

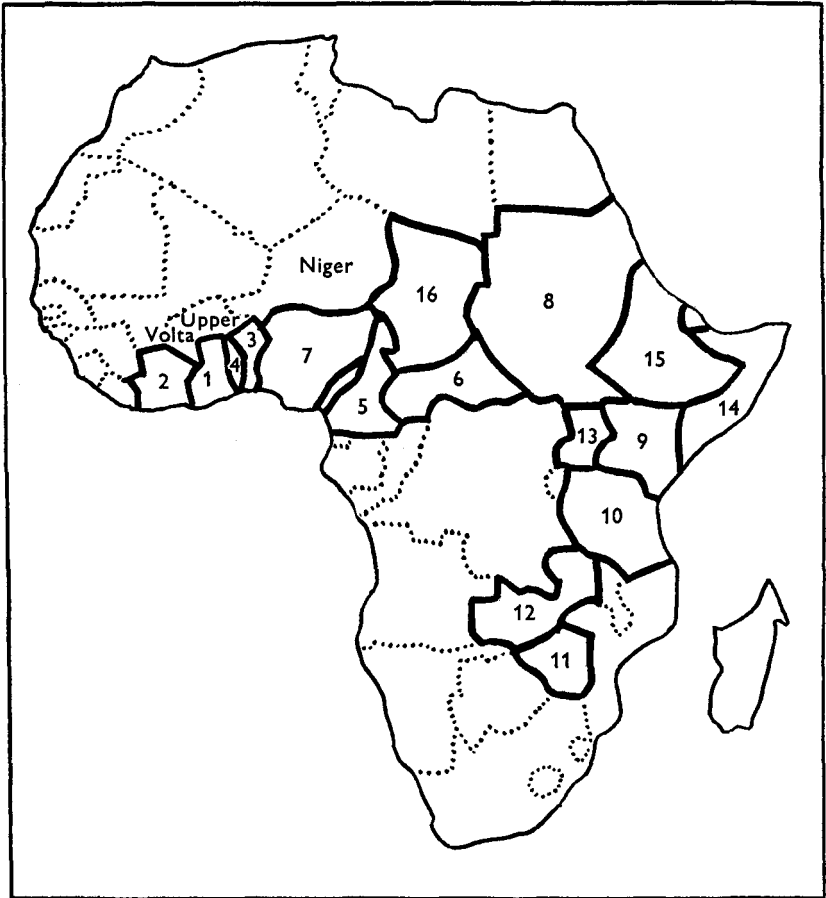
## THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES

### AFRICAN SPECIAL PROJECT, STAGE I

The African Special Project, 1960–1968, was launched in June 1960 at the General Assembly of IUCN in Warsaw, in co-operation with UNESCO, FAO (the UN's Food and Agriculture Organization), and CCTA (Commission for Technical Co-operation in Africa south of the Sahara), and with the governments of countries in tropical Africa. The object of ASP is to inform public opinion in Africa through African leaders upon the need for nature conservation based on ecological knowledge. Special attention is being given to the larger mammals which are endangered in many areas.

The project is divided into three stages. Stage I, described shortly below, consisted of a visit by Mr. G. G. Watterson, Secretary-General IUCN, to West, Central and East Africa, to discuss the principles and practices of nature conservation with leaders of African opinion. Stage II, a conference on the Conservation of Nature and Natural Resources in modern African States, will be held in Arusha, Tanganyika, from 5th to 12th September, 1961. At Stage III—end 1961 onwards—a whole-time staff unit will be appointed consisting of an experienced ecologist and a consultant in the fields which might be regarded as conflicting with wild life management (agriculture, livestock, forestry), with one or two secretaries. This unit will be attached to IUCN headquarters, and will work in Africa for much of each year to help Governments to help themselves to develop their wild life resources in the light of recommendations emerging from Stage II of the project; its work will be closely integrated with the programmes in Africa of CCTA, FAO and UNESCO.

With the help of FAO travel-funds, Mr. G. G. Watterson, then FAO's first Regional Forestry Officer for Africa, started Stage I in November 1960. He first visited seven countries in West Africa and prepared a report on each—Ghana, Ivory Coast, Dahomey, Togo, former French Cameroun, the Central African Republic and Nigeria. Although several of these countries have not very much left in the way of large conspicuous wild life areas, each of them still contains extensive tracts of undeveloped land where the wild flora and fauna is dominant to the tame and where, by applying the principles of ecology, the conservation,



AFRICAN SPECIAL PROJECT—STAGE I

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|------------------------------|------------------------|
| 1. Ghana.                    | 9. Kenya.              |
| 2. Ivory Coast.              | 10. Tanganyika.        |
| 3. Dahomey.                  | 11. Southern Rhodesia. |
| 4. Togo.                     | 12. Northern Rhodesia. |
| 5. Cameroun.                 | 13. Uganda.            |
| 6. Central African Republic. | 14. Somalia.           |
| 7. Nigeria.                  | 15. Ethiopia.          |
| 8. Sudan.                    | 16. Tchad.             |

or in some cases, the reconstruction of wild habitats, could be of great advantage. In all of the countries Mr. Watterson was received very favourably and had a number of meetings and consultations.

Early in 1961 Mr. Watterson visited the Sudan, Kenya, Tanganyika, Uganda, Northern and Southern Rhodesia, Ethiopia, and Somalia, and finished by meeting a group of representatives from several former French territories in West Africa. A zoologist from Makerere College in Uganda, Dr. David Wasawo, accompanied Mr. Watterson for part of the time in Tanganyika. Two Masai councillors from Kenya accompanied him in the Rhodesias. Mr. Watterson's conferences were attended by high officials from departments of Administration, Agriculture, Game, Tourism, Veterinary Science and others.

### 1. GHANA

On 28th November a meeting was held at the Ministry of Agriculture. Mr. Watterson spoke of the "Come to Ghana" campaign for which £475,000 had been voted. Prizes had been offered for ideas for developing tourism and suggestions had included: illustrated brochures on Ghana; the development of motels, pools, beaches and big game fishing; the maintenance of the castles along the coast; the organization of "tourist-festivals" and campaigns to keep streets clean and to check rude taxi-drivers! Only in one case, from a Swiss correspondent, was wild life mentioned.

Mr. Watterson pointed out that there were two things which would really attract visitors from outside Africa—folklore and wild life, both of which were rapidly disappearing and probably only the latter revivable in an authentic form. He then gave reasons for the increasing international interest in wild life as a justifiable form of land use, and the principal conditions in which such use appeared the most rational and economically viable. He enumerated the main obstacles to be surmounted if game management was to be successful in Ghana, and the measures necessary. As these have general application, they are given in full:—

- (i) Close co-operation between all technical services concerned, including those of education and community development.
- (ii) A clear, constructive declaration of government policy, based on the fact that Africa is in a unique position in the world in regard to its wealth of wild life, and the

recognition of this as a part of African culture and economic expansion, wholly consistent with the upsurge of national growth.

