

# IUCN BULLETIN



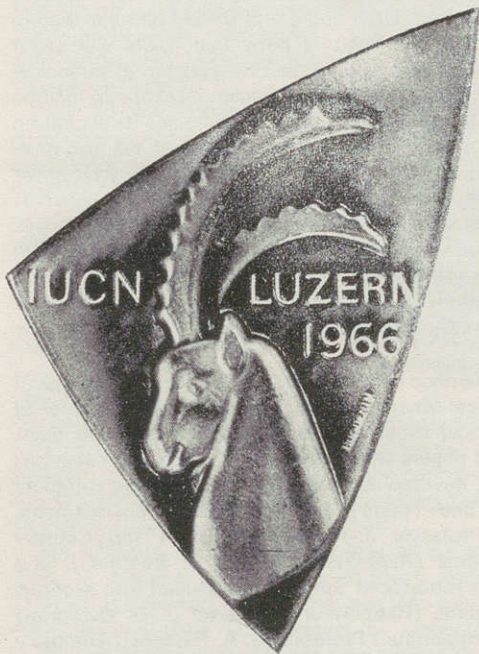
INTERNATIONAL UNION FOR CONSERVATION  
OF NATURE AND NATURAL RESOURCES

1110 MORGES SWITZERLAND

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*It is to be hoped that UNESCO, thanks to the influence it wields, can persuade its members—that is to say national Governments—that conservation of nature and natural resources is not something of interest to a small circle of specialists but a vital necessity for the maintenance of future peace and prosperity of the world as a whole. In fulfilling this task it can count on the cooperation of IUCN which, through its non-governmental status, is in the position to initiate and undertake the necessary complementary action.*

*J.-G. Baer, University of Neuchâtel, Honorary Member and former President of IUCN, addressing the 9th General Assembly in honour of UNESCO's 20th Anniversary.*

## **The Lucerne General Assembly**

In a superb setting and one of particular significance to IUCN, as the new President, Dr. H. J. Coolidge, so rightly stressed in his closing address, the 9th General Assembly was held from 25 June to 2 July 1966, under the host sponsorship of the Swiss Government. In addition to that Government, seven other Member States of IUCN were represented among over 300 delegates, observers and individual supporters who attended, while nearly half the Member Organizations of IUCN, drawn from 44 of the 68 countries now included in the membership list, were able to send delegations.

A most welcome event and one which attracted considerable attention in the international press, was the presence of a strong group of delegates and observers from the Soviet Union. The message from Mr. V. Matskevitch, Minister of Agriculture of the USSR, which was presented by the leader of the group, Mr. B. Bogdanov, expressed the keynote of this Assembly, the belief that conservation of man's whole environment, "in the atomic age and with the rapid development of the utilization of natural resources", is not only one of the most important problems facing mankind but also one which can only be successfully resolved by the fullest co-operation between

countries and provided that their vital efforts in this field are guided and co-ordinated by IUCN.

Reiterated during the course of the Assembly by numerous other speakers, this was a notable reassertion of the aims and ideals so far-sightedly established exactly 19 years earlier, at the meeting at neighbouring Brunnen organized by the Swiss League for Protection of Nature, when the International Union was conceived. It must have given particular satisfaction to the six present at the Lucerne Assembly who had also taken part in the Brunnen meeting, and to none more than Dr. Ch. J. Bernard, chairman of that earlier meeting and now Honorary President of IUCN. It was fitting that the fact should be commemorated by the presentation to him of the plaque of the 9th Assembly.

The three days immediately preceding the Assembly were devoted to meetings of the Commissions, that of the Commission on Education taking the form of a symposium on the problems of conservation education at the University level, of which the papers presented and an account of the discussions will be published. For the Commission on Ecology this was the first meeting in the shadow of the grievous loss suffered

## The Lucerne General Assembly

(Continued from page 1)

through the death of Edward Graham, who had for many years presided over its activities. The deputy Chairman of the Commission, Professor J. B. Cragg, expressed the general feeling, later repeated by the President, Professor F. Bourlière, in his opening address to the Assembly and with reference, also, to the loss since the previous Assembly of Victor Van Straelen and Ragnar Spaerck, when he emphasized how much the Union's hopes and plans for the future would owe to the work and ideas of these men. Their names and influence would be enduring.

Following the opening of the Assembly by the President, Dr. W. Bühlmann, President of the Government of the Canton of Lucerne, welcomed the participants in the name of the Swiss Government. It is appropriate to record with the deepest appreciation that this welcome was reflected by the most generous hospitality on the part of the Canton Government and many other Lucerne organizations and individuals. The spacious facilities and efficient services of the Kunsthhaus could not have been bettered, while the entertainment of all the participants on the first evening of the Assembly will assuredly be remembered by them. It took the form of a steamer excursion on the Vierwaldstättersee as far as the historic Rütliwiese, where traditional music and dancing were performed. No more perfect introduction to the Assembly (or opportunity for participants to meet one another) could have been devised – and the weather was no less kind.

Before this happy conclusion of the first day's proceedings, much business of importance was transacted. After the opening speeches, the President called on his predecessor in office, Professor J.-G. Baer, to deliver an address in honour of the 20th Anniversary of UNESCO, celebrated this year by all the many organizations which, like IUCN, have benefited from their association with this great international agency. Regretting that Sir Julian Huxley, who had originally agreed to deliver the speech, had been prevented from doing so by illness (the Assembly's good wishes to Sir Julian were later transmitted to him), Professor Baer paid tribute to the leading part Sir Julian had played, as Director-General of UNESCO, in helping to establish IUCN, and reviewed in detail the invaluable influence the UNESCO connection had had on the Union's subsequent development. "It is probable that without the moral and material authority exercised by UNESCO, and all the interest which those who have directed its destinies have never ceased to show in the conservation of nature, the International Union could never have become a viable organization."

