

IUCN BULLETIN



INTERNATIONAL UNION FOR CONSERVATION
OF NATURE AND NATURAL RESOURCES

1110 MORGES SWITZERLAND

NEW SERIES N° 16

Published with the financial assistance of Unesco

JULY/SEPTEMBER 1965

PESTICIDES IN THE ENVIRONMENT AND THEIR EFFECTS ON WILDLIFE

Pesticides are now used throughout the world to control farm and forest pests and vectors of disease. The "chemical revolution" has brought many benefits to Man but has also produced harmful side-effects. Research on the effects on wildlife began twenty years ago, and today hundreds of scientists are working in this field of study. Extensive work is in progress in at least nine countries, yet most workers have not had the opportunity to meet their colleagues from other countries in order to discuss the numerous problems of chemical analysis, toxicology and experimental field studies, which are of mutual interest. Accordingly Dr. N. W. Moore, Secretary of the IUCN Commission on Ecology's Committee on the Ecological Effect of Chemical Controls, asked the North Atlantic Treaty Organisation for assistance in organising such a meeting. NATO's response was rapid and generous, and enabled seventy-one scientists from eleven NATO and non-NATO countries to hold an Advanced Study Institute at the Nature Conservancy's Monks Wood Experimental Station, Huntingdonshire, England, from July 1st-14th, 1965.

The main purpose of the Institute was to enable those working on the effects of pesticides on wildlife to exchange ideas and to discuss future research. Thirty-four papers were read and will be published in a Symposium volume. They were concerned with the background of the wildlife problem and with field and laboratory studies of the effects of pesticides in terrestrial, freshwater and marine environments. The papers and discussions showed that pesticide residues occurred not only in physical and biological samples from areas treated with chemicals but also in environments which were never sprayed. For example, Dr. J. L. George, Chairman of the IUCN Committee, reported the finding of DDT in specimens of Weddell seal, Adèle penguin, Antarctic Skua and the fish *Rhigophilla*, which he had recently collected in the Antarctic. Dr. Moore



Peter Scott

reported the finding of DDT and its metabolites and dieldrin in all ninety-nine seabird eggs which had been analysed for organochlorine insecticide residues. These eggs were obtained from seabird colonies in England, Scotland and Ireland in 1963-1964. Mr. J. H. Koeman reported higher residues in seabird eggs from a site on the Netherlands coast; and Mr. J. A. Keith reported very high residues of DDT in Herring Gulls from Lake Michigan, U.S.A.

The lectures and discussions showed that, despite the considerable amount of research in progress, extremely little is known about the ways pesticides reach different places away from the areas of application. Also very little is known about the toxicological significance of the residues found. In some cases there is very good circumstantial evidence that pesticides are affecting species adversely, but in general effects are not known; and reliable data on population changes - whatever the causes - are not available. The Advanced Study Institute was most valuable in defining areas of ignorance and in initiating technical co-operation. At the end of the meeting a General Statement was agreed upon, defining the main research needs at the present time. Participants also requested Dr. N. W. Moore, the Director of the Advanced Study Institute, to inform the International Union for Conservation of Nature and Natural Resources (IUCN) of the conclusions listed in the General Statement; and to request the IUCN to facilitate international aspects of the investigations and activities which were concluded to be necessary "in order to understand the effects of pesticides more fully".

CONSERVATION IN SOUTH EAST ASIA

A Conference on Conservation of Nature and Natural Resources in Tropical South East Asia will be held in Bangkok, Thailand, at the Kasetsart University and the adjacent National Research Council of Thailand, from 29 November to 4 December, 1965. It will be followed by three days of field trips to areas of particular conservation interest in Thailand. The Conference is sponsored by IUCN in association with the National Research Council of Thailand, the host organization; and co-sponsored by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Purpose

This is an international scientific and technical conference to focus attention on conservation of nature and natural resources in Tropical South East Asia. The principal objectives are to bring together those concerned with and knowledgeable about various aspects of conservation in the region; to provide the opportunity for and to facilitate exchange of information, ideas, and experience between those present; and to collect, compile and make available for consideration at the conference and for later reference a body of authoritative background information on the subject.

Until recently most international attention to conservation has been focused on Africa, America, and Europe. The theme of this Conference, **Conservation Spotlight on Tropical South East Asia**, is intended to express the growing national and international concern with conservation in this region. The emphasis in the programme will be on the ecological aspects of conservation and the ecological approach to it in Tropical South East Asia; on education and training; and on the exchange of information and techniques.

The Conference

Each region of the world has its own cultural and ecological setting, and solutions to each region's conservation problems must be sought within that setting. Conservation in South East Asia must be considered within the South East Asian setting. There has been growing interest, awareness and concern with the often increasingly urgent conservation problems in the countries of Tropical South East Asia. In recognition of this situation, the Eighth General Assembly of IUCN, held in 1963 in Nairobi, Kenya, approved a South East Asia Project (SEAP). Stage I of the project, currently in progress, is an ecological survey and assessment within many of the countries of the region. Stage II is to be the Conference on Conservation of Nature and Natural Resources to be held in Bangkok at the termination of Stage I, to consider conservation in the region in the light of current information, including the results and recommendations of Stage I.

