

THE PRESERVATION OF WILD LIFE IN INDIA
A COMPILATION

Published with the Financial Assistance

OF

His Highness

Sir Sri JAYACHAMARAJA WADIYAR BAHADUR, G.C.E.

MAHARAJA OF MYSORE

37902



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THE PRESERVATION OF WILD LIFE IN INDIA

A COMPILATION
WITH A SUMMARISED INDEX OF CONTENTS

BY

Lieut.-Colonel R. W. BURTON

(INDIAN ARMY, RETIRED)

*A Member of the Advisory Committee of the
Bombay Natural History Society*

WITH A FOREWORD

BY

Shri G. S. BAJPAI

(GOVERNOR OF BOMBAY)

President of the Bombay Natural History Society

37902

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FOREWORD

I am writing these lines on the preservation of wild life in India with much diffidence. I regret to say that I have little knowledge of the subject and, although for many years I was associated with the administration of forests in India, left practical interest in our varied and magnificent fauna to a few enthusiasts in the old Indian Forest Service.

As I am typical of the great majority of our countrymen in this respect, it seems appropriate that I should appeal to them, in contrition for our common ignorance, to replace it by understanding and active sympathy. The common notion that the animal world, specially the untamed part of it, is either a nuisance or a menace, is, like all prejudices, exaggerated or unfounded. Man has to protect himself and the fruits of his labour against the ravages of beasts and birds but not at the price of their wholesale destruction. Natural beauty is comprehensive and has to be preserved in all its aspects, though what is harmful to mankind should be controlled in the measure necessary to prevent harm. We are proud of our mountains and rivers, of our forests in their glory of flowers and foliage. What emptiness would afflict them if the sight and sound of fauna were to disappear from them, if the movement and colour of animal life with which Nature once filled them were completely to vanish! In all great literature, including our own, man's imagination has sought not only to evoke beauty but to garner wisdom from the animal world in its sylvan setting: the *Hitopadesha* is a rich treasure-house of such tales. Science has drawn, and continues to draw, knowledge from the same source. We owe it to our love of beauty and to our love of knowledge; we owe it to our deep love and reverence for all forms of life, to prevent the senseless destruction of what is still left of our fauna and to preserve them in their natural surroundings as part of our national heritage.

The Government of India have set up a Central Board for Wild Life. The book to which this is a foreword brings together, in convenient compass, the relevant literature on the subject. Rightly it emphasises an awakening of interest in, and a sense of responsibility for, the preservation of wild life. It is for the public to respond if greed and fear and sheer thoughtlessness are not to destroy what is left of a precious and dwindling heritage.

"RAJ BHAVAN", BOMBAY 6,
March 14, 1953.

G. S. BAJPAI,
Governor of Bombay.

INTRODUCTION

The occasion of this volume is the constitution by the Government of India of a Central Board for the control and conservation of Wild Life. The purpose is to assist the cause through endeavour to place in readily accessible form before all the Committees that will be formed in the States and Unions the principal contents of the various important articles which have been from time to time contributed to the *Journal of the Bombay Natural History Society*. There are also important editorials and other papers which greatly add to right knowledge and understanding of the many and varied aspects of this complex question. All are dealt with in the Summarised Index.

It is laid down that one of the functions of the Central Board, and therefore of other Boards and Committees also, is to promote public interest in wild life. All through the literature is stated the need for existence of a sound public opinion. It is almost a truism to say that without real interest and the support of public opinion in this matter no efforts of governments can have lasting effect.

The question of Funds will be a foremost consideration, so Committees will no doubt very seriously consider the need for establishment of a Wild Life Fund. If that practicable solution is not accepted—and the obstacle to it may be reluctance of governments to surrender from general revenues those items which directly derive from the existence of wild life—then adequate grants would have to be made by governments, that is if they are serious in intention to do what is possible for the conservation and protection of wild life in India.

The Address given by Mr. Prater at the Jubilee Meeting of the Bombay Society covers most of the field: and the contributions to the *Journal* to which it is an Introduction are given in full as of value to some of the principal States in affording expert knowledge of the factors and conditions which obtained in a large part of the country twenty years ago.

“The price to pay for the neglect of the observation of conservation principles as applied to wild life is a terrible one—no less than the disappearance for ever of species after species.”—(Hubback).

MINISTRY OF FOOD AND AGRICULTURE

RESOLUTION

AGRICULTURE

New Delhi, the 4th April 1952

Constitution of a Central Board for Wild Life

No. 7-110/51-R.—The problems of protection, conservation and control of wild life have engaged the attention of the Government of India for some time. India's heritage of wild life is fast becoming a vanishing asset and some of our notable animals such as lion, rhinoceros, tragopan, cheetah, are on the verge of extinction. With a view to preserve the fauna of India and to prevent the extinction of any species and their protection in balance with natural and human environment, Government of India are pleased to constitute and appoint a Central Board for Wild Life.

2. The Board will function under the administrative control of the Ministry of Food and Agriculture.

3. The functions of the Board shall be:—

- (i) to devise ways and means of conservation and control of wild life through co-ordinated legislative and practical measures with particular reference to seasonal and regional closures and declaration of certain species of animals as protected animals and prevention of indiscriminate killing;
- (ii) to sponsor the setting up of national parks, sanctuaries and zoological gardens;
- (iii) to promote public interest in wild life and the need for its preservation in harmony with natural and human environment;
- (iv) to advise Government on policy in respect of export of living animals, trophies, skins, furs, feathers and other wild life products;
- (v) to prevent cruelty to birds and beasts caught alive with or without injury;
- (vi) to perform such other functions as are germane to the purpose for which the Board has been constituted.

4. The Board shall meet at least once in two years.

5. The Board may appoint technical sub-committees to consider specific problems.

6. The Board may frame by-laws for the conduct of its business.

7. Government are pleased to constitute the first Board as under:

Chairman

Major-General His Highness Maharaja Sir Sri Jaya Chamarajendra Wadiyar Bahadur, G.C.B., G.C.S.I., LL.D., Maharaja of Mysore, Rajpramukh of Mysore.

Vice-Chairmen

Shri K. S. Dharma Kumarsinhji of Bhavnagar.
Inspector-General of Forests.

Members

A representative each of:—

The Geological Survey of India,
The Zoological Survey of India,
The Botanical Survey of India,
Bombay Natural History Society,
Bengal Natural History Society,
National Institute of Sciences,
Ministry of Natural Resources and Scientific Research,
Ministry of Transport,
State Forest Department,
Zoological Gardens,
Fisheries Development Adviser.

Secretary

An Officer of the Ministry of Food and Agriculture.

VISHNU SAHAY,
Secretary.

ORDERED that the Resolution be published in the *Gazette of India*.
ORDERED also that a copy (with usual spare copies) be forwarded to all Ministries of the Government of India, all Members of the Central Board for Wild Life, all State Governments (Parts A to D), all attached and subordinate officers under the Ministry of Food and Agriculture, Planning Commission, Cabinet Secretariat, Prime Minister's Secretariat and the President's Secretariat.

By Order,
S. D. UDHRAIN,
Under-Secretary.

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By *M. A. Wynter-Blyth, M.A. (Cantab.), F.R.E.S. and Kumar Shree Dharmakumarsinhji. With a Plate [Vol. 49: 456–470 (1950)]*

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PREFACE

By way of preface to Mr. Prater's Introduction and the several contributions by experts to the "Wild Animals of India Series" published in the *Journal of the Bombay Natural History Society* during 1933 to 1935, readers of this volume are firstly presented with some more or less paraphrased extracts from those writings as indicating a few of the many important questions which will form subjects for deliberation by the Boards and Committees about to assemble to devise ways and means of conservation and control of Wild Life in the Republic of India.

The summarised Index which follows endeavours to deal in an informative way with all the many matters which will come up for discussion.

3. (a) S. H. Prater (*Introduction*).—The purpose of the Wild Animals Series and the Introduction is to arouse interest in the fauna of the country with a view to its protection and not its destruction. The Society hoped that these articles would do something towards drawing the attention of people in India to the magnificent heritage which Nature has given them; and that it would help them to realise the need for preserving this legacy to their own advantage and to the enjoyment of generations to come, who, with the spread of education, will be in a better position to appreciate its worth than we are to-day.

The movement for the Protection of Nature had its origin barely fifty years ago. It is the European Nations and the American people who set an example to the World as to what could be done to preserve wild life within their lands. The cause of Conservation has been advanced by various International Conferences. A Central Bureau known as the International Office for the Protection of Nature (I.O.P.N.) was established, and in 1948 was constituted at Fontainebleau the International Union for the Protection of Nature (I.U.P.N.).

