponsored by the Conservation Foundation at Airlie House, Virginia, USA, in December, 1968. On that occasion case histories were presented illustrating the dangers of ignoring ecological principles in conducting international development. The project was further developed in conversations among representatives of CF, IUCN, IBP and major international development agencies.

Working against a target date of May 1971 for the finished draft, Dr. R.F. Dasmann of the IUCN staff completed a preliminary outline in August. This was discussed at length at a meeting of a special Working Group in Rome at FAO in September. By late autumn, a revised outline had been completed by Dr. Dasmann and John Milton of the Conservation Foundation, the two principal authors, and preparation of the first draft was well started.

Environmental case histories for development planners (IUCN Project No. 8-3)

This project covers the development of a book containing a series of case histories (primarily positive, i.e. successful ones) of man's endeavours to cope with the problems of his environment.

These data are also required for the full development of the proposed ecological guidebook (see IUCN Project No. 8-2).

Organizations concerned with the human environment have for some years pointed to the mistakes man has made in his attempt to cope with the joint problem of staying alive and maintaining a habitat suitable for his descendants. Those who have cried alarm have received the attention that they sought. Everywhere people are coming to realize that there are serious environmental problems and are asking *how* to cope with them.

As a partial answer to this need, IUCN proposes to develop a casebook of positive examples of man's success stories in coping with the problems of his environment.

This project was discussed in the Working Group meeting at FAO in Rome in September, 1970. It was agreed, however, to give first priority to Project No. 8-2 (Ecological Guidebook for Development Planners). Work on the initial phases of this project was started in October, 1970, and carried forth as part of the background for project 8-2. Plans for further action and support will be developed after April, 1971.

The first phase involved a review of files and literature by a working group of experts in various fields of environmental management, to survey their areas of competence and develop a list of potential examples of environmental success stories. Areas to be considered include soil science and

agriculture, forestry, range management, fisheries, wildlife management, landscape architecture, planning, pollution control, public health, entomology and others.

Inventory of outstanding and endangered landscapes (IUCN Project No. 14-1)

Man's present well-being, and indeed his future survival, depends upon how well he uses and manages the earth's natural resources. Planning for use of land, therefore, assumes a position of urgent and vital importance. Landscape, or land-use, matters involve a variety of scientific disciplines, as well as many different social and economic conditions and political structures, and in this complex climate the mission of the IUCN Commission on Landscape Planning is to provide scientific guidance for environmental management.

Among the projects planned during 1970 by this Commission is the preparation of "The Green Book," an inventory of outstanding and endangered landscapes.

This inventory aims generally at stimulating the protection, management, and where necessary, rehabilitation and enhancement of landscapes of outstanding interest or value to mankind. It would be to landscapes what the Red Data Book is to species.

In the short-term, the inventory would focus attention on immediate dangers to the most important landscapes. In the long-term, it would aim to encourage governments to take the approach of creative conservation toward their landscape as a whole.

Once established, this inventory could lead to international agreements to maintain these landscapes in their present or enhanced state for present and future generations to enjoy and use rationally. Such a network of landscapes throughout the world would contribute to the maintenance of natural and man-made diversity for the benefit of posterity.

Resolutions No. 5 and No. 29 of the 10th General Assembly relate to this project. It will help to implement the UNESCO 1962 "Recommendation concerning the safeguarding of the beauty and character of landscape and sites."

So far as is known, no comprehensive list of outstanding or endangered landscapes exists on an international level. The nearest to it would be the "Inventaire des paysages et des sites naturels d'importance nationale qui méritent d'être protégés" by the Ligue Suisse pour la Protection de la Nature.

At the end of 1970, work was well along on establishing criteria for the inventory.

ENVIRONMENTAL POLICY

In line with its expanding programme, the Union in 1970 reorganized its Commission structure to deal more adequately with the rapidly developing fields of environmental policy-making and environmental administration. A new group known as the Commission on Environmental Policy, Law and Administration was formed in the spring.

IUCN's former Commission on Legislation has been absorbed in the new group as a permanent Committee on Environmental Law, and will continue under the chairmanship of Mr. Wolfgang Burhenne (Federal Republic of Germany). Permanent Committees on Environmental Policy and on Environmental Administration will be established in due course. Chairman of the new Commission is Dr. Lynton K. Caldwell (USA). The reorganization was approved by the Executive Board which met in Morges in May, following the decision of the 10th General Assembly in New Delhi late in 1969.

On-going work of the Environmental Law Analysis Unit at Bonn continued without interruption, with good progress being made in documentation, analysis of environmental law, the computer programme, and in work with the Secretariat on draft Conventions, particularly the Draft Convention on the Import, Export and Transit of Certain Species of Wild Animals and Plants.

Environmental law documentation

Computer Programme: The codification of U.S. legislation terminated in August. In addition, several federal regulations and sections of state legislation were codified as samples before Mr. A.J. Philbrick (USA) left the office after a one-year work term. With the help of Mr. Simon Reeves (New Zealand), who worked at the Bonn office until the end of December, progress was made on the codification of New Zealand regulations. Further work on British legislation is planned.

A special effort was made to develop the thesaurus, which now includes about 1,000 concepts, and for which a subject card index and an alphabetical card index have been made. Partial translations in German and French have been completed. Also some Swiss laws have been codified, and the adaptability of the keywords to Swiss law has been checked.

Documentation: During the summer, as usual, effort was put on documentation work with students employed to help in this task. This included classification and registration on notification forms of each legal text, perusing of publications giving references to conservation legislation and regulations, and establishing a chronological index of laws for each country,

etc. Work is being completed on 53 countries, 35 of which are federated states or territories.

This project has been made possible by a generous grant from the Volkswagen Foundation.

Convention on export, import and transit of certain species of wild animals and plants (IUCN Project No. 29-1)

The project covers the bringing into force and servicing of an international convention to regulate traffic in species of wild animals and plants threatened with extinction or approaching that condition. Its objective is to check over-exploitation of species of wild animals and plants which are threatened as a result of international traffic in the species or its products.

IUCN has long concerned itself with the conservation of threatened and declining species of wild animals and plants. The present project stems from the recommendations made by the SSC and the earlier work of IUCN's former Commission on Legislation relating to the African Convention for the Conservation of Nature and Natural Resources (Algiers 1968).

Following a resolution of the 8th General Assembly (Nairobi 1963), it was decided to prepare a draft of a convention relating to international traffic in threatened and declining species as a cooperative effort between the former Commission on Legislation and the SSC.

A first formal draft was sent in September, 1967, to 90 countries for comment. A second formal draft, modified in the light of the comments received, was sent to governments in August, 1969. A third formal draft is being developed in the light of further comments received, and after discussions with FAO, the Customs Cooperation Council, the Scientific Committee on Antarctic Research, and the Secretariat of the General Agreement on Tariffs and Trade. This will include revised appendices of threatened and declining species, prepared by the IUCN Secretariat in collaboration with consultants and the SSC. This draft will be sent to Governments early in 1971.

The Swiss Government has formally agreed to act as depositary for the convention and it is expected that IUCN will provide the Secretariat for the Advisory Committee to be established under the convention.

Drafting of English and French texts is being handled by Dr. Françoise Burhenne-Guilmin (Legal Officer, IUCN) and the Deputy Director-General, Mr. Nicholls, in collaboration with various consultants.

Feasibility of adoption of US scenic easement system as a conservation technique in Europe (IUCN Project No. 31-1)

This project is concerned with the study of a specific legal technique,

the scenic easement, with particular reference to its possible application in the conservation of areas in Europe. This interesting and valuable alternative to the buying of land for the conservation of the wildlife it contains, or for its scenic beauty or other assets, is increasingly in use in the USA.

Technically, an easement is a legal right vested in one person in relation to the land of another.

One interesting use of easement, from the conservation point of view, is the grant by a private landowner of a *scenic easement*, either to a government or to another individual. The landowner, in effect, agrees not to use his land in such ways as to detract from its scenic beauty. The easement is actually deeded, giving its holder a property right in the land. The Federal Government of the United States is making good use of this legal technique, for example, in its Wild and Scenic Rivers Act programme, in which rivers are protected by acquiring scenic easements on land bounded by the rivers.

