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IUCN adopts project system for all programme activities

As a major advance in the management of IUCN's expanding programme, the Secretariat with agreement of the Executive Board has adopted a project system to cover all activities which involve substantial sustained technical effort.

This system will ensure that all aspects of activity proposed for action are carefully planned, and will facilitate management, budgeting and funding. The net result will be greatly increased effectiveness of the Union's total work.

Major elements of the 1971 IUCN programme have already been put into project form, and have been reviewed by the Executive Board and chairmen of Commissions. It must be pointed out, however, that many of the projects are still in formative stages.

As members of IUCN are aware, environmental conservation is changing rapidly in ratio to the increasingly complex ecological, economic and social problems which are related to mismanagement or over-exploitation of natural resources. The wider involvement of IUCN with this interconnected web of conservation issues has necessitated a reappraisal of the Union's activities and the areas in which it applies its efforts. With limited resources it has perforce to choose carefully how to allocate staff time and to assign priorities among the considerable array of potential tasks.

The formulation of specific projects is one stage in the difficult decision-making process. The clear definition of objectives and the delineating of tasks, responsibilities, costs and other working arrangements in the focus of project outlines facilitates execution of the programme of work and enables progress to be reviewed. It also greatly improves the handling of cooperative work with other bodies.

Each project comes under the close scrutiny of appropriate IUCN Commissions which act as consultative and review boards on these various activities. Individual Commission members are being included in project task forces. Interdisciplinary working is assured since the Executive Officers of the six Commissions are now members of the Secretariat at Morges.

Development of new ideas into project form is still in progress although many of these initially will have to be set aside in favour of items of higher priority. The number of projects that can be undertaken within the regular budget of IUCN is limited, and projects involving specialists for field studies or other activities outside the competence of the members of the Secretariat must



GIFT FOR THE QUEEN – IUCN President Harold J. Coolidge (seated) and Prof. Jean-Paul Harroy, chairman of the International Commission on National Parks, prepare a special copy of the new *UN List of National Parks and Equivalent Reserves* which they later presented to Queen Elizabeth during a ceremony at the Second International Congress of the World Wildlife Fund in London last November. A special copy was also sent to President Nixon. The new English edition can be ordered from the publisher, Imprimerie Hayez, rue Fin 4, B1080, Brussels, Belgium. The cost is US\$19. for the 600-page volume.

Photo: Jalmar, London.

await the availability of funds provided for these specific purposes.

At present subject coverage includes a number of broad conservation issues, such as the formulation of proposals for a World Heritage Trust, through specific topics in the conservation of particular biotic communities and flora and fauna groups, to issues in landscape planning, environmental education, and environmental policy. Activities include conferences and meetings to discuss and formulate particular conservation action programmes, research and survey work aimed at providing the background needed for conservation measures, compilation of handbooks and method books, coordination of conservation work on specific topics, establishment of international conventions affecting conservation, and analyzing specific conservation trends to provide objective assessment of priorities.

Preparation of the 1971 programme in project form has placed an enormous initial load on the Secretariat, but the system is well-started now and will be continued in the future. Summaries of most of the active projects will be reported in some detail in other issues of the Bulletin and in the IUCN Yearbook.

NEED – the U. S. National Park Service environmental education programme

by Jean Worth Mathews

Environmental Affairs Specialist, U.S. National Park Service

In the beginning, NEED was an accidental acronym standing for National Environmental Education Development and nothing more.

Today, the US National Park Service's NEED program finds itself "up to its acronym" in fulfilling the tremendous human need for a new approach to human awareness and involvement in the total process of environment.

The universal applicability of the NEED program lies in its approach, which is primarily conceptual rather than physical. It takes for granted that environment is a seamless "whole" in which all life, all life support systems, all the habits, thoughts and attitudes that inform the interactions of this mix, are indivisible.

Basically, the NEED program consists of five environmental themes, or "strands," that underlie the workings of the universe. These five concepts are (1) similarities and differences, (2) patterns, (3) interaction and interdependence, (4) change and continuity, and (5) adaptation and evolution.

For two years, as the program has taken shape, the National Park Service has fought against the tendency to structure it into a traditional course of study, in the sense of "a subject" in the curriculum, or "an activity" in the extra-curriculum.

The fact is that NEED might more properly be described as a process than a program. Its approach is through the strands; its goals are heightened awareness of self and surroundings, understanding of the use and abuse of resources, and the eventual shaping of a personal environmental ethic.

To accomplish this, NEED does not "teach environment," in the sense of traditional outdoor or conservation education programs. Instead, it takes five ways the world works and uses them to examine anything and everything that surrounds the child – from his separate subjects, or disciplines, to his neighborhood, his newspaper, his bureau drawers.

As he finds these five processes at work everywhere in his life, the child absorbs a sense of himself and his oneness with the whole on-going process that is total environment.

The NEED program is *not* nature-oriented, or science-oriented, or even resource-oriented, although all of these orientations are valid parts of it.

The NEED program *is* human-oriented. The descriptive term "man-centered" was deliberately assumed, both for its surprise value (unenlightened man-centeredness being the root of a major share of our environmental dilemma) and for its implication as to where remedial action must originate.

The National Park Service, steward of our natural, historic and cultural landmark treasures, is in the difficult position of both serving the public citizen and guarding against his downgrading effects on the National Park System. Man is the source of most of our environmental problems; from this source must also come the answers.

Man thus becomes a symbol of both despair and hope. The National Park Service has chosen to emphasize hope; thus, more *for* its focus on man than in *spite* of it, the adjective "man-centered" was chosen by shapers of NEED to describe the program's methodology. Only by "man-centering" our environmental dilemma, the Park Service reasoning runs, can we hope to make human headway toward redress.

The NEED program, therefore, never lets go of the student. It attempts to keep him, from its very opening moments, in the center of the world environmental picture. Through the use of one, a combination, or all of the environmental strands, curriculum subjects that formerly tended to be lumps – divided by the hour hands

of the clock, by the separate faces of teachers and by different sets of test questions – become linked to the individual student and to one another.

The person and the world that literally "grew him," are perceived through the strands as inseparable. Human actions and environmental reactions become a seamless process. A sense of self and personal responsibility are not a lesson to be learned, but a logical inescapable outgrowth of this approach to awareness.

NEED is premised on the idea that all of living is learning and that the most effectively communicated learning, whether it occurs in classrooms or outside, is in the area of attitudes and relationships.

These two areas – attitudes and relationships – lie at the fundament of our environmental crisis today. What better way to marshal effective human response than to build environmental education on the way we survive or perish?

George B. Hartzog, Jr., Director of the National Park Service, recognized early in the NEED program the value of the environmental strand approach as a new and relevant tool for interpreting the historic, cultural and natural strands that make up the National Park System. These strands, therefore, now form the basis of a new Park Service program – a system of National Environmental Study Areas (NESAs). These areas were first set up inside the parks, but the idea has spread into state and regional parks, municipal areas, school yards – wherever people are interested in picking up the themes and following them out into their immediate surroundings and beyond.

NEED is designed as a curriculum-integrated kindergarten through twelfth grade program. Materials for grades 3 through 8 have been pilot and field tested at selected areas across the nation, on 25,000 pupils of widely ranging economic, social and cultural backgrounds.

The materials have gone through evaluation by the National Education Association and now are being revised and prepared for publication by Silver Burdett Company of Morristown, New Jersey. They are scheduled for public availability by mid-1971.

The NESA program uses the environmental strands but roots itself in the study area rather than the classroom. In both cases, the strands begin with the student and lead outward along the lines of greatest individual interest.

The National Park Service is currently exploring several avenues for testing the NESA program as an international vehicle for communicating to the peoples of the world the conclusions of the 1972 United Nations Conference on Human Environment.

An environmental study area can be any place on Earth. As a network for communicating environmental wisdom, it can go anywhere the environment goes.

Thus, the five environmental "strands" are an unparalleled basis for international communication of the problems we face and that we must correct. They do not lend themselves to errors in translation, since they are firmly rooted in the total environmental process, which – like the proverbial rose – by any other name or in any other language is still the same process – changelessly changing, interacting, forming patterns out of variety and similarity, and relentlessly evolving.

The National Park Service's NEED and NESA programs find their fastest converts among the very young – those untutored generalists who accept the world with a holistic, gestalt gesture. Meanwhile, the testing and reworking of the NEED and NESA materials continues, and the Park Service explores the international avenues for making the strands the all-purpose human language of survival.

Survival Service Commission

Specialist Group meetings 1971

A number of specialist groups of the Survival Service Commission will be meeting in the first half of 1971 to draw up work programmes and specific action projects for the next two years. Among those holding their first meeting since their establishment is the Crocodile Group. The meeting is currently scheduled for 15–17 March 1971 in New York and is being supported by the New York Zoological Society. A meeting will be held immediately afterwards with representatives of the crocodile hide industry in order to discuss cropping of certain species on a sustained yield basis.

Recently, several US states have enacted legislation even stricter than the US Federal "Endangered Species Conservation Act" of 1969. In particular New York legislation bans the sale of crocodile skins and thus has had a serious repercussion on the crocodilian hide industry.

The meeting would comprise the eight members of the Crocodile Specialist Group, all of whom are actively engaged in the study and conservation of crocodilians. They will present data from Australia, Brazil, Central America, Colombia, East Africa, Mexico, New Guinea, and South Africa, and draw conclusions from them with the purpose of recommending optimum sustainable yield for cropping the various species of crocodiles and other appropriate management and conservation plans.

The newly established Vicuna Group is also organizing a technical meeting, in Lima, Peru, in order to review present scientific and management activities on the vicuna, to evolve a basis for effective vicuna management and to formulate a long-term programme for its conservation. The meeting will be held in conjunction with the biennial "Convenio para la Conservacion de la Vicuna" meeting of Bolivia and Peru in April 1971 and will be undertaken jointly with FAO.