It will be seen that in all civilised countries there is a general recognition of the need for concerted measures to stop the forces of destruction which threaten wild life in all parts of the world. There is in India too the gravest need for such concerted action. In its fauna and flora Nature has endowed India with a magnificent asset. A further interest attaches itself to our wild life from the association with the folk-lore and legendary beliefs of the country. The Fifth Pillar Edict of Asoka may be borne in mind. The profuse and engrossing Memoirs of Jehangir are a real Natural History of the earlier animal life in India.

The danger to wild life has been accentuated in recent years by the enormous increase of firearms in use, and by the inability of Governments to enforce such laws as exist for the protection of the wild animals. To-day there is no educated man who does not realise that the realm of Nature provides Science with a vast and productive field for research. Who can say what products still remain to be discovered which will one day be priceless to Man? (*e.g.*, Insulin.)

Any scheme for the protection of wild life must include birds. Crops provide the clash between the interests of Man and the Animal. Areas under cultivation are extending in proportion of the needs of increased population. Cultivated areas must be protected from wild

animals. Human progress must continue and in the clash of interests between Man and the Animal human interests must not suffer. This problem has been faced in other countries; cannot India make a reasonable effort to do the same? The time has come when it is necessary for us to review the position and take such measures as are necessary to give real protection to the wild life of India.

National Parks provide the means by which the clash of interests between Man and the Animal is obviated. Parks in other countries—Kruger Park, Parc National Albert—are world renowned. National Parks within the Dominion of Canada have resulted in bringing a great amount of money into the country. National Parks in Switzerland, Italy, Spain (Sweden has fourteen National Parks), Finland, Austria, Czecho-Slovakia, Belgium, Belgian Congo and other countries exist, inspiration and guidance for India can be gathered from all these. National Parks and Reserves may provide the only means of giving adequate protection to wild life without hampering agricultural development.

In the United States and in other countries the problem of financing the work of conservation has been helped by creation of special Funds. There is need for creation of sane public opinion on the subject of Wild Life Protection in India; and in most Western countries Nature Study teaching is a serious part of the earlier stages of the school curriculum.

3. (b) *Dunbar Brander (Central Provinces).*—"I left India in 1922 and revisited it in 1928, and was appalled to find such a change in so short a period, quite common species being found only with difficulty." "Game has almost disappeared from Private Lands. There is now nothing to be seen from the train along 200 miles of antelope country between Bombay and Allahabad. Nothing can save the fauna in the private lands. Its extermination is certain." "Forest Act and Rules thereunder are in my opinion excellent. It is in application that they fail. Fail in prevention of poaching. There is lucrative trade in game. The Forest Guard finds the easiest plan is to take a percentage of the profits." "Rewards sanctioned by the Rules in poaching cases are too sparingly given, and the Magistrates' sentences are often quite inadequate." Among the main reasons for increased destruction of game are the commercialization of game, the large increase in the number of guns licensed as well as a large increase in unlicensed or illegal guns. The State forests are surrounded by guns, many of which are used in constantly destroying game both inside the forest and just outside it. Suggested remedial measures:—attempt to check the increase of guns, even reduce them; stricter control of tanneries and business trading in wild fauna and its products; complete review of the rules so as to deal with the motor vehicle and bring the owner and the driver within the penalties of law-breaking; stiffer sentences by Magistrates. Rewards to be granted as a matter of course; establish Associations for the protection of wild life. Arouse enlightened Indian opinion.

Banjar Valley Reserve recommended as suitable for a National Park, wild buffalo would return to it if given encouragement.

"I consider that action in India is urgently required, perhaps more so than in Africa."

3. (c) *G. Monteith (Bombay State).*—Prior to c. 1930 trade in horns and hides was not in Bombay Presidency such as to matter very much.

Burden of proof that an animal was killed outside Government forest should be on the defence; the wild dog does not do so much damage as is supposed. Reasons are given why the "Block" system benefits game, and also the Forest Department by reason of less work on the Staff. A plea is entered for the Sloth Bears because they are nervous creatures and apt to be hasty in action if startled, but generally speaking do no harm. Object lesson is given of how prohibition of any form of hunting except 'still-hunting'; and a short open season; and a limit of one head per licence enables stock of chital to rapidly recover. "Sanctuaries, unless of manageable size as is arranged under the 'Block' system, might very well in the end prove to be no sanctuaries at all." Trappers and snarers eliminate antelope and gazelle. Animals outside the forests are equally the property of the State. Arms licences for sport should be issued for a sufficient fee. There should be no shooting from the cover of any kind of motor vehicle, or by the aid of motor head-lights. Trade in meat or trophies of any kind of game animal should be illegal and carry heavy penalty against both buyer and seller. Penalties should be adequate, and punishment include attachment of gun or rifle.

Note.—All the Forest Officers are at one in considering a separate Game Department of Wild Life not necessary and would be resented by the Forest Department.

3. (d) **A. J. M. Milroy (Assam).**—Formation of Forest Villages should be cautiously proceeded with; calling in of crop guns after harvest is over is only logical and reasonable. Monas and Kazirunga Sanctuaries need good roads and camping huts to make them accessible and attractive to visitors. Parts of the former may be opened to shooting with strict supervision and very high fees. It is related how the Sanctuaries could be made self-supporting. Balipara Political Area remarked upon as a rhinoceros conservation area. "The Assam of the future may very well be proud to think it is taking its stand by the side of other civilised countries in saving its fauna from extinction." (But it has recently allowed the Manipur race of the Brow-antlered Deer to be totally exterminated.)

3. (e) **F. W. Champion (Uttar Pradesh).**—Inside Government forests not so bad as in other parts of India. Reasons given. Outside the forests, "Frankly, the position is appalling. Animals like black buck, chital and game birds both in the plains and particularly in the hills are literally being wiped out at an increasingly rapid rate and one wonders if there will be anything left but monkeys and jackals in another two or three decades." Admitted the deer do seriously interfere with management and revenue of valuable forests. "In some places, particularly where the balance of Nature has been upset by the excessive destruction of carnivora, deer have become a positive pest and it has proved necessary to reduce their number." It is not the general opinion of Forest Officers that deer should be eliminated. Use of game-proof fencing though expensive in initial cost, is effective for protection of special plantations and can be moved from place to place as required, "and is probably the best solution for managing forests, both in the interest of the Forester and also the indigenous wild life." "Modern rifles are so good, and the shooting with help of a motor car so easy, that probably a greater proportion of the existing animal population is shot annually nowadays than was the case in the past." It is not so certain that the head of game in the

reserved forests, except the high hill forests, is not decreasing. "The position in ordinary districts is almost hopeless." "Public opinion is by far the most important of all methods of wild life conservation, and without it all efforts to preserve wild creatures will prove abortive."

It is of vital importance that a law be passed at an early date totally forbidding the sale of any portion of a wild animal with certain exceptions (dropped horns). If too difficult to limit the number of arms, greater effort could be made to differentiate between game licences and licences for protection of crops, person, property or display. Rewards should be given far more sparingly than at present for destroying wild animals. Except for man-eaters, and notoriously destructive creatures such as porcupines, they are quite unnecessary. There should be check 'chowkies' at entrances and exits of roads passing through forests, the cost to be recovered by a small wheel-tax.

3. (f) **R. D. Richmond** (*Madras State*).—If properly administered the 16,000 square miles of forests form permanent abodes for game and other animals. (A "*Madras Mail*" sub-leader of 16th October 1952 states that, even normally, 15,000 sq. miles out of the 19,000 sq. miles of reserved forest and forest land in the Madras State is open for grazing.) "Game protection is a definite duty of the forest staff." Average area of a Division is 500 sq. miles; and of a Forest Guard's 'beat' 10 sq. miles. So the machinery for protection exists. A second line of defence is to declare threatened areas to be game reserves and so protect the species in them. One of the best methods of control lies in the presence of a licensed sportsman. Preserves appear to be uncalled for; the whole of the forest area is a preserve. There seems to be no ground for apprehension that game animals are decreasing. National Parks should be of great general interest and administrative value, and tend to promote desired public opinion.

Note.—The long paragraph on second page of Mr. Richmond's Report invites close attention because of the many important questions included in it.