Following the Anniversary Address and the presentation of the message from the USSR Minister of Agriculture to which reference has already been made, the first part of the morning's session was brought to a close by the presentation of the John C. Phillips Medal for Distinguished Service in International Conservation for the period 1964-1966. The recipient, Dr. Enrique Beltran, was unhappily prevented by illness from attending the ceremony, and the medal was received on his behalf by his countryman, His Excellency the Mexican Ambassador to the Swiss Confederation, Señor Carlos Dario Ojeda.

Statutory business during the second session of the Assembly included the announcement of the four new Member States which had joined the Union during the previous triennium, namely, Tchad, Ecuador, Zambia and Senegal, and of welcome assurances which had been received from two additional States – Finland and the United Kingdom. The ratification of 31 new Member Organizations was unanimously approved, and particular pleasure was expressed that these included two departments of State – the Ministry of Natural Resources of Malawi and the United States Department of the Interior.

A topic of the greatest significance to IUCN debated during the course of the day, in the light of initial statements by Dr. E. B. Worthington and Mr. E. M. Nicholson, was the further development of the Union's relationship with the International Biological Programme and, in particular, its section on conservation of Terrestrial Communities. General agreement was reached in defining the potential scope of this relationship as a

basis for detailed consideration at the IBP/CT meeting arranged to follow immediately on the Assembly. As stated by Mr. Nicholson, Convenor of the section, "very considerable progress has been made in the latest years in recognizing what the world conservation problem is and in shaping at least embryonic mechanisms to deal with it. The scale and resources of these are however still pitifully insufficient for the great and urgent task facing them... It seems particularly important that the existing communications and contacts between all the bodies concerned should be further built up and reinforced, and that a full and dispassionate review of the organization and performance of the world conservation movement should be undertaken by or soon after 1970."

The formal proceedings of the opening day were fittingly concluded by the Keynote addresses delivered by Professor Georges Grosjean of the University of Bern, and Dr. Joseph L. Fisher, President of Resources for the Future Inc., of the U.S.A. Both speakers again directed special attention to the now universal character of conservation problems and their complex relationships with all other aspects of the study of man's environment. Dr. Fisher gave his hearers much food for thought by defining the five principal ways, five major projects, by which he believed IUCN could and should take the lead in dealing with these problems. "I hope that IUCN will assert stronger leadership in moulding the conservation of tomorrow through these projects, that it will broaden its scope to include new approaches and disciplines, that it will place its accent on the positive and play down the defensive and the negative, that it will make its full contribution to solving the great problems of the times – peace, poverty, disease, education, preservation of what is valuable in the past, and the progressive realisation of human promise." As part of IUCN's blue-print for the future his recommendations will certainly form one of the most valuable items in the Proceedings, and were later incorporated in the three-year Programme approved by the Assembly.

Only brief reference can be made here to the proceedings of the 10th Technical Meeting which, including one day's interval set aside for local excursions, occupied the next five days. More than sixty papers were contributed to the three sections of the Meeting, devoted respectively to the Ecological Impact of Recreation and Tourism upon Temperate Environments (Rapporteur: Professor J.-P. Harroy), Town and Country Planning Problems (Rapporteur: Mr. R. J. Benthem), and Changes due to Introduced Species, subdivided into sections dealing with plants (Rapporteur: Professor J. D. Ovington) and animals (Rapporteur: Professor G. A. Petrides). The three technical volumes in which the Papers and an account of the discussions will be published should provide an up to date conspectus of thinking in each of these related fields, but it is of interest to note in this review that the "introductions" problem proved to be the most controversial. Nevertheless it achieved a useful basis for further study and discussion, for which responsibility was vested in the Commission on Ecology and in which it is to be hoped and is indeed essential that IUCN should arrive at an agreed policy.

Of the concluding sessions of the Assembly on 1 and 2 July, the three highlights which deserve special mention were the presentation by the Executive Board and approval in principle of a Programme for the coming triennium envisaging a great expansion of IUCN's effort and activities; the unanimous recommendation that as a positive contribution to the problem of financing such a programme, a resolution in favour of an over-all 50 per cent increase in the scale of subscriptions of Member States, based on a new formula related to the UNESCO scale, should be circulated to all Members for approval, subject to suitable provisos safeguarding the interests of States which have hitherto supported the Union; and the adoption of 25 wide-ranging resolutions the text of which is included in this issue of the Bulletin. If even a proportion of these resolutions can be successfully implemented the work of the 9th General Assembly and the purposeful enthusiasm of those who attended it will have been well worth while.

## The current situation in the Albert and Garamba National Parks, Congo

Condensed from a report by Kai Curry-Lindahl

Early this year the Government of the Congo (Kinshasa) invited IUCN to send a representative to accompany the Minister of Agriculture on a tour of inspection of the Albert and Garamba National Parks. Dr. Kai Curry-Lindahl undertook the assignment on behalf of the IUCN Executive Board and was in the Congo from April 27th to May 14th. The following is a resumé of his report:

### Albert National Park

President Mobutu's visit to the Albert National Park in March 1966, together with his emphasis on the Government's determination to preserve the integrity of the park have had a beneficial effect, particularly on the local chiefs, some of whom had previously been hostile to the park. The policy consistently followed has involved maintaining the park as an integral nature reserve with the development of modest tourist facilities. The Government could scarcely have adopted a more positive attitude, as exemplified by the recent decision to turn down applications by commercial firms for the exploitation of gold deposits known to exist within the park's boundaries in the Ruwenzori Range.

The southern sector of the park is entirely intact on the Congolese side and almost the only noticeable damage appears to be the loss of the information labels which were formerly installed on the various lava flows.