The Conference is a non-governmental, scientific and technical meeting, and invitations to attend are sent to individuals and organizations who are particularly concerned with, or knowledgeable about, the subjects to be discussed.

Officers on the Conference

Honorary Chairman: François Bourlière,
President, IUCN

General Chairman: Harold J. Coolidge,
Chairman, International
Commission on National Parks
of IUCN

Programme Chairman: Lee M. Talbot,
Director, South East Asia Project

Chairman, Thai Organizing Committee:

Pradisth Cheosakul, Deputy
Secretary-General, National
Research Council of Thailand

Programme

In the Plenary Sessions there will be addresses of welcome by officials of the Host and Sponsoring organizations; addresses by representatives of the international agencies participating in the Conference, keynoting the problems and importance of conservation in South East Asia and the special relationship and concern of their respective organizations with conservation in the region; summarization of the proceedings; presentation of recommendations and resolutions; and other Conference business.

In addition to Plenary Sessions, there will be five main Technical Sessions held on consecutive days of the Conference:

- I. **International Biological Programme (IBP)** – Plans and proposals for national programmes in conservation for the IBP. (This Session will be co-sponsored by the IBP, Section on Conservation of Terrestrial Biological Communities.)
- II. **Ecology** – Ecological aspects of conservation in Tropical South East Asia, emphasizing comprehensive, integrated planning for the use of land and water resources.
- III. **Education and Training** – Part 1: Public education in conservation; Part 2: Training for effective careers in conservation.
- IV. **Threatened Species** – Species of South East Asian fauna and flora that are rare or threatened with extinction.
- V. **National Parks** – The importance and development of national parks, reserves and natural areas in Tropical South East Asia.

The subjects will be presented by selected speakers and discussants, and open floor discussion will be an important part of all sessions. Panel Papers and Background Papers have been invited, and copies will be available to all participants at the opening of the Conference.

Recent Publications

Ruhle, George C. (1964)

Advisory report on a National Park system for Thailand, 1959-1960
A report prepared for the International Union for Conservation of Nature and Natural Resources and the American Committee for International Wild Life Protection.
Special Publication No 17 of the American Committee for International Wild Life Protection, Bronx, N.Y. 24 pp.

Adams, Alexander B. / Editor (1964)

First World Conference on National Parks
Proceedings of a conference organized by the International Union for Conservation of Nature and Natural Resources, held in Seattle, Washington, July 1962.
Published by the National Park Service of the United States Department of the Interior, Washington, 1964. 471 pp.

IUCN Permanent Commission on Conservation Education (1965)
World conservation education

Papers presented at the Workshop of Conservation Education, held at Nairobi, Kenya, September 1963. Compiled by J. Goudswaard.
IUCN Publications New Series, Supplementary Paper No 7. 75 pp.

ACTIVITIES OF THE INTERNATIONAL COUNCIL FOR BIRD PRESERVATION

Oil Pollution of the Sea

Though over three years have elapsed since the 1962 Inter-Governmental Conference at which important amendments to the 1954 Convention for the Prevention of the Pollution of the Sea by Waste Oil were agreed, these still have not come into effect. This is due to the interpretation of the procedure laid down that acceptance by two-thirds of the Contracting Powers is necessary to bring the amendments into force. As a result there is a constantly changing situation owing to the fact that each time a further Government adheres to the original Convention, and does not accept the amendments, the prospects of these being implemented are worsened. The situation as at July 31st, 1965, is that 29 Governments have accepted the original Convention and 14 the amendments – therefore 6 more acceptances of the amendments are required to bring them into force – always allowing that no further Governments accept the original Convention meanwhile. The British Advisory Committee of Oil Pollution of the Sea and the Nordic Union for the Prevention of Oil Pollution of the Sea brought this unsatisfactory state of affairs to the attention of IMCO (Intergovernmental Maritime Consultative Organization) on the occasion of the meeting of their Council in June 1965. Meanwhile, the National Sections of the ICBP whose Governments have not yet accepted the amendments continue to press them to do so.

Most of the major oil companies have adopted the new system of operation in connection with cargoes of crude oil which will make an enormous difference to the amount of oil discharged into the sea by tankers. However, cases of pollution and the destruction of sea-birds continue and it is extremely difficult to trace an offending ship. In the United Kingdom an appeal has been made to the general public to help by reporting at once to the Coastguards any discharge of oil seen coming from a vessel, whether in coastal waters or on the high seas, with if possible the name of the ship, or any distinctive markings, such as flag, colour of funnels, etc.

Toxic Chemicals and the Land

The arrangement (initiated at the request of the Conference of the European Continental Section ICBP held in Northern Ireland in 1964) by which National Sections of the ICBP are supplied with information on the situation, and documentation published, in other countries is developing satisfactorily. This is purely an ancillary activity to the work of IUCN's Committee on the Ecological Effects of Chemical Controls which has been collecting information on research on pesticides for several years and has carried out a review of research in progress in members' countries. The object of the ICBP is to endeavour to keep all National Sections informed of what is happening in other countries, and not in any way to make an assessment of the research which is going on.