- (iii) A clear designation of areas where wild life conservation is to be a recognized economic and social activity.
- (iv) A thorough education programme, mainly through active participation in the benefits of wild life conservation by local communities.
- (v) Research, for example :—
  - (a) Studies of conditions under which agriculture, pastoralism and wild life management could profitably co-exist ;
  - (b) measures to create a feeling of “right of use” in regard to rational “harvesting” of game, among the local communities concerned ;
  - (c) methods of game-meat processing and marketing ;
  - (d) a study of the use of vegetation by various kinds of animals to give a clearer understanding of the carrying capacity of the land ;
  - (e) meat production studies, under various conditions of vegetation and climate, and comparison with that of domestic livestock.

In the discussion which followed the following points were noteworthy :—

At least 80 per cent of the meat eaten in Ashanti comes from wild animals. There is at present no direct income from wild life conservation since money from hunting and firearm licences goes to the Police Department. Mr. A. Foggie, ex-Chief Conservator of Forests, pointed out that although Forest Reserves (which could in general be regarded as game sanctuaries) accounted for some 2,500 sq. miles of Ghana's land area, there were 42,000 sq. miles or approximately two-thirds of the country, which were classified as “wild” and were, at best, used under a system of long-term fallow. Their use under some system of game-management seemed to offer greater potentialities.

*Reserves and Staff.*—There is a large game reserve, the Mole (900 sq. miles), in the Northern Division, which contains the following animals among others : elephant, buffalo, roan antelope, hartebeeste, waterbuck, kob, reedbuck, oribi, duiker, hunting dog, warthog, red river hog, aardvark, baboon, red patas monkey, green monkey, lion, leopard. The waterbuck are the main object of the lions' attention and it is interesting to note that, whereas before 1958 there was constant lion and

leopard attack on domestic livestock in the neighbouring villages, no cases have been reported during the past eighteen months. But throughout the region to the north of the reserve depredation is increasing seriously as a result of intensive hunting for meat, and the Game Branch is using this as an object-lesson to the northern agricultural communities, in an attempt to obtain their co-operation in establishing additional reserves and promoting game conservation.

There are two smaller game reserves, Owabi Waterworks (5 sq. miles), and Shai Hills (10 sq. miles), and five sanctuaries totalling 39 sq. miles.

The Game Branch, which is part of the Forestry Division of the Ministry of Agriculture, consists of a game warden, two assistant game wardens, a game protection officer, three game rangers, three senior game scouts and twenty game scouts.

*Finance.*—The annual budget for the Game Section is about £12,000. An additional £90,000 has been allotted in the present five-year plan for roads, saltlicks, waterholes and staff quarters, and to build a hotel in the Mole Reserve.

*Policy.*—A new statement of policy has recently been drafted. Its aim is to give more protection to wild life and to recognize it as a cultural asset and source of protein. It is encouraging to note that the Tourist Board has now established a “natural resources committee” in addition to those on “culture” and “travel”. Co-ordination between these advisory bodies is ensured. A “Wild Animals Preservation Bill” was passed in December, 1960, and a supra-Ministerial “Committee on Wild Life” is being established.

## 2. IVORY COAST

A National Committee on Nature Protection has been appointed to advise the government on all matters in this field.

The wild life legislation of 1947 still obtains and its revision is to be postponed until the Republic of the Ivory Coast has formally accepted the 1933 London Convention or a revised and modern version, on the Protection of the Fauna and Flora of Africa.

*Reserves and Staff.*—There are four reserves: Bouna (N.E.) (3,500 sq. miles), Asagny (coastal swamp) (120 sq. miles), Tai (near Liberian border) (900 sq. miles), Mt. Nimba (Ivory Coast portion—20 sq. miles).

The Asagny reserve is inaccessible and contains herds of elephant and swamp buffalo.

A Game Section within the Forestry Service was created in 1959. It consists of a chief, an inspector (Bouna Reserve), seven forest guards and thirty patrolmen. Officially all officers and subordinate staff of the Forest Service are also responsible for wild life conservation.

*Finance.*—The annual budget for the Game Section is £16,400. During 1959–60 a vote of £74,000 was approved for development. The yearly revenue from hunting and other permits, fines and the sale of ivory amounts to £34,000 and goes to the Central Government.

*Policy.*—The concept of conservation by controlled use is considered the only rational approach.

The Chief of the Game Section and secretary of the National Committee on Nature Protection, M. Georges Roure, has produced several publications on wild life and folklore for the public and has written, for schools, a series of three lessons on nature protection.

### 3. DAHOMEY

For its size, Dahomey is one of the most richly endowed countries of West Africa in wild life, but it is also one of those where poaching from neighbouring countries is heaviest. There is an urgent need to educate local communities in the value of game and to induce them to help themselves by suppressing poaching which drains the country of its wild life without any economic or material return, the meat being exported and sold in neighbouring countries by the poachers themselves. Dahomey also illustrates the need to create game reserves and sanctuaries in each country, in order to localize and hence facilitate control of illegal hunting, as well as to reduce the market for produce thus obtained.

*Reserves and Staff.*—Of the fifty-four forest reserves totalling 8,300 sq. miles, 6,650 sq. miles are also game reserves. Two are specifically developed for tourism and game management—the “Parc National du W. du Niger” (1,900 sq. miles of this park is in Dahomey, the rest in Niger and Upper Volta) and the “Réserve Totale de la Boucle de la Pendjari” (1,060 sq. miles). Protective zones where hunting is strictly controlled have been established around these two reserves.

The Forest Service is responsible for wild life conservation: there is no special staff.

*Finance.*—There is no special budget for wild life management. Revenue is much smaller than might be expected.

*Policy.*—Dahomey, like most of West Africa, is not yet ready

to consider game as a regular source of food under controlled hunting. The main concern is to protect and increase wild life as a source of revenue from tourism.

### 3A. CONFERENCE AT PORGA, DAHOMEY

On 23rd to 25th March, 1961, Mr. Watterson attended a meeting of the committee for the co-ordination of tourism among the "États de l'Entente"—Dahomey, Ivory Coast, Niger and Upper Volta.

The conference discussed problems of nature conservation and the development of tourism, the creation of hunting reserves, standardization in the control of firearms and the inclusion of nature conservation in school syllabuses. Mr. Watterson explained the aims of the Arusha conference which might lead up to a Charter for African Nature Conservation to replace the 1933 London Convention for the Protection of African Fauna and Flora.

#### *Upper Volta*

Mr. Watterson took the opportunity of the Porga conference to obtain the following and other information. Part of the Parc National du W. du Niger (1,350 sq. miles) is in the Upper Volta and there are also three total reserves—d'Arly (293 sq. miles), de Singou (748 sq. miles), and Bontioli (493 sq. miles). There are five partial reserves where licence holders may hunt if accompanied by a member of the Forest Service—Pama (865 sq. miles), Arly (502 sq. miles), la Kourtiagou (198 sq. miles), Bontioli (124 sq. miles), and Nobéré (145 sq. miles). Elsewhere, licence holders may hunt freely, but are subject to "felling" taxes for killing certain animals. The hunting season is from 1st November to 1st June each year.