This type of easement has the advantage of giving to the State or private entities the possibility to submit private land to various kinds of conservation at far lower costs than buying the land, and with the same result.

This system may have valuable applications in Europe. The proposed comparative study of relevant European law will provide the basis for considering potential applications in Europe.

At the end of 1970, funds were being sought for the study, which would involve the services of an American university professor, expert in environmental law, to work in Europe for three months with members of the IUCN Committee on Environmental Law and the staff of the IUCN Bonn office. They would study the feasibility of and mechanism for introducing such a system into European law, or for adapting existing similar European systems. A European lawyer, with good background in Anglo-Saxon law, might be associated for the same period and be more particularly involved with the European side of the study.

The study would, of course, draw on the experience and comparative legal texts available to IUCN.

Convention on wetlands of international importance, especially as waterfowl habitat (IUCN Project No. 38-2)

This project is concerned with the bringing into force and servicing of an international convention to provide for the conservation of non-marine wetlands, particularly those of international significance. Its objectives are:

1. To promote international collaboration in the conservation of non-marine wetlands of international importance, particularly as waterfowl habitat.

2. To promote the conservation of non-marine wetlands, particularly those of international significance. 3. To stem the progressive encroachment on and loss of wetlands now and in the future through the establishment of non-marine wetlands as protected areas.

IUCN has concerned itself, through its Commission on Ecology, with the conservation of non-marine wetlands. Proposals for a convention on wetlands have been discussed at a number of meetings during the past decade. The need for such a convention was felt in 1962 at the International Conference on Wetlands (the MAR Conference), organized jointly by IUCN, the ICBP and the IWRB, and held in les Saintes Maries de la Mer, France, in November 1962. There, it was decided that IUCN should compile a list in accordance with an internationally agreed classification of European and North African wetlands of international importance, together with detailed information on these areas. It was recommended at the same time that this list be considered as a basis for an international convention on wetlands.

In the recommendation of the First European Meeting on Wildfowl Conservation at St. Andrews, Scotland, in 1963, the need for an international convention was stressed and the IWRB sent out eight draft points to thirty-five countries. On the reactions received and the opinions expressed at the Second European Meeting on Wildfowl Conservation at Noordwijk, the Netherlands, in 1966, the Dutch Ministry of Culture, Recreation and Social Welfare started to draft a convention on the conservation of wetlands.

This draft was discussed informally during a working session of the IWRB Executive Board in Morges in 1967. The formal Draft Convention was circulated prior to the International Regional Meeting on Conservation of Wildfowl Resources in Leningrad in September 1968, in the resolutions of which it was thought "expedient to accelerate the adoption of a convention concerning wetlands conservation, and to provide for strict protection of those wetlands which are of international importance." The Soviets expressed their views on a Wetland Convention in an alternative text.

During the Annual Board Meeting of the IWRB in Vienna in May, 1969, both texts were compared and it was decided that a compromise text should be drawn up by the Dutch Ministry. This new text was discussed in March, 1970, in Espoo, Finland, by representatives of the international organizations mentioned earlier, together with FAO and the Conseil International de la Chasse (CIC), and ecological and legal experts of ten different nationalities.

As a result of the Espoo meeting, the next text was prepared for submission to the International Conference on the Conservation of Wetlands and Waterfowl which is to be held at Ramsar, Iran, 30 January to 3 February 1971. This meeting will be convened by the Government of Iran and sponsored by the IWRB in collaboration with IUCN, ICBP, FAO and UNESCO.

ENVIRONMENTAL EDUCATION

From its earliest years, IUCN has devoted considerable effort to advancing environmental education. In IUCN's view, the objective of universal environmental understanding can best be reached through sustained training, integrated into present education systems through curricula development rather than by imposing new courses of study on top of already crowded schedules. IUCN believes this is the best way to achieve the deep appreciation that will be necessary if societies as a whole - irrespective of their political or economic systems - are to improve the quality of human living and bring about the changes necessary to maintain the biosphere in the centuries to come.

It is toward this goal that the Commission on Education's programme has been aimed, with only modest success recorded thus far. The year 1970, however, brought a changing climate - among youth as well as professional educators. It was therefore a fruitful period for IUCN activities.

Probably the most important educational venture in which IUCN took part in 1970, was the International Working Meeting on Environmental Education in the School Curriculum held at Carson City, Nevada, U.S.A., 20 June through 10 July, 1970, sponsored and hosted by the Foresta Institute for Ocean and Mountain Studies, with UNESCO and IUCN as co-sponsors. The Final Report has been published and is available in English, and the complete proceedings were edited and will be published in due course.

Delegates came to this meeting from 14 countries of 4 continents, including a good representation from African and other developing countries, most of them leading education officers directly responsible for the relevant curricula developments in their countries. As reflected in subsequent work, the Nevada meeting started a series of follow-up projects which will deeply influence IUCN's education programme. This will be reviewed in following pages, and has been noted in projects previously discussed under other headings.

The year also brought participation in other meetings of major significance, in Africa, Europe and North America, and strengthening of the Commission's contacts and cooperation with educators.

During 1970, youth in many countries became constructively involved in environmental issues ("Teach-In in April in the USA, increasing youth activities in developing countries, Wildlife Clubs of Kenya, etc.). Environmental issues were on the programme (Working Commission IV - Man and Environment) of the World Youth Assembly convened in July 1970 by and at the UNO, New York. At this conference, both IUCN and IYF co-operated and were represented.

The year 1970 was an eventful one for the International Youth Federa-

tion for Environmental Studies and Conservation. An agreement on IUCN sponsorship has been endorsed by both organizations. The IYF took action on a considerable range of promotional and educational activities, and for the first time in its history, effective support has been assured through the co-operation of IUCN, WWF (WWF grant), UNESCO and other bodies.

Contact and co-operation were established between the IYF and youth groups in North America, which resulted in preparations for the International Youth Conference to be held in Canada in August, 1971, a joint venture of IYF, IUCN and the Environic Foundation International. The outcome of this Conference will be presented to the 1972 UN Conference on the Human Environment at Stockholm.

International university manual on environmental conservation (IUCN Project No. 33-3)

This project covers the preparation and publication of a general, internationally conceived, model university text-book on environmental conservation.

The IUCN Commission on Education has suggested the preparation of a new text-book suitable for use as a reference book in university teaching and as a model text-book which can be adapted to meet relevant regional, national, and local needs. No such work is known to be available.

IUCN has always paid great attention to promotion of environmental conservation teaching at university level (e.g. the model-syllabus of a university conservation course published in 1962, and the Symposium on this subject at Lucerne, Switzerland, in 1966). Experts available to IUCN include many distinguished specialists, professors or lecturers in environmental conservation at universities and other establishments of higher education in various countries throughout the world who could assist in the task of preparing the proposed text-book.

At the year's end, details of the proposal were under discussion with the view of having a final manuscript by the end of 1971. Under this plan, the manual would be written by a team of three experts.

Methods handbook on environmental conservation teaching in higher education in the East-Europe socialist countries (IUCN Project No. 33-10)

The project covers preparation and publication of a methods handbook on conservation studies at the university level in socialist countries to serve as a guideline for all specialists involved.

In recent years, new courses have been introduced and even new university departments, chairs and institutes established for environmental conservation studies in many places in the socialist countries.

There is a great need for these data, as expressed in many requests. The handbook would:

1. Provide information about new university establishments and new courses available to those who would like to start similar studies and activities;
2. Publish and distribute the syllabi and programmes of such university studies;
3. Provide guidelines for the introduction of new programmes and for the permanent development and improvement of the already existing ones.

As proposed, the manuscript would be prepared by 1973 in Russian and German by a project group. Publication is intended in both languages; translations and editions in other national languages are possible.

Funding was being sought at the end of 1970.

Methods-books on important forms of environmental education (IUCN Project No. 33-8)

This project aims to produce method-books, each dealing with a basic form of environmental education, based on a factual survey of successful techniques and programmes.