As a result of the letters sent by the President of the ICBP early in 1965 to the Indian Board of Wildlife and all the Governments of the States of the Indian Union, pointing out the dangers of the use of persistent organochlorine pesticides particularly with regard to their accumulation in the animate environment, both officials and the general public in India have become more aware of the problem. The Japanese National Section has

initiated practical steps to preserve the Japanese Stork *Ciconia ciconia boyciana* from the effects of pesticides by attempting to breed these birds in captivity.

Unfortunately their laudable enterprise has not had a very successful beginning. The story, from Dr. Yamashina's reports, is that a pair was captured in February 1965 and placed in a large flying cage. Hopes ran high when nest building began in the early spring and when eggs were duly laid later. It was, however, a great disappointment to find that the eggs did not hatch due to apparent infertility and tragedy followed when the adult female bird died on 22nd June. Even worse news came soon afterwards, and this concerned the small group of one male and two female birds surviving at Obama, in the Fukui Prefecture. Their single young of 1964 died before reaching maturity and on 29th June 1965 the male was killed by coming into contact with a high tension electrical cable. Since no more breeding can be expected from the Obama birds, present plans are to catch the two surviving females for transfer to the flying cage where the solitary male remains; also to endeavour to obtain another male elsewhere, to complete a total of two pairs for the captive breeding nucleus.



The Hawaiian goose *Branta sandvicensis*, official bird of Hawaii State, was reduced from an estimated 25,000 birds in the late 19th century to less than 50 individuals. A restoration campaign begun in 1948 has resulted in a present total world population of approximately 500 birds. The three photographed are seen in their natural habitat in Haleakala National Park, Maui Island, Hawaii.

Photo: U. S. Dept of the Interior, National Park Service, by courtesy of the World Wildlife Fund Photographic Library, Morges.

Habitat destruction

One of the most serious results of present day population explosions is the appalling destruction of indigenous vegetation, particularly forests. In many parts of the world bird species and subspecies are being placed in grave danger of early extinction because an insufficient extent of their natural habitat is being left for their survival. Perhaps some of the most critical areas to-day are parts of the mainland of tropical America. A recent report from Colombia is typical of what is happening in several places. It stresses a feeling of utter shock at the recent and rapid deterioration of environment and goes so far as to say that the great Andean forests no longer exist except along the Atlantic slope and on the Amazon basin side. The forests of the other four slopes of the three Andean ranges are literally gone, as have also those until recently found in the intervening valleys; most of this destruction having taken place since World War II. The tragedy is that many forest bird species do not go elsewhere or make comebacks. When the forests go the birds are gone forever, and most of them are unable to survive unless tracts of considerable size are left for them. Not only can it with certainty be prophesied that there will be much extinction of birds and other wild life in Latin America within the next 20 years; it can also be safely said that some of it has already taken place without information from the localities being adequate to know which creatures have gone. Colombia has the reputation of being one of the most bird-rich countries in the world, and the 1556 species listed there represent over half of all the species of birds found in South America. Yet a recent investigation told the following sorry story: of 50 parrot species only 5 individuals of two of them seen in a week's search; only one pair noted of one of the 20 species of toucan; no kingfishers found, pesticides in the food chain having been said to have eliminated them; and out of 80 species of birds of prey, only a few kestrels, and some turkey vultures and caracaras noted, but no hawks, buzzards, kites or eagles. The writer could not recall ever having been more depressed in his life, and a fervent hope must be that some strict forest sanctuaries can still be declared where unique species may be surviving.

Continued page 7

International Whaling Commission

The Seventeenth Meeting of the International Whaling Commission was held in London from 28th June to 2nd July 1965.

In addition to its normal documentation, the Commission had before it two special documents. The first was a compilation of letters received from non-governmental organizations, including IUCN, urging the Commission to take effective action to conserve the whale stocks. The second was a report from an FAO assessment group showing the type of regulations that might be made which, if implemented, would have the effect of conservation desired by all who are concerned with this subject.

The meeting endorsed the recommendation of the Special Meeting that the 1965/66 Antarctic season quota should be 4,500 b.w.u., and agreed that "there shall be further reductions for the years 1966/67 and 1967/68 that will assure that the total catch for 1967/68 will be less than the combined sustainable yields of the fin and sei stocks as determined on the basis of more precise scientific evidence".

The Commission agreed to forbid the killing of blue whales in the Pacific Ocean and its dependent waters north of the equator for five years commencing with the 1966 season. The Commission also agreed to prohibit the killing of humpback whales in the North Pacific for the 1966 season.

Some anxiety was expressed concerning the increased catch of sperm whales since it was feared a reduction of whaling in the Antarctic might have the effect of diverting whaling fleets to hunt this species in waters outside the Antarctic where females and breeding stocks are known to occur. Moreover, there was evidence to show that the regulation which stipulates that no sperm whale under 38 ft. may be taken "was being broken on a large scale". The Commission therefore agreed to prohibit the killing of sperm whales in "waters between 40° South Latitude and 40° North Latitude".

Although the Commission was strongly requested to implement the International Observer Scheme, no solution was reached by the end of the meeting.

The Commission noted the increasing importance of catches from shore stations in relation to the overall status of Antarctic whale stocks and decided to invite the Governments concerned "to take domestic measures on a voluntary basis" to ensure that the catch level for the forthcoming season does not exceed that for the 1964/65 season or the average of the catch over the last three seasons. At the same time the Commission appointed a special group "to bring into order the catching of whales in these places and to study the setting up of an observer scheme applicable to them". The group will make recommendations which will be discussed at the next meeting.