### 4. TOGO

Although Togo is scenically well endowed, nothing has been done to develop tourism. The Bureau des Sols, created in March 1960, may concern itself also with nature protection. A subsection is to be formed to deal with problems of wild life management. The Forest Service, technically responsible, will provide its secretariat.

As yet nobody is interested in preserving wild life and game belongs to no one. There is much illegal hunting and traffic in game meat. Dynamite is used by neighbouring poachers to kill hippopotamus and fish.

*Reserves and Staff.*—About one-third of the 1,700 sq. miles of forest reserves are also game reserves. There is considerable scope for the development of wild life as a natural resource.

The Forest Service is responsible for wild life conservation but is itself understaffed and has no staff for law enforcement.

*Finance.*—No funds are allotted especially for wild life.

*Policy.*—No declaration of policy on wild life has been made, nor is any research undertaken. The Minister of Agriculture suggested to Mr. Watterson that a study should be made of traditional measures of conservation, fetiches and the like, which had long been observed in West Africa, and their wider application to game management in Togo.

### 5. CAMEROUN

Cameroun is potentially the greatest tourist centre of West Africa, due to the variety and localized density of its fauna, and its wealth of folk lore, art, and exceptional scenery. Furthermore, it is only by developing tourism along these lines that any real and lasting progress can be made in wild life conservation.

The north is well organized for game conservation, but there is a great deal to be done in the south which holds chimpanzee, gorilla, elephant, hippo, and situtunga. This is a meat-deficient area, so there is a ready market for game meat. The export of animals, especially chimpanzee and gorilla, is very profitable, both to Government and the collectors. At the moment, tourists interested in game come down from Fort Lamy and only visit the north. The creation of a zoological garden combined with a museum, models of traditional Bamileke and Kapsiki homesteads, and a school for the revival of local arts and crafts located near Yaoundé would certainly assist in attracting the visitor further south and help develop the forest and littoral zones and its wild life resources. An "Office National du Tourisme" has recently been created. The need to extend tourist accommodation was stressed in a recent report stating that early in 1960 over 300 visitors had to be turned away from the Waza reserve in the North.

*Reserves and Staff.*—Game reserves in the Southern Sector total 4,250 sq. miles and in the Northern Section 3,470 sq. miles. In the north, Game and Forest Reserves are synonymous, but in the south there is a distinction between them.

There is no head of the Section des Chasses, but there are now assistants in charge of the Northern and Southern Sectors. Subordinate staff include four superintendents, twenty-two assistants, and twenty-one game guard-trackers. There are no



facilities for training, except that some "in service" elementary training is being given to subordinate staff in the Secteurs des Chasses. During home leave expatriate officers are not replaced and every two years they are away in Europe for up to six months. The Section des Chasses comes under the direct control of the Chief of the Forest Service.

*Finance.*—The annual budget for the administration of the Section des Chasses amounts to about £2,200, to which must be added some £8,900 in salaries of subordinate staff. The expatriate officers are paid by French Technical Assistance. Revenue in 1959 amounted to about £22,600, made up from permits and licences, the sale of ivory, "felling taxes" for animals killed, accommodation at camps, exports, fines and penalties.

Non-resident hunting licences and fees seem to be on a more liberal scale than in neighbouring countries, presumably to attract the tourist. This trend should be discouraged in favour of standardization on a regional basis, or used as an element in regulating the desirable intensity of hunting.

*Policy.*—The first draft of a new law on wild life has been prepared by a member of the Forest Service. The law deals with traditional methods and hunting rights; the need for special permits, as soon as there is a departure from traditional methods; the control of harmful animals in certain areas; produce from game; types and use of firearms; measures to ensure wild life protection; and finally, prosecution.

## 6. CENTRAL AFRICAN REPUBLIC

The question of legislation has been particularly well followed. An attempt to create temporary "domaines de chasse", opened to selective hunting according to the year-by-year situation and which might eventually be rented to tourist concerns for sufficiently long periods to incite them to develop and manage these areas themselves, is particularly noteworthy.

*Reserves and Staff.*—The protected areas include: the complete natural reserve of Vassako-Bolo (577 sq. miles), kept for scientific purposes and surrounded by the Bamingui-Bangoran national park (3,860 sq. miles); the St. Floris national park (392 sq. miles); the André Felix national park (655 sq. miles), surrounded by the faunal reserve of Yata N'gaya (1,960 sq. miles); seven more faunal reserves totalling 17,500 sq. miles.

Wild life management is the responsibility of the Forest Service. In addition to a Headquarters Section, there are two French Inspecteurs des Chasses, one for the North-East Inspection, stationed at Ouadda, the other for the North-Central

Inspection, stationed at Ndele. Each Inspection has fifteen to twenty subordinate staff. In the dense forest zone, in special areas where there are gorilla, situtunga, bongo and dwarf elephant, one or two game scouts are detached to control and protect the game. There is "in service" training of subordinate staff only. An "extension" team is being organized with mobile equipment for soil conservation and the control of bush-fires, which could also serve to arouse an awareness of the values of wild life.

*Finance.*—It is difficult to differentiate between the general Forest Service budget and allocations to the Game Section. French personnel is paid by French Technical Assistance Funds. National subordinate staff salaries amount to about £7,370, equipment and general running costs to £2,870. A separate Tourist Office is concerned with the creation and maintenance of tourist facilities.

Revenue (excluding all income from camps which is taken by the Tourist Office) is derived from hunting permits, the sale of produce, "felling" taxes and fines, and a firearms tax. The total from these sources in 1959 was £108,300.

*Policy.*—Under the old French African community legislation game was considered to belong to no one. This was contrary to local tradition and made it difficult to arouse any sense of responsibility among the people. The Law No. 60-141 of 9th September, 1960, which regulates hunting, begins with the statement that "game is national property and is an integral part of the private estate of the Nation". Article 6 declares that there is no close season for hunting. On the other hand, by decree of the Council of Ministers, there is opportunity for flexibility in the temporary closure of certain areas, especially through the creation of "domaines de chasse". By this device, the Forest Service has been able to maintain the same extensive degree of control as before although the total area under game reserves has been reduced from some 15 per cent to 10 per cent. Moreover direct participation by local committees is enhanced through the possibility of granting concessions in the "domaines de chasse", and local rights of usage are respected.

Another clause of interest restricts the number of big game of the same species that may be killed within a given period of time. This is aimed at the hunter who is interested in meat traffic.

Regulations are more strictly enforced than under French rule and fines have increased. The high purchase tax on firearms, introduced to counter a measure removing restriction on sales, has not exerted the restraining influence that was expected.