3. (g) **R. C. Morris** (*Comment on Mr. Richmond's Contribution*).—Considers that the Forest Department have failed to afford necessary protection for the fauna, and cannot be expected to devote the requisite amount of time to Game Preservation, however interested they might be in the matter, "and I am sorry to say that in many cases these days (c. 1934) there is little interest". Considers that chital, black buck, chinkara will be extinct in South India before many years, as have become the Nilgai. Considers there should be a separate Wild Life Department, and does not see why friction should arise. Outside government forests very little game exists, and the remnant is rapidly vanishing. The present laws in the Madras Presidency would be very effective if properly enforced. Considers the poacher of the present day is a far more dangerous enemy than in the past; and in course of time no part of the jungles will be free from their activities. Says damage done by wild beasts to crops is very much exaggerated; except that the elephants do much damage. Suggests the measures by which elephants could be controlled. Suggests several ways in which matters could be improved:—Legislation prohibiting marketing of all parts of game animals throughout the year is very necessary; sportsmen should aid by reporting poaching offences; there should be immediate dismissal of any Forest Guard in whose 'beat' an illicit 'hide' or machan is found. Suggests stricter

control over Village Headmen and Forest Guards. Suggests measures for restriction of weapons which may be used for poaching. Gives list of items of revenue which could be applied to a Wild Life Department. Has in mind two areas in Madras State which could be National Parks.

3. (h) E. G. Phythian-Adams (*Mysore State*).—"One has only to read old sporting books...to fully appreciate the terrible rate at which game has decreased and is ever decreasing in Mysore." So wrote Russell in 1900. Writing c. 1935 Phythian-Adams states: No dearth of bison; sambar and spotted deer still in fair number; black buck (thanks to protection) largely recovered from the depletion before the Great War; except in the south-east border (where deer have been killed off) tigers are as numerous as ever; panthers as much a pest as ever; bears, though hard to find, certainly exist in fair number; wild dogs not on the decrease; wolves have decreased. There are few bustard left, and their survival, if left longer without protection, most unlikely. Poaching is widespread and largely unchecked. On paper the Game Laws of the State serve as a model of their kind. Education of public opinion is essential, measures for it suggested; equally important is creation of a Wild Life Fund. Presence of sportsmen in the shooting areas is one of the greatest curbs on the activities of the poacher. "Present position (c. 1935) of Wild Life in Mysore is not unsatisfactory but will certainly deteriorate in the near future unless steps are taken to prevent it." Eight measures are suggested to effect improvement. "Every possible step to be taken in time to make the people realise their national asset of wild life."

3. (j) Salim A. Ali (*Hyderabad State*).—The State is divided into Circles for shooting purposes. Open season is short, 1st March to 31st May and ten days at Christmas. For black buck, open season 1st December to 31st May. Areas open to tiger shooting depend upon the increase and decrease of these animals. Only half the number of districts comprising Circles are open at a time, shooting areas in those districts also defined. "For thirty years prior to 1935 there has been a steady and perceptible diminution of game. Poaching devices in the forests are common. There is connivance on the part of the revenue or forest petty officials. Some of the greatest offenders are such people, and well-to-do and so-called educated citizens who should know better." Feathered game in Hyderabad is now (c. 1935) in a particularly bad way. Speedy and drastic measures are necessary. Professional snarers are able to carry on year in year out. In many areas feathered game has been reduced to the very verge of extinction. "The man with the gun does not do half so much damage as the snarer. He is like a broom, for he sweeps everything before him into his net." So related a Senior Police Officer who was also a keen sportsman. The principal reasons for decrease of game are stated to be: increase of population; roads and railway lines; motor cars and buses; penetration of all these into remote areas and shooting from the same. Suggested remedies are stated in eight paragraphs. "It emerges clearly that at the back of all the difficulties is apathy and want of public opinion."

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THE SUMMARISED INDEX

1. **Afforestation.**—"Nature conservation, and conservation of soil, forests, grass-lands, and water are intimately connected... This question is just as fundamental to agriculture, horticulture, forestry, game preservation and fisheries, etc., as it is to the management of National Parks... Re-afforestation is the sovereign remedy to check soil erosion; and 'Plant More Trees' should be our slogan for the next (many) decade(s)" (4 F. M. S. Randhawa).

2. **Antelope.**—In 3 (h) Dunbar Brander remarks upon the rapid disappearance of black buck along the railway line between Bombay and Allahabad; the other contributions make similar observations. In 3 (g) Morris remarks as to Madras State: "Outside Government forests very little game exists and the remnant is rapidly vanishing. There is special urgency for protection of chital, black buck, 4-horned antelope and, in some parts, sambar. The Nilgai has vanished." (That was written in 1934. In 1951 the Government of Madras declared the whole year to be a close time for shooting of peafowl and black buck. Only shooting mentioned, so snaring can proceed as before: no mention of the vanishing bustard.)

3. **Assam.**—The contribution [3 (c)] by Milroy may be seen. Also see 5 (h) by E. P. Gee: Country and forests described—Measures to preserve wild life related—wild life sanctuaries listed and described—outlook for the future—Schedule of particulars of wild life sanctuaries in Assam—a Map of Assam. See 5 (e), p. 736. "It is indeed a sad reflection that when the writer was in Burma in 1891 *thamin* were in their thousands, and are now close to vanishing point. Some will be saying that the saving from extinction of a few deer is a very small matter in these tremendous times. But is it so small a matter that a species (the Manipur race of the Brow-antlered Deer) should be negligibly allowed to vanish from creation?" (See last paragraph of this Compiler's Introduction to this Volume.) See 4 G, 6 (a), (b).

4. **Associations.**—See 4 B. 'Wild Life and Game Associations': "Where these exist they are, if well organised and conducted, wholly productive of good." A remedial suggestion by Dunbar Brander [3 (b)] is: "Establishing Associations for the protection of wild life, and rousing educated public opinion, and enlisting influential men as members of such Societies." In 4 D, M. D. Chaturvedi states that: "Associations organised in the past for the preservation of wild life have seldom functioned" and cites the Association for Preservation of Game in the U.P. The proposal by F. Brayne, I.C.S., in reference No. 25, p. 620 of 4 B, was to form big Game Syndicates and take over

blocks of jungle on long lease from the Forest Department. The Department would not agree. Another proposal was to form a Game Preservation Society with branches in every Province. "The Society would be, of course, just as much Indian as British." There was no result from either of these suggestions. The origin and progress of the well organised and conducted Nilgiri Game Association of 73 years standing is fully dealt with by Phythian-Adams in 8 (a) and in 8 (b). [It is well known in South India that had it not been for that Association there would at this time (1952) be very little game left in the Nilgiris District. But see 'Motor Vehicles Confiscation'.]

The Sportsmen's Club of Orissa.—The formation of this semi-scientific Club was welcomed by the Bombay Society. "It is obviously a step in the right direction and, in the absence of a properly organised and competent Wild Life Department, should go a long way to help in tightening up the administration of the game rules and in suppressing poaching and other illegal practices detrimental to local fauna and flora. H. E. Janab Asaf Ali, Governor of Orissa, is Patron-in-Chief, and Shri N. Senapatti, I.C.S., President. With its influential Executive Committee a solid foundation seems to have been laid. It augurs well for the present and future protection and conservation of the wild life of the Province.

The objects set out in the Constitution are:—

- (a) to ensure maintenance of the balance of the fauna of Orissa,
- (b) to promote sportsmanship among the members of the Club,
- (c) to assist members to procure arms and ammunition and preserve their trophies,
- (d) to organise shooting and scientific excursions for members,
- (e) to assist the authorities in the enforcement of game laws,
- (f) to study the fauna of Orissa."

Comment.—The paragraph on p. 606 of 4 B may be seen as to the Eastern States. Should this Club have continued success, and be taken as a model by other States and Unions the movement should result in largely aiding the functions of the Central and other Boards of Control of Wild Life throughout India. All such Sportsmen's Clubs might consider making available to their members printed copies of the article, "Sportsmanship and Etiquette in Shooting" contributed by Lt.-Col. E. G. Phythian-Adams, O.B.E., F.Z.S., to Vol. 47, pp. 684-89 (1948).

In 1933 an Association for the Preservation of Wild Life was inaugurated at Madras by the then Governor of the Presidency, but it came to nothing and was not again heard of (4 B, p. 612).

5. Balance of Nature.—Formation of National Parks and Sanctuaries [4 C, para 18 (e)]: "So long as their numbers do not become excessive, tigers and panthers have a useful place in Nature. If one animal is stressed at expense of another the balance of nature is upset and disastrous results may follow. The policy should be not to interfere with nature unless shown by periodical censuses to be absolutely necessary." 4 F (referring to 'Biology'): "...before any such campaigns are started, it should be ascertained whether wholesale destruction of certain birds or animals may not have harmful repercussions elsewhere on account of the upsetting of the balance of power between various organisms. An action which *prima facie* may appear sensible and desirable may have far-reaching and most unpleasant

and unforeseen consequences fifty years hence." (The enumerated functions of the proposed Biological Service may be seen.) 9 C(ii), Uganda, 2nd October 1947, Resolution 6 (d): "The economic importance of the larger carnivora in preserving the balance of nature has always been appreciated..." And see 3 (e) for Champion's remarks regarding deer in some places in U.P. forests having become a positive pest owing to the excessive destruction of carnivora. See 'Carnivora'.