The Commission undertook to appeal to Chile and Peru to adhere to the 1946 Convention for the Regulation of Whaling and to observe the minimum lengths applicable to sperm whales as well as to supply completed statistical data to the Bureau of International Whaling Statistics.

The Commission also appealed to the Antarctic pelagic countries to reconsider their refusal to accord protection to the blue whale in Antarctic waters north of 55° S. Latitude from 0° eastward to 80° E. Longitude.

Any of the decisions taken by the Commission can, of course, be overridden and rendered ineffectual by objections made by participating Governments within 90 days of the meeting.

In spite of the continuing gaps in the whaling regulations, shortcomings in inspection and enforcement, and the opportunities that exist for evasion of the regulations, the Seventeenth Meeting has resulted in notable, if belated, progress towards rational conservation of the world's whale resources. Much more remains to be done, but a useful start has been made.

Uganda

A statement on the possible development of a hydro-electric station in Uganda's Murchison Falls National Park has given cause for concern. The power to be derived from this source is said to be required for possible future industrial development in the northern part of Uganda. An alternative site exists at Bujagali, slightly downstream from the Owens Falls Dam, but the output from the Murchison Falls is potentially much greater.

The Murchison Falls constitutes the key attraction of Uganda's national park system and, in spite of assurances that every effort will be made to minimise the despoilment involved in constructing the power station, it is difficult to see how any method of construction, siting or subsequent servicing of installations designed to harness the Falls for hydro-electric purposes could fail to cause permanent damage. This applies not only to the Falls as a major tourist attraction but also to the wealth of biological material within the park which is becoming of increasing interest.

Although the intakes would be upstream and therefore out of sight of the Falls, the power station would be situated below the Falls. Even if the station itself could be constructed underground, transmission lines and administrative buildings could not be concealed. Moreover, a substantial proportion of the normal flow would be diverted into the intakes which would inevitably involve a severe reduction in the volume of water passing over the falls.

IUCN believes that conservation of natural resources must go hand in hand with development, but it is axiomatic that the biological consequences of development should receive the most careful consideration and, where alternatives are available, the scheme promising the minimum adverse biological consequences should always be preferred. One of the principles established at the First World Conference on National Parks held at Seattle in 1962 was that "structures . . . for hydro-electric and other purposes which would be in any way prejudicial to the purpose of a park should not be allowed in a national park." (Resolution No. 11.)

It is to be hoped that the Government of Uganda will attach due weight to this principle in adjudicating on this important issue.

Spain

At Madrid on 22 June 1965, the title-deeds of the Palacio de Doñana section of the Coto were formally handed over by the World Wildlife Fund to the Consejo Superior de Investigaciones Cientificas of the Spanish Government. The ceremony was performed by Mr. Peter Scott and Dr. Luc Hoffmann, Vice-Presidents of the Fund, and IUCN was represented by its President, Professor F. Bourlière - a mark of the priority attached by IUCN to the conservation of a region of quite outstanding importance from the biological point of view.

The reasons for regarding the Coto and adjacent parts of the delta of the Guadalquivir as of such high importance are now well known, but can bear repetition. As one of the two major surviving wilderness and wetland areas of western Europe, it performs two major functions: first, as a breeding area for species whose status elsewhere in Europe and even in Africa is deteriorating through drainage and disturbance. Here, in some instances, they still exist in spectacular numbers; in others, such as the distinctive races of lynx (*Felis lynx pardina*) and Imperial eagle (*Aquila heliaca adalberti*), they constitute a small, but secure and therefore vital sample of the surviving stock. Secondly, as a stopping-place for migrant birds, the Coto offers comparative safety and abundant food, and thus helps to offset the heavy losses suffered along almost the whole broad front of the trans-Mediterranean and trans-Saharan fly-way.

The ceremony at Madrid therefore had a significance far beyond the borders of Spain, although its primary purpose was to mark the completion of the first stage in securing a heritage of which the Spanish people can be justly proud. It is still only the first stage. The World Wildlife Fund needs and deserves much additional support to discharge the financial burden it has shouldered in leading the way and achieving the vital initial step. Other areas, in total considerably more than that already acquired, must be secured, if the crucial role of the delta for conservation, biological research and, not least, for human recreation, in the full sense of that word, is to be fulfilled. And finally since conservation implies use and use, including that arising from natural processes (destruction of trees, for example, by the mass of nesting herons), implies a continuing process of change, there remain the most complex but challenging problems of management to be faced and resolved.

WORLD NEWS

Germany

Modern synthetic detergents contain highly "surface-active" substances, which produce quantities of foam. American troops stationed in the Federal Republic introduced these detergents into Germany: for this reason anxieties about water-pollution initially arose in places where American garrisons were stationed.