## 7. NIGERIA

Mr. Watterson's visit was mainly in the Northern Region where he met the Governor, the Ministers of Animal Husbandry and Forestry, Agriculture and Information with their Permanent Secretaries, also the Chief Conservator of Forests, the Game Warden and the Acting Game Warden. He spent three days helping to draft new legislation on wild life management and in advising on questions of tourism and wild life. He visited the Customs and one of the five or six main businesses concerned with animal export in Kano and became convinced that the control of traffic in wild animals needed tightening up. This applies also to veterinary control in regard to their health and housing pending shipment.

Mr. Watterson introduced the idea of wild life management as a form of land use to officers of the West African Institute of Trypanosomiasis Research at Kaduna. He discussed the effect this might have upon their future research programmes and their recommendations to the animal husbandry, veterinary and human health services.

*Reserves and Staff.*—Some forest reserves are also game reserves but the only specially protected area is the Tankari Game Reserve of 720 sq. miles in Bauchi Province. The game preservation staff consists of a game warden, an assistant game warden, seven game guards and seven game scouts. Mallam Jibrin Jia, the Assistant Game Warden will become Game Warden on the retirement of Mr. R. Coulthard in 1962. In mid-1961 he goes to Kenya for training under the Director of National Parks, and will attend the IUCN conference at Arusha.

In the Eastern and Western Regions of Nigeria no staff is specifically assigned yet to wild life conservation.

*Finance.*—In the financial year 1959–60 the cost of the above-named staff and of the Tankari Game Reserve was £5,150.

*Policy.*—In 1959 the Council of Natural Resources in Lagos accepted from its Wild Life Standing Committee a policy of conservation of the natural fauna and flora, and of the control of hunting in forest reserves whenever practical. Restrictions on the export of animals were also agreed.

The new draft legislation, which Mr. Watterson suggests should be called the Wild Life Management Ordinance, improves upon the old Wild Animals Preservation Ordinance in the following main ways :—

(i) All holders of firearms, including muzzle loaders, must have a hunting permit.

(ii) Areas of protection replace lists of protected animals except that a few species are completely protected.

(iii) Rights of use are strictly controlled, in regard to area, methods of hunting and disposal of produce.

(iv) Native Authorities are able to participate directly in the benefits from wild life management.

(v) Native Authorities are given the means of declaring temporary "game sanctuaries", and are encouraged to do so by participation in the direct benefits.

(vi) Disposal, sale and export of "trophies" are more easily controlled.

(vii) Provision is made for wild life management personnel, together with powers of control, prosecution and arrest.

## 8. SUDAN

Mr. Watterson paid two visits to the Sudan, spending three days there altogether. Sayed Kamil Shawki, Director of Forests, is on the Executive Board of IUCN, and Sayed Merghani Mekki Medani, Assistant Director of the Ministry of Animal Resources, and in charge of the Game Department, is on the Advisory Committee of the African Special Project.

*Reserves and Staff.*—There are three national parks, Dinder (2,700 sq. miles), Southern (3,000 sq. miles) and Nimule (90 sq. miles). There are ten game reserves for all protected animals, three for Mrs. Gray's Lechwe, one for Bongo and one for wild sheep and ibex; also three sanctuaries.

The Game Department was conceived as a licensing and policing body and has been so manned. The staff consists of one assistant director, one senior inspector of game, two inspectors of game, one senior game officer, two game officers, six game rangers, eight junior game rangers, some ninety game scouts, twenty game guards, and one Zoo superintendent (Khartoum).

*Finance.*—Some £50,000 is available for the Game Department. Revenue, paid to Government, averages £30,000, of which £15,000 to £20,000 comes from ivory.

*Policy.*—Present legislation which depends on a 1935 Ordinance, is purely restrictive and pays no heed to modern concepts of wild life management, nor of local responsibility or benefit in conservation.

Dr. F. F. Darling and Mr. George Merck visited Sudan in February and March 1961 and it is hoped that their report will contain suggestions upon which revised legislation can be based.

## 9. KENYA

The position in Kenya was complicated not only by the political situation but by the changing responsibilities for wild life conservation following the latest report of the Game Policy Committee. The Royal National Parks of course remain under the National Parks Trustees, but the National Reserves are in the process of conversion to African District Council Reserves under the authority of the Game Department, together with Controlled Areas, which account for three-quarters of Kenya, excluding national parks, the highly developed agricultural zone and the Northern Frontier Province. The latter are divided into seventy blocks which can be leased for shooting on conditions which can be revised annually according to the wild life situation. This is a flexible instrument of game management and control.

Mr. Watterson discussed these policies with appropriate officials and, with Dr. I. Mann of the Ministry of Agriculture, the use of the game meat which would be available as a result of a game management policy. The Government's praiseworthy policy of improving the quality of domestic livestock, at the expense of the large populations of poor scrub-cattle, has resulted in over-production of dried meat in Kenya. This has affected the economics of schemes for the production of game meat.

Mr. Watterson also discussed with Mr. Armand Denis the production of films on nature conservation in Africa to be ready in time for the Arusha conference. Arrangements were made for two Masai leaders, Mr. Jason Ole Sein, vice-chairman of the Kajiado African District Council and Mr. Partasio Ole Nampaso of the Narok African District Council to accompany Mr. Watterson on the Southern Rhodesian part of his tour, with the help of funds from the Fauna Preservation and the New York Zoological Societies.

*Reserves and Staff.*—The following Royal National Parks are of faunal interest: Nairobi (44 sq. miles), Tsavo—East and West—(8,069 sq. miles), Mount Kenya (228 sq. miles), Aberdares (228 sq. miles), and Lake Nakuru.

There is a director, a deputy director, four wardens, five assistant wardens and 180 to 200 African field staff. A further six senior field staff are at present either in charge of Parks of archaeological interest, or being moved in the light of Government's policy on ex-national reserves and the handing of responsibility to African District Councils, or in view of the creation of new parks.

The Game Department which is responsible for the conservation and control of wild animals outside the national parks consists of one chief game warden, two senior game wardens, twenty game wardens, one game biologist and 340 game scouts. There are about 300 honorary game wardens. The game wardens man thirteen field stations, the headquarters and licensing offices at Nairobi, the Ivory Room, Mombasa, and the "Capture" unit which is responsible for the moving of game.

Africanization will affect the Game Department as other Government services, and suitable men should be chosen now for professional training and promotion.

*Finance—Royal National Parks.*—About £50,000 is received annually in direct income from visitors. There is a Government grant of £64,000. Government has also provided £150,000 spread over three years for development of the parks.

*Game Department.*—The annual expenditure is about £100,000. All revenue estimated at £60,000 yearly, from licences and, sale of trophies (mostly ivory), goes to Government.

*Policy.*—The Government recognizes that wild life is the most important tourist attraction in Kenya, and that proper land use must consider the asset of wild life.