An International symposium on the ecology, behaviour and conservation of the world's cats is also scheduled for USA, March 15–17, in California. Its goal is to bring together scientists involved in feline research of a biological and conservation nature. It will also provide an opportunity for IUCN's Cat Specialist Group to meet for the first time and finalize its programme.

The Marine Turtle specialist group of the Survival Service Commission will be meeting on March 8–10 for the second time, in Morges, Switzerland. Members will review progress made since the first meeting and determine the most pressing research and conservation requirements. They will also hold conversations with representatives from the large-scale turtle farming industry and the turtle soup industry since both have an important bearing on conservation decisions.

Finally, the Survival Service Commission itself will be holding its biannual meeting in Morges on April 2–3 at which it will review current activities and progress and consider future policy and projects. It will also make plans for its contribution to IUCN's 12th Technical Meeting in 1972.

Errata

The editors wish to draw attention to the following correction which should be made to the IUCN Bulletin 2 (17) p. 141, in the photo caption:
"this still-active volcano in Volcán Poás National Park is located about 10 kilometres northwest of San Jose" not 70 kilometres as stated. The same correction should be made in the news note on page 146.

A decree dated September 1969, signed by the Ministry of Agriculture, prohibits the shooting of birds of prey throughout Morocco.

Gunung Loeser Reserves, North Sumatra

Following an intensive survey of the Gunung Loeser Reserves in North Sumatra undertaken for IUCN/SSC and WWF by Dr. Fred Kurt, Department of Zoology, University of Zürich, interested scientists and fund-raisers in Holland have established a co-responsibility committee for the Gunung Loeser operating under the auspices of the WWF and with the collaboration of IUCN. An agreement was drawn up between the Directorate of Forestry and its Nature Conservation & Wildlife Management Service, Bogor, and the Netherlands Gunung Loeser Committee, The Hague. The agreement will last for five years and can be renewed for another five year period if considered desirable. It will give the committee co-responsibility for the preservation and management of the Reserves and for carrying out research in these areas.

The objective of this Committee is to act as a channel for the provision of technical and financial assistance to the Indonesian Government for Gunung Loeser. One of their first projects is a joint botanical and zoological field survey of four months to be undertaken in the middle of 1971 and probably to be financed by the Netherlands Foundation for the Advancement of Tropical Research. This will be followed by other field research in 1972.

The establishment of special committees by conservationists interested in "adopting" an area is a most useful and constructive method of channeling assistance to other countries. This has been carried out with much success by Basle University, Switzerland, which has a special Patronage Committee for the Ujung Kulon Reserve in Java. The Survival Service Commission Zoo Group is also promoting a scheme whereby a more wealthy western zoo can "adopt" a counterpart in a less developed nation.

European Environmental Education Conference planned

The IUCN, acting on a proposal made by its Commission on Education and in co-operation with the WWF-International and WWF-Swiss National Appeal and other Swiss organizations, is planning an European Working Conference on Environmental Conservation Education, to be held at Rüschlikon (near Zürich), Switzerland, 15–18 December 1971. The conference hopes to define principles of European environmental education programmes with special attention to primary and secondary school levels, and to teacher training. It is also hoped that this Conference will promote an increased interest in environmental conservation education in south European countries. Further details can be obtained from the Education Executive Officer, IUCN, 1110 Morges, Switzerland.

Executive Board names new member

Prof. Olivier Reverdin of the University of Geneva, Councillor of State of the Republic and the Canton of Geneva, was named by the Executive Board, at its November Meeting, to be the member from Switzerland. Prof. Reverdin, who has long been active in conservation policy matters, is also President of the Swiss National Fund for Scientific Research, and President of the Swiss delegation to the Council of Europe. He replaces Prof. R. Matthey of the University of Lausanne who has resigned.

Symposium on Pest Control Strategies

A symposium on Pest Control Strategies for the Future will be held 14–16 April 1971, in the Auditorium, National Academy of Sciences, 2101 Constitution Ave., N.W. Washington, D.C. 20418. For information write: Agricultural Board, Division of Biology and Agriculture at the Academy.

Conference Notes

Arctic International Wildlife Conference

Whitehorse, Yukon Territory, Canada, 21-22 October, 1970.

Arctic oil discoveries and oil transport problems have focused the attention of Canadians and Americans on the north at a time when people everywhere are becoming concerned about their natural environment. The proposal to establish a Yukon counterpart to the Alaska Wildlife Range and to protect this region is a reflection of this concern not only on the part of conservationists and sportsmen but also on the part of industry and government scientists and technicians who recognize that the taking of the earth's resources must be accommodated within a total environmental framework that pays heed to wildlife and wilderness.

This conference brought together 63 persons whose knowledge and experience gives great validity to their judgments of the proposal, which they wholeheartedly endorsed, with specific recommendations as to the form, management, size and uses of the proposed range. As called for by Resolution No. 7, an interim committee on permanent organization (of the Wildlife Range) has already submitted recommendation to the Minister of Indian Affairs and Northern Development, asking that the 9 million square-mile area be designated as a wildlife range under Section 18e of the Territorial Lands Act, and designated as a land management zone under Section 3A of the same Act, to achieve maximum protection of sensitive environmental values.

Largely unglaciated during Pleistocene times, this area in the northernmost Yukon contains a richer flora and fauna than most of the Canadian Arctic, including the total annual range or important seasonal range of a number of animal species. Recommended boundaries for this Arctic International Wildlife Range would run from the Beaufort Sea south along the Alaska border to the Porcupine river, thence east along the Porcupine to the Bell river, thence north to the Blow river, and to the sea. The Canadian Range would adjoin the vast Arctic Wildlife Range in Alaska which was established in 1960.

The Conference recognized that there are existing claims on the resources of the area of the proposed range, and that the area should serve public and private interests that are mutually compatible. While one of the primary purposes will be to perpetuate viable large samples of natural ecosystems, including the wildlife populations on which the traditional native way of life depends, the conference resolved that the uses which society as a whole may make of the area, including research, interpretation of natural and prehistoric cultural phenomena, wildlife and fisheries management, petroleum and mineral development, pipeline and other transport routes, disposition of surface deposits such as gravel and support of hunting and sport fishing, should be permitted, as determined by the management authority, under such restrictions and regulations as are necessary to maintain wildlife populations and safeguard the traditional life of the native peoples.

The necessity of safeguarding the rights of native peoples, particularly the Old Crow Band, to use of the renewable resources was strongly affirmed as a primary purpose of the Range. The Conference also urged airspace and pollution control to protect the native peoples and wildlife from threatened SST sonic "booms".

Conference officers included four honorary chairmen:

Prof. Ian MacTaggart Cowan and Dr. John S. Tener, of Canada; Prof. A. Starker Leopold and John D. Findlay, of the U.S.A.

General chairman was Prof. Andrew R. Thompson, Faculty of Law, UBC; vice chairman was Richard M. Leonard, International Council of Environmental Law, and the secretary was Mr. John Lammers, President, Yukon Conservation Society.

Host Organization was The Yukon Conservation Society. Participating groups included The Canadian Wild-

life Federation, Conservation Associates, UBC Faculty of Law, IUCN and the Yukon Fish and Game Association.

World Wildlife Fund, Second International Congress

London, England, 17-18 November, 1970.

(Resolutions adopted by the Congress are published as a special supplement to this Bulletin. Additional copies are available from WWF Headquarters, 1110 Morges, Switzerland.)

Under the broad theme "All Life on Earth," more than 600 delegates from 31 countries assembled in London in November to review some of the environmental problems men have imposed on the earth, and to call for urgent corrective and preventive action. Moving well beyond its historic concern for wildlife and wild places, within which sphere the organization has achieved a great deal in its world-wide programme over the past 9 years, the Congress urged action in such areas as population control, economics, pollution, global environmental monitoring and communications. In so doing it recognized the basic problem facing not only wildlife, but all life, which is the deterioration of the biosphere and its limited resources resulting from the increasing pressure of human exploitation.

Thus the Congress was dominated by the population explosion and its major action was to send an urgent message to heads of government of all countries of the world stating:

"For survival of the human race and its environment, it is urgently requested that your Government take every step to stabilize your population as soon as possible by whatever means are most acceptable to your people."

Despite this plea, it was accepted at the Congress that population was unlikely to be brought under control for many years and that there may well be a world population in the year 2000 of 6000 millions compared with 3500 millions at the present time.

The Congress brought together a brilliant group of world leaders, explorers, scientists, businessmen, writers, public officials, and conservation experts. Unanimity of viewpoint on most issues was remarkably complete for men from such widely diverse backgrounds, a clear indication of the depth and extent of present day environmental troubles.

All meetings of this two-day Congress at the Royal Garden Hotel were plenary. Mr. Peter Scott chaired the opening Session, introducing H.R.H. The Duke of Edinburgh, whose welcoming remarks pinpointed the problems with wit and deep understanding.

H.R.H. The Prince of the Netherlands, President of the World Wildlife Fund, reported on the aims and achievements of the WWF, making what in effect was the keynote address. "Don't just sit there," he said, "Do something!" He challenged the economists of the world (and their employers) to "demand that a system of high quality human living be devised which is not based on exponential economic growth," and "a brisk stepping up of contact between ecologists and developers." Prince Bernhard urged an examination of the inter-governmental machinery of regulating large-scale disturbances of the environment, and called for a wide range of programmes designed to "hold the line" against further deterioration of the natural world. Included were the creation of a world heritage trust, establishment of 100 new National Parks and aids for their use and enjoyment by people.