There has been no influx of pastoralists and their cattle from Rwanda since 1960. For that reason conditions on the Congo side of the Virunga Volcanoes are satisfactory and because both the Government and the provincial authorities wish to accord adequate protection to that part of the park lying within their jurisdiction the mountain gorillas inhabiting Karisimbi, Mikeno and Visoke are in no immediate danger.

The situation on the Rwanda side of the frontier is quite different, however, and on the southern slopes of Sabinyo, Gahinga and Muhavura both the montane rain forest and the bamboo have been so damaged by uncontrolled burning, felling and grazing that they are now useless as gorilla habitat. Such complete neglect of their portion of the Albert National Park is in bewildering contrast with the interest shown by the Rwanda authorities in protecting the Kagera National Park.

In the central sector, from the Molindi River to the northern shore of Lake Edward, the situation is excellent and the presence of large herds of elephant, buffalo, kob, topi and hippo on the Rwindi-Rutshuru Plain, as well as along the Lula, Rwindi and Rutshuru rivers and around the shores of Lake Edward, evincing no fear of man, was irrefutable evidence of lack of disturbance.

The most satisfactory occurrence in the vicinity of Lake Edward has been the evacuation of all the fishing villages illegally established between 1961 and 1964. A presidential decree resulted in the immediate removal of 1,200 people, and only a single fishing site now exists on the Congolese shore of Lake Edward at Vitshumbi. Furthermore, all cattle, goats and poultry at Vitshumbi, were slaughtered or otherwise removed early in 1966.

This firm intervention, together with the support accorded the Albert National Park by the Government, have greatly enhanced the park's status and prestige in the eyes of the local people.

The northern sector has been subjected to more disturbance than other parts of the park, primarily through the activities of Congolese fishermen and of poachers from Uganda in 1960/61,

and later, in 1963/64, by rebels, who slaughtered not only the animals but also some of the national park officers and rangers, including the conservator. The buildings have been partially destroyed but preparations have been made to repair them as soon as a new conservator is appointed to this sector.

This has been a troubled region for almost six years, but poaching does not appear to have been on a large scale and, now that the rebels have been cleared from the area, the situation is returning to normal.

The elephant and buffalo populations in the Albert National Park have apparently remained stable during the last few years, while kob and topi have shown a satisfactory increase.

### Garamba National Park

Although it has been difficult to obtain a clear picture of recent events in the Garamba National Park, it seems that the general situation remained more or less normal until 1963. In that year anti-government forces moved into Uele Province from across the Sudan border. The rebels soon occupied the park, later spreading over the whole of northeastern Congo. Simultaneously, poachers from the Sudan took advantage of the breakdown of law and order to enter the park in increasing numbers.

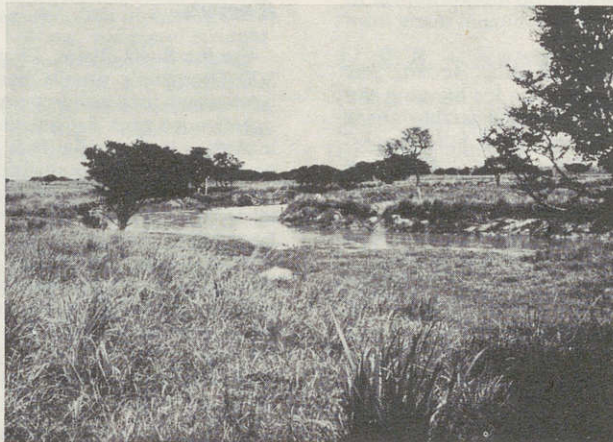
The staff were powerless against the well-equipped rebel forces who proclaimed that the park was open for all to hunt, and the position quickly deteriorated. Those rangers who refused to cooperate had to flee for their lives.

Large number of ungulates of many different species have been killed either as a direct or indirect result of the prevailing chaos. The status of the square-lipped rhinoceros, in particular, gives cause for concern. In 1963 the population was assessed at about 1,000 but, so far as can be judged, fewer than 100 now remain alive. This estimate was reached after a series of counts both from the air and from the ground in May 1966 from which it became clear that the entire northern, western and eastern parts of the park are now almost devoid of large mammals, with the exception of a few lelwel hartebeest. Only in the southern sector are there now any concentrations to speak of. As in some other areas, a spot-check of rhinos in the Garamba Park is made easier by the tendency for each animal to have at least one cattle egret perched on its back.

Many elephants have also been killed and the survivors appear to be restricted to the southern sector, where 249 were counted from the ground on May 6th. They were distinctly nervous. On May 11th, 270 elephants were counted from the air in other parts of the park. These numbers are far lower than the population that was known to exist a few years ago. Precise information is lacking, but it seems clear that losses must be reckoned by many hundreds if not thousands.

Years may elapse before the Garamba National Park can fully recover from this catastrophe, but recovery is virtually certain if the strictest protection is enforced. For this reason it is heartening to know that the Congolese Government is so conscious of the importance of the country's superlative national parks system and has clearly indicated its determination to do all in its power to restore Garamba to its former eminence.

In a letter dated June 27th 1966 the Minister of Agriculture of the Congo informed Curry-Lindahl that he intends to implement the recommendations contained in the latter's report.



Garamba National Park, May 1966

(Photo K. Curry-Lindahl)

### Thylacine

One of the rarest and least known mammals on the IUCN list of rare and endangered species is the thylacine, *Thylacinus cynocephalus*. Until the beginning of the present century it was relatively plentiful in the central plateau and a few other parts of Tasmania, but by about 1910 had practically ceased to exist.

The decline was so drastic that between the two World Wars fears were expressed that the species might be extinct, but a series of investigations undertaken by the Tasmanian authorities shortly before the Second World War revealed the tracks of about half a dozen pairs in a very remote part of the south-west.

The Tasmanian authorities have long recognized the need to do everything possible to safeguard this unique carnivorous marsupial. It is fully protected by law and there are severe penalties for killing it in any circumstances.