In order to achieve the principal aim of environmental education, that is, to make the public co-operative in the solution of environmental problems through understanding of the relationships of man and his natural environment, there is an urgent need to discover the most effective forms and methods of environmental education for the general public, and to encourage and promote their use.

The Secretariat receives numerous requests for documentation on the subject. Obviously IUCN cannot finance and supply sample posters, leaflets, films, booklets and other documentation, but there is a clear need for wide guidance in this field.

Therefore it appears as extremely useful to collect and evaluate existing materials and experiences, and to compile the methodology in various environmental education techniques in the form of comprehensive method-books. These method-books would be widely distributed through IUCN channels, with assistance by co-operating organizations.

The project has already been endorsed by the Commission on Education. Several titles have been suggested. For some of them, members of the Commission on Education and its Regional Committees have already volunteered. For others, potential authors have been found and they have

expressed their readiness to co-operate. It is expected that this project will be closely co-ordinated with UNESCO.

At the end of the year, five method-books had been outlined and authors suggested. Details are under continuing review and financial support is being sought.

Methods handbook on environmental conservation teaching in primary and secondary schools (IUCN Project No. 33-4)

This project covers the preparation and publication of a special methods handbook on general, internationally valid and helpful principles of environmental conservation teaching methodology at the primary and secondary school levels.

In spite of recognized needs, environmental education at primary and secondary levels still remains far behind the desirable requirement that it be incorporated into the whole teaching process as an interdisciplinary matter. It is still fragmentary and incomplete, being limited to a few lessons in biology or science and being interpreted in the concept of simple nature protection.

In order to improve this situation, a proper methodology has to be worked out and made available for use of curriculum makers and other authorities. Despite different educational systems due to different cultural, social and political backgrounds, common principles are valid for introducing environmental conservation at primary and secondary levels. The "methods handbook" will be a basic manual of such a methodology with a broad international scope.

Improving environmental education at the primary and secondary school levels was requested by Recommendation No. 9 of the UNESCO's Biosphere Conference in 1968. This Recommendation suggests the assistance of international organizations concerned "by helping to provide materials."

The International Working Meeting on Environmental Education in the School Curriculum in 1970 expressed its support for the project within the programme of IUCN to prepare and publish a general method handbook on environmental conservation teaching.

Contacts have been established with UNESCO and experts from two Divisions (Science Teaching and Curriculum and Research) have indicated their interest in the project.

The methods handbook would be prepared by a small working group, which has not yet been established.

International seminar on environmental education in the school curriculum in East-European countries (IUCN Project No. 33-12)

This proposal covers the organization of an international seminar for senior education officers in the East-European socialist countries, who are responsible for curricula development, innovation and decisions at the primary and secondary school levels. A revision of school curricula in these countries to take account of environmental matters would be discussed.

The International Working Meeting on Environmental Education in the School Curriculum held in Nevada, USA, as a part of UNESCO's International Education Year 1970, recommended the organization of regional meetings on this subject. The proposed seminar is planned as a follow-up of that meeting. Its work will be based on the conclusions of that meeting, adapting them to the situation and needs of the East-European socialist countries.

At the year's end, preliminary planning was well started, and June-July 1972 was being discussed as the time for the seminar.

European Working Conference on Environmental Conservation Education, 1971 (IUCN Project No. 33-6)

IUCN has held a number of valuable meetings in various centres to consider problems of environmental education. These have been useful in developing principles in this field and in defining needs for curriculum building and the development of teaching materials. Considerable attention has been devoted to problems affecting education in north-western Europe and in socialist countries, but comparatively little effort has yet been given to the specific interests of countries in southern Europe.

The Commission on Education, at its meeting in Sofia, Bulgaria, in October 1970, indicated that a new meeting would be of value in achieving the following objectives:

1. To focus attention on environmental education in European countries, particularly those which have not yet been closely involved in the work of the IUCN Commission on Education.
2. To formulate projects in environmental education related to primary, secondary and higher education and to teacher training, with particular emphasis on southern Europe.

Late in 1970 it was agreed that the Conference would be held 15-18 December, 1971, at Gottlieb Duttweiler Institut, Park "Im Grüne", Rüschlikon, Switzerland.

Participants, numbering about 100, will include officers and specialists

of national education and conservation authorities and institutions, and representatives of international organizations involved in the subject.

The Conference is being organized by IUCN in co-operation with and support of WWF and Migros-Genossenschafts-Bund, and other organizations from Switzerland, including the Swiss League for the Protection of Nature. Their representatives will form a Preparatory Committee which will work until the opening of the Conference. IUCN will provide a secretariat for the Conference.

EXTERNAL RELATIONS

Maintaining close co-operative relationships with other organizations and individuals is fundamental in IUCN's method of operation. Without these relationships, the Union's role as a catalyst would be impossible to fulfil, since, as has been pointed out in the preceeding pages, virtually every project involving action in the field or major interdisciplinary effort depends on the co-operative support or participation by others working with the Union. For these reasons, existing relationships were strengthened wherever possible, and new links forged. Contacts with organizations within the United Nations family and with the World Wildlife Fund, in particular, were encouraged and fortified.

Following are some of the highlights of our contact with outside groups:

World Wildlife Fund – The relationship with WWF has been discussed earlier in this report. However, special attention must be drawn to the increasingly close collaboration of the two organizations on a wide variety of actions. This has grown, particularly, in connection with the funding and operation of many projects in which both IUCN and WWF have basic interests, and through IUCN's necessary involvement in the scientific evaluation of other WWF projects. Regular meetings are held between the two staffs, at administrative and scientific levels. In the future, even closer co-operation is anticipated as more and more projects become joint operations.

WWF continued to finance a major part of IUCN's work with its annual grant of US\$ 100,000. Over and above this, however, WWF contributed to a number of special projects and programmes, and without this support the Union would have been hard pressed to carry its work forward. The Madagascar Conference was one such important activity.

Eventually, IUCN and WWF expect to build and share joint headquarters in Geneva on a site adjacent to the Botanical Garden and just below the Palais des Nations. Considerable thought and effort was devoted to this project during the year.

IUCN was pleased to take part in the Second International Congress of WWF, held in London in November. President Harold J. Coolidge, Vice President Sir Frank Fraser Darling and Dr. Budowski all participated in the Congress programme.

United Nations Organization – Continuing liaison was maintained at the United Nations Organization headquarters in New York City and in Geneva, particularly with reference to the 1972 Conference on the Human Environment in Stockholm, and ECE's Conference on Problems Relating to Environment which was being planned for Prague, Czechoslovakia, for May 1971. IUCN took part in preparatory meetings for both of these meetings and consulted frequently with members of the secretariats handling them. Strong liaison was also maintained with the Department of Economic and Social Affairs in New York. Also during the year, consultative status was given to IUCN by the World Meteorological Organization, which has its headquarters in Geneva.

UNESCO – During 1970, UNESCO maintained its broad and growing support of IUCN's programme, and provided welcome financial assistance. IUCN continued its close collaboration in the preparation of the long-range interdisciplinary Man and the Biosphere programme, which was approved by UNESCO's 16th General Conference in October. As previously noted, IUCN will be represented on the Co-ordinating Council of MAB, and will play an active role in the programme. UNESCO also took an active part as a co-sponsor of several major international conferences organized by IUCN, including the important Madagascar Conference at Tananarive, and the International Working Meeting on Environmental Education in the School Curriculum, held at Carson City, Nevada, USA. UNESCO also worked with IUCN as a co-sponsor of the Second World Conference on National Parks, which is being planned for September, 1972, in Grand Teton and Yellowstone National Parks, USA.

FAO – Co-operation between IUCN and FAO was strengthened during the year with close contact on national park matters and problems of such endangered species as the vicuña and marine turtles. FAO also took an early interest in the IUCN effort to prepare ecological guidelines for development planning. Facilities were made available in Rome for the meeting of

experts at which this project was initially reviewed, and contributions were made later to the body of the work in conferences with the authors. The organizational meeting for the new Committee on Marine Habitats of the Commission on Ecology was also held at FAO. FAO co-sponsored the Madagascar Conference, and will co-sponsor the Second World Conference on National Parks.