Reviewing WWF's achievements since 1961 the Prince said that almost 6 million has been spent on conservation projects, and matching funds stimulated which almost double that amount. There have been grants to 355 international projects in 84 countries and to some 150 national projects. WWF has directly helped the survival of the Javan rhino, the Arabian oryx, the aye aye in Madagascar, the tamaraw in the Philippines, the Atitlan grebe in Guatemala, the marine turtles and the Hawaiian goose.

(Continued on Page 157)

World Wildlife Fund

Second International Congress

"All Life on Earth"

London, 17-18 November 1970

Resolutions Adopted by the Congress

Message from the President

That the President on behalf of all those attending the Congress send the following urgent message to the Heads of Government of all countries in the World.

"Current annual increase in human population is preventing large numbers of people in developing countries from access to a decent standard of living. In developed countries it is increasingly hampering the quality of life.

"The ultimate result will be the end of human life if not of all life on this earth.

"For survival of the human race and its environment it is urgently requested that your Government take every step to stabilize your population as soon as possible by whatever means are most acceptable to your people."

Resolution No. 1. – Mankind on a collision course

Whereas the planet Earth is of finite size and is already hard-pressed to meet the demands upon its natural resources and its living space made by its present four thousand million human occupants most of whom exist at very low standards which they keenly desire to improve;

And whereas nothing now in view can now prevent a further massive increase of at least two thousand million more people during the final 30 years of this century, or avert the need for vast changes in order to prevent further catastrophic increases thereafter;

And whereas worldwide efforts to promote continuous economic growth through the hasty application of large scale modern technology are cumulatively creating greater environmental problems, such as global pollution on a scale for which no practical solutions are yet in view;

And whereas the quality of human life and even the very survival of man are threatened by these trends and by the failure of responsible authorities to recognize and act upon the basic truth that man is a part of nature and must refrain from behaving in disregard or defiance of its principles:

THE SECOND INTERNATIONAL CONGRESS
OF THE WORLD WILDLIFE FUND MEETING
IN LONDON IN NOVEMBER 1970

Requests those councils and assemblies to whom the major relevant organizations are responsible forthwith to demand from each and all of them full and practical plans for meeting with due urgency the challenges above outlined, particularly those of reducing the growth of population and of protection of the environment;

And calls to public attention the urgency of comprehensive and concerted measures both at national and international level to correct policies and practices which are at present holding mankind on a collision course with the planet's capacity to support life.

Resolution No. 2. – Reshaping of national policies harmful to the environment

Whereas public opinion in many countries has been deeply concerned to learn of serious damage to natural environment

caused by public policies and programmes in the shaping of which environmental aspects were not, or were insufficiently taken into account;

And whereas certain widely favoured approaches and policies (for example for the attainment of high rates of growth in Gross National Product) carry evident dangers to environment unless they are more carefully adjusted to the long-term requirements of the biosphere as well as of the quality of living

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Urges that all governments should instruct their central planning agencies or other competent authorities at once to set in hand full reviews of the implications for the environment, direct or indirect, of all their forward programmes and plans, especially for economic and technical objectives, and to report on dangers and losses to the environment to be anticipated through the execution of such programmes and plans, and on recommended adjustments in order to prevent or to minimize such dangers or losses while continuing to meet human needs;

And urges all persons and institutions concerned with the environment to encourage and assist such reappraisals.

Resolution No. 3. – Ecological validation of development projects

Whereas the International Bank for Reconstruction and Development (the World Bank), the Food & Agriculture Organization of the United Nations (FAO), the United Nations Education and Scientific Organization (UNESCO) and certain other international agencies have recently begun to make provision for ecological validation of development projects, and for scrutiny of the environmental effects of economic and technical aid;

And whereas the Government of India in its new five-year plan for 1969–74 has made a similar declaration of interest

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Congratulates those international and national development organizations which have recognized and accepted in principle the need to make effective structural provision for integrating in their plans processes and operation the principles and knowledge available from ecologists and conservationists;

Trusts that these welcome initiatives will be followed up and expanded with vigour and expedition for the benefit of the environment and of all its users, human and animal;

Calls upon international (including regional and bilateral) agencies which have not yet taken action in this sense to do so without delay, in fulfilment of their trusteeship responsibilities to mankind;

And commends to national governments the example of the Government of India and trusts that others, who have not yet done so, will take similar initiative.

Resolution No. 4. – Environmental monitoring

Whereas effective care of the global environment depends upon prompt, accurate and relevant information concerning trends and new or changing factors influencing its health and quality;

And whereas general agreement has now been reached in international scientific circles concerning the desirable content and methods for a world wide long term monitoring network;

And whereas the resources necessary for the execution of such a programme can only be found through the agency of United Nations agencies and national governments

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Urgently requests the Secretary-General of the United Nations, without awaiting the U.N. Stockholm Congress in 1972, to take immediate steps to organize, with the help of States members, a world-wide system of environmental monitoring in accordance with the recommendations of the International Council of Scientific Unions and other co-operating international organizations;

And urges all persons and institutions sharing concern over our inadequate knowledge of the deteriorating state of the environment to take all steps within their power to encourage and assist such action, with a view to starting global monitoring activities by the end of 1971.

Resolution No. 5. – Responsibility of the Churches

Whereas the fundamental issues underlying the present global crisis concerning the future of man's environment are largely ethical and moral,

And whereas many of the policies and practices which have led mankind into this dilemma have received overt approval from religious leaders of various creeds whose followers are urgently in need of fresh authoritative guidance

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Requests all religious organizations, especially those belonging to the World Council of Churches, to take immediate steps to produce definitive guidelines for their adherents showing where their duty lies in respect of the collision between current human demands on the environment and the interests of future generations.

Resolution No. 6. – Survival of animal and plant species

Whereas the worldwide effort to avert the extinction of species has met with some success during the last decade;

But whereas certain species such as the great whales, the large predatory mammals, and many others remain in immediate peril;

And whereas direct pressure on threatened animal populations is being aggravated by widespread destruction of habitat and pollution of the environment

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Concludes that effective measures for conservation of the world's wildlife must now include comprehensive governmental action for conservation of the whole environment and not only intervention to avert the extinction of endangered species;

And calls particular attention to the imminent threats to the following habitat types: Wetlands – Tundras – Tropical rain forests – Tropical cloud forests – Coastlines vulnerable to development – Marine underwater habitats especially coral reefs – Oceanic islands;

And further calls attention to the outstanding urgency of firm measures to ensure the survival of the following species or groups of species: Large predatory mammals, especially the

larger cats – Primates, especially Lemurs and the Great Apes – Whales – the large predatory birds – Cranes and Bustards – Crocodilians and Marine Turtles.

Resolution No. 7. – Objectives of the World Wildlife Fund

Whereas the World Wildlife Fund was constituted to come to the aid of the earth's natural fauna and flora and wild places threatened by harmful developments and disturbances arising for the most part from the direct or indirect results of man's activities;

And whereas it has now become generally recognized that those actions and attitudes which thus threaten the survival of natural fauna and flora are also impairing the quality of human living and even imperilling man's future tenure of the earth,

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Hereby affirms that in view of these common dangers to man as well as to nature it is imperative to establish more intensive cooperation between the World Wildlife Fund and such other organizations and movements as are engaged in promoting remedial action in face of the same fundamental perils in order to further the conservation of the natural environment and to establish effective trusteeship for man's heritage in the biosphere and for a long term improvement in the quality of human living, its arts and its amenities.

Resolution No. 8.

Suggested by H.R.H. Princess Beatrix of the Netherlands on behalf of the women attending the second International Congress of the World Wildlife Fund "ALL LIFE ON EARTH".

Women's appeal for the survival of animal species endangered with extinction for the sake of fashion.

Whereas there are grave threats to the survival of some of the most beautiful wild animals of the world resulting from the ever increasing demand for their skins and hides to produce luxury goods;

And whereas it is clear that if furriers and manufacturers of fashion goods are prepared to exercise good will and ingenuity there will be no technical problem in supplying raw materials from animals specially bred for the purpose or devising artificially produced substitute materials;

And whereas it is considered that women in this case have a special responsibility for preserving the natural heritage of mankind; although it is a matter which concerns all people,

We the women meeting at the

SECOND INTERNATIONAL CONGRESS OF THE WORLD WILDLIFE FUND under the theme "ALL LIFE ON EARTH", in London on 17-18 November 1970

Willingly undertake to renounce the wearing or use of any garments or other products made from the skins of other parts of the following endangered animal species,

Amongst the felines: the ocelot, tiger, jaguar, cheetah, leopard, snow leopard; also vicuna, otter and all species of crocodiles and pythons and turtles;

And we appeal to the women of the world and to fashion journals and to leaders of the world of fashion to join us in our concern for the threatened natural world and in our efforts to contribute to the conservation and survival of these species in their natural surroundings for the enjoyment and benefit of future generations.

Resolution No. 9.

Whereas the United States National Park Service proposes to act as host in September 1972 to a World Parks Conference on the occasion of the centenary at Yellowstone of the World's first National Park;

And whereas some 1200 National Parks and equivalent Reserves have now qualified for enrolment in the United Nations List

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Commends to all countries concerned the aim of co-operating to establish by, or during, the Park's centenary year 1972 a hundred new National Parks able to qualify for acceptance in the United Nations List as a mark of dedication to pursuance of the National Parks concept and as a token of gratitude to its pioneers.

Resolution No. 10. – Specific immediate threats to environment

Whereas the advancement of public understanding of conservation and the formation of satisfactory public policies towards the environment have been shown to be closely linked with decisions upon test cases where conflicts come to a head and

Whereas the just and wise settlement of such test cases wherever they occur is therefore of vital interest to the conservationists of the world, particularly where conservationists in the country concerned may be unable to mobilize enough support in time,

THE SECOND INTERNATIONAL CONGRESS
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Recognizes the international importance of ensuring wise decisions on the following current cases where severe and permanent damage to conservation of the environment is immediately threatened:

FRANCE – Parc National Vanoise
GUATEMALA – Lake Atitlan
ICELAND – Thjorsarver
NETHERLANDS – Waddensee
UGANDA – Murchison Falls

Requests IUCN to concert with the World Wildlife Fund in making appropriate representations to the governments concerned in fulfilment of the objects of this Resolution.