6. **Banjar Valley Reserve.**—In 3 (b) the Valley is described, area stated, and the Reserve declared by Dunbar Brander to be specially suited for a National Park.

7. **Bears.**—In 3 (c) Monteith rightly says the Sloth Bear is a nervous creature and apt to be hasty in action if startled, but does no real harm; 5 (j): "Up to sixty years ago the sloth bear was really plentiful all over the forested tracts of India and Assam from the base of the Himalayas to Ceylon... Nowhere is it protected under shooting rules." [For need of protection and preservation in all Parks and Sanctuaries situated in its natural habitat, see para 18 (d) of 4 C.] 5 (j): "The Kashmir Brown Bear is feared to be approaching extermination because of its handsome pelt." [See pp. 102–108 of 9 A (v) for 'Bears and Their Surroundings' and pp. 109–111 for size—distinctive characters—distribution and habits of the three principal Indian species of Bear.]

8. **Bihar.**—See 'India'—Wild Life Reserves.

9. **Biology.**—M. S. Randhawa (4 F): "In India also there is need of a Central Biological Service under the Ministry of Agriculture of the Government of India to deal with problems relating to the conservation of nature, national parks and fisheries..." The Biologists must give lists of harmful and useful birds and animals. The biologists should give a finding whether campaigns should be started for the destruction of wild boars, porcupines, monkeys, bats and parrots who cause enormous damage to crops and gardens. See also 'Balance of Nature'. Africa, 9 C(v), p. 22: "In addition we know far too little to-day of the biology of the wild life of Africa. This knowledge is essential for efficient conservation and can only be obtained by appointing qualified zoologists and biologists as permanent members of the various African Game Departments" (Keith Caldwell). "Oryx", 9 C(vi), p. 186: "At last attention is being paid to the research side of game conservation, and the appointment of a qualified zoologist to the various African Game Departments has been accepted in principle. In addition plans are under consideration for a complete team (biologist, veterinary research officer, ecologist, and game ranger) to undertake an extended faunal survey in Northern Tanganyika, where adequate material is easily available (Keith Caldwell).

10. **Birds.**—3 (a): "Any scheme for the Protection of Wild Life would be incomplete without due protection for our birds. Quite apart from a sentimental value birds render incalculable service to Man... We cannot expect preservation in urban lands, but measures should be taken for protection of birds in urban areas. Municipalities and Local Boards could form bird sanctuaries. There is need to put an end to wanton destruction of familiar birds which takes place in the immediate vicinity of towns." 3 (h): "Turning to birds, the only resident which has seriously decreased (c. 1935) is the Great Indian Bustard... their survival... if left longer without protection is most unlikely. Great numbers of partridges and peafowl are snared

and sold in the towns throughout the year...migratory duck and teal have certainly greatly decreased in numbers during the past ten years...spotbill duck and whistling teal breed locally...trade in their eggs should be made illicit..." 4 D: In the Madras State partridges, quail, sandgrouse, pigeon have no close season. Partridges and quail are sold in Municipal Markets in breeding seasons. See Salim Ali [3 (j)] as to the position of feathered game in Hyderabad State; and pp. 693-604 of 4 B Birds—Nomadic Tribes—Value of Birds. The 'Time for Decision' remarks on pp. 605-606 of 4 B may be seen. See 'Close Seasons'—'Trapping'. On p. 905, Vol. 50, August 1952, Dr. Dillon Ripley expresses fear of extinction of the Great Indian Bustard and hopes the Government will take pains to publicise the need to protect this rare and magnificent bird.

The habits of the species precludes the idea of its preservation in sanctuaries. Should it be necessary, it might be preserved (wings clipped) in some of the suggested zoological parks in areas suitable to its habits. Whether it would breed under such conditions remains to be ascertained. See 4 G, para 7 and para 32. "The Florican is one of the Indian Game Birds which requires most rigid protection, as it is constantly shot and harassed during the breeding season." (Stuart Baker, *Fauna of British India, Birds*, Vol. VI, p. 71.)

11. Bird Sanctuaries.—See paragraphs 31-33 of 4 G. 'The only officially declared bird sanctuaries in India are those on Islands of the Cauvery River near Seringapatam in Mysore State. Paragraph 15 of 4 C may be seen.

12. Bison and Buffalo.—5 (j): "The Indian Gaur or 'Bison' seems at present to be holding its own; but too many are shot, some are being poached for meat and the species is subject to cattle diseases—so there is no room for complacency." For the Indian Wild Buffalo see 4 C, para 18 (c). See 'Cattle Diseases'.

13. "Block" System.—In 3 (c) Monteith remarks upon this arrangement for shooting in Government forests giving reasons 'for its benefit to conservation of game, and to the Forest Department through less work on the Staff. An object lesson is related of how the stock of chital was enabled to rapidly recover through prohibition of any form of hunting other than 'still-hunting'; a short open season; and limit of one head per licence. *Comment.*—The "Block" system has several distinct advantages. It permits of presence of sportsmen in even distribution; so benefiting the game and combating the poacher; allows of closing or opening portions of forest according to the several species of game; allows of formation of sanctuaries of block size for all species as decided by the forest officer in control; allows of control of licence holder in favour of, or against any particular species.

14. Carnivora.—"Carnivora are the natural enemies of wild life (4 B, p. 613). The larger felines—tiger and panther—have their role in nature and should not be unduly reduced in the forest areas. The smaller predatory species also have a distinct value as a controlling influence against over-population by species whose unrestricted increase would adversely affect the interests of Man." *Comment.*—The Indian Wild Dog has always been thought a wholly destructive creature, and an enemy to conservation as interfering with the natural prey of the tiger and panther. When there were plenty of deer his presence did not greatly matter. Now that deer are so greatly reduced in number

in many areas the wild dog may be turned against the domestic stock, like the larger carnivora which increasingly prey upon flocks and herds. In practically all forests rewards are paid for destruction of the wild dog. The Hunting Cheetah was thought to be practically extinct in India in a wild state (4 B, p. 605) but some of the species undoubtedly survive, for three males were shot in 1947 (Vol. 47, p. 718) and one is reported as seen in Chittoor District of Madras State in March 1952 (Vol. 50, p. 931). The Hyena of India is not ordinarily greatly inimical to human life and stock; but some [9 A (v), p. 81] develop the habit of attacking cattle and goats and have to be dealt with. In the Nilgiris [8 (a)]: "The destruction of panthers has resulted in a great increase in the number of pig which did so much damage to cultivation that in 1921 the Government found it necessary to give a reward for their destruction. After some 1,350 had been killed the reward was stopped in 1924." Kenya [9 C (ii), p. 44]: "The baboon and bush pig plague is very largely Kenya's own fault, since she would not listen, till too late, to warnings as to the inevitable consequences of allowing the virtual extermination of the leopard population over a great part of the Colony. To-day we look upon leopards as perhaps the most valuable game animals we have...but even so it will take a decade, perhaps several, before they recover sufficiently to resume again their proper and intensely valuable role." See Champion in 3 (a) and also 'Rewards'.

15. Cattle Diseases.—3 (g): "The new experimental measure for the compulsory inoculation of village cattle in the Kollegal and North Coimbatore Divisions should keep bison comparatively free from rinderpest, and it is a measure I should like to see carried out in other districts where bison occur". Hyderabad [3 (f)]: "Large tracts of game country have been known to be cleared by rinderpest and foot and mouth disease contracted from village cattle left to graze in forests inhabited by wild animals." R. C. Morris reports—7th June 1952—Vol. 50, p. 936: "...between 15 and 20 bison have died from foot and mouth disease caught from village cattle penned in the hill forests owing to lack of grazing down below. Had these cattle also introduced rinderpest, a similar tragedy to that of 1929 would have overwhelmed the large number of bison here (Biligirirangan Hills)." 7 (ii), p. 359: "Disease is a second adverse factor to be reckoned with; rinderpest has accounted for a large number of bison and buffalo in Peninsular India, while foot and mouth disease has in recent years seriously affected game animals in Kashmir and Himalayan ranges." 9 C (iii), p. 29: "A resolution was passed drawing attention to the importance of very close co-operation between Game and Veterinary Departments in order to combat diseases borne by wild game; for the same reason the resolution also referred to the advisability of National Parks and Reserves being isolated whenever possible." 9 C (ii), p. 30: "It is the case that game in the past has played a considerable part in the spread of disease among domestic stock. It appears however that Kenya control of disease in human owned beasts by veterinary and administrative measures has already done much to decrease this deleterious characteristic on the part of the indigenous fauna; and a similar sequence may perhaps be expected in the case of certain other diseases which are common to domestic and indigenous animals." *Comment.*—It is within the above extracts that perhaps, through energetic and continued action, the transmission

of cattle diseases to bison and wild buffalo in India may be brought under control.