Problems concerning decomposition of sewage, possible danger to fish, and effects on riverine vegetation were discussed for the first time in scientific papers in 1954. Once it had been ascertained that fish became diseased as a result of detergents, test feedings were made in an attempt to learn whether or not these detergents produced cancerogenic effects. It took only a short time to find that foam formation in water resulted in a diminished light supply and oxygen content which, in turn, was extremely harmful both to fish and to plankton. The self-cleansing power of rivers and lakes was greatly reduced, and vegetation along the banks deteriorated. Navigation and the operation of locks on navigable waterways were impeded. Dirt trapped in the foam caused damage to clothing and other objects. The efficiency of purification beds at sewage-treatment plants was impaired through disruption of normal bacterial action. The efficiency of both closed and open filtration systems at water works was reduced, as was the efficiency of cooling towers. In dry years an additional factor which arose from the persistent effects of detergents was the formation of foam in the drinking water of at least one large town: this occurred despite purification and filtering processes.

The subject has been of concern to members of the INTER-PARLIAMENTARY WORKING GROUP of the State parliaments. On January 26, 1960, the matter was raised in the Bundestag by an inter-party group representing all parliamentary political parties: the Federal Government's reply clearly recognized that appropriate action required to be taken. Then, on November 14, 1960, members of the INTER-PARLIAMENTARY WORKING GROUP introduced a draft bill which, after debate in both the Bundestag and the Bundesrat, resulted in the passing of the "Act concerning Detergents in Washing and Cleansing Media" of September 5, 1961 (Federal Legal Gazette I, p. 1653). The purpose of this act is to ensure maximum decomposability of surface-active and cleansing agents (detergents). Under the act, such detergents shall not be marketed by the manufacturer or importer unless the decomposability conforms to the requirements of a statutory ordinance, which is to be issued separately. Measures of control, penalty provisions, etc. are also laid down by the Act. The decomposability of anionic active detergent substances in washing and cleansing agents must not be less than 80%. The decomposition capacity must be ascertained according to the method of measurement prescribed in an appendix to the ordinance.

The industrial chemical works concerned were given a little more than three years to convert their manufacturing processes and develop new decomposable detergents. The provisions of the act became fully effective on October 1, 1964, and have proved extremely successful. There is, however, still a shortage of sewage-treatment plants. Energetic attempts to remedy this deficiency have been made with the aid of public funds allocated by the Federal and State parliaments.

The success of the Act will certainly be even greater once consumers have used up remaining stocks of old detergents. Unfortunately, neighbouring states do not yet have similar legislation which results in old, non-decomposable detergents being frequently brought into the Act's sphere of influence by rivers from across the frontiers. German experience resulted in a draft bill being brought before the United States Congress by Congressman Reusch. A similar bill has also been placed before the Belgian Parliament. It is to be hoped that other states will soon follow suit.

President Kennedy's message

It is with very great pleasure that Dr. Harold J. Coolidge, Chairman of IUCN's International Commission on National Parks, has received, through the courtesy of Dr. Tsuyoshi Tamura, Chairman of the Board of Directors of the Nature Conservation Society of Japan, who first proposed the Conference, the original of President Kennedy's message to the First World Conference on National Parks.

This historical document, which bears President Kennedy's signature, has been framed and now graces the Van Tienhoven Library at IUCN's Headquarters at Morges.

Birds of Paradise

Great anxiety was caused to IUCN and other Conservation organizations by the news received in June that a Bill was due to come before the House of Assembly of Papua and New Guinea which, if enacted, would have legalized, under permit, the exploitation and export of Bird of Paradise plumes. Although under conditions of scientific management and the most highly organized and efficient control, such exploitation might not necessarily be inimical to the future of this scientifically and aesthetically incomparable family of birds, it was easy to see that a threat to their existence could develop under commercial pressures, lack of the basic scientific knowledge and impossibility of adequate enforcement of controls in the difficult terrain of the birds' habitats. Urgent representations were, therefore, organized under the leadership of ICBP/CIPO and it was later learned with relief that the Bill was defeated. It is much to be hoped that there will henceforth be wider recognition that the live birds constitute an unique attraction for scientists and tourists alike.

Ngorongoro rhino

Latest estimates of the stock of black rhinoceros in the Ngorongoro Conservation Area, quoted to H.H. Prince Bernhard of the Netherlands on a recent visit to the Crater at the end of August, are 74 in and around the Crater itself and a further 62 in the neighbouring Olduvai Gorge sector. They are based on photographic records made of all rhino seen by Mr. Goddard, the Canadian biologist who is carrying out a study of rhino in the Conservation Area. IUCN would certainly endorse the satisfaction expressed by Prince Bernhard at this and other indications of the Tanzania Government's determination to maintain one of the country's most outstanding assets.

United States

Russell E. Train, whose resignation as a Judge of the United States Tax Court was recently announced by the White House, has accepted the Presidency of The Conservation Foundation, as from August 1st.

Since its establishment in 1948, the Foundation – a non-profit making organization, which depends on private contributions for its support – has been especially concerned with the quality of the human environment. It has been active in the fields of population growth, water resources, air pollution, open space, soils, plant and animal life, outdoor recreation planning, pesticides, and conservation education. In partnership with the U.S. Forest Service, it operates the Pinchot Institute for Conservation Studies, dedicated by President Kennedy at Milford, Pennsylvania in 1963, and it maintains an Alaskan research centre at Juneau. The Foundation has recently included in its organization the Citizens Committee for the Outdoor Recreation Resources Review Commission Report (CORC) and plans added emphasis on increasing the effectiveness of citizen participation in conservation.