Resolution No. 10.2. – Pollution of the Waddensee, Netherlands

Whereas a critical biological situation has been created by pollution from various sources

THE SECOND INTERNATIONAL CONGRESS
OF THE WORLD WILDLIFE FUND MEETING
IN LONDON IN NOVEMBER 1970

Urgently requests the Netherlands Government to take immediate steps to provide the necessary measures for the purification of industrial effluent discharged into the Waddensee.

Resolution No. 10.3. – France – Vanoise National Park

Having been informed that the proposal for amputation of several parts of the Vanoise National Park has been submitted to public enquiry (enquête publique) in the Department of Savoie from the 7th to the 23rd of September 1970;

Having also been informed that in the area of the "Grande Motte" constructions have been made in the park without the previous procedure legally compulsory to this effect;

Taking into consideration that the proposed amputation of the area Chavière-Polset concerns one of the biologically most interesting parts of the park and the stronghold of its larger animals;

Expresses its deep concern on the precedent such actions may set for the future of national parks in general;

Recalls that alienation of national parks according to the hazards of social and economic conjunctions is incompatible with the basic idea of national parks;

And addresses to the French Government an urgent request to maintain the integrity of the Vanoise National Park and to reaffirm the principle of inviolability of National Parks.

Resolution No. 11. – Survival of vicuna

Following the example of the United States of America and the United Kingdom

THE SECOND INTERNATIONAL CONGRESS
OF THE WORLD WILDLIFE FUND MEETING
IN LONDON IN NOVEMBER 1970

Urges all other nations manufacturing or capable of manufacturing vicuna cloth or wool to ban the importation of vicuna skins and hairs in accordance with the expressed wishes of the Peruvian Government.

Resolution No. 12. – Care of the oceans

Whereas the current treatment of the world's seas as a place for dumping the waste products of mankind together with other inadvertent pollution already threatens the biological productivity of the oceans

THE SECOND INTERNATIONAL CONGRESS
OF THE WORLD WILDLIFE FUND MEETING
IN LONDON IN NOVEMBER 1970

Urges the United Nations and the Governments of the nations to take immediate action to reduce such dumping and such pollution pending international legal commitment to refrain from doing so.

Resolution No. 13. – Volunteer organizations

Whereas international conservation organizations are frequently unable to undertake highly desirable projects because of the prohibitive costs of the technical personnel required;

And whereas many volunteer agencies exist which have the funds and administrative structure to provide qualified technical personnel

THE SECOND INTERNATIONAL CONGRESS
OF THE WORLD WILDLIFE FUND MEETING
IN LONDON IN NOVEMBER 1970

Urges private and governmental volunteer agencies in the various donor countries to provide qualified technical personnel to assist the scientific and educational programmes of conservation organizations working throughout the world;

And further urges that scientific institutions within such countries offer their technical expertise to the volunteer agencies to assist them in this effort.

Resolution No. 14. – Oil pollution of the sea

Whereas the Load-on-Top system adopted by 80 per cent of the world's tanker tonnage reduces to acceptable levels the incidental losses of oil into the sea;

And whereas the remaining 20 per cent of the tanker fleet continue to release large quantities of oil at sea thus contributing to the declining biological productivity of the oceans

THE SECOND INTERNATIONAL CONGRESS
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IN LONDON IN NOVEMBER 1970

Calls upon the Governments of the oil importing countries to penalise or to deny access to their ports by such oil tankers.

International Conference on the Rational Utilization and Conservation of Nature

Tananarive, Madagascar, 7-11 October 1970

Resolutions Adopted by the Conference

Resolution No. 1. – Necessity for inclusion of conservation of nature in national planning

The Conference,

Considering that the flora and fauna of Madagascar consist largely of species found only on this island, and hence are of the greatest interest not only to the Malagasy people but the whole world;

Realizing that over the past decades these unique flora and fauna have continued to diminish in numbers and diversity under the increasing pressure of the expanding Malagasy population;

Stressing that this degradation of the natural resources of Madagascar is due principally to the continued expansion of traditional agriculture and cattle breeding and the consequent clearing of land by fire (tavy), burning of grazing lands, and ill-considered encroachment into forests;

Stressing also that the Malagasy population is increasing and that the survival of future generations will depend on replacing the present wasteful and destructive forms of land use by intensive cultivation, efficient animal husbandry, and effective forest utilization;

Believing that socio-cultural and economic factors make it unlikely that techniques already available for better land use and forest conservation will be widely adopted;

Believing therefore that the changes needed if on-coming generations are to benefit will follow only through strong action taken by the highest political authorities in the country despite the risk of temporary unpopularity;

Recommends to the Malagasy government that action be taken:

1. to give the highest priority to research and action involving a policy for conservation of nature by encouraging rural populations to replace semi-nomadic agriculture and animal husbandry by intensive methods thus leading to the elimination of the use of fire and ill-considered deafforestation which are prejudicial to the conservation of the natural resources of the nation;
2. to regard the conservation of nature and research on methods of inducing rural populations to change their traditional methods of production as basic principles in the national Five Year Plan; and
3. to give priority in requests for international assistance, particularly those directed to UN agencies, to short, medium and long-term projects for the conservation and rational use of Malagasy natural resources.

Resolution No. 2. – Importance of basing land use planning on ecological principles

The Conference,

Considering that the present rate of population increase in Madagascar must be linked with a consequent expansion of demand for food supplies, which will inevitably lead to the

development of new agricultural land and to further deterioration of much of the areas already under pasture or cultivation;

Recognizing that these developments frequently involve lands which are marginal for agriculture or cattle raising, but which comprise ecosystems of great value to science and education and of particular significance in connection with soil conservation, water retention and microclimates;

Recognizing also that these ecosystems, with their wealth of plant and animal species, races and varieties, are reservoirs of important genetic material;

Bearing in mind that plans for the use of natural resources must be based on ecological principles including maintaining the stability of ecosystems and maintaining their diversity to keep open future options for science and utilization;

Affirming that interdisciplinary studies are essential for elaborating conservation and production policies at all levels, national, provincial, communal and individual;

Affirming that such policies must take into account the extreme fragility of many ecosystems in Madagascar as well as the traditions and customs of the Malagasy people;

Affirming also that such policies must be integrated into a plan for agricultural, pastoral and forestry development which should be brought into effect urgently, but be subject to periodical revisions in the light of the development of scientific knowledge;

Recommends to the Malagasy government that it recognise the urgent need for such a plan for development which should include:

1. avoidance, as far as possible, of any further interference with natural forests, including those which are not subject to any form of protection;
2. intensification of forest plantations in deforested areas, not only for the production of timber and its products, but also to give protection to soil, water and microclimates and screening for natural forests;
3. improvement of animal husbandry through control of fires, cultivation of fallow land, growing of legumes, improvement of pastures, and selection of cattle adapted to local conditions; and
4. Promotion and continuation of research relating to:
 - intensification and diversification of agriculture under local conditions and economic circumstances,
 - increasing the productivity of the soil including the use of fertilizers,
 - achieving as far as possible the protection of crops through biological control methods, thus limiting the use of pesticides which destroy organisms useful to agriculture,
 - increasing paddy yields through intensive methods of rice cultivation including use of fertilizers, appropriate varieties, maintenance of the rice fields, and appropriate crop rotations.

Resolution No. 3. – Scientific research and conservation of natural resources

The Conference,

Considering the importance of field research to be carried out in Madagascar in establishing inventories of plant and animal species on the island, evaluating their populations and obtaining knowledge of the ecosystems in which they are found;

Considering also the importance of scientific work required for formulating a development plan for Madagascar covering the various topics specified in other resolutions of the Conference;

Recommends to the Malagasy Government that action be taken:

1. to promote and coordinate scientific efforts in Madagascar through the establishment of a special Commission of the National Committee for Scientific and Technical Research which would include representatives from organizations directly concerned with the topics included in the proposed development plan and which would be in permanent contact with the department concerned with conservation matters;
2. to enable this Commission to secure the cooperation of foreign correspondents;
3. to empower the Commission to make recommendations on any matter affecting conservation, and in particular on any research that might endanger a species or the balance of an ecosystem;
4. to encourage the establishment of small field stations near certain reserves to facilitate the study of flora and fauna and their ecology, while at the same time improving the protection of the reserves; and
5. to encourage cooperative work between international and national groups.

Resolution No. 4. – Conservation Education

The Conference,

Considering the importance of education at all levels and the dissemination of information in gaining the full support of the Malagasy people for action programmes for conservation of nature and natural resources;

Recommends to the Malagasy government that action be taken:

1. to include the concepts of conservation and information on man's detrimental effect on the environment (e.g. pollution, erosion and destruction of habitat) at all levels in school curricula and syllabuses;
2. to include such information in teacher training courses to enable teachers to awaken in their pupils a love and respect of nature;
3. to prepare textbooks, films and other audio-visual materials for this purpose based on Malagasy examples;
4. to make the public aware of the problems besetting the Malagasy environment and action that should be taken in regard to its conservation through the medium of radio and TV programmes, pamphlets, posters, travelling exhibitions and publication of a magazine with a wide distribution;
5. to permit senior officers in the department responsible for nature conservation to avail themselves wherever possible of opportunities to attend scientific courses and gatherings on conservation topics held by specialized agencies.

Resolution No. 5. – Introduction of exotic species

The Conference,

Considering that ecosystems which have evolved in isolation during long periods of the history of the biosphere are generally fragile in nature, and can be irreparably disturbed through the introduction of exotic plants or animals;

Recommends to the Malagasy government that action be taken to ensure that no exotic plants or animals be introduced to the island before the ecological effects of such introductions have been seriously assessed on the basis of reliable scientific evidence or resulting from long and careful experiments.