In the post-war period individual animals have occasionally been seen and in recent years reliable sighting reports appear to have become slightly more frequent and have been made from a number of widely separated localities.

The Animals and Birds Protection Board, Hobart, has consistently held the view that the best hope for bringing the animal back from the brink of extinction lay in the establishment of a fully protected sanctuary in the wild and little known region in the south-western part of the country where it is believed to have survived in the greatest numbers.

In April 1966 the Board's efforts reached fruition with the proclamation of a game reserve encompassing 1,600,000 acres, known as the South-West District. Within this region cats, dogs and guns are now strictly prohibited. The boundaries of the new reserve are officially described as follows:

"Commencing at a point on the high-water mark of the Southern Ocean at Low Rocky Point and bounded on the north-west by a north-easterly line to the intersection of the Gordon and Serpentine Rivers on the north by an easterly line to the summit of Mt. Mueller on the north-east by a south-easterly line to the intersection of the Huon and Weld Rivers again on the north-east by a south-easterly line to the trigonometrical station on Adamsons Peak on the south-east by a south-westerly line to a point on the high-water mark aforesaid at South Cape then by that high-water mark to Hilliard Head by a north-westerly line along Port Davey to North Head thence again by that high-water mark aforesaid to the point of commencement."

The proclamation of the South-West District is a significant development in retaining a large area of habitat, not only for the thylacine but also for other indigenous fauna, including the rare Tasmanian race of the ground parrot *Pezoporus wallicus leachi*. It is extremely gratifying that the Animals and Birds Protection Board's consistent advocacy over a period of many years has been brought to such a successful conclusion.

### New Zealand

A report in a recent issue of *National Park News* states that almost nine per cent of New Zealand is now set aside as national parks and reserves. Of particular interest is the closure of the 180 sq. mile Murchison Mountain area to protect the only known habitat of the takahe, *Notornis mantelli*. Special measures, including the extermination of deer by professional hunters, are being taken to retain a habitat suitable to the rare bird. The report also points out that New Zealand is in process of establishing additional reserves to be designated wilderness areas.

### Australia

After a careful re-appraisal of old records, N. A. Wakefield of Monash University has recently found that there were some 14 or 15 species of the kangaroo family native to Victoria State at the time of white settlement. J. K. Dempster of the Victoria Fisheries and Wildlife Department points out that today only six species remain and, of these, two are endangered — the Brush-tailed Rock Wallaby *Petrogale penicillata* and the little Potoroo *Potorous tridactylus*.

### Red Hartebeest in Northern Transvaal

Among the nature reserves administered by the Transvaal's Director of Nature Conservation, is the Langjan Nature Reserve situated about twenty miles from the nearest point of the Limpopo River. It was created for the special purpose of trying to safeguard the last herd of Gemsbok *Oryx gazella* in the Transvaal, but an attempt is also being made to establish the Red Hartebeest *Alcelaphus buselaphus caama* in the reserve. Small groups of the latter still occur near the junction of the Limpopo and Palala rivers.

In September 1963 six Red Hartebeest cows and one bull were brought to the Langjan Reserve from the Willem Pretorius Reserve in the Orange Free State. Another 2 bulls and 3 cows were introduced later and breeding has occurred very satisfactorily. So far this year eight calves have been born, one of which was killed by a python, bringing the total number of Red Hartebeest in the reserve to 31.

### Kenya

On the Kapiti Plains, 25 miles from Nairobi, a herd of nearly 200 Thomson's gazelle has been paddocked on a 500 acre game ranch for a research project which could be of far-reaching significance both for wildlife conservation and for the hungry in Africa. In the belief that Africa's indigenous gazelles could be more efficient than cattle as productive ranching stock, David Hopcraft, a Kenya-born University graduate, has undertaken a 3 year study with the aid of a £22,000 National Science Foundation Grant. The study will have three main purposes — to compare the protein, meat production and nutritional efficiency of the Thomson's gazelle with domestic cattle; to make a detailed life cycle study of the animal; and to discover what part it plays in the biotic community. If successful, Mr. Hopcraft hopes to be able to enlarge his ranch to farm other types of gazelle.

### The Nile Lechwe in Ethiopia

The Nile lechwe *Kobus megaceros* has hitherto been recorded only from the Southern Sudan, where it is known to occur in the swamps bordering the Nile (Bahr el Jebel) between Juba and Malakal, and on certain of its eastern tributaries. Conflicting reports had been received in the past of the possible occurrence of the species in Western Ethiopia in the region of Gambella but its presence had never been proved conclusively. However, in May 1966 Mr. John Blower, Senior Game Warden with the newly established Ethiopian Wildlife Conservation Department, visited the Gambella area and found Nile lechwe to exist in fair numbers in the swamplands along the Baro and Ghilo Rivers. One specimen was collected for identification purposes, and it is hoped to carry out a more thorough survey next dry season in order to determine the status of the species in Ethiopia.

The Nile lechwe, otherwise known as Mrs. Gray's kob, is a semi-aquatic species which was first discovered in the Sudan in 1853 by the Austrian traveller and naturalist von Heughlin. It was first scientifically described by the British Museum naturalist Dr. Gray and was named after his wife, *Kobus maria*; hence its popular name "Mrs. Gray" by which it is still generally known in the Sudan.

The male Nile lechwe is a strikingly handsome antelope standing about 38 inches at the shoulder, and is blackish-brown to black in colour with a very distinctive white "saddle" on the withers. Females and young are chestnut. The species is specially adapted to aquatic conditions with a long, roughish coat and hooves which are elongated and capable of being splayed out to facilitate movement over marshy ground.