Train was appointed to the Tax Court by President Eisenhower in 1957. Prior to that time he had served as Assistant to the Secretary of the Treasury for tax legislation, and earlier had been an advisor to the tax committees of Congress.

Active in conservation activities in the United States and abroad, Train is also Vice-President of the World Wildlife Fund, a director of the American Committee for International Wildlife Protection, and President of the African Wildlife Leadership Foundation. The latter organization, which has pioneered in conservation education programmes in Africa, will continue to be headed by Train, and it will maintain a close working relationship with The Conservation Foundation. Since its founding, The Conservation Foundation has been affiliated with the New York Zoological Society.

THE STATUS OF *CROCODYLUS MORELETI* IN YUCATAN

by James H. Powell, Jr.

In an earlier visit to Yucatan I had reported that because of the apparent ease with which the owner of the Faisan y Venado restaurant in Mérida maintained his crocodile exhibit, the animals must be fairly abundant in the Yucatan swamps. I must now retract that optimistic statement.

The day after my arrival in Mérida I went to the Faisan y Venado. In all there were ten Morelet's crocodiles, ranging in size from two feet to just over four feet. I asked the owner where they came from, and where would be the best place to observe them in the field. He said he seldom knew the origin of the specimens brought to him, but he believed the animals were most numerous in the lagoons around the fishing village of Rio Lagartos ("Alligator River"). He said crocodiles also occurred in the Champoton River, but from his description these were obviously *Crocodylus acutus*.

A word about terminology. Crocodylians are known by three names in Yucatan. *Caiman* ("caiman") refers to caimans and alligators – in other words, all Alligatoridae – indiscriminately: *Alligator mississippiensis*, for example, is called *caiman norteamericano*, or "North American caiman". *Lagarto* ("alligator") denotes the Morelet's crocodile: *crocodilo* ("crocodile") is reserved for *Crocodylus acutus*. I soon learned what people meant when they said "There are no crocodiles in Yucatan, only alligators. For crocodiles you must go to Tabasco." From then on I asked where I might find "alligators". The answer was always the same: everybody I asked, including the curator of the zoological garden at the Parque del Centenario, said "Rio Lagartos".

So I went to Rio Lagartos. The inhabitants there said the "alligators" were now very scarce, owing to persecution by hide hunters. At one time they had been common. An old man I talked to said he could remember about sixty years ago when they were so numerous they would enter the town at night and steal chickens. He could also remember when up to 1,000 skins per day used to pass through Rio Lagartos. This could be an exaggeration, but the fact of the decline is no illusion.

I chartered a fishing boat and spent the day (July 8, 1965) cruising the lagoon, which is separated from the open sea by a sand bank. I tasted the water and found it brackish. The banks are everywhere mangrove. The water is quite shallow (6–8 ft.), but in places it is deeper. According to the fishermen the best place to look for alligators was in the shelter of the mangroves, so we ran as close to the shore as we thought we could without disturbing whatever wildlife might be there, while I scanned the bases of the mangroves with field glasses. We saw no crocodiles. My guide took me to an *ojo de agua*, or "eye of water", a clear pool separated from the lagoon by a stone wall and used by the local people for swimming. He told me that three months ago a small alligator had been seen swimming there. "Everybody ran for their guns, but when they returned the animal had gone." That was the last reported sighting in the lagoon. "The last time I personally saw an alligator in the lagoon was six months ago," he said, "and I fish the area every day. You see one about every six months."

The boatman told me of an inland area southwest of Rio Lagartos, which he described as "a fresh-water swamp, very difficult to penetrate; mud waistdeep, with plenty of royal palms". There, he said, crocodiles could still sometimes be found. The last time he personally had seen a crocodile anywhere had been there. About three weeks previously he and some companions had shot three big ones (about eight feet). They received 900 pesos (\$72) for the belly skins. Whether this was the price per hide, or for the whole consignment, he did not say: either way, it would be a fortune to a Mexican peasant.

"That's about the only place you can still find them," he said. "Remote, inland places where people haven't penetrated yet. But now they're penetrating even there. Legally, alligators are protected, but the law is not respected. It is very easy to sell the skins under cover in Mérida. Even a small one brings 100 pesos [\$8]. The mere rumor of an alligator sends everybody running for his gun."

The morning I arrived a party of men had left Rio Lagartos for the above mentioned swamp to investigate a report. They would base at a chiclero camp. The boatman thought that, with luck, it would take them about eight days of hard scouting to find and kill the crocs.

Back in Mérida I visited the zoo at the Parque del Centenario. It had fifteen Morelet's crocodiles. Twelve, ranging in size from four feet to eight feet, were kept in a large enclosure with a sand floor, tank and trees. Also in this enclosure was a large (ten feet) American alligator from Miami. The other three crocodiles, three to four feet long, were kept in a smaller tank with three American alligators of similar size. The curator said that three or four of the Morelet's would probably soon be shipped to Mexico City.

In the large enclosure was a laying female about 6-7 feet long. Two years ago, right after the sand had been put in, she had made a nest and laid eggs, which she brooded for two months. While guarding the nest she had been attacked by a crowd of students. Unable to budge her, they had blinded her by thrusting long, pointed sticks into her eyes. At the end of two months the administration dug up the eggs and broke them open. Inside each was a live crocodile. No attempt was made to raise them. All were immediately pickled in formalin.