16. Close Seasons (*Animals*).—Provision for protecting wild life in the Hyderabad State [3 (j)] may be seen as indicating an arrangement by Circles and Districts which might, on closer examination, afford practical ideas. Reference 4 G, para 40 quotes 8 (d) and concisely expresses the important suggestion of no close season for big game.

17. Close Seasons (*Birds*).—4 D may be seen for close seasons in force in the Madras State and in Mysore State, also for suggestions for simplifying Schedules to Acts. At close of his article, "Birds of Prey and Their Uses," Vol. 32, p. 743 (1938), C. H. Donald states: "A general close season when the carrying of a shotgun is an offence under the Act (VIII of 1912) is essential except in the vicinity of crops. Crop protection licences might be issued free of charge, but the moment the man is found using his gun outside his crops the licence should be forfeited and the arm cancelled. Something on these lines will have a very beneficial effect, but the present system spells extermination of game within the next two decades or so. The rules and regulations of the Forest Acts can only apply to protected forests, but what about the rest of the country where the 'would-be' shikari, to say nothing of the many criminal tribes with their nets and nooses, can destroy what they like with impunity!" 5 (j), p. 862: "In India there is now urgent need for a nation-wide fixed close time for the shotgun from 1st April to 30th September. If enforced, that would do much good;..." (The suggestion is as to sportsmen only—not crop protection weapons. The shotgun close time should be from 15th February so as to provide for the breeding seasons of some game birds—peafowl and partridges in particular—in various parts of India.) In England, it is now recognised that birds do not know administrative boundaries. In a "*Field*" editorial of 12th December 1952 it is observed that what is wanted is one comprehensive Act for protection of all birds and their eggs at all times of the year, except a short list of birds harmful to agriculture or forestry and game birds and wild-fowl which may have to be dealt with by special legislation. Such legislation would be abortive unless it were accompanied by adequate means to enforce it and adequate penalties. This is the view expressed by this compiler in 4 D, which may be seen. See 'Trapping and Snaring'—'Birds'—'Legislation'. *Comment*.—Game birds outside the forests can only be saved through study of the several suggested measures and enforcement of those considered feasible. See 'Trapping and Snaring'.

18. Conferences (*Boards of Control and Committees*).—Page 4 of Mr. Prater's Introduction may be seen in regard to World Conferences prior to about 1934. The following is the text of the Editorial Comments referred to in 7 (iv) regarding the Inter-Provincial Conference convened by the Government of India at Delhi in January 1935 at which the Bombay Society was represented by Mr. Prater. "The Conference was instrumental in making a number of detailed recommendations for the better protection of wild animals both inside and outside forest areas. If these recommendations are accepted and put into force by the various provincial governments, much will have been accomplished to improve the deplorable conditions which exist in many parts of the country. But while the Conference made numerous

recommendations of detail—the broad lines underlying the whole problem remained unsettled. Among these is the need of fully exploring the possibility of creating permanent sanctuaries wherever necessary for giving permanent shelter to wild life. *Equally important is the question of creating a definite agency within the forest department for administering the laws relative to the protection of wild animals.* To fix the responsibility on an already over-worked and under-staffed department without providing it with adequate means to enforce these laws will not improve the position. The same holds good regarding the protection of animal life outside forest areas where their destruction is now greatest. More legislation without the means to enforce it, must remain, as at present, quite useless in preventing the destruction of wild life outside forest areas both in and out of season.” References by Mr. Randhawa (4 F) to the Wild Life Conservation Special Committee, and the Committee’s observations, and the enumerated functions of the proposed Biological Service will doubtless be considered by the Central Board of Control for India. The same writer’s observations under ‘Protective Legislation’ may also be seen. The text of the important closing Resolution of the International Forestry Conference held at Mysore in April 1949 is given in 4 G, para 39. The text of the Conference held at Nairobi in 1947 is published in 9 C(ii). The text of the New Delhi Resolution constituting and appointing a Central Board for Wild Life is printed at commencement of this compilation.

19. Conservation and Control.—“More and more game will only be able to survive in so far as man himself is both willing and able to set a limit to killing.” (Editorial, *I.U.P.N. Bulletin*, May 1952.) 4 A: “Until it is recognised that Wild Life is a valuable natural resource and that the benefits derived from an unguarded resource are wasting benefits, waste will continue till the resource has gone and the benefits have vanished...No natural resource is more sensitive to conservation than wild life, and no natural resource has suffered more from lack of conservation. During the last fifty years species have been exterminated due to this deficiency. What we are now doing for conservation of wild life in many places is just so much waste of time, because we have never got past the stage of treating the work as a casual matter which can be undertaken by anyone...(see ‘Forest Staff’)...in actual practice the work of successfully conserving wild life is one of considerable difficulty and is highly specialized work. Few have the aptitude to become practical conservationists, and still fewer have the knowledge or experience to enable them to exercise that aptitude if they possess it...I think we may claim that the chief object of conservation of wild life must be to prevent the disappearance of species...Until it is recognised as essential to make full-time appointments for those in charge of preservation and protection, so long will the work fail; as it has failed everywhere in countries where the preservation of fauna is professed, but the application of the principles of conservation refused...An important principle of conservation is the utilization of natural resources for the benefit of mankind. We cannot improve on Theodore Roosevelt’s definition of conservation as, ‘preservation through wise use’. *Comment.*—Although all the above can be read in 4 A these excerpts are here given by way of emphasis.

In the reference 7 (v) the Editors refer to the pamphlet, *Wild Life Preservation in India—India’s Vanishing Asset*, by Lt.-Col. R. W.

Burton, a Member of the Society's Advisory Committee and a veteran sportsman of over sixty years experience, stressing the urgent need for conservation of the Wild Life of India through legislation and practical measures before it is too late. Wide distribution of the pamphlet is recounted. (4 B is the pamphlet referred to.) 4 C, p. 290: 'Some aspects of conservation' may be seen; also para 18 (c) as to some aspects of 'Control'. 8 (g): "Wild Life is a very real national asset, and no one can object to all reasonable steps being taken for its preservation." 9 C (ii): "Game conservation is linked at many points with territorial development and cannot be separated from other aspects of rural administration without creating antagonism to it. I would therefore deprecate any subtractions from each territory's right to handle its own game problem." *Control*.—4 A: "If a Game Warden is to achieve the objects of conservation he must only take extreme measures when really necessary. The dangerous policy of 'control' if not properly controlled, is a real menace to the future of many species." 5 (j), p. 849: "The conclusion from perusal of the old sporting books dealing also with Kashmir and Burma, is that the steady diminution of all the game animals began about 1780 as to Hindustan, 1840 as to Western Himalayas, and is now nearing its climax unless it is halted by all the governments."

20. Conservation (Multi-purpose Projects).—Proceedings and Papers of the Technical Meeting [6 (b), pp. 44-45]. Conclusions and Resolutions. Rural landscape as a habitat for flora and fauna in densely populated countries.

5. I. It is important that the general public, the teachers in schools and universities, and particularly those engaged in changing the landscape such as town and country planners, engineers, farmers and foresters should be given adequate and up-to-date material on the principles and practice of nature protection. The provision of such material in a simple and accessible form is urgently needed.

II. Considering the steady increase of the world population, and the constant perfecting of technical equipment, as well as the large scope of the projects being undertaken on the earth's surface by technicians of all classes, who are not at all aware of the problems connected with the protection of nature, it is deemed desirable that, Courses in the conservation of the environment and the protection of nature should be included in the curricula of all universities, engineering schools and scientific and technical schools, for the students of those colleges who will be responsible for the drafting and the realization of these projects.

III. The attention of the scientific world should be drawn to the effects of some of the large-scale works, namely, the building of hydro-electric dams, on natural hydrography. The drying up of rivers, and of the water table as well as the diversion of waters from their natural course towards entirely different basins, constitutes a very serious violation of natural and millenary water regimes. The alarming consequences of this situation should be urgently and scientifically studied." See 'Lands' and 'Definitions'.

21. Crocodiles.—These do an enormous amount of damage to all creatures, deer especially, which are forced to drink during dry

season at jungle pools in reserved and other forests. Control by game establishments is necessary. Visiting sportsmen should help.

22. Definitions.—4 G may be seen for definitions of 'Wild Life Park' and 'Dual-Purposes Park'; paragraph 21 for 'animal'—'trap'—'vegetation'; para 38 gives a list of some 'Obiter dicta'; definition of 'adequate' in 38 (q) is of special importance; 'conservation' may be also shortly defined as 'management of resources of plant and animal life' [6 (a), p. 33].