### Bechuanaland

With Bechuanaland attaining full independence by the time this paragraph is published, it seems appropriate not only to wish the new Government every success in conserving and using its wildlife resources, which are as rich and varied as anywhere in Africa, but also to express the hope that it will pay heed to the results of a four-month study of the wildlife situation in Bechuanaland, carried out as Game Advisor by

Major B. G. Kinloch. As former head of two African Game Departments, he has had many years experience in African game management, and his report, written in October 1965, severely criticises past neglect of these resources. Considering the economic value of wildlife, both actual and potential, he particularly emphasizes that the Game Department has hitherto had an entirely inadequate budget to carry out its functions. He recommends that the Bechuanaland Government should greatly expand and re-organize the Game Department without further delay, if it wishes to retain and enjoy the benefit of an outstanding asset.

Particular reference was made to several reasons for the drastic numerical decline of the Bechuanaland fauna, one of the most serious being the Veterinary Departments's disease-control fences along the northern and eastern boundaries of the Central Kalahari Bushman Reserve. These fences have blocked the normal migration routes of the game populations on which the Bushmen depend with the result that many thousands of weakened animals have died on the wire from starvation and thirst. At the time of the investigation it was estimated that approximately one tenth of the wildebeest were dying every five days; there had been an alarming decrease of springbok, a drastic reduction in the numbers of the normally drought resistant gemsbok and hartebeest, and the complete disappearance of zebra from the Reserve. The Veterinary authorities considered these disease-control fences to be essential in the interests of the cattle export trade, but freely admitted to the Game Advisor that the fences were sited without any consideration having been given to the possible effects on migratory wildlife. The official printed statement for the Central Kalahari Bushman Reserve states: "A most careful watch is kept at all times on the level of the territory's game populations, which is regarded as a permanent natural resource of the utmost value." According to Kinloch's report, however, Game Department personnel were not permitted to enter the Reserve without a written permit issuable only by the District Commissioner concerned, and this certainly seems to be one of the points of detail which could be usefully looked into by the authorities. Conservation measures to be effective need to be supported by continuous and expert observation.

### Canada

The Minister of Northern Affairs and National Resources recently announced in the House of Commons a new National Wildlife Policy for Canada. Some interesting aspects include:

1. Substantial increases in the amount of aid for wildlife research projects at all levels. The Federal Government will participate in cooperative research schemes with Provincial Governments where wildlife populations cross provincial boundaries as, for example, the barren-ground caribou. Moreover, a considerable portion of this aid will go to universities in order to increase the supply of professionally trained wildlife biologists.
2. The development of an information programme on wildlife designed to serve all governments.
3. Development of research facilities to study diseases, parasitic infections, pesticides and other environmental pollutants which have important effects on wildlife populations.
4. Recognition that only the minimum amount of management should be undertaken in order to maintain aesthetic values of, at least, a quasi-natural environment.
5. Recognition that healthy populations of all indigenous animals, including predators, should be maintained in national parks.
6. That adequate stocks of fish should be provided and maintained in national parks. (Sport fishing is considered an important facet of the services offered by the National Parks of Canada to the public).
7. That a primary objective of wildlife management in the Territories is to prevent the population of any species from declining to a level at which it might be regarded as endangered.
8. That migratory bird species constitute a special problem and require a substantially increased allocation of funds for their research and management. Recognizing that the survival of migratory birds is dependent upon maintenance of habitat, suitable wetland habitat in amounts sufficient to support desired populations of ducks and geese will be preserved by acquisition, lease, or other form of agreement.

### The Polar Bear

The Conservation Foundation, Washington, recently announced its decision to finance a study of the polar bear which would lead to recommendations for strengthening international cooperation in conserving this declining species. The Foundation's grant will be used for field research this summer by Dr. Richard A. Cooley, Associate Professor of Geography and Public Affairs at the University of Washington.

The Alaska Board of Fish and Game has adopted a new set of regulations on polar bears for the 1967 season. Hunting with the aid of aircraft during the forthcoming open season will still be permissible but only by holders of individual, non-transferable permits, of which only 350 will be issued. Although this action is not expected to result in any reduction in the numbers of polar bears taken in the 1967 season, the authorities regard it as a means of stabilizing the kill - last year's figure was 347. In view of the concern which has been expressed at the current status of the species, this measure can scarcely be regarded as adequate.

### U.S.A. - Rampart Project

The U. S. Army Corps of Engineers seeks to build a giant dam - 530 feet high, 4,700 feet long - on Alaska's Yukon River. The largest of all man made reservoirs, it would inundate an area of lowlands in excess of 10,500 square miles - larger than Lake Erie - and would take 30 years to fill. The lowest estimate of the cost is \$ 1.3 billion.

If built, the salmon run using the upper reaches of the Yukon River would cease to exist. Well over one million waterfowl would be affected, including ten thousand sandhill cranes, *Grus canadensis*, which each year nest within the proposed impoundment area. Although fiscal provision could be made in enabling legislation to mitigate wildlife and fisheries losses, no practical means have been proposed for replacing the animals and habitat that would be destroyed.

In July 1964 the Natural Resources Council of America made a grant to the University of Michigan to investigate the ecological and economic consequences of the Rampart Canyon Dam. Dr. Stephen Spurr served as Project Director. Analysis of the dam's effects on wildlife and fish was the responsibility of Dr. A. Starker Leopold and Dr. Justin W. Leonard.

Leopold and Leonard reported in the May-June 1966 issue of "National Audubon":

"The Yukon River supports one of the most northerly major salmon runs of the North American continent. Three species dominate these runs: the Chinook salmon [*Oncorhynchus tshawytscha*], chum salmon [*Oncorhynchus ketu*], and coho salmon [*Oncorhynchus kisutch*]. That portion of the salmon run using the upper reaches of the Yukon must be considered totally lost if the dam is built. The Yukon Chinook has adapted itself to the longest river run in the world. It is unique and, therefore, irreplaceable.