Resolution No. 6. – Collection and trade in natural history specimens

The Conference,

Considering that excessive collecting of natural history specimens for commercial purpose (e.g. the Tananarive market in souvenirs), or in some cases even for scientific purposes, is endangering many Malagasy species of plants and animals including those which are rare and restricted to the island and special to Madagascar;

Considering also that the exhaustion of local fauna, even when it is not confined in its distribution to Madagascar, leads to disturbance of ecological balances sometimes with unforeseeable chain effects;

Being aware that a list of protected plants and animals has already been established in accordance with the 1968 African Convention;

Recommends to the Malagasy government that action be taken with all urgency to complete and to implement firmly regulations controlling the collection and export of natural history specimens.

Resolution No. 7. – Conservation of forests

The Conference,

Considering the exceptional economic and ecological importance of forests throughout Madagascar in relation to:

- protection of the soils,
- regulation of water supplies throughout the year,
- stabilization of climate (particularly microclimates),
- provision of habitats for animal species which may become great tourist attractions in the future, and
- education and recreation;

Considering, too, the unique scientific value of these forests;

Recommends to the Malagasy government that action be taken:

1. to strictly protect against exploitation the last remains of primeval forest as yet untouched by man (e.g. areas to the north, east and west of Maroantsetra);
2. to establish more and larger forest reserves (see later resolution for details);
3. to intensify existing efforts to reforest areas already laid bare, and to refrain from any interference with local forests which might damage their natural status; and
4. to protect existing natural forests which are already suffering degradation so that they may regenerate naturally.

Resolution No. 8. – Conservation of wetlands

The Conference,

Believing that the wetlands of Madagascar (shallow lakes, marshes and mangrove swamps) are the areas next in importance to the forests for consideration for conservation action;

Considering the special scientific, cultural, aesthetic, educational, and touristic values of these wetlands;

Considering also that the maintenance in their original condition of a sufficiently extensive series of wetlands is essential to the survival of a number of plant species and of animals, especially waterfowl, which include rare and endangered endemic species as well as those of major interest to hunters;

Recommends to the Malagasy government that action be taken as follows:

1. that the action programme sponsored by IUCN known as the MAR project be extended to Madagascar and that accordingly an ecological inventory of wetlands be taken similar to that already completed in Europe and various African and Asian countries;
2. that systematic counts be made by local scientific organizations and with the assistance of IUCN and IWRB (International Wildfowl Research Bureau) of the waterfowl which depend on these wetlands and which provide the most accessible indicators of the richness and diversity of the food chains on which they depend;

3. that urgent action be taken to conserve various areas of wetlands which are of great interest without waiting for the results of these essentially long-term investigations, namely (in order of priority):

- a. the area lying between Antsalova, Bekopaka, the Manambolo River and the sea,
- b. Lake Ihotry,
- c. Lake Itasy and Lake Vazanga,
- d. Lake Kinkony; and

4. that the conservation measures to be taken in the above mentioned areas should include, beside general preservation of the environments, the establishment of nature reserves on which all shooting is prohibited (covering Lake Masama and Lake Bernamba, the southern part of Lake Ihotry, Lake Vazanga and part of Lake Kinkony).

Resolution No. 9. – Coastal areas

The Conference,

Considering that Madagascar possesses a remarkably varied coast line with biotopes ranging from sandy or rocky beaches and mangrove swamps to deep water via coral reefs, sand bars and mudflats, which may or may not be stabilized by vegetation, that are unique in the Indian Ocean for their diversity;

Considering that the position of the island in the south-western part of the Indian Ocean gives it a particular interest as a base for comparative ecological and biogeographical studies;

Considering also that the coral reefs are regarded as particularly productive ecosystems;

Being aware that certain of these reefs have already been devastated by intense commercial exploitation of living organisms (shells, corals, etc.);

Being aware also that these reefs are being used as sources of building material and of limestone, which undoubtedly represents the most irrational and destructive exploitation of such biologically remarkable ecosystems;

Realizing that an increase in tourist pressure on the coastal areas can be expected in the years to come;

Recommends to the Malagasy government that comprehensive conservation programmes be prepared for the coastal areas of Madagascar and particularly for the coral reefs, attention being given immediately to:

- a. the big Tulear Reef, and
- b. the Bay of Assassins (where it would be desirable to add to the planned marine reserve an adjoining land reserve to cover the xerophilous vegetation on calcareous soil which is typical of the region).

Resolution No. 10. – Conservation of Marine Turtles

The Conference,

Considering that marine turtles are a valuable economic resource which has been over-exploited and is now declining throughout the world;

Considering also that conservation of marine turtles is achieved primarily by protecting the nesting beaches where the females bury their eggs and where they are highly vulnerable;

Being aware that the coastal waters of Madagascar give shelter to marine turtle populations, the present status of which is not known precisely;

Recommends to the Malagasy government that action be taken as follows:

1. that a survey be made of the marine turtle populations which breed on Madagascar;
2. that conservation measures be instituted to protect marine turtles, if this appears necessary in the light of the survey results;
3. that, in this connection, contacts be made with the IUCN specialist group on marine turtles; and
4. that any such programmes of research and conservation be linked with the international programme now being implemented in Aldabra and South Africa.

Resolution No. 11. – Endangered species

The Conference,

Being aware that certain groups of plant and animal species of great scientific interest, which are endemic to Madagascar, only occur in very limited areas of the island,

Recommends to the Malagasy government that action be taken:

1. to give protection to the areas in question, particularly by establishing small special reserves whenever scientific research shows the necessity for such action;
2. to give urgent attention to areas which are the habitats of certain mammals and birds that are immediately threatened (*Hypogeomys*, *Galidictis*, certain Lemurs, *Uratelornis*);
3. to protect *Testudo yniphora*, a Malagasy species with a very limited distribution which is related to the giant tortoises that have been almost completely exterminated in the Indian Ocean (except in Aldabra), by establishing a reserve in Baly Bay (Soalala).

Resolution No. 12. – National parks and other reserves

The Conference,

Considering that, in addition to general measures to conserve the environment of Madagascar through the reform of the agro-sylvo-pastoral system, it is essential to maintain on the island an adequate system of national parks and other reserves which, if properly guarded, will ensure the survival of representative samples of the main ecosystems and of species of plants and animals threatened with extinction;

Stressing that action is needed to improve the status and guarding of the various types of reserves that have already been established, namely national parks, strict nature reserves and special reserves;

Realizing also that additional reserves need to be established before the island will have an adequate system of reserves as envisaged above;

Recommends to the Malagasy government that action be taken as follows in regard to planning for a system of national parks and reserves:

1. that a working group, including Malagasy and foreign experts, assisted if possible by specialists from UN agencies, be established to draft a project for a complete system of national parks and equivalent reserves;
2. that in preparing this project consideration should be given to the possibility of reinforcing the effectiveness of existing strict nature reserves by associating them with areas set up as national parks;
3. that this project might take into account private reserves which in some cases are of sufficient importance to justify public support;

Further **Recommends** to the Malagasy government that, without waiting for the implementation of the project just described, action be taken as follows to conserve certain areas immediately:

1. that Reserve No. 2 (Masoala) be reclassified as soon as possible as a strict reserve;
2. that the Nosy-Mangabe Special Reserve and the four islets that adjoin it (an area of particular value) be given the status of a national park;
3. that the Perinet Special Reserve be given the status of a national park;
4. that a national park be created in the «Sept Lacs» area in Tuléar province (in accordance with the project now being examined by the relevant authorities), mainly with the object of promoting tourism, and that access to this park be improved;
5. that action be taken to protect Tuléar Reef by including an appreciable section of the reef in a marine park;
6. that a reserve or national park be established to protect a representative portion of the Southern Didiereaceae Bush; and

Recommends to the Malagasy government that action be taken as follows to improve the management of natural parks and reserves:

1. that the personnel responsible for the protection of strict nature reserves, national parks and special reserves be increased appreciably;
2. that certain members of this staff, as opportunities arise, be permitted to complete their professional training, as for instance by visiting national parks and reserves in other countries;
3. that, wherever possible, the facilities, transportation, equipment and arms for this personnel be improved;
4. that, wherever possible, the infrastructure of national parks and reserves be completed and their boundaries be clearly defined;
5. that steps be taken, particularly as regards equipment, to promote, organize and regulate recreational, cultural and educational tourism in national parks;
6. that projects be prepared seeking to involve international and foreign national organizations in the implementation of these proposals (e.g. it is desirable for a survey aircraft to be placed at the disposal of the service responsible for the management of national parks and reserves, and for buildings to be erected which can be used as laboratories and lodging for research workers).

Resolution No. 13. – WWF Malagasy Appeal

The Conference,

Being informed of the initiative taken by various Malagasy officials to promote the establishment of a World Wildlife Fund national appeal which would contribute to the funding of carefully planned programmes for conservation of nature;

Congratulates these promoters and records its hope that the appeal will be implemented soon.

Resolution No. 14. – Association for the Study and Conservation of Nature

The Conference,

Considering that experience in many countries has shown that independent non-governmental organizations, uniting amateur and professional naturalists with others interested in nature and wishing to work for its protection, can be determining factors in the encouragement and implementation of conservation action programmes;

Recommends that every encouragement should be given to the establishment in Madagascar of a dynamic association for the study and conservation of nature or the strengthening or re-orientation of any existing association.