Wild Life Commission of Malaya, Vol. II, p. 151: 'animal' or 'Wild Life' includes birds, reptiles, riverine fish, and every kind of vertebrate animal, and the young thereof, and the eggs of birds, reptiles and riverine fish.

23. Destruction of Wild Life.—See 'Definitions', also 'Poachers' and 'Remedial Measures'. 4 G may be seen for Birds—Nomadic Tribes—Species in Danger—Guns and Greed—Crop Protection—Guns—Natural Enemies of Wild Life. See 'India', report to I.U.P.N.

24. Disafforestation (Desiccation).—The article contributed by M. S. Randhawa, "Progressive Desiccation of Northern India in Historical Times" is instructive [Vol. 45 (4), pp. 558–565 (1948)]. Some portions of 5 (h) are in similar strain, p. 375 in particular. Those interested may see the full text of both these references. The "*Madras Mail*" sub-leader of 16th October 1952 clearly demonstrates how those very forces of destruction which brought about the desiccation of Northern India and the Siwaliks are now being practised by the Government and the people of the taluks of Chittoor, Cuddapah and Bellary in the Madras State. "Many are the paths along which man proceeds to destruction, though his main object is his own survival."

25. Education.—Mr. Salim A. Ali, who is the Society's expert on Nature Study for Children, remarks on last page of 3 (j): "Lectures and the exhibition of suitable cinema films should be organised in order to rouse the public from its apathy and make it realise the value and importance of wild life, and appreciate the measures and the arguments put forward for its protection and preservation. A beginning must be made with the children in the schools by means of properly arranged Nature Study Programmes so that they will grow up to a love of Nature and to a sense of responsibility for the conservation of wild life which is their natural heritage. Let us hope it will not be too late before the necessary steps are taken by the authorities." See 4 B, p. 606 for Propaganda and p. 619 for Propaganda Methods. 4 C, para 5: "It is the obvious duty of both Central and Provincial Governments to employ all possible means of propaganda for instruction and enlightenment of the people in their responsibilities as outlined above." See para 12, Peoples' Parks in which is also reference to Museums. See 'Nature Study' and 'Public Opinion'. 6 (b), p. 17: "In connection with the subject of education in the field of nature protection, Mrs. Lucie Pluygers (Netherlands) mentioned several conclusions she had reached in Indonesia... a clear distinction could be made between the education of teachers and of the children and of the general public." "Mr. N. Laude (Belgium) called attention to what had been done in the Belgian Congo in this field, which he regarded as one of the most important practical problems on the agenda of the meeting... Talks on nature protection were given to groups of scouts and educated negroes... A nature protection badge

was given to scouts who had done their 'good deed' in the field of conservation. He emphasised the fact that primary schools should be given priority in this work. He recommended the Union to prepare a syllabus which might be used to increase the number of courses and lectures given on the subject throughout the world." 6 (b), p. 48 (M. C. Bloemers, H. P. Gorter and R. J. Beathem).

V. Education.—

- (a) The aims of nature protection can be attained only if all the aspects of their essential importance have been brought home to the people (Nicholson, Gorter, Bentham, Vanden Berghen).
- (b) In this meeting special attention might be given to the need of teaching the principles of nature protection to future technicians (engineers, agronomists, etc.) who will take an important part in the planning and carrying out of large-scale modifications in the landscape (Nicholson).
- (c) The education of teachers and protection experts needs special care (Nicholson). (One of the many facets of Protection of Nature and of World Resources is the protection and conservation of Wild Life.) (See 'Definitions').

26. Egret.—4 D, p. 779 may be seen. Four species have a June to February close season in Madras State. The Egret, being world renowned for its usefulness to the farmer, should have whole year protection. "In Ceylon, notwithstanding complete protection under the laws, great slaughter of fledgling egrets and destruction of their eggs takes place, so it is possible that similar destruction may occur in some parts of India also, especially in these days of food shortage." Editorial Notes, '*Oryx*', October 1950, bring to notice that in 1949 there were indications of revival of the Plumage Trade by the abominable fashion of wearing wild bird plumage in women's hats...the most popular feathers of course are those from birds of paradise and egrets, the latter called in the trade 'Osprey' or 'Aigrette'...in 1911 egret plumes were selling in London at eight pounds sterling per ounce, or for more than their weight in gold." In this connection paragraph 'Birds' on page 603 of 4 B may be read and the danger of the plumage trade again arising be always kept in mind.

27. Elephant.—4 A: "...In case of large wild animals, such as the elephant, the frequent wounding by firing at them with any sort of missile, even bird shot, merely aggravates the trouble." 4 B, p. 614: suggestions under 'Crop Enemies' may be seen. R. C. Morris in para 9 of 3 (g): "It is suggested that one of the best methods to meet the elephant problem (ante reference makes similar suggestion) is the appointment of three or four salaried men to shoot the leading offending bulls at the time crops are being raided. A strong fence around the fields will keep out most of the other animals that matter." 8 (c): "The elephant question is one which (where the species exists) ruins much of our efforts to save game. The Forest Department in Kanara in 1922 temporarily offered a reward for the destruction of elephants, but had to discontinue it for want of funds. The Kanara elephants were constantly being reinforced by protected elephants from Mysore and possibly even further south." R. C. Morris reports that electric fencing is effective against elephants. Except in special cases this is perhaps too expensive for general use. He also reports the

successful use of the bamboo-tube "Rocket-gun" against crop-raiding elephants. In this connection reference may be had to last two paragraphs of 'Crop Protection' in 4 B, p. 608.

28. Enforcement.—Phythian-Adams in 3 (h): "As has been said above, the existing Game Laws are a model of their kind, but as has been found in other parts of India it is one thing to pass a law and quite another thing to enforce it." Further remarks in the same paragraph may be read. The paragraph 'Ceylon' in 4 B may be here referred to. *Comment.*—All through the literature of wild life preservation is stressed the difficulty of enforcement of laws and rules concerning it. One main remedy is increase of Forest Staff, and this would be possible were a Game Fund established in all the States and Unions and at the Centre also. Chapter II and other provisions of the Bombay Act, 1951, may be seen. See 'Legislation'; see 4 G, para 38 (n); see 'Magistrates'.

29. Excise Act.—Paragraph 28 (d) of reference 4 G may be seen, and read with 'Motor Vehicles'.

30. Fences and Fencing.—F. W. Champion remarks in 3 (e) that considerable areas of plantations and natural regeneration of valuable trees are entirely closed by game-proof fencing which keeps out the deer and can be moved from place to place as required, "and are probably the best solution for managing forests both in the interest of the forester and also of the indigenous wild life". R. C. Morris remarks in 3 (g) that a strong fence round fields will keep out most of the animals (other than elephants) that matter. Hubback observes in 4 A: "...in most cases his (the ryot's) crops can be more efficiently protected (than by use of a gun) by a stout stake and rail fence... Have a proper financial policy with a Wild Life Fund; allow the Game Warden full powers to spend it; then these matters would be dealt with by those who know what to do and relief could be, and no doubt would be, given to cultivators by fencing and other methods." *Comment.*—The yearly construction and repair of fences has always been a heavy task, and necessary against straying cattle as well as wild beasts. In these days of shortage of fuel the cultivator has in many places to go yet further afield for the requisite thorny materials; for even the most thorny of shrubs are put to fuel uses by the villagers. See 'Elephant' for electric fencing.

31. Finances (Wild Life Fund).—S. H. Prater in 3 (a): "In the United States and other countries the problem of financing the work of conservation has been helped by the creation of special funds." T. R. Hubback in 4 A: "...there is an intimate connection between the revenue derived from Wild Life resources and the amount of money that can be spent upon its conservation. This is the base upon which a sound financial policy for efficient conservation can be built..." "Wherever laws are passed without adequate means to enforce them the work of conservation must fail. A method has been adopted in many parts of the United States whereby a Game Fund is established by law..." The case of Pennsylvania is cited. "Not only was a large revenue obtained, but a 'shot-out' State was turned into one of the best Sporting estates on the East side of North America... If the system of the Wild Life Fund is adopted, and the organisation necessary and possible with the funds obtainable placed in the hands of experienced conservationists, success is assured." Both R. C. Morris and Hubback give lists of suggested receipts for a Wild Life Fund,

and a full list is at p. 617 of 4 B. M. D. Chaturvedi in 4 E outlines a suggested organisation for the United Provinces and gives a list of proposed receipts to be credited to a separate head of revenue. 4 E: "The cadre of the Forest Department should be supplemented to enable it to organise wild life preservation on modern lines" and in 5 (d) the D.F.O. writes as to guarding of the Sanctuary: "There is no special staff for the maintenance and supervision of the sanctuary. The territorial staff is expected to look after it, which is not an adequate arrangement." 7 (ii), p. 363: "The whole question of Game Protection and the tightening up of the laws affecting it is a matter of money." 7 (iv), p. 223: "Equally important is the question of creating within the Forest Department a definite agency for administering the laws relative to the protection of wild animals." 9 C (iii): "The far-sighted activities of the Northern Rhodesian Government is an example to the rest of the territories which are content to absorb into general revenue the large sums directly derived from game, yet starve the departments responsible for producing them" (Keith Caldwell). Bihar, 5 (c): "The funds for sanctuary development have so far been very small... the total budget provision under this head ('Game Improvement') for the entire Province is less than Rs. 3,000, in spite of the fact that the total Forest Revenue exceeds 30 lakhs of rupees." 9 C (iii), p. 26: "Efficient preservation and efficient control can only be undertaken by increased staffs" (Keith Caldwell).