The Fish and Wildlife Service census figures indicate that more than half a million migratory ducks normally breed on the Yukon Flats. This is approximately 1.6 per cent of the breeding duck population in the North American continent. The average fall population of adults and young is estimated to be approximately 1.5 million ducks. The 24,000 canvasbacks [*Aythya vallisneria*] nesting on the Flats constitute 9 per cent of the continental breeding population of this important species.

Our own field surveys convince us that the population figures and assessment of possible damages expressed in the Fish and Wildlife Service report are not exaggerated and may, in fact, be conservative."

Dean Spurr stated in his report to the North American Wildlife Conference in Pittsburgh, March 16, 1966:

"The construction of this dam would be an all-or-nothing gamble. Only if all its power is used would the project prove economical. Its effect upon the Salmon run of the Yukon and upon the North American waterfront breeding population would be great. The Rampart dam should not be authorized at this time."

The proposal to construct the Rampart dam is opposed by the U.S. Fish and Wildlife Service.

## Field Study Centres for Conservation in Israel

by Amotz Zahavi

The Society for the Protection of Nature in Israel has succeeded in combining its educational activities with the management of nature reserves, by establishing institutions which are Field Study Centres for Conservation.

These centres are the regional conservation headquarters, where management, research and education unite under the same roof, being undertaken by the same people to the advantage of all three subjects.

The basis of the idea of a field study centre for conservation (F.S.C.) is to utilize latent educational interest in the field of natural history in the service of conservation. The idea has been approved by the Education Office in Israel, which has granted them formal recognition. F.S.C. are also recognized by the Nature Reserve Authority (N.R.A.) as focal points of conservation activity. Most of the work of the N.R.A. around F.S.C. is carried out by the workers of the respective centres in the areas under their control. Further help to the F.S.C. is given by the Youth Hostel organization, the respective municipalities, by neighbouring villages and other private bodies and governmental agencies.

The present master plan for the whole country calls for 20 such centres which will be responsible for most of the conservation activity in the country. They will employ 100-150 guides who will also act as wardens of the nature reserves and will require in addition, about three hundred technical staff for services (hostels, restaurants, cleaning, offices, etc.). They will have some 2,000 beds in hostels and will be able to accommodate 600-1,000 secondary school classes (24,000-40,000 students) a year for basic training in field studies as well as various other leadership and educational activities.

### Range of educational activities

**Schools:** Primary school excursions, usually for 1-2 days, are given a guided tour of the centre. Secondary schools and teacher colleges come for periods of 3-6 days and obtain a basic course on the natural history of the area.

The centres are used as a base for university excursions and research.

**General public:** One-week courses are given to adults, and also to families during the school holidays, on the natural history of the area. Weekend excursions and nature trails are conducted every week.

**Teachers and Youth leaders:** Special excursions are conducted for teachers and youth leaders as a preparation for the excursions on which they will later conduct their pupils.

**Special courses:** on various aspects of natural history are given several times a year, e.g. birds, flowers, geology, etc. At present there is limited interest in such courses but it is growing.

### The warden-guide

We have found this combination to be valuable for both subjects:

1. The authority of the warden is enhanced if he acts also as a guide.
2. The warden obtains the help of his pupils. They frequently return to the area to act as honorary wardens.
3. Guiding activity keeps a warden active and more interested in the problems of his area.
4. The standard of wardens one can get to work and live near a nature reserve is higher if their work includes teaching.
5. The warden who spends a large amount of his time in the area might use it for preparing his guidance programme.
6. The guide (having experienced practical work as a warden) can teach his pupils practical conservation.
7. In his area the guide combines the functions of guide and warden.

8. Having two people who act simultaneously as guides and wardens is better than having a guide and a warden, since they can act as two guides or two wardens when needed.

A warden-guide works approximately 150 days a year guiding excursions or seminars. Some 50-60 days are for his own studies. Another 60-80 days are used for practical conservation work. We try to make his work as a guide cover his total salary. For this reason the increased demand on guiding, and thus of guides, contributes to the better wardening of nature reserves around the centre.

### Research in the F. S. C.

The F.S.C. are already acting as bases for research in natural history and this function will probably expand in the future. Some of the wardens are capable of research work and use their free time to that end. Small grants enable some of them to devote more attention to research. We hope that in future more and more of the wardens will be university graduates so that the F.S.C. will come to be regarded as recognized centres of research.

Probably every centre will specialize in its studies. Thus, in Maagan Michael we hope to establish a bird ringing station. Eilat on the Red Sea will specialize in coral reefs, ecology, etc.

### Services in the Centre and in the Reserve

We have found that where possible it is best for us to take over responsibility for services (accommodation, restaurant, etc.) which are given to the students of the centre and to visitors to the reserve. In such cases where the centre is responsible for all services, better seminars are given and the visitors who come even for short visits to the reserve make better contacts with people interested in conservation. Furthermore, as people tend to pay more easily for service than for education, the financial situation of a centre having its own hostel is much better than of one which is providing only educational facilities. The profits acquired by the centre are spent on the management and conservation of the nearby nature reserve.

Students who have spent a full week studying the nature reserve return at weekends and holidays to give help, when it is most needed. As a result of their studies these youngsters understand their work and regard it as part of a pleasant vacation in a place they like. The youngsters create a refreshing atmosphere for the other visitors to the reserve. Since they act as wardens only once a year they have not become tired of meeting people, helping or cautioning them. We find also that their period of service contributes to their general education as future citizens.

Having a hostel in the centre makes it easy to obtain volunteers at very little cost and thus enables the running costs of the reserve to be kept very low and a minimum number of professional staff to be employed.

### International relations

The idea of field study centres for conservation, which is very popular and successful in Israel, might be of value also to other countries, especially in places where public pressure in nature reserves is severe. We shall be very glad to welcome and assist any visitors from other countries coming to study the work of these centres.