Resolution No. 15. – Expression of thanks

The Conference,

Resolves to record its recognition and its warmest appreciation to the various government services and the persons who have been involved in the organization of the Conference, and in particular to:

- the National Committee for Scientific and Technical Research of the Service of the Vice-President, presided over by Vice President Calvin Tsiebo and directed by its Secretary General, Mr. Manambelona;
- Mr. Jacques Rabemananjara, Vice President of the Government in charge of Foreign and Social Affairs, for his unremitting contributions;
- Mr. Jean-Jacques Natai, Minister of Agriculture and Rural Development, and Mr. Ramanantsoavina, Director of Waters and Forests, and the whole personnel of this Directorate, who have participated whole-heartedly in the preparation, organization and running of the Conference, and who have contributed greatly to the splendid success of the meeting;
- Rector Bonvalet and Doyen Rahandraha and all the branches of the University who have been unstinting in their efforts to offer the warmest welcome to all participants and to facilitate their visit;
- the Malagasy Academy, ORSTOM, the National Museum of Natural History of Paris, and the various research institutes and scientific services, not forgetting the international organizations represented in Madagascar, the personnel of which have taken part in the organization and in the proceedings of the Conference;
- the Albert Camus Cultural Centre and its director, Mr. de Gallard for arranging the exhibition «Malagasy nature, world heritage»;
- the Aid and Cooperation Mission (France), Air Madagascar, the Malagasy Army, and the French Army, which through their assistance, have facilitated the participation of a great number of those attending the Conference and the study tours;

all of whom have contributed to the success and international significance of this meeting.

Other speakers at the opening session included Dr. Lujo Tonic-Sorinj, Secretary-General of the Council of Europe, who presented a detailed review of environmental conditions; Mr. H. J. Coolidge, President of IUCN, and representatives of WWF national appeals. Gold medals for services to conservation were presented to Dr. Jacques Verschuren, Dr. Bernhard Grzimek, and Sir Julian Huxley.

The opening afternoon session was devoted to communications, with Mr. Hedly Donovan, Editor of Time magazine, and Peter Scott leading discussions. Later in the day, the thorny problems of "Industrial Technology VS. Conservation" were tackled, with Dr. Gerardo Budowski chairing a panel comprised of H.R.H. Prince William of Gloucester; Dr. G. H. Beeby, President of the Society of Chemical Industry (U.K.); and Mr. N. A. Iliff, Deputy Chairman of Shell Chemicals (U.K.). Both Dr. Beeby and Mr. Iliff presented papers.

The final day brought a review of European Conservation given by Dr. Luc Hoffmann, Vice President of WWF, and an address by Mr. Peter Walker, Britain's Secretary of State for the Environment. Mr. Walker stressed that the government of Great Britain was determined to wage an "all-out battle in the front of pollution in general" and to mount a positive programme to eliminate derelict lands.

Other speakers included Mr. R. E. Boote (U.K.), Mr. Neil Armstrong (U.S.A.), Mr. Thor Heyerdahl (Norway), Dr. Jacques Piccard (Switzerland), Sir Frank Fraser Darling (U.K.) and Mr. Amirali Fancy (Pakistan).

Symposium: Schutz unseres Lebensraumes

Zürich, 10-12 November 1970.

The Federal Polytechnic College in Zürich held a Symposium 10-12 November, 1970, under the title of "Schutz unseres Lebensraumes" (Protection of our environment), and a measure of its success can be seen from the fact that 3000 people attended.

Seminars dealt with such basic themes as reasons for environmental changes, effects of technical development, nutrition, air hygiene and water protection. Many interesting ideas emerged, including results of a consumer poll which revealed that 91 per cent of the people are ready to pay 5 to 10 per cent more for first quality foods that are free of pesticide residues.

In summary, Switzerland appears to be facing many of the same kinds of environmental problems of other advanced countries, and needs to do a great deal more if these problems are to be corrected.

Conference papers can be obtained from the "Institut für Waldbau," Universitätsstr. 2, 8006 Zürich.

Symposium on man-made lakes

An international symposium on man-made lakes, their problems and environmental effects will be held at Knoxville, Tennessee, U.S.A., 3-7 May 1971. The conference should be of interest to a broad range of scientists, engineers, and project managers.

The conference is being organized by the Scientific Committee on Water Research (COWAR) on behalf of the International Council of Scientific Unions (ICSU). Numerous Unions and Committees of ICSU are co-operating, and agencies of the United Nations are providing support. Arrangements in the United States are by the National Academy of Sciences, the Tennessee Valley Authority (TVA), and the University of Tennessee.

Meeting details and registration information may be obtained from:

Dr. William C. Ackermann, President,
Scientific Committee on Water Research,
Illinois State Water Survey,
Box 232, Urbana, Illinois, 61801, U.S.A.

California brown pelicans fail to produce young in 1970

Recent evidence of reproductive failures of the brown pelican in California prompted a study of the Anacapa Island population in 1970. From February to August reproductive success and breeding biology were studied by Franklin Gress, Museum of Vertebrate Zoology, University of California. He reported that there were 552 nesting attempts in two colonies established on Anacapa in 1970, with but one young produced. Reproductive failure was attributed to thin eggshells which collapsed during incubation. Aberrant behaviour associated with reproduction was also observed. In a survey of all traditional breeding sites in California, no other nesting was reported. Thus, in the State of California, only one young pelican was hatched in 1970.

Double-crested cormorants nesting on Anacapa suffered the same fate as the pelicans. In at least 50 nesting attempts, only one nest producing three young cormorants was successful.

End sought on rhino captures in Nepal

The Nepal Government has been requested by IUCN to ensure that no further capture of rhino takes place in Nepal. There are now not more than about eighty rhino left in Nepal, all of which are confined to the Chitawan area in the Terai. In 1959, the number was estimated at 300 (Gee).

This alarming decline in numbers during recent years has been due partly to poaching but mainly to habitat destruction through heavy overgrazing by domestic animals. Approval of Government has recently been given for the establishment of a National Park in Chitawan which will include most of the remaining rhino range. Agreement has also been obtained to prohibit grazing within the Park area. If this can be effectively enforced, recovery of the habitat and a gradual build up of the rhino population over the next few years may be expected.

The Survival Service Commission and the SSC Zoo Group have requested the firm co-operation of the world's zoos in refraining from buying or accepting any rhino originating in Nepal until such time as the population has recovered.

The Zoo Group serves as a liaison body between IUCN and the zoos and aquariums of the world, acting as a medium for the exchange of advice and ideas and for diffusing recommendations such as the above. The Group numbers 52 members, representing 38 countries.

Red Data Book, Angiospermae, now available

Data on rare and endangered flowering plants has been issued as Volume 5 of the Red Data Book. Compiled by Dr. Ronald Melville, Royal Botanic Gardens, Kew (U.K.), a member of the Union's Survival Service Commission, the new loose-leaf book, *Angiospermae*, represents the first attempt to provide data on the status of rare and endangered flowering plants of the world. This has proved to be no easy task for there are large areas of threatened taxa is very large, perhaps as many of 20,000 presently in danger of extinction. Consequently, Volume 5 will be enlarged and modified as new studies are undertaken and new data accumulated. New sections for the book, and additional regional supplements, will be available for purchase periodically.

Financial assistance in publishing the flowering plants volume was provided by the World Wildlife Fund and the Royal Society, London.

The new volume may be ordered from the Director-General, IUCN, 1110 Morges, Switzerland. It is priced at US \$7.00, Swiss Francs 30.—, or £3.0.0., postage prepaid.

World News Notes

Portugal: first continental National Park

Portugal recently established its first continental National Park: Peneda Geres National Park, covering an area of 60,000 hectares in the north-east part of the country.

The park comprises several integral reserves, designated for protection of endangered species and field laboratories for biological studies. The fauna inventory shows roe deer and wild boar populations, some wolves and Spanish imperial eagles and a little herd of wild horses.

Tourist facilities are located in the peripheric zone. Access to the park is by foot, horse or horse drawn carriage. The IUCN Commission on Legislation (prior to its recent reorganization) and the International Commission on National Parks aided Portuguese authorities in creating this new National Park.

USA: Cross-Florida Barge Canal work halted

Further construction of the controversial Cross-Florida Barge Canal has been ordered halted, according to press reports from the United States. The proposed 107 mile canal across the northern part of the Florida peninsula, which would have linked the Atlantic and Gulf coasts, has been opposed by conservation interests because of threatened destruction of the unique natural environment and wildlife along the Oklawaha River. Some 26 miles of the canal have been built since the project was authorized in 1962.

India: total ban on export of tiger skins

The Government of India have imposed a total ban on the export of tiger, panther or leopard skins from India. The ban includes the special permission given to tourists to take out of India skins of tigers, leopards and panthers, shot by them during their stay in India under a proper licence, as part of their accompanied or unaccompanied baggage. This special permission has now been abolished with effect from 3rd September, 1970.

The ban follows the recommendation of the Indian Board for Wild Life that tiger-shooting in India should be banned for five years as, according to reports, the tiger population had declined from 40,000 to about 2000 during the last four decades. Most of the States and Union Territories have accordingly imposed a complete ban on tiger-shooting from July 1, 1970.

Canada: A new park in Newfoundland

The Gros Morne National Park has been established in Newfoundland. It covers 155,000 hectares and contains a spectacular portion of Long Range mountains and scenic costal areas, lakes, waterfalls and dense forests of birch, spruce and fir.

The initial development of the park should be completed in 6 years and is expected to cost some \$10 million for land acquisition, an additional \$350,000 yearly for the operation of the park. Plans also call for the establishment of a protected marine environment area as an underwater component of the park.

Approximately 22 full-time employees and 30 seasonal employees will be required to staff the park.

The charming Swiss Alpine village of Zermatt, which is reached by a small mountain rail line from Visp, will soon have its own highway. Cantonal authorities have earmarked funds to construct the last 3-mile link, which is expected to be completed in 1972.

Automobiles will not be permitted in the village however, but must park in areas near the entrance.