The foregoing excerpts present the case for formation of a Wild Life Fund. The following is the argument as stated by Mr. S. H. Prater at pp. 10 and 11 of his Introduction:

A Wild Life Fund is,

The only means by which financial provision can be made expressly for the purpose of conservation;

The only means by which money devoted to this purpose will have a definite relation to the revenues derived by the State from wild life sources, and which can be expended with every justification upon the conservation of these sources;

The only way to ensure an equitable system of conservation;

The only way by which a properly organised Department, within the Forest Department, can be established;

The only solution advanced in other countries, and one which is equally applicable to any country which undertakes the conservation of wild life on sound lines... "The necessity for conservation being clear, the importance of an adequate financial policy to enforce it cannot be ignored." (The relevant paragraph in the Introduction to this Volume may be seen.)

32. Firearms (*Guns — Cut-short barrels — Cultivators' Guns — 'Rocket' Guns*).—"The danger to the wild life of the country has been accentuated in recent years by the enormous increase of firearms in use."... "There has been a very large increase in the number of gun licences issued, as well as a large increase in unlicensed or illegal guns."... "At least greater efforts could be made to differentiate between game licences and licences issued for the protection of crops, person, property or display."... "Considerable moderation in the issue of gun licences, especially in areas adjacent reserved or unreserved forests."... "Guns issued for crop protection are used for poaching,

and such poaching can only be kept in check by the enforcement of an energetic policy through an adequate organisation." For 'adequate' see 4 G, 38 (q). "...Necessity of Magistrates consulting District Forest Officers in all applications for arms licences when the applicants reside within poachable distance of reserved and unreserved forests." (In these 1952 days of rapid and easy communications where is the place which is not within poachable distance of game?) Reference may be made to 4 B, p. 608, etc., as to Guns and Greed—Crop Protection—The Arms Act. *Comment.*—In regard to all the above it can only be remarked that the guns are here and the guns will stay! All that can be done is to tighten up laws and rules and increase forest establishments (Game Fund) for exercise of the needed control within the forests.

Cut-short barrels: For argument regarding these see 4 B, p. 608. For Crop protection, and use of 'Rocket' guns see same page, where it is pointed out that extended use of these could considerably lessen the number of 'crop protection' weapons. Most of the contributors advocate withdrawal of crop protection weapons when the crops are off the ground. Administrative objection to this is stated on same page as above.

Large supplies of shotgun buckshot ammunition are being now supplied by ammunition dealers. Use of these leads to much killing (and wounding) of animals. There should be administrative measures to greatly limit the supply per gun. In matters of this kind it is the interests of wild life and the animals, and not the shooter which should be considered. The Assam Rules provide that no shotgun cartridge loaded with larger than No. 4 shot, and no S.S.G. or slug cartridges may be carried in a reserved forest.

33. **Firing for Grazing** (*Burning of areas within forests for improvement of grazing*).—9 C (ii), p. 11: "Controlled burning was also practised to a great extent to keep game in selected areas, in other parts it was used to eliminate scrub and improve grazing." ...Essential for the Trustees of National Parks to keep in mind the necessity for controlled burning in order to preserve grazing in game areas." ...Fire is only one form (of parks management) though probably the most important. By its use under control the national parks can be so arranged that at any time there are extensive areas of grazing, and the fauna can live comfortably within the parks." (Dr. E. B. Worthington, "*Oryx*", October 1950.)

34. **Food** (*Parks and Sanctuaries*).—Para 18 (b) of 4 C may be seen. "*Oryx*", October 1950, p. 48: "Some authorities would no doubt go further and envisage the possibility of growing extra food in some parts of National Parks and making special arrangements for those species which are less capable of standing the hurly-burly of competition. [Some time ago this Compiler suggested to the Pidoung (Burma) Sanctuary authority advisability of growing tall reed-grass for shelter of the hog-deer; also improving food and water arrangements for them.] See 4 G, 14 (a) (k), 17 (c) (d).

35. **Forest Department.**—"India owes a great debt of gratitude to the many Officers of the Imperial Forest Service who, throughout their service, worked continually and persistently to enforce wild life protection laws and rules, and to have them perfected. To them is due such stock of the larger animals, deer in particular, as existed at time of transfer of power in 1947, and has been already, in a number of areas, so woefully reduced." (4 C, para 8.)

36. Forest Act and Rules.—"These are on the whole excellent" writes Dunbar Brander in 3 (b). This is accepted through all the literature. It is in enforcement the trouble arises. See 'Enforcement'.

37. Forests (*Outside the Forests*).—The general consensus of opinion expressed by all the contributors is that all game animals and birds in the open areas outside the forests are doomed to extermination if speedy and effectual measures are not taken to prevent it. Paragraphs 27, and 31-33 of 4 G may be referred to; and see 'Close Season'—Birds, 'Legislation', 'Trade', 'Trapping and Snaring'.

38. Forest Guard.—Area of 'beat' in Madras State about 10 sq. miles. R. C. Morris recommends in 3 (g) that a forest guard should be immediately dismissed if a poaching case in his 'beat' is not reported by him.

39. Forests (*National and State Forest Policies*).—"The recently announced forest policy for India should have excellent long-term effect on wild life in general; and the C.P. (1st May 1952) Plan announcing 46 recommendations (including game reserves) for management and future development of the Madhya Pradesh protected forests, tree forests, minor forests, pasture lands, recreation forests, fuel and fodder reserves should be a valuable guide to other States and Unions" [5 (j), p. 863].

The National Forest Policy is admirably stated above the signature of Shri Vishnu Sahay in the *Gazette of India* Extraordinary, Ministry of Food and Agriculture, Resolution No. 13.1/52.F., dated New Delhi, the 12th May, 1952. Boards of Control and Committees will doubtless closely study and be guided by this valuable document.

40. Forest Offences.—Burden of proof that an animal is killed outside government forest should be on the defence (Monteith); the burden of proving any fact which would be a defence to a charge of contravening the game laws and rules should be upon the person charged (Hubback).

41. Forest Staff (*Vanishing Assets*).—4 C, p. 291: "... it is the weighty responsibility of the department in control (in reserved forests and more remote tracts) to protect the fauna and flora of those areas." Also see 4 B, 'Conferences', 'India'—Report to I.U.P.N.

42. Forest Villages.—Regarding Assam, A. J. W. Milroy was of opinion that formation of Forest Villages should be cautiously proceeded with. *Comment.*—Mostly, some forest villages are necessary to the department for work in the forests. Generally speaking, the fewer the villages and hutments in the forests the greater benefit to the game.

43. Game.—It is common knowledge that game continues to decrease in most areas, so no need to take up space by quotations. In his Conclusion [3 (b)] A. A. Dunbar Brander has declared: "I consider that action in India is urgently required, perhaps more so than in Africa." That was nearly twenty years ago. For causes and reasons for destruction of game the contributions 3 (a) to (3 j) should be studied. 9 C (iii), p. 5, Kenya: "In many cases there is a clamour to get rid of game without any certainty that any good will be attained thereby" (Keith Caldwell). For definition of 'game' see Section 2 of the Bombay Act, 1951, and connected Schedules.

44. Hailey National Park.—This, the first of its kind to be established in India, was declared under the United Provinces National Parks Act, 1935. Area is about 125 sq. miles and description in Vol. 49, pp. 749-752 (1949).

45. Headmen of Villages.—R. C. Morris in 3 (g), para 9: "It is suggested that a Monegar, Village Munsiff, or Village Headman should be heavily fined if a case of illicit possession of arms is discovered in his village or villages under his jurisdiction. There is not the slightest doubt that every Village Munsiff or Headman knows exactly what arms there are in the village or villages under his jurisdiction, whether licensed or unlicensed." 9.C (ii), p. 48: "One of the main obstacles to the efficient control of poaching is the lack of co-operation by the Chiefs who, since they receive their traditional 'rake-off' of meat, have some interest in ignoring it" (Keith Caldwell).