As is evident from the accompanying list no centre, except Ein-Gedi, has its own accommodation and they thus still need to build their hostels, classroom, etc. Without the hostel, both educational activities and finance are dependent on the good will of too many organizations which are not especially interested in conservation. To consolidate the idea of the centre we now seek help. Some £50,000 is needed to build a complete centre. The construction of the first stage costs approximately £20,000 and might enable a centre to start running its seminars and supervising the near-by nature reserve.

(continued page 8)

## The status of the large mammals in the Keoladeo Ghana Sanctuary, Rajasthan

George B. Schaller, J. Juan Spillett, Joel E. Cohen and Rames C. De

Keoladeo Ghana is known as one of the finest waterbird sanctuaries in India. However, it is not generally appreciated that this reserve also harbors such typically Indian mammals as the blackbuck, nilgai and chital, in addition to sambar, hog deer, leopard, and others. These could become a major attraction to the numerous tourists that visit Agra only 36 miles away.

It appears likely that some of India's wildlife species such as the blackbuck may be able to survive only in rigidly protected sanctuaries. Therefore, a knowledge of the status of the wildlife in each reserve is urgently needed. Adequate conservation practices can be based only on a body of precise facts which have been collected and analyzed continuously over a period of years. In order to obtain some data on the condition of the large mammals, particularly the ungulates, in the Keoladeo Ghana Sanctuary, a series of counts was undertaken between February 12th 1965 and January 30th 1966.

The sanctuary is composed of 7,000 acres of marsh and open woodland completely surrounded by cultivation near the town of Bharatpur. It was once the private shooting preserve of the Maharaja of Bharatpur, but after independence the Forest Department assumed management of the area. A shallow, marshy lake broken by numerous reed beds, patches of higher ground, and earthen dams or dikes covers about 2,000 acres in the center of the sanctuary. A forest of *Acacia arabica*, *Prosopis spicigera*, *Zyzyphus* sp. and other thorny shrubs and trees, characteristic of this semi-desert region, extends on three sides from the marsh to the reserve boundaries. The eastern side consists in part of grassland.

**Census method.** The entire land area of the sanctuary was transected on foot. We walked in parallel lines from 150 to 300 feet apart, depending on the density of the undergrowth, and counted the ungulates that flushed along the route of travel. We walked only between 0900 and approximately 1600 hours a time of day when the wildlife was resting and not inclined to move far when disturbed. Although our transect method was relatively crude, it provided sufficient accuracy under the prevailing conditions. For example, during the 1965 census nearly all the blackbuck in the sanctuary were in one large herd and most of the chital had congregated in several large herds, which confined themselves to two specific areas. This enabled us to count all or most of these two species on the same day without duplication. However, in 1966 both the blackbuck and chital were scattered in small groups in different parts of the sanctuary, and they were also much more wary than in 1965, making accurate counts difficult. Nilgai were readily tallied because they are large, generally confine themselves to open or park-like areas, and are not greatly disturbed by the presence of man. Any duplication in our counts of nilgai was probably offset by the few animals we may have overlooked. Our transect data were generally confirmed by other visits on foot, by bicycle or by car to various parts of the sanctuary.

**Results.** The chital is the most abundant wild species in the sanctuary. In 1965, we counted about 360, but, since it is likely that a few were overlooked, we estimated a total population of 375-400. In 1966, we counted only 200, but, due to the extreme shyness of the deer, a total population of 300-325 was estimated, a decrease of at least 20 percent from the previous year.

About 110 nilgai were counted in 1965 and we believed this figure to be quite accurate. A total of 152 were counted in 1966, an increase of approximately 25 percent.

In 1965 most of the blackbuck were congregated into a single large herd. They were counted several times and 70 was the highest total, although one or two small fawns hiding in the grass may have been overlooked. The blackbuck were scattered in small groups in several parts of the sanctuary in 1966, making it difficult to get a count as accurate as that of the previous census. Our highest total was 54 and we feel certain that there are presently less than 60 in the sanctuary. This is a decline of approximately 25 percent in the blackbuck population during the year.

Nine, or possibly eleven, different sambar were seen in 1965. Thirteen sambar (two males, six females, four young and one adult not sexed) were observed in 1966. However, the shy and solitary nature of these deer and the small sample size make it difficult to state whether or not their numbers increased during the year.

Hog deer were so rare that prior to the 1965 census the sanctuary staff appeared unaware of their presence. Single males were seen on two occasions in 1965 and a solitary male was observed in 1966.

According to the files of the Forest Department, numerous wild pigs died of disease in May 1964. They were few in number during the 1965 census. A total of six pigs were counted on four occasions, but the tendency of these animals to remain hidden until closely approached makes an accurate census difficult by our method. A total of 35 pigs were tallied in 1966. These included a group of 18 (apparently two females with young), a female with eight young, two groups of two adults and one of three, and a solitary adult male. This is clearly an increase in numbers and we guess that the total population may contain as many as 80 head.

We saw the fresh track of an adult leopard in 1965. At that time others had recently seen a large cub. The previous summer a member of the Forest Department staff also picked up two young cubs along the road, which were sent to a zoo. However, in 1966 we saw no evidence of leopard and heard no recent reports of their presence in the area. It is doubtful that more than one or two, if any, survive in the area. The sanctuary also contains an undetermined number of hyaena, jackal, fox, jungle cat, mongoose porcupine, hare, and other smaller mammals.

**Conservation problems.** The abundance and variety of birds and mammals, the easy visibility of the wildlife, the accessibility of the sanctuary throughout the year and its proximity to major tourist centers, all combine to make Keoladeo Ghana unique among India's reserves. It is, therefore, distressing to read of a number of serious problems which affect the sanctuary so adversely as to cause grave concern for its future. These include high domestic livestock density and the resultant overgrazing and trampling which has severely damaged the vegetation. In some areas, particularly the eastern and northern parts, the grass cover has been almost completely removed, leaving only bare sandy soil, or at best, a few unpalatable weeds. In most other areas, the grass has either been cropped to ground level or consists of coarse bunch grasses not favoured by livestock or wildlife. The carrying capacity of the area is obviously far exceeded by livestock alone, leaving little margin for the wild ungulates.