Government recognizes the need to give Africans direct financial interest in and management of wild life conservation throughout Kenya. Yet, though it looks to the National Parks Trustees to provide the main bastion for its policy of wild life preservation, those same Trustees have no control outside the comparatively small area of the national parks, no longer even in what used to be Park Adjuncts, and are essential to the very existence of the national parks themselves. Responsibility rests largely with the Game Department and Native Authority. Consideration should therefore be given to closer integration of all interests in wild life.

## 10. TANGANYIKA

Much of Mr. Watterson's time in Tanganyika had to be devoted to preparations for the Arusha conference, but a meeting was arranged between Mr. H. S. Mahinda (Game Assistant, Education and Propaganda) himself partly a Masai, and the two Masai leaders from Kenya who were to accompany Mr. Watterson to the Rhodesias.

*Reserves and Staff.*—Tanganyika, despite its mineral wealth, is primarily an agricultural country. Yet some 270,000 sq. miles

are undeveloped, the greater part being unsuitable for agriculture or for domestic livestock, because two-thirds of Tanganyika is under tsetse fly. Although most of this vast area is good or potential game country, there are at present only some 5,000 sq. miles of national parks and 70,000 sq. miles of game reserves and controlled hunting areas.

National Parks : Serengeti (4,450 sq. miles) ; Lake Manyara (140 sq. miles) ; Ngodoto Crater (5 sq. miles). These parks, although well situated for inclusion in a tourist circuit with Kenya, are not representative of all the flora and fauna habitats of the territory, and four further areas are therefore under consideration : Northern Selous (1,700 sq. miles, part of Selous Game Reserve) ; Southern Rungwa (some 3,000 sq. miles, part of Rungwa River Game Reserve) ; Doma Mkumi (700 sq. miles) ; Tarangire Game Reserve (doubtful).

Mkomazi Game Reserve, with a common boundary with Tsavo in Kenya, has not been proposed yet as a national park, but might be considered. Western Selous might also be considered one day.

The Game Department controls the following—Game reserves: Selous (15,300 sq. miles), Rungwa (7,300 sq. miles), Mkomazi (1,200 sq. miles). Partial reserves and Controlled Areas : Western Tanganyika (25,600 sq. miles), North and Lake Provinces (20,000 sq. miles). Fees paid by hunters have hitherto gone to Central Government, but a portion will soon go to the local Government concerned.

The National Park's Staff consists of one director, one senior park warden, three park wardens, and one assistant park warden. The African Staff numbers 110.

The Game Department Staff consists of one game warden, one deputy game warden, two biologists, seventeen game rangers, three game assistants (one for education and propaganda), three elephant control officers, nine head game scouts, twenty-three senior game scouts, 408 game scouts.

*Finance.*—National Parks's earnings amount to from £20,000 to £25,000 per annum and there is also a Government grant of £35,000 which is likely to increase.

Through the Game Department, the Government receives about £150,000 per annum for shooting licences, ivory and trophies, whereas the Game Department costs about £95,000 annually.

*Policy.*—The main reason for the survival of game in the past has been its remoteness, often helped by the presence of tsetse fly, by poor communications and the fact that in some areas the



inhabitants are non-hunting or non-meat-eating pastoralists; but most of these restraining factors are fast disappearing. To compensate for this, Government is giving attention to improvement in staff and to arousing local awareness, by direct local participation in the benefits to be derived from rational game management. Wild life is beginning to be recognized as one of Tanganyika's principal economic assets.

Apart from tourism, which may largely be concentrated in the national parks, controlled game cropping could become the most productive form of land use in large areas of Tanganyika, either on its own or in conjunction with other forms of land use such as forestry or even cattle ranching. But the success of such a policy stands or falls by the provision of adequate supervisory staff—and the means for them to carry out their tasks.

Expanding agricultural development, often involving international investment, entails crop protection by the Game Department. Illegal meat hunting has become a large, highly organized profitable business which requires immediate control, and conversion to schemes which are rational, sustained yield projects, benefitting the local populations.

Africanization must come soon. In order to meet this, the Game Department is anxious to select Higher School Certificate boys and send them on fellowships to selected universities in the U.S.A. where teachers are available who have worked in East and Central Africa on game management problems. As elsewhere in Africa, however, the difficulty will be to find suitable candidates, willing to embark on a game management career, rather than on one assuring an easier, city-bound life with more prestige.

The first step should be to reinforce the "Game Assistant" cadre, and use will be made of facilities offered at the Tengeru Natural Resources School, subsequently reinforced by the Department's own school, planned for Arusha. Steps are also to be taken to improve the service conditions of the Game Scout cadre and put it on the same footing as the Police, with real opportunities for advancement.

A substantial measure of general public support for Government's wild life policy is essential if it is to succeed. A start has been made with the appointment of Mr. H. S. Mahinda (already mentioned) as a game assistant for education and propaganda. Visits to reserves and parks are also arranged for school children to arouse their interest in the wild life resources of the country.



10A. CONFERENCE AT MANYARA

On 20th to 24th February, 1961, Mr. Watterson attended a conference at Manyara, Tanganyika, on "Land Management Problems in Areas Containing Game".

In opening the conference Chief Fundikira, Minister of Lands, Surveys and Water, spoke as follows :—

"My colleagues and I in the Government see game as one of Tanganyika's great national assets. At all costs it must not be allowed to waste away. But it must be worked, as an asset, for all it is worth. It must not just look like an asset; it must prove itself and be *seen* to be an asset, and one worth husbanding carefully if it is not to be wasted. The enemies of game are the men who grudge it living room, grazing and water, who fear its depredations and who covet its trophies, regardless of cost. We must provide for all of them. But above all we must work out ways of convincing the man who imagines himself to be immediately threatened by game that it is to his ultimate advantage to keep game in being. One of the ways we must study is that of associating the local authorities of these people more closely in the management of the game in their area. Another possibly fruitful approach—if fruitful is the right word when I have butcher's meat in mind—is the cropping of game to supply proteins for the people's diet. But I won't go into greater detail. I very much hope that out of this conference there will come advice and ideas which will help me to make clear to the people of Tanganyika, to whom I am responsible, that what I am personally convinced of is true. I mean that without its game, Tanganyika would be a poorer place."

The following were the subject discussed and some of the papers concerning them :—

- A. The food preferences of domestic stock and the principal species of game. Lee M. Talbot, *Preliminary Results on determination of foods eaten by some East African wild ungulates*.
- B. The use of tranquillisers. A. M. Harthoorn and J. A. Lock, *Advances in the use of muscle relaxing drugs for immobilisation and handling of the larger land mammals*; Lee and Martha Talbot, *A review of the current position of field immobilisation in East Africa*; Lee M. Talbot and J. S. G. McCulloch, *A method for determining weight of wild animals from external body measurements*.
- C. The efficiency of converting fodder to meat by stock and by the various species of plains game. Lee M. Talbot, H. P.