Dr. Budowski and Mr. Nicholls made a joint visit to FAO early in the summer, at which time lines of more effective co-operation were explored.

International Council for Bird Preservation – As in the past, co-operation remained close with ICBP. All matters pertaining to birds were referred to that organization, and Col. Jack Vincent continued to produce new and amended information on birds for the Red Data Book, Vol. II - *Aves*.

Council of Europe – IUCN was active in a variety of programmes during 1970, particularly in the European Conservation Conference in February in Strasbourg. At the Conference, Mr. R.J. Benthem, Chairman of the Commission on Landscape Planning, and Prof. Dr. M.E. Maldague, a member of the Commission on Education, presented two of the four major Theme Reports. The Union sent a group of senior observers, and earlier had participated in planning the event. Work continued with the European Committee for Conservation of Nature and Natural Resources and the Working Groups on Fauna, Flora and Landscape and on Information and Education. IUCN also maintained close working relationships with the European Information Centre for Nature Conservation and its National Agencies in a number of European countries.

The International Biological Programme – IUCN continued to work closely with the IBP, particularly with the Section CT. Included in subjects discussed were the survey of relatively undisturbed oceanic islands and the general IBP/CT programme which, as has been mentioned earlier, will be taken over by IUCN in 1972. Arrangements were made during the year for IUCN to participate with IBP in the publication of the definitive edition of the Project AQUA list. This will be part of the IBP handbook series, but will carry an additional designation as IUCN Occasional Paper No. 2. IBP also co-sponsored the Madagascar Conference.

Other organizations

The number of organizations with which IUCN had contact continued to grow, reflecting increased world-wide interest in the environment. Of particular importance were contacts with the Council on Environmental Quality, the National Park Service, Bureau of Sport Fisheries and Wildlife, the Conservation Foundation, and the Smithsonian Institution, all in Washington D.C.; the Nature Conservancy and the Fauna Preservation Society in the United Kingdom; the Organization of American States, the Organization of African Unity, the Conseil International de la Chasse, the Commission Internationale pour la Protection de la Region Alpine, the Inter-Parliamentary Association, the International Federation of Landscape Architects, and the World Bank for Reconstruction and Development.

Involvement in meetings

During the past year IUCN was more active than previously, both in meetings which it sponsored or was a co-sponsor, and in the large number of important conservation conferences at which the Union was represented. Meetings serve a variety of valuable purposes for IUCN. Opportunities to exchange scientific information, and to promote wider acceptance of the principles of good environmental management are of particular importance. In addition, through the discipline of preparation, some of our own philosophies and projects have been clarified or sharpened.

IUCN sponsored or co-sponsored meetings, 1970

February	2- 4	SSC Polar Bear Specialists, Morges, Switzerland.
	22-23	12th IUCN Executive Committee, Paris, France.
April	1- 2	Survival Service Commission, Slimbridge, U.K.
	9-12	International Commission on National Parks, Morges.
	18	Commission on Landscape Planning, Welbergen, West Germany.
May	20-21	13th IUCN Executive Committee, Morges.
	22-24	48th Session of Executive Board, Morges.
	28	Joint IUCN/WWF Meeting, Morges, Switzerland.
June	8- 11	Commission on Landscape Planning, Brno, Czechoslovakia.
	20-	International Working Meeting on Environmental
July	- 10	Education in School Curriculum, Carson City, Nevada, U.S.A.
	26 - 31	Flora and Man in the 20th Century, East Bohemian Museum, Pardubice, Czechoslovakia

August	1 - 15	IYF 15th General Assembly, Terschelling, Netherlands.
	1 - 7	SSC Primate Group, Zurich, Switzerland.
	6 - 8	SSC, Zurich, Switzerland.
	27 -	North West European Education Committee, "Pollution and Education", Copenhagen, Denmark.
September	- 2	
	10	Commission on Landscape Planning, Lisbon, Portugal.
	24-25	Working Group Meeting on Environmental Considerations in Development Projects. FAO Headquarters, Rome.
October	28 -	East European Education Committee, "Pollution and Education", Sofia, Bulgaria.
	- 3	
	4 - 5	Commission on Education, Sofia, Bulgaria.
	7 - 11	International Conference on the Rational Use and Conservation of Nature, University of Tananarive, Madagascar.
November	8	14th IUCN Executive Committee, Morges, Switzerland.
	9 - 11	49th Session of Executive Board, Morges, Switzerland.
December	28 -	Latin American Committee on National Parks (CLAPN), Quito, Ecuador.
	3	
	11-12	First Meeting of Marine Habitats Committee, FAO Headquarters, Rome.

Conferences and meetings at which IUCN was represented

UNO	World Youth Assembly	New York
UNESCO	General Conference	Paris
UNESCO	Seminar on Multi-disciplinary Research in South-east Asia	Manila
FAO	Second World Food Conference	The Hague
FAO	Joint Submission on Mediterranean Forestry Problems "Silva Mediterranean", 11th Session	Ankara
FAO	FAO Latin American Forestry Commission, 11th Session	Quito
FAO	Technical Conference on Marine Pollution and its effects on Ocean Resources and Fishing	Rome
ECE	Preparatory Group for ECE Meeting on the Environment	Geneva
ECE	River Basin Management	London
IMCO	Scientific Aspects of Marine Pollution	Paris

Council of Europe	Working party on Flora, Fauna and Landscapes	Strasbourg
“	European Conservation Conference	Strasbourg
“	Working party on Education and Information	Strasbourg
“	European Information Centre	Strasbourg
“	Steering Committee for European Information Centre	Strasbourg
“	Follow-up Group for European Conservation Year	Strasbourg
”	Working party on Flora, Fauna and Landscapes	Strasbourg
“	European Committee for Conservation of Nature and Natural Resources	Strasbourg
	Working party on Information and Education	Strasbourg
Government of Malta	Pacem in Maribus	Malta
Government of Ecuador	Flora and Fauna Amazonica	Tena, Ecuador
	3rd Jornada Latin-Americano de Parques Nacionales	Quito
IBP	General Assembly	Rome
ICBP	XV World Conference	Texel Island
IRA	European Festival of Recreation	Geneva
FAST	Man and His Environment	Milan
IFLA	12th IFLA Congress	Lisbon
Smithsonian Institution	Colloquium on Endangered Species of Plants and Animals in Hawai	Washington
CHEC	First Commonwealth Conference on Development and Human Ecology	Malta
Environmental Science Centre	2nd International Conference on Bear Research and Management	Alberta
Yukon Conservation Society	Arctic International Wildlife Conference	Whitehorse
World Wildlife Fund	Second International Congress	London
ASCD	Educational Instruction and Curricula	Asilomar
West African Science Association	Wildlife Conservation in West Africa	Ibadan
International Council for the Exploration of the Sea	58th Statutory Meeting	Copenhagen
Countryside in 1970	Third Conference	London

University of Zambia	Natural Resources and Conservation Education Seminar	Lusaka
CIMEA	General Assembly	Budapest
ICC	General Assembly	New Delhi
Federal Republic of Germany	Deutscher Naturschutztag	Berlin
Federal Polytechnic College IUBS	Schutz unseres Lebensraumes	Zurich
Geographical Society of Turkey	Commission on Education in Biology International Symposium on Conservation of Nature and Natural Resources	Washington
CENECA	International Colloquium	Ankara
Institute of Water Pollution Control	International Seminar on Water Pollution by Oil	Paris
Verein Naturschutzpark	Annual General Meeting	Aviemore
Royal Botanic Garden, Edinburgh, Scotland	Tercentenary Celebrations	Salzburg
Fédération Française des Sociétés de Sciences Naturelles	Colloque International sur les paires nationaux européens	Edinburgh
American Water Resources Association	Bio-resources of Shallow Water Environments	Paris
Société Française de Phytologie et de Phytopharmacie	8th Congress of Plant Protection	Miami
International Primatological Society	2nd International Congress	Paris
International Association of Water Pollution Research	5th International Conference on Water Pollution Research	Zurich
Congress on Population and Environment, Inc.	First National Congress on Optimum Population and Environment	San Francisco
ICC	International Creative Center	Chicago
		Crans, Switzerland

Intercessions

One of IUCN's traditional functions is to intercede, when warranted, in cases where important natural resources are threatened by unwise or badly conceived development or exploitation. This stems in part from the

Union's unique status as an independent non-governmental body supported by member governments.