Democratic Republic of Congo: four National Parks created

Four new National Parks containing in all more than 4 million hectares were created at the end of 1970 in Congo (Kinshasa). The parks will be administrated by the Congolese National Institute for the Conservation of Nature. They are:

Kundelungu Park, covering an area of 120,000 hectares in eastern Katanga, is designed to assure protection of the sable or black antelope and of the cheetah; Kundelungu is also rich in other fauna and will be a tourist attraction.

Salonga Park, containing 3.5 million hectares, in the provinces of Equateur and West Kasai. This park will be the only reserve for the rare pygmy chimpanzee (*Pan paniscus*).

Maiko Park, in the Uтури Forest, has 600,000 hectares and a refuge for the rare okapi, gorillas and the Congolese peacock.

Kaozi-Biega, 6000 ha. park near Bukavu (Kasai), is said to be one of the few places in the world where families of gorillas can be observed in their natural habitat.

Nepal: tiger shooting to end

Nepal is to put an end to tiger shooting from 1 March as part of the international effort to save the tiger from extinction. The World Wildlife Fund Headquarters in Morges has also been informed that the import and export of tiger and leopard skins will be completely banned by the Nepalese Government from the same date. Nepal's action brings the country into line with its neighbours, India and Pakistan, where the tiger is being strictly protected.

The Royal Bengal tiger (*Panthera tigris tigris*) of India, Pakistan, Burma and Nepal numbered some 40,000 in 1930. Recent estimates put the number surviving at below 3000, all of them under severe pressure from human population on their habitat and from poaching. Five other races of the tiger survive in small numbers – the Caspian, the Siberian, the Javan, the Sumatran, and the Chinese, but all are in grave danger of extinction. The Bali tiger is considered already extinct.

U.S.A.: expanded list of endangered species published

The US Department of the Interior has issued an expanded and revised list of endangered species and subspecies of mammals, birds, amphibians and reptiles, fish, and one mollusk. The new list was published in the Federal Register, volume 35, No. 233, on Wednesday, 2 December, 1970. Upon publication of the list, species and subspecies named became subject to the restrictions contained in the Endangered Species Conservation Act of 1969 (see IUCN Bulletin 2 (14) p. 116 for a discussion of this Act).

Among the various changes is the inclusion of nine of the twelve species of whale-bone whales plus the sperm whale. In the previous list, only two species were included.

Copies of the list, together with other relevant information pertaining to the Act, can be obtained from the Director, Bureau of Sport Fisheries and Wildlife, U.S. Department of the Interior, Washington, D.C. 20240, U.S.A.

UN Conference on the Human Environment

The Preparatory Committee of the United Nations Conference on the Human Environment held its second session at the Palais des Nations, in Geneva, 8–19 February, concentrating its efforts on formulating the major directions for the work programme of the world meeting to be held 5–19 June 1972, in Stockholm. The 27-nation preparatory group drew on the expert resources of the UN specialized agencies, and IUCN. The Union has been asked to participate with several working groups which will develop details of major agenda items for the Stockholm Conference.

IUCN adds three staff officers

Executive officers for the International Commission on National Parks, and the Commission on Ecology, and a Documentation Officer, have recently joined the IUCN staff at Morges.

Miss Paule Ambroes will serve as Executive Officer of the ICNP. A native of Belgium, Miss Ambroes has for the past two years headed the secretariat of the Belgian National Committee for the International Biological Programme (IBP), in addition to her on-going service with the Free University of Brussels as scientific and administrative assistant in the Department of Ecology. She holds a degree in ecology from the Free University of Brussels (1964), and collaborated in the preparation of a number of popular handbooks on ecology and conservation and two books, "Primary Production of Terrestrial Ecosystems" (Masson) 1967, and "Primary Productivity of Temperate Deciduous Forests in Western Europe" (UNESCO) in press.

The Commission on Ecology will have Miss Mona Ingegård Björklund as its Executive Officer. A native of Sweden, Miss Björklund comes to IUCN from FAO in Rome where she served with the Forest Conservation and Wildlife Branch, working with all aspects of operational programmes under the UNDP/Special Fund or Technical Assistance and providing technical back-stopping for field officers in Wildlife and National Parks management. Prior to joining FAO, she taught biology and chemistry in Sweden and earlier served as a research assistant in the Institute of Zoophysiology at the University of Lund. She holds a M.Sc. degree in Zoology from the University of Lund.

Mr. Tom Munetic, former classifier in the Documentation, Legislation and Library Division at FAO, Rome, is the new IUCN Documentation Officer. Born in Yugoslavia, Mr. Munetic is now U.S. citizen. He is a graduate of Dartmouth College and holds a M.Sc. degree in Documentation from the University of California (Berkeley), 1961. Prior to his service with FAO, Mr. Munetic was head of the library in the Museum of Comparative Zoology at Harvard University for four years. Earlier work was with the University of Puerto Rico, the US Department of Commerce, and McGraw-Hill Publishing Co., as a technical and scientific translator.

Prof. Dr. Wladyslaw Szafer

Professor Dr. Wladyslaw Szafer died on 16 November in Poland at the age of 84. Dr. Szafer was associated with IUCN over a period of many years, particularly in the affairs of the ICNP, and as a delegate to the Fifth, Sixth and Seventh General Assemblies. His contributions were substantial to these efforts, as they were in all he did throughout his long and productive life.

Dr. Szafer was Professor of Botany, Dean, and later Rector at Cracow University, serving until 1938. He was Director of the Botanical Gardens, Cracow; Director of the Institute for Nature Conservation of the Polish Academy of Sciences, Cracow; Editor-in-Chief and publisher of conservation periodicals *Ochrona Przyrody* and *Chronmy Przrode Ojczyzna*, and a member of numerous Polish and foreign scientific societies, including the Polish Academy of Sciences, of which he was Vice-President. He was the author of many scientific books, including *Flora Polska*, a 10-volume classic, published in 1919. In 1965, he published at Cracow as Editor-in-Chief the two-volume compendium of more than 1000 pages "Conservation of Nature and Natural Resources. Problems and Methods." (In Polish.)

V. B. Kozlovsky

Word has come from Moscow of the death of Dr. V. B. Kozlovsky, a member of the ICNP. Dr. Kozlovsky was an official on the Nature Reserves Division of the Ministry of Agriculture of the U.S.S.R., and compiler of the important volume "Natural Reserves (Zapovedniks) in the Soviet Union," which was published in 1969.

Book Reviews

The IUCN Bulletin undertakes to review books of conservation import that are donated by authors and publishers to the van Tienhoven Library at IUCN Headquarters. We have found it necessary to publish these reviews at more frequent intervals than the occasional review supplement, of which three have been published this far. It is proposed to devote space in occasional Bulletins to book reviews, thereby ensuring that these are as up-to-date and pertinent as possible. We wish to take the opportunity of thanking once again those publishers and authors and others that help to maintain our Library in the forefront of collections of conservation and scientific literature. Unless otherwise noted, all reviews are prepared by Prof. Tom Harrisson.

Danserau, Pierre. ed. (1970). *Challenge for Survival*. Columbia University Press, London. 235 pp., 3 pls., Sh. 72/-.

Books coming out of conservation conferences are becoming increasingly frequent. This one reports the symposium held in 1968 on the theme "Land, Air and Water for Man in Megalopolis", organised by the New York Botanical Gardens at Rockefeller University. Dr. Danserau, the distinguished ecological botanist, developed much of the programme, and has put together the main parts of contributions from participants, including a strong contingent from urban big business, as well as university and government personnel, the New York Commissioner of Parks and a leading publisher.

Subjects range from "The Green Areas of Megalopolis", (Jean Gottmann), "Acquiring Land" (Paul Brooks), "Radioactivity and Fall Out as a Form of Pollution", (George M. Woodwell), and even down to the detail of "Botanical Gardens and Horizons in Algal Research", (Seymour R. Hunter).

Each paper is followed by a commentary from another person. William A. Niering's piece on Urban Wetland also gives a rather half-hearted set of principles adopted and steps taken in industry to off-set wetland pollution, including thus:

"industry as a whole is making considerable efforts to achieve water-pollution control. These efforts are showing results. However, complete control will take a great deal of time, money, research, and dedication. I am firmly convinced that industry will accept this challenge, and do its full share to assure our survival."

What sort of share is a full share in big business terminology? Such modest precepts may not seem so reassuring for those of us thought fit to survive, what Helmut Landsberg, pioneer expositor of air pollution dangers, calls "that new subspecies of man, *Homo sapiens urbanus*". (p. 139).

Veteran Lewis Mumford writes a final summary, declaring himself to be a simple fellow, "not a scientist, but a Dutchess County gardener". (p. 221). His piece reads as if that was a proper end of the road for one of the great human ecologists. Mumford long ago foresaw many of the megahorrors awaiting urban man.

Dr. Danserau's thinking moves a stage further in a preface which, at the same time, suggests some of the very real weakness underlying present efforts in this whole field. He begins the book:

"A science of human ecology is in the making. It has not found its bearing yet, for it remains dependent upon sociology and on human geography, and has not nearly informed itself of the theoretical condition of ecology".

Such are the words of one who knows best — he is currently Professor of Ecology in Montreal. He brings out clearly one deep dilemma implicating so much of the early effort in this "new science": it is partially dependent on two other disciplines which are often weak, and in some areas have actually been weakened in recent decades, while in other areas (including two continents) they are virtually non-existent. The equivalent weakness underlies a factual base in much of this excellent volume, just as it underlies much of the impatient tension in western megalopolitical unrest among the younger generation, seeking new worlds to breathe the fresh wild air.

The book is pleasantly free of jargon, and well edited. It is not studded with footnotes and parentheses. References are selective and pleasantly presented at the end of each paper. The production is notable, the type face and lay-out a pleasure to see.