- Ledger and W. J. A. Payne, *The possibility of using wild animals for animal production on East African rangeland based on a comparison of ecological requirements and efficiency of range utilization by domestic livestock and wild animals.*
- D. Rangeland management and the role of game in reducing bush encroachment. B. L. Mitchell, *Ecological aspects of game control in African forest and wilderness areas*, World Forestry Congress paper.
- E. Disease aspects of the problem of running game and cattle together—a series of nine excellent short papers by EAVRO staff. (East African Veterinary Research Organization.)
- F. Marketing—*The Kenya Economic Survey of 1960* was discussed by L. H. Brown, Assistant Director of Agriculture.
- G. Methods available for carrying out a game management policy. Lee M. Talbot, *Preliminary Findings on the population Dynamics of the Wildebeest in Narok District, Kenya*; A. M. Harthoorn, *Some Aspects of Game Cropping*; Lee M. Talbot and D. R. P. Zaphiro, *Aerial Analysis of Wildlife Population Structures and The Use of Light Aircraft in East African Wildlife Research and Game Management.*

*Summary.*—This conference amounted to an exchange of information on game research now being carried out. Its discussions suggested that man may have domesticated the wrong kinds of animal for semi-arid areas and that to continue to use these animals might be uneconomic and disastrous unless such use could be controlled. It was a most valuable preliminary to African Special Project, Stage II, the Arusha Conference.

## 11. SOUTHERN RHODESIA

Conservation of wild life in Southern Rhodesia is based on the Wild Life Conservation Act 1960 and the Fish Conservation Act 1960.

The American Fulbright Large Mammal Research Unit, which started work in 1958 under Mr. Thane Riney, introduced the concept of wild life management into Southern Rhodesia. The ideas which Riney and the two others who joined him, Dr. Raymond F. Dasmann and Dr. Archie S. Mossman, not only explained but ably demonstrated, may fairly be said to have revolutionized methods of game conservation not only in Southern Rhodesia but far beyond its borders. Research work undertaken by the Fulbright Unit has included: the wild life resources and problems of Southern Rhodesia; habitat analysis; food habit studies of wild ungulates; techniques of capturing

and marking game mammals ; analysis of Government operations directed toward the elimination or control of large mammals ; differences in carrying capacity of veld for wild animals as compared with domestic mammals ; pastoral lands—how game animals fit in on lands used primarily for livestock production, and their relative production of meat.

*Reserves and Staff.*—There are twelve national parks in Southern Rhodesia totalling 6,250 sq. miles. Of these the Wankie (5,100 sq. miles) and Victoria Falls (158 sq. miles) are primarily devoted to wild life. An interesting experiment is in progress at the Robert McIlwaine National Park, a comparatively small recreational park 20 miles from Salisbury. Here fifty head of wildebeest, zebra, giraffe, eland, sable and kudu have been introduced into a fenced area of 1½ sq. miles. They have mostly been brought from a wild area in the Wankie district which is being developed for human habitation.

The national parks of Southern Rhodesia are controlled by the Federal Parks Board. Excluding clerical staff, there are some twenty-six officials and over 500 African staff.

The Game Department consists of one game officer, two research officers, seven rangers, five temporary rangers (Kariba Lake rescue operations) and twenty-two game scouts.

*Finance.*—In 1959 the revenue to the Game Department amounted to £25,000, from shooting licences, ivory, rhinoceros horn and hippopotamus teeth.

*Policy.*—As a result of the work of the Fulbright scholars real progress has been made, both at Government and the private levels, in the understanding that wild life management, and particularly the ranching of game animals, is a profitable source of revenue.

There is also full awareness in other directions ; the possibility of herding of cattle with eland ; the use of game by the Forestry Commission in reducing fire hazards and in extending the principles of multiple use of forested land ; the realization that £96,000 in duiker meat alone was lost through past tsetse-control operations ; and the need to arouse the interest of individuals and corporate bodies among the Africans, by identifying wild life assets with their interests.

A first step has been taken in the matter of professional training in wild life management, through a one week's course for non-graduate field men. The syllabus includes : the need for conservation ; the aims and principles of land and water use ; the utilization of indigenous mammals ; population surveys ; bush burning ; wild life and politics.

Another development will be a two years' postgraduate diploma course in the principles of animal and plant ecology, applied to wild life conservation in the special conditions of Central Africa.

## 12. NORTHERN RHODESIA

Early in 1959 the old Department of Game, Fisheries and Tsetse Control which had been responsible to the Minister of Land and Natural Resources was split up, game then coming under the Minister for Native Affairs. This is managing wild life for administrative convenience rather than by principles of conservation and had detrimental results. A Game Policy Committee has, however, been set up, but it is not as yet functioning effectively.

Compared with the enthusiasm for wild life management in Southern Rhodesia, Northern Rhodesia was disappointing although there is a very active Game Preservation and Hunting Association which publishes the *Black Lechwe* and maintains two private game areas.

*Reserves and Staff.*—There is one national park, the Kafue (8,650 sq. miles), eleven game reserves amounting to 10,080 sq. miles and 105,530 sq. miles of Controlled Areas.

The Game Department consists of a director, one game biologist, one game warden, three senior rangers, six rangers, two temporary rangers, one assistant technical officer, and 223 African field staff. There are about 126 honorary game rangers.

*Finance.*—In 1959 revenue from the national park amounted to £2,440, from game reserves £1,513. Conducted safaris in the Luangwa valley brought in £1,887, of which 50 per cent went to the local Native Treasury.

*Policy.*—The situation is not very encouraging but there has been a distinct trend from a negative to a positive approach to wild life management. A well conceived meat-production scheme, either in the Mweru Marsh or the Kafue Flats area, would not only give a much-needed impetus to wild life management, but would also help to put a stop to poaching and local difficulty in trypanosomiasis control.

## 13. UGANDA

An important contribution to the study of wild life management is taking place in the Queen Elizabeth National Park where overgrazing by hippopotamuses is causing an enormous amount of soil erosion. Cropping of the hippopotamus\* and the

\* See "The Hippopotamus Problem and Experiment", by R. M. Bere, *Oryx*, vol. v, No. 3, 1959, published by the Fauna Preservation Society. 5s.

sale of the resulting meat has been in operation for two years. The Warden informs a local contractor that cropping is to take place and is told what orders there are for meat. The hippopotamuses are shot early in the morning and the African dealers take over the carcasses ordered as soon as they are landed by the tractor. Payment varies from £7 10s. to £10 according to size; the lower jaw, with the ivory, being handed back to the Parks representative. The fresh meat is sold on the local market for a shilling a pound. Weights of meat vary from 1,500 to 2,000 lb. per hippopotamus. No use has yet been found for the hide. Very much more intensive cropping needs to be done, but hippo meat does not keep, and there is a pressing need for expert advice on the processing of hippo meat, fat and hide.