Since its foundation, the Union has dealt directly with governments on a great many occasions in order to draw attention to dangers threatening the natural resources of their countries. Typical of this kind of action was the Union's intercession - along with other conservation organizations - against the proposed jet airport in the Everglades of southern Florida, USA, and its joint action with the World Wildlife Fund in protesting commercial developments in La Vanoise National Park in France.

Intercessions are never undertaken in haste. Facts must be checked carefully and all aspects of the problems considered. In this process, IUCN's wide network of Commission members and organization members throughout the world is extremely helpful. Union intercessions almost invariably have been received with understanding, and usually followed by constructive action.

Contacts and inquiries

Although Morges is only 12 kilometres from Lausanne and 50 from Geneva, with excellent transportation, it is far enough off the main tourist travel routes that one would think visitors would be relatively few. The contrary is true, however. Nearly every day - including Saturdays when the office is officially closed but usually open - several visitors arrive from distant parts of the world. Most of them come on business, but some simply to pay their respects. Many visitors also take advantage of their stop in Morges to call on the World Wildlife Fund International Headquarters at La Gracieuse.

This kind of contact is important to the Union. Indeed, it would be difficult to conduct the Union's affairs without personal consultations between the Secretariat and the experts from many countries and many disciplines who, in one way or another, are involved in the IUCN programme.

The Union has always served as a source of information on international conservation activities, which is reasonable because of its world-wide outlook and programme. Recently, however, it has received many hundreds of letters from concerned people who are deeply worried about deterioration of their native environment, the gross effects of pesticide use, pollution, vanishing wildlife and other problems. Many of these letters are from children.

It is not surprising that most letters about environmental matters come from the USA, but many are from the United Kingdom, from France and other European nations. This no doubt reflects the broader public concern for environment which has developed as a result of years of work by

conservation organizations and attention by communications media. In any case, this evidence of concern, especially among young people, is a significant and hopeful sign.

Answering mail of such volume, in addition to official correspondence, places a considerable burden on the Secretariat. But the Union regards this task as an essential part of its general information and education mission. A number of special leaflets, short publications, lists and other standardized data have been developed to help simplify this work.



(F. Vollmar/World Wildlife)

IUCN ORGANIZATIONAL MATTERS

Membership

At the end of 1970, membership in the Union totalled 29 sovereign states, 228 organizations and 9 international organizations. The full list is printed in Appendix A.

During the year two states, Venezuela and Monaco, withdrew, while Greece notified its adherence under Article II. 12 of the Statutes.

There were no changes in organization members. Applications for membership, received from many organizations, will be presented to the General Assembly in September 1972 for ratification, as is required by the Statutes.

The number of individual IUCN supporters continued to grow. As of December 31, there were 806 Friends, 68 Benefactors, and 69 Life Associates.

By action of the Executive Board, fees for individual supporters were established as follows for 1971:

Friends

Friends

an annual subscription of	US \$ 10
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Sustaining Associates

an annual subscription of	US \$ 50
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Life Associates

a single payment of	US \$ 300
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Benefactors

an annual subscription of	US \$ 1,000 (min.)
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Industrial Associates

an annual subscription of	US \$ 5,000 (min.)
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All "Supporters of IUCN" are entitled to receive copies of the IUCN Yearbook and the quarterly Bulletins of the Union. The Union wishes to encourage individuals to become supporters of IUCN, in order to obtain wider support and, by means of its publications, to keep as many people informed of its activities as possible. Applications should be made in writing to the Director General, at Morges, in Switzerland.

Commissions

The basic structure of IUCN's six Commissions was unchanged except for reorganization of the old Commission on Legislation. This Commission was incorporated in the new Commission on Environmental Policy, Law and Administration, which has three standing Committees. The old Commission on Legislation became the Committee on Environmental Law. At the end of the year, Committees on Environmental Policy and Environmental Administration had not yet been organized.

Commission meetings were as follows:

ICNP	April 10, 11 and 12	Morges, Switzerland
Landscape Planning Commission	April 18 June 8-11 September 10	Welbergan, FRG Brno, Czechoslovakia Lisbon, Portugal
Education Commission, 4-5	October	Sofia, Bulgaria
North-west Europe Committee	27 August-2 September	Copenhagen
East Europe Committee	28 September - 3 October	Sofia
Survival Service Commission	1-2 April 6-8 August	Slimbridge, UK Zurich, Switzerland
Polar Bear Specialist Group	2-4 February	Morges
International Fur Trade Liaison Committee	4 August	London
Primate Specialist Group	7 August	Zurich
Commission on Ecology Marine Habitats Committee	11-12 December (Organizational Meeting)	Rome

During the year, death took four Commission members, whose loss will be keenly felt.

James Fisher (UK) Survival Service Commission Dr. E. Balasingam (Malaysia) Survival Service Commission Francis X. Katete (Uganda) International Commission on National Parks V.B. Kozlovsky (USSR) International Commission on National Parks
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Membership of the six Commissions, as of December 31, 1970, is listed in Appendix B.

Publications

During 1970, four issues of the Quarterly Bulletin were published, plus the 1969 Annual Report in the same format. Four publications were issued in the New Series, and five in the Supplementary Papers series. Two new volumes of the Red Data Book were published. The complete list is shown in Appendix C.

Financial matters

The IUCN's financial position was greatly strengthened in 1970 with the award of a substantial grant by the Ford Foundation. This grant, No. 700.0243, was for a total of US\$650,000, covering a period of 33 months which began 1 April 1970. Of this, US\$100,000 was made available to IUCN during 1970.

In announcing receipt of the grant, the Union's President, Mr. Harold J. Coolidge, said,

"We are exceedingly grateful to the Ford Foundation for this material support for the important new programme of the Union approved by our 10th General Assembly in New Delhi last December. It underlines again the concern being felt by informed people around the world for the ecological and environmental problems which are reaching crisis proportions."

The Ford Foundation grant provided urgently needed general support for the Union's expanded programme. Without it, of course, the programme reviewed in the foregoing sections of this report would not have been possible.

We take this occasion to again express our profound appreciation to the Ford Foundation for its generous and timely assistance.

World Wildlife Fund continued its support of IUCN with its annual subvention of US\$100,000, half of which was supplied by the US National Appeal. The Union has been able to maintain its operations in past years largely through WWF support, which has gone a long way to reduce the gap between income and expense, as membership fees and subscriptions, income from publications and other miscellaneous income cover only a small part of the operating cost. In addition, earmarked grants from WWF, for project purposes, totalled US\$26,380. This generous support is gratefully acknowledged.

UNESCO's annual subvention of US\$10,000 was continued in 1970 to assist the Union to organize the Madagascar Conference and to support the publications programme. We acknowledge this assistance with great appreciation.

Miscellaneous grants were received from the following sources:

American Committee for International Wild Life Protection
American Conservation Association, Inc.
The Conservation Foundation
The Charles Engelhard Foundation
Sir Frank Fraser Darling
International Union of Directors of Zoological Gardens
Jachtfonds Netherlands
New York Zoological Society
The Albert Reckitt Charitable Trust
Société Royale de Zoologie d'Anvers
R.T. Vanderbilt Trust
Volkswagen Foundation
Zoological Society of San Diego

We take occasion to acknowledge publicly these grants with our thanks and great appreciation.

Detailed financial data are incorporated in Appendix D.