Two weeks before my arrival this same female had laid again. The curator showed me the nest and allowed me to enter the enclosure to photograph it and the brooding crocodile at close range. I urged him to allow the eggs to hatch naturally, to remove the young immediately to avoid cannibalism, and to attempt to raise as many of them as possible. Whether or not he will do so I do not know. The eggs should hatch early in September.

He also said he had seen Morelet's crocodiles five meters, or over fifteen feet, long. I questioned him carefully to be sure he was not referring to *Crocodylus acutus*. "No, not crocodiles, but alligators," he insisted.

Most of the vast interior of the Yucatan Peninsula, despite its wild state, is not a favorable habitat for crocodiles because of the lack of surface water. However, parts of Quintana Roo, especially along the southern part of its coastline, are swampy and might possibly harbor populations of crocodiles, though I understand Zebu cattle are raised extensively in some of these areas, especially around Ciudad Chetumal.

In view of the rapidity with which *Crocodylus moreletii* is being exterminated in its natural habitat, and since it breeds in captivity, I believe that a captive population should be established from which the original range could be restocked should conditions there become more favorable – such as the establishment of an effectively protected sanctuary.

In this connection I purchased, for the equivalent of \$20 in American money, five of the crocodiles at the Faisan y Venado. After much trial and tribulation getting an export permit – the law may not be enforced against poachers, but a jungle of red tape awaits anyone trying to remove specimens legally – these were finally delivered to the Grant Park Zoo in Atlanta, Georgia. This institution has just completed a new reptile house with the best possible facilities, and is more or less specializing in crocodylians. The Curator, Mr. Steve Dobbs, informs me that the crocs are all well. All but one are as yet too small for breeding, but they could form a useful breeding nucleus for rehabilitation of the species.

CONTROL OF TSETSE FLY BY "GAME" EXTERMINATION

By Dr. F. Fraser Darling

(This is the fourth and final article on the problem of tsetse control to have been published in the IUCN Bulletin.)

It is as yet quite insufficiently realised that politics is a very important ecological factor. All schemes, anywhere, which involve considerable change in the vegetational, and consequently faunal, characteristics of country, should be carefully studied politically by those who question the biological soundness of such schemes in achieving the objects which are the ostensible reasons for such changes in the nature of country being undertaken.

Conservationists, so-called, are all too often a breed of person with apparently little political sense, apart from being a vociferous faction, and with little power of analysis of a bio-political situation. Speaking as an ecologist with a mind heavily slanted towards conservation, I deplore the emotional fulminations of people called conservationists against every scheme in the world that involves the killing of wild animals. The greatest hope for conserving wild animals in our present day and foreseeable world is that a lot more wild animals should be killed.

Having said that, it should not be assumed that I am smugly satisfied with our present day and foreseeable world: I think that almost all the humane and scientific advances we are making are being offset and nullified by our inability to grapple with the human populations problem. Africa must face this as well as the more developed countries, but there is no evidence that the continent is even prepared to think about it. Africa as a terrain has been represented by ground nut minded nitwits as an immensely rich continent: in a few places it is, and some minerally rich areas allow aggregations of people which can afford to be fed from outside. But in general the African terrain is brittle and heavy interference with the beautifully integrated and adapted natural communities of plants and animals results in loss and devastation unless it is possible to add wealth, work and wisdom in substitution of what is being destroyed.

The proposal to revert to destruction of wild mammals in Rhodesia as a means of holding the advance of the tsetse fly has put the cat among the pigeons. The political situation in that country has never been analysed by the hot-headed conservationists in other continents and their ill-informed criticisms have merely hardened opinion in that embattled country. This is all to the bad. It would have been far better to have done some poking about into the psychology of the tsetse-control programs of the past twenty years and more, into the scientific ineptitude, into the activities of political lobbies and the types of minds represented by certain ministers of the governments through the period up to the present.

Such investigations would show that the present proposal to revert to a slaughter policy in tsetse control is largely a face-saving operation backed by some determined but not necessarily very knowledgeable characters, scientifically speaking. The slaughter policy of the past achieved some clearing up of the problem and human settlement and establishment of maize farms did help to contain the tsetse. But the slaughter policy was finally ineffective because the warthog, the kudu and the duiker are precisely

the species which are able to survive such a policy and infiltrate once more.

A cessation of the slaughter policy and substitution of bush-clearing and insecticides spraying has also been shown to be ineffectual. And this substitution could also be shown to be impoverishing to the natural habitats involved. A carefully mounted ecological attack on the tsetse fly, not on its total range, but on those areas it has recently invaded and re-invaded, would have no preconceived notions of the efficacy of this or that policy, and certainly no one front can provide a panacea.

Tsetse control to be effective searches for all possible angles of attack and employs some or all the weapons it can muster at different times and in particular situations. These weapons include insecticides, land-use and habitation patterns, bush clearance, biological control through parasitism and genetic sterilisation and, let it be said fair and square, game reduction or even elimination. This last weapon is not one to employ in bull-at-a-gatepost fashion as it has been in Rhodesia in the past, but extremely selectively and delicately to back up other forms of attack.