The problem is urgent in view also of the activities of the Tsetse Control Department but is not restricted to Uganda and should perhaps be put on an East African basis. It is illogical that starvation in part of the Congo should occur simultaneously with the availability of enormous quantities of game meat in East Africa, the marketing of which is rendered even more difficult by the glut of dried meat from scrub-cattle in Kenya and by the Karamoja processing plant in N. Uganda. An application for assistance was sent to the United Nations Food and Agriculture Organization but has so far met with no response. Yet such assistance is absolutely vital to the success of game cropping schemes designed to make economic use of game animals as a source of protein food—and as a land-conservation measure—in areas which are unsuitable for cattle-ranching, or in National Parks wherever an over-population problem arises.

A very disturbing feature of the Uganda scene is the continuance of game extermination in an attempt to control tsetse fly—the only operation of this kind still practised in East and Central Africa. The present operations are old schemes which have been reopened after three years; which in itself shows that unless immediate and intensive agricultural settlement can be assured after such an operation, the method is of short duration only. It was admitted that the scheme could not be effective since intensive settlement was impossible, owing to the lack of people and the fact that the land was incapable of sufficiently intensive permanent utilization.

This leads one to question whether such areas are not best left under tsetse and game management, especially since some 28,000 animals had been destroyed already over the past 2½ years (Ankole District) including 8,500 bushbuck, 7,000 duiker, 2,500 waterbuck and 4,000 reedbuck. These represent

a considerable source of meat and hides which were not used owing to lack of knowledge of methods of processing and of organized markets. Mr. Watterson stressed the ill-effect of such operations on the educational drive in favour of wild life management. Indeed, it threatened the future of wild animals even in existing national parks. He was given to understand that Uganda cob, klipspringer, impala, zebra and elephant were being spared in these operations; and he urged that considerable publicity be given to this as a palliative in the disastrous effect on public opinion of the operations.

*Reserves and Staff.*—There are two national parks, the Queen Elizabeth (767 sq. miles) and the Murchison Falls (1,504 sq. miles). They are administered by a Board of Trustees with a director, four wardens, two head rangers, eight corporal rangers and eighty subordinates.

A new ordinance is to be enacted to enable District Parks to be established also.

The Game and Fisheries Department is responsible for the four game reserves—Semliki (202 sq. miles), Kidepo (486 sq. miles), Kigezi (127 sq. miles) and Aswa/Lomi (240 sq. miles); also 4,388 sq. miles of game sanctuaries where specified animals are protected and 10,929 sq. miles of controlled areas. The land area of Uganda is 74,672 sq. miles.

The Game Department staff consists of one director, one game biologist, seven rangers and 160 African staff.

The recent trend has been to create two new categories of African staff: assistant game rangers and game assistants, recruited from boys holding School Certificate. Suitable candidates are also being sought for training as game rangers, or wardens as they may soon be renamed.

*Finance.*—The national parks get an annual grant of £50,000. Their internal income is derived from 50 per cent of the gate-fees, found ivory, visitor services and the sale of cropped game, the proceeds of which goes to research.

The revenue received from game by the Game and Fisheries Department amounts to between £45,000 and £65,000 annually. Expenditure on game comes to about the same amount.

*Policy.*—There has been real progress in management, cropping and controlled hunting schemes and in arousing local interest by handing responsibility and a share of the direct revenue, to the African communities concerned. Uganda is the only country which Mr. Watterson visited in which a 50 per cent share of the National Parks revenue goes to local government. Several management schemes are already proving their

worth both as a source of revenue and as a means of demonstrating the economic value of wild life: Karamoja Game Management Scheme (controlled hunting), yielded £1,122 for the 1959–60 season from licences; a similar scheme in the Ankole District; Hippopotamus Cropping Schemes from which the revenue amounted to £4,702 for 603 carcasses during the 1959–60 season. Schemes under consideration include the Bunyoro Elephant Cropping Scheme where serious overpopulation will enable an harvest of 1,000 elephant to be taken annually. The carcasses will be the property of the Bunyoro African Local Government which will be responsible for distribution and marketing of meat. The estimated annual revenue from meat is £37,500 and from ivory, £10,000.

But a great deal of research and field investigation needs to be done before more ambitious schemes can be successfully introduced. Priority must be given to study of the mechanics of large-scale cropping, and of the most efficient methods of processing and marketing meat, hides and other products. The only future for game in areas outside the parks is planned use, and if management schemes are to be introduced in all the major game areas before it is too late, the necessary preliminary investigations must start at once.

#### 14. SOMALIA

Mr. Watterson visited both Northern (ex-British) and Southern (ex-Italian) Somalia. Little integration between these regions has yet taken place and in the field of agriculture they work as separate units. In the north all responsibilities come under a Department of Natural Resources, whereas in the south there are two sections, Agriculture, and Zootechnology which includes Forestry and Game, Animal Husbandry and Locust Control.

No forestry has been carried out in the Southern Region. Vast quantities of fuelwood and charcoal are extracted from the Acacia scrub but tree-planting has been limited to horticultural activities. But in regard to wild fauna, the south is very much richer than the north, and it is tragic to note therefore that, whereas in the north, game is disappearing largely owing to shortage of water and fodder in competition with livestock, the extensive areas of almost unexploited game-areas of the south are being decimated for game-trophies. An example, 400,000 dik-dik skins alone were exported in 1960 from the Southern Region.

*Reserves and Staff.*—In the Southern Region there are four



kinds of reserves, integral, simple, partial and temporary. Within the integral reserve of Bubasci (1,931 sq. miles) a national park named Lach Bada (39 sq. miles) was established in 1960. There are two simple reserves—where holders of certain hunting permits are allowed to shoot—one forming a “buffer strip” to the north of the integral reserve of Bubasci and the other (7,722 sq. miles) to the east of the Guiba river. Then there are three partial reserves (sanctuaries for specific animals such as ostrich, black rhinoceros, dibatag, giraffe and elephant), amounting to some 23,000 sq. miles, and provisions are made in the legislation for temporary reserves, as “controlled areas”. There are Forest and Floral Reserves and a list of protected forest trees, the felling of which is prohibited, even on private land.

Staff in the Southern Region consists of an expatriate game warden and ten Somali game scouts who control the national park, the game reserve and the controlled area in the southern tip of Somalia. The other controlled areas and game sanctuaries are patrolled by special police under the control of the police force.

In the Northern Region there is (on paper) the Mandera Game Reserve in which no hunting is allowed, and a controlled area in the Borania District where hunting is permitted on licence only. Outside these areas there are certain “prohibited game”. The personnel for Forestry, Game and Range Management are grouped under the same Department and consist of one technical officer (the Assistant Conservator of Forests), and some 200 forest rangers and forest guards.

*Finance.*—Mr. Watterson was unable to obtain figures either for the cost of running the Game Conservation section in the Southern Region or for revenue received from licence and fines. Data are, however, being collected for 1960 and it is clear that revenue exceeds expenditure.

For the Northern Region no figures relating specifically to wild life were available. Revenue is clearly negligible.