APPENDIX A

State Members

Belgium	Germany (Fed. Rep. of)	Morocco
Cambodia	Greece	Netherlands
Canada	India	Senegal
Chad	Italy	Sudan
Congo (Dem. Rep. of)	Ivory Coast	Switzerland
Dahomey	Kenya	Thailand
Denmark	Laos	United Kingdom
Ecuador	Luxembourg	Vietnam (Rep. of)
Ethiopia	Madagascar	Zambia
Finland	Malaysia	

Organization Members

Angola	Centro de Documentação Científica, Instituto de Investigação Científica de Angola
Argentina	Administration General de Parques Nacionales, Ministerio de Agricultura y Ganadería Dirección de Conservación de la Fauna, La Plata Dirección de Recursos Naturales, Paraná
Australia	Australian Conservation Foundation Department of Fisheries and Fauna, W. Aust National Parks and Wildlife Service N. S. W. Wildlife Preservation Society of Australia
Austria	Österreichischer Naturschutzbund Das Referat für Naturschutz und Tierschutz beim Amt der Salzburger Landesregierung
Bahamas	Bahamas National Trust
Belgium	Ardenne et Gaume Institut Royal des Sciences Naturelles de Belgique Jardin Botanique de l'Etat Musée Royal de l'Afrique Centrale Koninklijke Maatschappij voor Dierkunde van Antwerpen Touring Club de Belgique Université libre de Bruxelles Université de Liège Koninklijke Vereniging voor Natuur - en Stedschoon
Brazil	Instituto de Conservação da Natureza, Rio de Janeiro Fundação Brasileira para a Conservação da Natureza
Bulgaria	Commission pour la Protection de la Nature de l'Académie des Sciences de Bulgarie
Canada	Canadian Audubon Society Canadian Council of Resource Ministers, Montreal Canadian Wildlife Service, Department of Indian Affairs and Northern Development Carleton University Library Department of Mines and Natural Resources, Winnipeg Federation of Ontario Naturalists Fish and Wildlife Branch, Ontario Department of Lands and Forests Les Cercles des Jeunes Naturalistes National and Historic Parks Branch, Department of Indian Affairs and Northern Development

	Regional Center for Library, University of Ottawa Société Zoologique de Québec
Ceylon	Department of Wildlife Wildlife Protection Society of Ceylon
Chile	Comité Nacional pro Defensa de la Fauna y Flora
China (Taiwan)	Tourism Council, Ministry of Communications
Cuba	Sociedad Cubana para la Protección de la Naturaleza y la Conservación de los Recursos Naturales
Czechoslovakia	Slovenský ústav pamiatkovej starostlivosti a ochrany prírody Správa Tatranského národného parku Státní ústav památkové péče a ochrany přírody
Denmark	Danmarks Naturfredningsforening Friluftsrådet Naturfredningsrådet
Finland	Finnish League for the Protection of Nature
France	Académie des Sciences de l'Institut de France Conseil supérieur de la Chasse Fédération Française des Sociétés de Sciences Naturelles Information et Culture Muséum National d'Histoire Naturelle, Service de Protection de la Nature Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM) Société Botanique de France Société Nationale de Conservation de la Nature Touring Club de France
Germany (Federal Republic of)	Arbeitsgemeinschaft Deutscher Beauftragter für Naturschutz und Land- schaftspflege Bund für Naturschutz in Bayern e. V. Deutscher Jagdschutz-Verband Deutscher Naturschutzring Schutzgemeinschaft Deutscher Wald e.V. Schutzgemeinschaft Deutsches Wild e. V. Verein Naturschutzpark e. V. Verein zur Förderung des WWF e.V. Vereinigung Deutscher Gewässerschutz Zoologische Gesellschaft von 1858, Frankfurt am M.
Ghana	Department of Game and Wildlife
Greece	Athens Society of the Friends of the Trees Club Alpin Hellénique Société Hellénique pour la Protection de la Nature
India	Bombay Natural History Society Indian Board for Wild Life, Ministry of Food and Agriculture Wild Life Preservation Society of India
Indonesia	Institute for Nature Conservation, Bogor
Ireland	An Taisce—The National Trust for Ireland National Institute for Physical Planning and Construction Research of the Department of Local Government
Israel	Nature Reserves Authority Society for the Protection of Nature in Israel
Italy	Azienda di Stato per le Foreste Demaniali Centro di Sperimentazione Agricola e Forestale Consiglio Nazionale delle Ricerche Ente Parco Nazionale Gran Paradiso Istituto Policattedra di Biologia Animale, Università di Catania Italia Nostra

	Laboratorio di Zoologia Applicata alia Caccia, Bologna Unione Italiana Pro Natura Pro Natura Italica Rete Fenologica Italiana
Japan	National Parks Association of Japan Nature Conservation Society of Japan Society of Biological Sciences Education of Japan
Jordan	National Parks and Historic Monument System of Jordan
Kenya	East Africa Wildlife Society Kenya National Parks
Korea, North	Korean Association for Protection of Nature
Korea (Republic of) Lebanon	Korean Commission for Conservation of Nature and Natural Resources Biology Department, the Natural History Museum, American University of Beirut Société des Amis des Arbres du Liban
Malawi	Ministry of Natural Resources
Malaysia	Game Branch of the Forest Department, Sabah Malayan Nature Society Sabah National Parks Trustees Sarawak Museum
Mexico	Instituto Mexicano de Recursos Naturales Renovables, A.C.
Mozambique	Direcção dos Serviços de Veterinária
Netherlands	Contact Commissie voor Natuur- en Landschapsbescherming Koninklijke Nederlandse Natuurhistorische Vereniging Koninklijke Nederlandsche Toeristenbond Koninklijk Zoologisch Genootschap Nederlandse Vereniging tot Bescherming van Vogels Stichting het Nationale Park de Hoge Veluwe Stichting tot Internationale Natuurbescherming Vereniging tot Behoud van Natuurmonumenten in Nederland Voorlopige Natuurgeschermingsraad
New Zealand	National Parks Authority of New Zealand Nature Conservation Council Royal Forest and Bird Protection Society of New Zealand, Inc.
Nigeria	Federal Ministry of Agriculture and Natural Resources
Norway	Norges Naturvernforbund
Peru	Dirrecion General Forestal de Caza y Tierras, Ministerio de Agricultura
Philippines	Parks and Wildlife Office, Department of Agriculture and Natural Resources Philippine Association for Permanent Forests, Inc. Philippine Wildlife Conservation Foundation
Poland	Instytut Botaniki Pan Instytut Zoologiczny Pan Liga Ochrony Przyrody Panstwowa Rada Ochrony Przyrody Polska Akademia Nauk Polskie Towarzystwo Botaniczne Polskie Towarzystwo Lesne
Portugal	Direcção-Geral dos Serviços Florestais e Aquícolas
Rhodesia	Atlantica Foundation Natural Resources Board

Rumania	Commission pour la Protection de la Nature de l'Académie de la R.S. de Roumanie
Senegal	Institut Fondamental d'Afrique Noire
South Africa	Department of Nature Conservation of the Provincial Administration of the Cape Department of Nature Conservation of the Province of Transvaal Natal Parks, Game and Fish Preservation Board National Parks Board of Trustees of South Africa Nature Conservation and Tourism, Windhoek Percy Fitzpatrick Institute of African Ornithology Wild Life Protection and Conservation Society of South Africa
Spain	Agrupación Española de Amigos de la Naturaleza Servicio Nacional de Pesca Fluvial y Caza
Sudan	Department of Zoology, University of Khartoum Rural Water and Development Corporation
Sweden	The Swedish Forest Service Naturhistoriska Riksmuseet Royal Swedish Academy of Sciences Section des Sciences Naturelles, Nordiska Museet och Skansen Statens Naturvårdsverk, Solna Svenska Jägareförbundet Svenska Naturskyddsforeningen
Switzerland	Comité Central du Club Alpin Suisse Nos Oiseaux Schweizerische Naturforschende Gesellschaft Schweizerische Stiftung für Alpine Forschungen Schweizerischer Bund für Naturschutz
Tanzania	Natural Resources and Utilization Division Tanzania National Parks
Trinidad and Tobago	Forestry Department of the Ministry of Agriculture, Lands and Fisheries
Turkey	Orman Bakanlığı, Ministère des Forêts Türkiye Tabiatını Koruma Cemiyeti, Société Turque pour la Protection de la Nature
Uganda	Game Department Uganda National Parks
U.S.S.R.	Ministère de l'Agriculture de l'U.R.S.S. Société de la Protection de la Nature de la République de Russie
United Kingdom	British Museum (Natural History) British Ornithologists' Union Conservation Society Council for Nature Field Studies Council Pheasant Trust Royal Society for the Protection of Birds Society for the Promotion of Nature Reserves Wildfowl Trust Zoological Society of London
United States	African Wildlife Leadership Foundation American Association of Zoological Parks and Aquariums American Committee for International Wild Life Protection American Geographical Society American Museum of Natural History American Nature Study Society American Ornithologists' Union American Society of Mammalogists