Dorst, Jean (1970). *Before Nature Dies*: London (Collins) 352 pp. 12 colour plates, many black and white. 63 s.

This important and comprehensive book is translated from the French by Constance D. Sherman, and has a preface by Prince Bernhard, President of the World Wildlife Fund. Professor Dorst is a conservationist of the highest distinction, and this book well documents those processes of thought which have led him to his eminence in this field. Taking a global view, he follows the human story of destruction from the primitive through the Industrial Revolution, when the serious large-scale poisoning of the earth began through manufactured waste; and on into the Scientific Revolution, for which he sees the almost indiscriminate use of chemical products, especially of pesticides, to be the distinctive marker.

To the archaeologist or prehistorian, Part I, entitled "Pre-Industrial Man" (pp. 25-34) may seem a little over-simplified. Nevertheless, it serves a useful purpose as leading into Part II, which deals with "Men Against Nature", and is divided on a primarily regional basis.

with a specially interesting chapter on Madagascar (p. 80). Reading these vivid regional reports, it is hard to say which part of the world comes out worst. The present reviewer was particularly horrified at the report from the Antilles (Cuba, Bermuda, etc.). But again and again it is the same grim tale of species and habitat lost.

It is with something approaching despair that one comes to Part III, more hopefully entitled "Man to the Aid of Nature". Here we get a clear, short general statement of the growth of conservative mindedness (p. 88), starting with George P. Marsh's basic book "Man and Nature", London, 1864. But in Asia, such ideas are much older, indeed innate both in Buddhism and primitive animism. Even the ferocious Mongol Khans protected game animals during their breeding seasons.

The first nature reserve of modern type was started by a group of painters in Forest Fontainebleau 1853; and the first big controlled area, Yosemite, in the U.S. 1864, and Yellowstone, where the National Park was promulgated in 1872 as:

"Pleasure ground for the enjoyment and benefit of the people."

All this, the author tells effectively, before coming on to the vivid problems of today, which he considers under a series of headings including Population Explosion, Land Destruction, Pests and Pesticides, Pollution, the Pillage of Maritime Resources, and so on. He concludes that the biggest risks are the Population Explosion and wasteful use of land resources. This leads into a chapter on "Rational Land Use".

If one had to find a fault in this work, it might be that insufficient attention is given to psychological factors in man: and along with this the need for clearer intellectual priorities, completely understood, fully explained, as the universal principles of conservation. Like nearly all European writers in this field, Dr. Dorst seldom touches below the surface of the philosophical issues and accepts certain western assumptions rather too readily. Thus his foreword is entitled "Man and Nature at odds". But of course, as he himself is well aware, Man is Nature; and his animal nature is driving him and this world into some of the major paradoxes which this book so well illuminates and brings alive.

The volume itself is handsome, though by Collins' standards several of the colour plates are rather poor – for instance the quality of the greens on the Assam rhinoceros picture. We must not complain. This is a key book, tremendously welcome.

Dorst, Jean and Dandelot, Pierre (1970). *A Field Guide to the Larger Mammals of Africa* London (Collins), 288 pp; 44 colour plates; many text figures and maps. 50 s.

This is, in my view, the most original and, in its field, comprehensively competent of all the generally excellent Collins Field Guides. It revolutionizes the potential for correct identification by visitors, even inexperienced observers, throughout Africa.

This satisfactory state of affairs is achieved both by the excellence of Professor Dorst's writing (more remarkable because the publishers inform us that this distinguished French zoologist and conservationist wrote direct in English), and equally by the drawings of Monsieur Dandelot which cover 233 species, running two or three to the page for the larger forms and twenty or more for the smaller. In fact, an amateur enthusiast for African mammals may sometimes feel that what he sees in the book is better than what he saw in the field. For him, two lingering questions anxiously remain:

- (1) Can the Owl-faced Monkey really look like that? (plate 19)
- (2) Is that Nyala (plate 29) tired?

This delicious work does not aim, however, to cover the bats, the very small species (mostly nocturnal) or anything northward from the Sahara.

Edberg, Rolf (1966, English translation by Sven Åhman, 1969). *On the Shred of a Cloud*. University of Alabama Press, University, Alabama.

This book has been called one of the three most outstanding records of our world today. While comparative judgments are dangerously subjective, there can be no question that this work is of great importance. It has been a best-seller in Europe, with 10 printings to date. English-speaking critics have been enthusiastic in their praise, and clearly, the book *should* achieve equal popularity in North America, Great Britain and in other English-speaking countries.

Rolf Edberg, a former newspaper editor and holder of several major diplomatic posts for Sweden, offers a highly perceptive study of the human race in the Cosmos. He is deeply concerned with political, social and technological problems of today, viewed in the perspective of all time and the major currents of philosophical thought. We agree with the comment of James Russell Wiggins, former U. S. Ambassador to the U. N.: *On the Shred of a Cloud* will join Rachel Carson's book *Silent Spring* in helping to awaken mankind to follies that threaten the extinction of life upon this earth. It raises in all its stark reality the great question of our time: can man survive his own fecundity and folly?

R. S.

Graham-Jones, Oliver (1970). *First Catch Your Tiger*. London (Collins). 224 pp; 4 black and white plates. 36 s.

What this book lacks in style, it makes up in interesting content. The author was the first veterinary surgeon to be employed in a full-time capacity by the London Zoo, where he was appointed Curator of Mammals and Veterinary Officer in October 1951. During

the following fifteen years, he made an important contribution not only to better organisation for animal care there, but in experiments with sedatives, fertilization, post-operational recovery. He was largely responsible for a more accurate approach to the problems of animal sickness and survival under zoo conditions in Britain, as he tells, in a racy sort of way (heavily first person).

A good deal of attention is devoted to the difficulties of breeding animals, especially rare ones. Several chapters tell the story of unsuccessful attempts to mate the Russian and British pandas. Mr. Graham-Jones indicates, between the lines, plenty of personal prejudices – conspicuously, he does not like Russian methods in several respects. There is something refreshing, even boyish, in his exuberant approach. There is plenty of anecdote, no jargon. But in the end we are left with a fair picture of the difficulties involved, in controlling rare species in zoos, especially where there is little field research or equivalent information on which the authorities can work at enclosure level.

This officer was certainly a dedicated man, though he must have been hard to discipline! What remains in the mind after reading his book, is an astonishment that any great Zoo had ever operated without such personnel.

Harthoorn, A. N. (1970). *The Flying Syringe*. London (Geoffrey Bles) 288 pp; 48 pp. of black and white photographs; 17 line drawings; 2 maps. 70 s.

This is the second recent book by a veterinarian interested in conservation. Dr. Harthoorn, on the staff of University College, Nairobi, pioneered uses of drugs shot in loaded darts as a method of immobilizing African wild animals. The cover design shows an inelegant enough picture of an elephant with a dart in its backside, part of this good work.

Throughout this informative and well-published volume, there is an unattractive underlying note of contempt for the animals, albeit unintentional. Though the purpose is invariably good, liberties are taken with wild creatures on occasion, disasters of various kinds described with something approaching relish.

Methods – as they developed through this pioneering – were sometimes so successful and so easy to execute (e.g. from a helicopter) that sight seems to have been lost of moral and aesthetic factors. Such factors must often take second place. But, it has to be said that inside the sound observation of species and individuals as here described, there is an element of "cruelty" which should not pass unnoticed.

Having struck this rather unpleasant note, it must be firmly added that the book is frank, informative, decently written, reasonably illustrated. The main argument is contained in a chapter "The Purpose Of It All", which answers questions such as *why* wild animals *must* be captured? Again, we may notice the distinction between capturing animals as an emergency measure, and the increasing use of capture to mark subjects of subsequent long-term research. There are evidently no agreed standards, yet, as to the wild methods which may be employed in achieving experimental conditions equivalent to those widely laid down by law for the laboratory.

Although Dr. Harthoorn writes mainly about experiences in Africa, his expertise has caused him to be invited across the world. There is a particularly interesting piece on "Killer Whales and Men", resulting from six months in the United States; and two good chapters on Kariba, where he played a major role. It might be useful to add a more technical appendix on the drugs involved; and while the bibliography is useful, there should be room, in a second edition, for a more technical set of references.

Taylor, Gordon Rattray (1970). *The Doomsday Book*. London (Thames and Hudson). 335 pp.; no illustrations. 42 s.

This is a new and lively contribution to a fresh category of book, rapidly becoming conspicuous in the boom for conservation, pollution and other such concerns, in the public mind. The author is a well-known British science correspondent and populariser, a couple of whose books have been best-sellers across the world – notably *The Biological Time-Bomb*. He writes well, from a firm basis of scientific understanding and experience. Indeed, his two pages of acknowledgements form an international "Who's Who" of scientists and others interested in these problems, to whom the author has gone for advice, information or criticism. The result is an impressive mélange of summarized research data, a deal of sensible commentary, along with some rather less certain and certainly dramatic condemnation of trends in our modern world.

While the reader will appreciate the care with which the author has sought out, compiled and presented a wide range of information – disease, population explosions, asbestos as a pollutant (a frightening section, p. 124), DDT, sex and cancer interrelated, lead as a lethal metal, radio-active wastes, changing the climate and even planetary engineering – he may feel some considerable unease at the undertone of excitement, thin vibrations of nearhysteria which echo through the pages out of the title itself. It is becoming increasingly easy and acceptable to have great emphasis put on the unsatisfactory, intimidating aspects of scientific technology. Mr. Taylor insists on the phrase: "The technological dream is becoming a nightmare, it is time to wake up, or we may die in our sleep". True, the danger is real enough. But in terms of popular communication a second, hidden danger is that by crying Wolf, Wolf so often and so loudly, mass faculties will be dulled, the nightmare sublimated into a day-dream of vicarious, masochistic inaction.