*Policy.*—In the Southern Region the Hunting Ordinance of 1951 has been revised, limiting further the number of animals allowed under the five categories of licence, and abolishing free exercise of rights of usage with traditional hunting methods.

The present policy is to extend protection areas, and there are no provisions for arousing local interest or for direct participation in game management—the regions concerned are sparsely populated, people have little interest in hunting for meat, and are largely nomadic. The issue of firearms is severely controlled



by the Police, and with the abolition of rights of usage, all traditional methods (nets, fall-traps, etc.) will be prohibited. However, poaching for hides and skins (especially leopard and cheetah) is common, and illicit traffic difficult to control. Trophies are frequently exchanged for livestock.

Efforts are being made to promote tourism. An agency called Somalia Safaris exists, and a firm from Kenya is interested in establishing a branch in Somalia. Mr. Watterson suggested giving a long-term concession to a reputable firm in order to encourage the investment of private capital in the construction of comfortable tourist facilities for hunting, photographic and other safaris.

The nomadic population of the north are not using game as a source of meat since livestock is plentiful, nor is much use made of trophies. The authorities are contemplating the prohibition of all export or transit of live animals or trophies for a period of three years, provided they obtain the support and co-operation of the Southern Region.

## 15. ETHIOPIA

In addition to discussions with UN's Economic Commission for Africa regarding help in developing the economic potential of game management, Mr. Watterson was able to have talks with the Assistant Minister of Agriculture and the Director of Forestry and Game. After explaining the purpose of his visit and the objects of the African Special Project, he discussed with them the illicit traffic of Colobus monkey skins and other trophies especially between Ethiopia and Kenya. He suggested that, since control was at present impossible all export of trophies should be prohibited for a period of three years, that such trophies be seized when offered for sale, and that neighbouring countries be informed so that they could stop imports. This would give the IUCN Secretariat, under Stage III of the African Special Project at least a little time to suggest rational management and control, both within and between countries.

*Reserves and Staff.*—Some four or five game reserves have been gazetted and are officially recorded in the hunting licences—but it is doubtful whether the areas are clearly marked or delimited on the ground, and Mr. Watterson was unable to obtain data on size or location. In these reserves no hunting is permitted, in theory.

The Chief of the Game Section in Addis Ababa issues permits for hunting or for the export of trophies but has no staff. The National Park of Managasha, some 30 miles south-west of Addis

Ababa, is "guarded" by forest guards, and therefore the Chief of the Game Section can be said to exercise some influence over them. However, the guards have no uniform and, although armed with rifles, are not issued with ammunition. In the rest of the country protection of wild life is in the hands of Provincial Governors and their staff.

*Finance.*—Expenditure is practically limited to the salary of the Chief of the Section. Revenue was derived solely from sale of licences, but since the elephant figured on Licence "A" (costing £85) and no elephant may in any circumstances be shot—this type of licence has been removed from circulation.

As for the other three licences (B—£11, C—£2, and D—£1 10s. to £3) instructions were issued to withdraw them also and refuse all issue of licences since "cases had been discovered of licence-holders not keeping within the limits of the number of animals allowed on the licence". Until the banning of licence issue, some 300 (Class B, C and D) were annually bought, representing a revenue of £1,860 to £2,140.

*Policy.*—In 1936 a Protection of Wild Animals Proclamation was passed which became the basis for subsequent Regulations. Later a "Proclamation to make provisions for the preservation of game", known as the Game Proclamation 1944, was passed, authorizing the Minister of Agriculture to issue licences and make regulations.

Professor Heske, who until recently was Director-General of Forestry and Game, showed great interest in wild life management. He was preparing a statement of policy and a new set of regulations when he was "retired", and follow-up from within the country may prove difficult.

Mr. Watterson found favourable response to a suggestion that a proper survey of Ethiopia's wild life resources be made and that a development and management plan be established, based upon such a survey.

## 16. TCHAD

There has been a marked improvement in Government attitude since independence, for hesitancy and excessive caution have gone; but there is still a marked lack of material facilities, although these too have improved.

A Ministry of Tourism, Forestry and Game has been formed, underlining the essential role of wild life in the promotion of the Tourist industry.

The wild life resources are comparable to that of East Africa, so that Tchad, with the Northern portions of Cameroun and the

Central African Republic, seems to be the richest wild life area in West Africa. So far visitors are interested only in hunting. The important and encouraging trend toward "photographic" and "viewing" safaris has not emerged. On the other hand, there can never be the same development toward game-meat production here as in other territories, for the important livestock and fisheries industry supplies all the protein required locally.

*Reserves and Staff.*—The Zakouma reserve (965 sq. miles) was created in 1958: it is inaccessible from July to November because of the rains. A new reserve, Siniaka Minia (1,737 sq. miles) is soon to be created. A partial reserve, Abou-Telfane, includes a small mountainous area to protect the greater kudu. An illogical and untenable faunal reserve, Manda (386 sq. miles), exists on paper, but is destined to disappear. It lies on the River Chari and is populated by fishing villages.

Staff includes one chef du service, two chefs de secteurs, two Europeans under contract—one for each of the main reserves, and sixty African game scouts. The Zakouma Reserve is particularly vulnerable to poaching by mounted nomadic cattle-owners, who move south during the dry season. Six mounted scouts have been recruited for their fearlessness and loyalty to wild life, from the same area from which the poaching cattlemen originate. Their effect has so far been most encouraging. All game scouts carry firearms.

*Finance.*—The Government of Tchad meets the salaries of game scouts (£8,760) and administrative costs (£3,650). French Technical Assistance funds pay European salaries of £7,300. Grants have been made by the French "Fonds d'Aide et de Coopération" for the management of existing reserves, £24,820 for mid-1960 to mid-1961, and £14,600 for mid-1961 to mid-1962. Revenue from visitors' licences and felling taxes averages £13,140, and from residents' licences and felling taxes £5,840 to £7,300. The overall revenue which it is estimated accrues from visitors amounts to about £100,000.

There is an urgent need to raise the cost of residents' licences and lower the number of animals allowed on them.

*Policy.*—A separate policy must be adopted for each of the main zones—for those of the cotton and livestock producing areas where wild life is of temporary or secondary interest only—and for the Upper Chari-Salamat and the northern desert zones, in which wild life management offers the only possible source of economic development.

Basic legislation is still that of 1947, drawn up for the whole

of French West Africa, by and largely for European hunters. It is under active reconsideration which is proclaimed as "revolutionary".

Active measures should be taken to conserve wild life in the main wild life zones. There are still important decisions to be made on cattle migration into the south-east corner of the country. There are established fishing rights in the game-rich swamps which disturb wild life and for which the local communities should receive compensation in cash or a fixed share of the revenue obtained from tourism and hunting. A direct relationship between population dynamics and the amount of hunting permitted should be established.

The wholesale illegal export which, it is claimed, is taking place, via Maiduguri in Northern Nigeria, of crocodile and leopard skins should be checked.