	Boone and Crockett Club
	California Academy of Sciences
	Caribbean Conservation Association
	Caribbean Conservation Corporation
	Caribbean Research Institute of the College of the Virgin Islands
	Carnegie Museum
	Cheyenne Mountain Zoological Park
	Chicago Zoological Society
	Committee for the Preservation of the Tule Elk
	Conservation Associates
	Conservation Foundation
	Defenders of Wildlife
	Foresta Institute for Ocean and Mountain Studies
	Garden Club of America
	Institute of Natural Resources, Athens, Ga.
	La Verna Foundation
	Mountaineers
	National Audubon Society
	National Parks and Conservation Association
	National Research Council
	National Wildlife Federation
	National Zoological Park, Smithsonian Institution
	Natural Area Council, Inc.
	Natural Resources Council of America
	Nature Conservancy
	New York Zoological Society
	North American Wildlife Foundation
	Save-the-Redwoods League
	School of Natural Resources, University of Michigan
	Sierra Club
	Smithsonian Institution
	Soil Conservation Society of America
	Southern Illinois University
	United States Department of the Interior
	Wilderness Society
	Wildlife Management Institute
	Wildlife Society
	Zoological Society of San Diego
Venezuela	Instituto para la Conservacion del Lago de Valencia
Yugoslavia	Association de la Conservation de la Nature de Yougoslavie
Zambia	Copperbelt Museum Association
	Wild Life Conservation Society of Zambia
International	Commission Internationale pour la Protection des Régions Alpines
Members	Commission des Réserves Naturelles du Groupement Européen des Ardenes et de l'Eifel
	Fauna Preservation Society
	International Biological Programme
	International Council for Bird Preservation
	International Federation of Landscape Architects
	International Union of Directors of Zoological Gardens
	International Youth Federation
	Pacific Science Association

APPENDIX B

The Executive Board

July 1970 - September 1972

<i>President:</i>	Mr. Harold J. Coolidge, U.S.A.,
<i>Vice-Presidents:</i>	Prof. I. McT. Cowan, Canada Sir Frank Fraser Darling, U.K. Mr. Zafar Futehally, India Dr. Christian Jouanin, France Prof. Dr. M. F. Mörzer Bruyns, Netherlands
<i>Members:</i>	Mr. B. N. Bogdanov, U.S.S.R. Ing. Agr. I. N. Costantino, Argentina Mr. B. Dioum, Senegal Prof. U. Hafsten, Norway Prof. Dr. V.A. Kovda, U.S.S.R. Doc. Dr. A. Medwecka-Kornas, Poland Dr. Paulo Nogueira-Neto, Brazil Dr. M.E.D. Poore, U.K. Mr. Olivier Reverdin, Switzerland* Dr. Lee M. Talbot, U.S.A. Mr. Russell E. Train, U.S.A. Dr. J.A. Valverde Gomez, Spain

**Elected to replace Prof. R. Matthey, Switzerland, who resigned in July.*

The Commission on Ecology

<i>Chairman</i>	Prof. J.B. Cragg, Canada
<i>Vice-Chairman:</i>	Prof. D. J. Kuenen, Netherlands Prof. J. D. Ovington, Australia
<i>Members:</i>	Dr. J. Berry, F.R.S.E., Scotland Prof. F. Bourliere, France Dr. H. K. Buechner, U.S.A. Prof. A. de Vos, F.A.O. Prof. W. A. Fuller, Canada Prof. J. L. George, U.S.A. Mr. J. S. Gottschalk, U.S.A. Prof. O. Hedberg, Sweden Prof. G. Hempel, Fed. Rep. of Germany Dr. L. Hoffmann, Switzerland/France Prof. H. Löffler, Austria Prof. H. E. Luther, Finland Prof. Kh. P. Mirimani, U.S.S.R. Prof. R. Misra, India Prof. M. Numata, Japan Prof. G.A. Petrides, U.S.A. Prof. N. Polunin, U.K./Switzerland Mr. T. Riney, F.A.O. Prof. H. Sioli, Fed. Rep. of Germany Prof. F. E. Wielgolaski, Norway

The Survival Service Commission

<i>Chairman:</i>	Mr. P. M. Scott, U.K.
<i>Vice-Chairman:</i>	Mr. Kai Curry-Lindahl, Sweden
	Prof. J. Dorst, France
<i>Members:</i>	Mr. H. Abdulali, India
	Mr. J. Alvarez, Philippines
	Mr. S. Andersen, Denmark
	Dr. F.D. de Avila-Pires, Brazil
	Prof. A. G. Bannikov, U.S.S.R. (Wild Horse*)
	Miss P. Barclay-Smith, U.K.
	Mr. H. Basjarudin, Indonesia
	Dr. R. Bigalke, South Africa
	Mr. J. Boswall, U.K.
	Prof. F. Bourliere, France
	Col. C. L. Boyle, U.K.
	Mr. J. H. Calaby, Australia (Marsupial*)
	Prof. A. Carr, U.S.A. (Marine Turtle*)
	Mr. W. G. Conway, U.S.A.
	Dr. H. Cott, U.K. (Crocodile*)
	Prof. I. McT. Cowan, Canada
	Col. M. H. Cowie, Kenya
	Earl of Cranbrook, U.K.
	Dr. J. A. Crespo, Argentina
	Mr. P. K. Crowe, U.S.A.
	Mr. R. S. R. Fitter, U.K.
	Mrs. M. S. Fitter, U.K.
	Prof. G. Gillet, U.S.A.
	Mr. H. A. Goodwin, U.S.A.
	Major I. R. Grimwood, U.K.
	Prof. B. Grzimek, Fed. Rep. of Germany
	Mrs. B. Harrison, U.S.A.
	Prof. T. Harrison, U.K. (Orang-utan*)
	Prof. V. G. Heptner, U.S.S.R.
	Mr. R. E. Honegger, Switzerland
	Prof. Dr. W. Herre, Fed. Rep. of Germany (Vicuna*)
	Mr. P. F. Hunt, U.K. (Orchid*)
	Dr. J. A. Ibarra, Guatemala
	Mr. K. W. Kenyon, U.S.A. (Seal*)
	Prof. D. J. Kuenen, Netherlands
	Dr. Anne LaBastille U.S.A.
	Dr. E. M. Lang, Switzerland
	Baroness J. van Lawick-Goodall, U.K.
	Dr. C. Lehmann, Colombia
	Prof. P. Leyhausen, Fr. Rep. of Germany
	Mr. Charles A. Lindbergh, U.S.A.
	Mr. J. Lucas, U.K.
	Dr. A. H. Macpherson, Canada (Polar Bear*)
	Ir. C. H. J. Maliepaard, Netherlands
	Lady Medway, U.K.
	Dr. R. Melville, U.K.
	Dr. R. G. Miller, U.S.A.
	Dr. R. R. Miller, U.S.A. (Freshwater Fish*)
	Prof. M. Nishiwaki, Japan (Whales*)
	Dr. J. Oliver, U.S.A.
	Prof. R. Paulian, France
	Mr. John Perry, U.S.A. (Zoo Group*)
	Dr. R. T. Peterson, U.S.A.
	Dr. J. J. Petter, France (Madagascar*)
	Prof. D. H. Pimlott, Canada (Wolf*)
	Dr. S. S. du Plessis, S. Africa