Chital, blackbuck, and other game species are by preference grazers like the domestic animals. Therefore, severe competition exists between the two for forage. The sanctuary at present contains only about one wild ungulate per 8 acres (excluding the marsh) or one wild ungulate per 11 head of domestic livestock. It is unlikely, therefore, that wildlife can be appreciably increased until competition by livestock has been substantially reduced. If cattle and buffalo are permitted to remain at their present numbers, the range will ultimately, and perhaps within only a few years, deteriorate so much that it can support only a small fraction of the animals, both domestic and wild, now grazing there.

Other adverse factors are predation, not only by feral dogs, jackals, and perhaps leopards and hyaenas which kill a certain amount of wildlife each year, but especially by man both through legal but unregulated hunting and poaching. In addition to tending livestock and poaching, villagers gather berries, dig and remove grass from the sanctuary, collect and dry water plants as livestock fodder, collect firewood, make charcoal, and so forth. Many of these people were also observed to clap their hands and shout to frighten the wild animals which they saw. As a result the wildlife is almost constantly disturbed and its normal activity is continuously disrupted.

Some of this human activity also adversely affected the vegetation. For example, although the Forest Department has licensed only 36 wood collectors to remove *dead* wood from the reserve, as many as 15 illegal loads of wood were seen leaving the sanctuary in one evening. Wood collectors were also observed in 1965 to break down growing trees for firewood; in 1966 many of them used axes to fell living trees.

The problems of Keoladeo Ghana confront most other sanctuaries of India to a greater or lesser degree. The task of preserving a remnant of the unique fauna of the country lies with the present generation. It cannot be too often reiterated that the sanctuaries of India with the wealth of wild animals and plants which they contain are irreplaceable and as much a part of the nation's heritage as the Taj Mahal and the ruins of Khajuraho.

## Field Study Centres for Conservation in Israel

(Continued from page 6)

### Existing Field Study Centres

There are at present six field study centres in various stages of development in Israel.

**Ein-Gedi:** Established 1960. An oasis near the Dead Sea. The centre is responsible for conservation in the whole Judean Desert and takes a special care of the oasis which is visited by some 250,000 people a year. Staff consists of six guides (for 1966) and 18 technical workers in the youth hostel, restaurant and the reserve in the oasis. Several volunteers reside in the hostel and help in the reserve and in other ways. The centre which is here combined with the local youth hostel is still lodged in shacks. Permanent buildings are already under construction and when completed within about 1½ years, will have provided half the ultimate capacity.

**Achziv:** Established 1964. On the Mediterranean coast in western Galilee. The centre is responsible for conservation in western Galilee. 3 guides: no technical staff. The educational base is in the local youth hostel. A special wing, for the F.S.C., for summer residence in bungalows (when the youth hostel is fully booked and not available to the centre) is now under construction.

**Meiron:** Established 1965, near the highest mountain in central Galilee, and the biggest nature reserve in the inhabit-

ed parts of the country. Employs 5 guides and 2 technical staff, who are responsible for the management of the reserve. No residence for students who are accommodated in a town 15 km from the mountain. The first wing of the hostel is under construction with the help of the World Wildlife Fund, to be completed in April 1967.

**Bar Giora:** Established 1965, in the Judean Hills. Employed (in 1966) 5 guides, 2 technical staff. Residence hired from local youth hostel. A special wing is planned in the hostel for the centre's use. Building funds are not yet available. Estimated cost 150,000 Israeli Pounds.

**Eilath:** Established in 1965, on the Red Sea. Responsible for the management of the Coral Reef Nature Reserve and the southern desert of the country. 5 guides, no technical staff. The students reside in the town of Eilath. The building of the centre is planned near the Coral Reef Nature Reserve. Funds are not yet available. Estimated cost 300,000 Israeli Pounds for the first stage.

**Maagan Michael:** Established in 1965, on the Mediterranean coast near Mt. Carmel. Adjacent to fish ponds which are also wildfowl sanctuaries. Responsible for the management of the sanctuary. 2 guides, no technical staff. The building of the first stage of the hostel is planned for 1967. Funds, estimated at 200,000 Israeli Pounds for the first stage, are not yet available.

### THE EXECUTIVE BOARD OF IUCN

The General Assembly, meeting in Lucerne in July 1966, approved a number of changes in the composition of the Executive Board for the period 1966-69. In accordance with the Statutes several Board Members retired and others were elected in their places. The newly constituted Executive Board now consists of the following Members:

*President:*

Dr. Harold J. Coolidge, U.S.A.

*Honorary President:*

Dr. Charles J. Bernard, Switzerland.

*Vice-Presidents:*

Dr. F. Fraser Darling, England.

Dr. L. Hoffmann, Switzerland.

Professor D.J. Kuenen, Netherlands.

*Members:*

Mr. B. N. Bogdanov, USSR.

Dr. Robert Carrick, Australia.

Dr. J.C. de M. Carvalho, Brazil.

Professor E.J.H. Corner, F.R.S., England.

Ing. agr. I. Costantino, Argentina.

Dr. W.A.L. Fuller, Canada.

Professor Hans E. Luther, Finland.

Professor Th. Monod, France.

Professor M. Pavan, Italy.

Professor Dillon Ripley, U.S.A.

Judge R.E. Train, U.S.A.

Dr. D. Wasawo, Uganda.

The following elections take effect from 1 July 1967:

*Members:*

Mr. Z. Futehally, India.

Professor Dr. V.A. Kovda, USSR.

Doc. Dr. Anna Medwecka-Kornas, Poland.