The Rhodesian authorities would have us believe that the present proposal is just that, but my own examination does not satisfy me that the proposal is a well-considered scientific one. In this I may be unjust, for I have not got down to the problem on the spot. Would it not be possible for IUCN to approach Rhodesia and try to establish an independent, international commission to weigh the evidence impartially? Such a commission could have far-reaching influence on future policies of tsetse control in other parts of Africa, and could help to break down the present die-hard blocs of uncritical conservationists and confirmed killers. So few of us are in either camp, but the factions bedevil the issue.

Activities of the International Council for Bird Preservation

Continued from page 3

Reintroduction of the francolin into Italy

The nominate and most western race of the francolin *Francolinus f. francolinus*, or black partridge as it is often called, was described in 1776 and has Cyprus as its restricted type locality. Its present distribution is given as Cyprus, Asia Minor, Syria and Palestine, east to Transcaucasia, Iran and Kurdistan, but evidence was adduced in 1889 that it once occurred at Valencia in Spain, as well as in Sicily, Italy and Greece. More recent authoritative findings, however, suggest that the species could not have been indigenous to Spain, never was found in Greece, and that birds were carried into Italy from Sicily, to which latter island they were probably introduced at the time of the Crusades. Whatever the true position, the species has not been seen in Italy for a long time and it is interesting to note that it has now been reintroduced there. A full account of the rearing of francolins in captivity at Miemo, in Tuscany, and subsequent releases there, is given in an attractively produced, illustrated book "Il Francolino" (1964) written by Professor Ugo Baldacci who carried out the enterprise.

TOWN AND COUNTRY PLANNING PROBLEMS

By the IUCN Landscape Planning Committee

A new relationship of man and nature can take place in a proper arrangement of the countryside through landscape planning, and in conditions of multiple land use planning and proper management of natural resources.

It is one of the objectives of IUCN, advocated by its **Landscape Planning Committee**, that the conservation of nature, the treatment of natural surroundings and the upkeep of ecological conditions are likely to result only from careful planning. In addition the *creation* of a better landscape and of a dignified human environment, where these have been impoverished or lost, should also be a major aim of any planned development of land.

In an increasing number of densely populated industrialised countries regional planning provides the framework for the planned use of land. The above mentioned aims, however, cannot be attained without the contribution of the landscape planner from the earliest stage and at all levels. In contemporary land use development it is necessary that the biological and ecological approach of the landscape planner should play an important part in the planning teams who shape the face of tomorrow's world.

It is the special skill of the landscape planner which has demonstrated in several countries since World War II that a new relationship of Man and Nature can generally provide this contribution to the protection, improvement and creation of landscape in two important ways of activity:

- a. In the administrative framework of Town and Country Regional and/or Rural Planning as an integral part of regional development.
- b. As a component of special task operations such as large public and supply works, or in the direction of the special task operations such as the rearrangement of out-dated rural production areas.

In theme II of the forthcoming IUCN General Assembly, several aspects of Landscape Planning will be reviewed

and the Committee is now considering which aspects should be covered and what persons should be invited to contribute papers.

The need for landscape planning will have to be considered in relation to developed as well as underdeveloped territories, including wildlife as an element of land use.

The landscape plan and the role of the landscape planner also need to be explained, and the following summary outlines the scope of one such paper: In the framework of *regional planning* the preparation of a survey, an analysis and a diagnosis of landscape is needed to provide the planning team with the indispensable basic material for development schemes and to enable the landscape planner to prepare the *landscape plans*.

In these landscape plans the conservation and the development of the agricultural, recreational and urbanised landscapes will have to be worked out.

Papers about the significance of the landscape plan in Town and Country planning, about the methodology of the landscape plan, landscape diagnosis and landscape planning with their relevant details as for instance landscape planning in forestry, agriculture, national parks and urban and industrial development will be prepared. Other matters are road building, reclamations, watershed management, industrial plants, provisions for recreation and tourism, and so forth.

Technical papers on landscape planning for the improvement of climatic conditions and the management of water and soil resources are also proposed. It is also the intention to submit papers referring to the use of air photographs, vegetation mapping, soil mapping, etc. in the planning of landscape.

Assistance in the preparation of several papers has already been offered by members of IUCN's Landscape Planning Committee, other persons and bodies such as the International Federation of Landscape Architects.

IUCN Membership, Bulletin and Annual Report

Free issue of the Bulletin and Annual Report is made to the following:

- Corporate Members of IUCN:

Governments
Government Departments
Private organisations

Membership fee

According to population (annual)
\$ 50 minimum (annual)
\$ 50 minimum (annual)

- Friends of IUCN: (individuals only)

Honorary Members
Life Members
Benefactors
Friends

—
\$ 200 (single payment)
\$ 15 (annual)
\$ 3 (annual)

- Organizations and Libraries who exchange publications with IUCN

- A limited number of organizations who wish to obtain the Bulletin for educational purposes.

Individuals wishing to become Friends of IUCN may do so by forwarding their subscriptions to IUCN, 1110 Morges, Switzerland, or direct either to IUCN account with Union de Banques Suisses, 1800 Vevey, or IUCN Post Cheque Account N° 10-226 05, 1000 Lausanne.

The annual subscription for booksellers, libraries, etc. is \$ 3, less usual discount.