Sheik Qassim Bin Hamad Al Thani, Qatar
 (Arabian Oryx*)
 Prof. D. S. Rabor, Philippines
 Mr. M. K. Ranjitsinh, India (Himalayan Group*)
 Mr. C. G. C. Rawlins, U.K.
 Prof. H. Roth, F.A.O. (Rhinoceros*)
 Dr. G. B. Schaller, U.S.A.
 Dr. W. T. Schaurte, Fed. Rep. of Germany
 Mr. N. M. Simon, U.K.
 Prof. D. Starck, Fed. Rep. of Germany (Primate*)
 Mr. P. D. Stracey, India
 Dr. L. M. Talbot, U.S.A.
 Mr. W. K. Van den bergh, Belgium
 Mr. Ch. Vander Elst, Belgium
 Dr. J. Verschuren, Belgium
 Col. J. Vincent, South Africa
 Dr. L. H. Walkinshaw, U.S.A.
 Dr. R. E. Warner, Canada
 Dr. J. H. Westermann, Netherlands
 Mr. G. K. Whitehead, U.K. (Deer*)
 Prof. Pyong-Oh Won, Korea
 Dr. J. Żabinski, Poland (European Bison*)

** Specialist Group chaired by the Member.*

The Commission on Education

Chairman: Dr. L. K. Shaposhnikov, U.S.S.R.
Vice-Chairman: Prof. O. A. Høeg, Norway (NW. Europe*)
 Dr. Thomas Pritchard, U.K.
Members: Mr. James L. Aldrich, U.S.A. (N. America*)
 Dr. S. Doraiswami, India (India*)
 Dr. E. P. Dottrens, Switzerland
 Prof. Arturo Eichler, Venezuela
 Dr. Wolfgang Erz, Fed. Rep. of Germany
 Mr. Lars Eric Esping, Sweden
 Dr. Vladimir M. Galushin, UNESCO
 Mr. J. Goudswaard, Netherlands
 Mr. Jonathan Holliman, U.K.
 Mr. R. C. Kaushik, India
 Mr. E. J. Kesteloot, Belgium
 Dr. Ricardo Luti, Argentina
 Dr. A. Magnanini, Brazil
 Prof. Michel Maldague, Canada
 Prof. Richard G. Miller, U.S.A.
 Prof. R. Misra, India
 Prof. Denys Morgan, Zambia
 Prof. Mario Pavan, Italy
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 Prof. G. S. Puri, U.K.
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APPENDIX C

Quarterly Bulletin

- Volume 2, No. 14* January-March 1970, plus two supplements:
Resolutions adopted by the Tenth General Assembly of IUCN, New Delhi, India, December 1969.
Resolutions adopted by the Conference on Productivity and Conservation in Northern Circumpolar Lands.
- Volume 2, No. 15* April-June 1970, plus supplement:
Special Review Supplement on Conservation Abstracts:
Presentation Book Scheme.
- Volume 2, No. 16* July-September 1970 (without supplement)
- Volume 2, No. 17* October-December 1970 (without supplement)

IUCN Publications, New Series

- No. 15* United Nations List of National Parks and Equivalent Reserves, Second edition, revised and updated text, illustrated.
- No. 16* Proceedings of the Conference on Productivity and Conservation in Northern Circumpolar Lands.
- No. 17* Papers and Proceedings of the Eleventh Technical Meeting, Volume I, Ecology Commission Sessions.
- No. 18* Papers and Proceedings of the Eleventh Technical Meeting, Volume II, Survival Service Commission Session.

Supplementary Paper Series

- No. 25* Proceedings of the Working Meeting on Environmental Education and Education Problems in India.
- No. 26* Official addresses and speeches given at IUCN's Tenth General Assembly in New Delhi, India, November 1969. (in preparation).
- No. 27* Proceedings and Summary of the Business resulting from IUCN's Tenth General Assembly in New Delhi, India, November 1969.
- No. 28* Procès-verbaux de la dixième Assemblée générale de l'IUCN tenue à la nouvelle Delhi, India, November 1969. (En préparation).
- No. 29* Proceedings of the Second Working Meeting of Polar Bear Specialists, Morges, February 1970.

Red Data Books

- Volume 1* **Mammalia:** Volume serviced with two sets of additional and replacement sheets.
- Volume 2* **Aves:** Volume serviced with two sets of additional and replacement sheets.
- Volume 3* **Amphibia and Reptilia:** Compiled by René E. Honegger
- Volume 5* **Angiospermae:** Compiled by Ronald Melville

APPENDIX D

Statement of income and expenditure for the year ended December 31, 1970

Expressed in Swiss francs and in US dollars at the rate of S.Fr. 4.30 = US \$ 1.00)

<i>INCOME</i>	<i>Swiss francs</i>	<i>US dollars</i>
Membership fees and subscriptions	233,257	54,246
Sale of publications	37,303	8,675
Interest on deposits and dividends	16,296	3,790
WWF Subvention	430,000	100,000
WWF Earmarked Grants	113,432	26,380
Ford Foundation Grant	431,974	100,459
Unesco Subvention	42,950	9,988
Unesco Contracts	25,773	5,994
Miscellaneous Grants and Receipts	242,787	56,462
	S.Fr. 1,573,772	US \$ 365,994
<u>ADD: Reserves brought to account in 1970</u>	<u>203,597</u>	<u>47,348</u>
	S.Fr. 1,777,369	US \$ 413,342
<u>Less: Receipts transferred to Reserves in 1970</u>	<u>124,849</u>	<u>29,035</u>
TOTAL INCOME	S.Fr. 1,652,520	US \$ 384,307
<i>EXPENDITURE</i>		
Personnel (incl. insurance and provident fund)	995,763	231,573
Accommodation	81,736	19,008
Office and other administrative expenses	146,405	34,048
Travel	114,404	26,605
Library and Legal Texts	15,303	3,559
Publications	231,729	53,891
Meetings	48,706	11,327
IYF	8,294	1,929
Capital Items: Purchase of furniture, equipm. and vehicle	35,747	8,313
IBM Computer Program - Legislation	57,183	13,298
Difference in exchange	96	22
TOTAL EXPENDITURE	S.Fr. 1,735,366	US \$ 403,573
Excess of income over expenditure to Dec. 31, 1969	97,496	22,673
<u>Excess of expenditure over income for the year</u>	<u>82,846</u>	<u>19,266</u>
Excess of income over expenditure to Dec. 31, 1970 represented by the Assets less Liabilities on the statement following	S.Fr. 14,650	US \$ 3,407

Statement of assets and liabilities at December 31, 1970

(Expressed in Swiss francs and in US dollars at the rate of S.Fr. 4.30 = US \$ 1.00)

<i>ASSETS</i>	<i>Swiss francs</i>	<i>US dollars</i>
Cash on hand and with bankers	337,882	78,577
Cash in transit	26,185	6,090
Prudential Building Association Certificate of Deposit	30,100	7,000
Prepaid expenses	23,126	5,378
Debtors	4,104	954
TOTAL ASSETS	S.Fr. 421,397	US \$ 97,999
<i>LIABILITIES</i>		
Earmarked contributions not yet expended - Schedule I	260,924	60,680
Sundry creditors	145,823	33,912
TOTAL LIABILITIES	S.Fr. 406,747	US \$ 94,592
Excess of assets over liabilities	S.Fr. 14,650	US \$ 3,407

Statement of Reserves at December 31, 1970*Schedule 1**Earmarked reserves at December 31, 1970*

	<i>Swiss francs</i>	<i>US dollars</i>
Bunhal Marsh Investigation	306.05	71
Zoo Liaison Committee	6,572.—	1,528
Life Associates Fund	54,630.19	12,705
John C. Phillips Award	32,097.21	7,464
Purchase of Microfiche Equipment	14,571.16	3,389
Unesco Contract No 13-555 - IYF London Centre	11,027.64	2,565
Project No 710/1970 Feasibility of adoption of US Scenic Easement System as a conservation technique in Europe	8,267.—	1,922
Kouprey Project	37,984.57	8,834
Red Data Book Volume 5 - Angiospermae	35,183.21	8,182
Red Data Book - servicing of Vols I & II and future volumes	49,570.15	11,528
Publications	8,074.44	1,878
Project Aqua List	2,640.40	614
TOTAL RESERVES	S.Fr. 260,924.02	US \$ 60,680