46. India (Official Report to I.U.P.N.).—5 (a), p. 337, 1950: "I. General Situation: ...With regard to animals, the general situation is gloomy. Some species of animal like the lion and the rhinoceros are practically on the verge of extinction. The protection granted to them is not on a sufficiently extensive or large scale, nor is there any central organization to effectively enforce laws governing the destruction or protection of animals. Individual States have their own laws, which concern mainly the restriction of the shooting season and the number of animals that may be shot. Poaching is extensive. The burden of enforcing game laws falls on the already heavily overworked forest staff, which is not in adequate strength to do justice to this aspect of work in addition to its own normal functions. A number of game sanctuaries, usually small, exist in the forests of some of the States."

47. India (Wild Life Reserves).—5 (b) *Assam*: Country and forests described—Measures to preserve wild life related—Wild Life Sanctuaries listed and described—Outlook for the Future—Schedule of particulars of wild life Sanctuaries in Assam—Map of Assam. 5 (c) *Bihar*: Map of the Province—Condition better than in the past yet very unsatisfactory—More and bigger sanctuaries wanted—In absence of a Game Department problem of poaching very difficult—Too many persons exempted from taking shooting licences—If this abolished revenue obtainable for a Game Staff—Main problem is one of management—Some species are very near extinction—Forest Officers subject to too many transfers—A trained Game Forester necessary for each Sanctuary...Less than 100 tigers in whole Province and species may be totally exterminated in a few decades—Game birds need more protection in the shooting rules—Outside the forests they get no protection—Nilgai have survived through religious sentiment (this likely to vanish through action in Saurashtra informing the people the species is not bovine). Forest revenue exceeds fifty lakhs; Budget for Game Improvement for entire Province less than Rs 3,500. *Comment.*—The whole of this Report is worthy of speedy and serious attention by the State Wild Life Committee soon materialising under the Central Government Resolution of 4th April 1952. 5 (d) *Uttar Pradesh*: This reference supports the need for addition of Staff to the Forest Department for enforcement of laws and rules within the forests generally and sanctuaries in particular. The D.F.O. states, concerning the Kansrao Sanctuary, "Maintenance: There is no special staff for the maintenance and supervision of the sanctuary. The territorial staff is expected to look after it which is not a satisfactory arrangement..." 5 (e) *Burma*: This reference is to show that the recent extermination of the Manipur race of the *thamin* (Brow-antlered Deer) could have been prevented by timely action. Also as guide to

the status of *Rhinoceros sondaicus* which vanished from India after 1892.

48. **Insecticides.**—6 (b): "Mr. Bernard called attention to the attempts being made in Switzerland to combat cockchafers, the disastrous effects of the too widespread use of insecticides, and the efforts to draw the attention of the persons and the authorities concerned to this danger." At the present time (November 1952) there is correspondence in the "*Field*" newspaper concerning the alleged harm to stock of partridges in some parts due to use of insecticides among crops.

49. **I.U.P.N. and I.O.P.N.**—See p. 4 of Prater's Introduction—see 'Protection of Nature'.

50. **Interest (Real Interest).**—4 C, p. 290: "There is, it is submitted, urgent need in India for creating and stimulating, among the educated classes in particular, a real interest in the wild life of the country." Para 4: "In power politics a well informed public opinion is the world's greatest security. So also in regard to wild life; real and correctly informed interest on the part of the public is its greatest protection." Para 5. Duty of the Public and the Governments: "...The public also have their responsibilities, and unless these are discharged by the people no amount of effort on the part of the government can have adequate results. So also in the matter of wild life protection and preservation. It is the obvious duty of both Central and Provincial Governments to employ all possible means of propaganda for the instruction and enlightenment of the people in their responsibilities as outlined above." [The 3 (iii) function of the Board of Control provides that the above shall now be carried out.] See 'Nature Study' and 'Museums'. See 'Public Opinion'.

51. **Kashmir.**—5 (j), p. 861: "Of the Kashmir Stag it was reported in February 1951 that since the 1947 trouble began there has been rapid disappearance of the species from localities where it was formerly abundant..." If the Recommendations in the Report of the Bombay Society's Delegation (October 1952) on the subject of Game Preservation in Kashmir are thoroughly implemented the status of the Kashmir Stag in the sanctuaries and reserves should be assured. Of Kashmir it is reported at the present time that there is depletion of the number of *chukor*. See 'Bears'.

52. **Kruger National Park.**—4 C, para 18 (a): The want of water in the Kruger Park in 1948 is an object lesson for the need of a very long view regarding the vital question of water-supply to all parts of Park or Sanctuary areas. "*Oryx*", pp. 187-189, December 1951: A public appeal had to be made to provide water for the wild life of the Park. For the Borehole Fund £10,000 was subscribed and £3,862 for the General Water Fund. There are most interesting observations as to experiments made, and the liking and disliking of wild animals to the water provided for them. 4 G, para 14 (j) Water: "For this a very long view is necessary. There must be ample and perennial supply for all species; and for the Park Establishments and the Visitors. Tanks, or sheets of water, or marshes are a very great asset." See 'Water'.

53. **Lion.**—5 (f): These references give full information. A Census taken in 1950 found the Gir Forest contained 227 of the species. A suggestion is that the panther in the Gir should be sufficiently 'controlled' to better the food supply of the lion. At time of writing

(21-11-1952) newspaper report says six lions have been killed by some persons. If this has come about through the animals straying outside for food (domestic stock) it indicates every effort necessary to foster and improve the food supply within the forest.

The Central Board of Control has resolved (see Appendix "B") that there should be formed another area besides the Gir Forest to provide for the preservation of the lion in India. In this connection it is remarked that to ensure success prior elimination of all tigers and panthers in the selected area should be effected and the stock of deer and wild pigs fully established and conserved against man.

54. Lands.—3 (a) S. H. Prater: "Land under cultivation provides at once the opportunity for a clash between the interests of Man and the Animal. Areas under cultivation are extending to the utmost limit. It is imperative these areas must be protected from wild animals. That an intensive development of the agricultural resources of a country may accompany a sane and adequate policy for the conservation of its wild life is shown by the measures taken to this end by all progressive nations." 4 B, pp. 609-611: In regard to wild life conservation land can be classified in five main categories: Urban, Agricultural, Waste, Private, Forests. The position in regard to each of these is dealt with. Para 41 of 4 G adds to the above categories all the lands taken up by government in connection with multi-purpose projects, canals, water-supply lakes, grass farms, railways, etc., all of which could be managed under central guidance to largely add to amenities for 'wild life'. See 'Definitions'.

55. Laws and Rules.—See under 'Forest Act and Rules'; also 3 (a), p. 9, where is mentioned the *Wild Life Commission of Malaya*, Vol. II, published in 1932; this contains much that is valuable to the purposes of the Boards and Committees now being set up all over India. It contains the complete draft of a Wild Life Preservation Enactment comprising 73 Sections which could with any necessary modifications serve as a model for the framing of necessary Legislation in India. It would seem that this material was lost sight of when the Bombay Wild Birds and Wild Animals Protection Act, 1951, was being drafted. There is also at pp. 148-153 the Draft of an Enactment respecting National Parks. The Volume is the work of the late Mr. T. R. Hubback who was the Commissioner appointed to inquire into the Protection of the Wild Life in Malaya. The two Drafts will by now have been enacted and become law. The Bombay Act recognises other machinery than the Forest Department alone to provide for protection of wild animals. See 4 B, pp. 609-610 for the text of Act VIII of 1912.

56. Legislation.—In the last mentioned reference is a suggested Amendment to Act VIII of 1912. References 9 A (i) to (iv); 9 B (i); 9 C (i) give some of the principal Legislation enacted to our purpose in India, Ceylon and Kenya. "*Oryx*", December 1951, p. 175: "Drafting Game Legislation is a very difficult and tricky thing. . . Game Legislation is full of pitfalls and we have all fallen into them at some time or other" (Keith Caldwell). For this reason special care is necessary in regard to 'definitions'—the wording of them, and inclusion of all such that are necessary. All the contributors urge legislation against commercialization of game. 9 C (iii), p. 16: "The essential of Game Preservation is the prevention of 'commercialization' of game." 4 B: Sellers should be deprived of their markets through effectively

enforced legislation. See 'Trade'; see M. S. Randhawa. 4 F: 'Protective Legislation'. "To prevent killing for profit is one of the key notes of conservation" (Hubback). See 'Close Seasons'—Birds; see 'Trapping and Snaring'.

57. Licences and Fees.—In 3 (c) Monteith rightly remarks that the shooting licence should issue for a sufficient fee. *Comment.*—For small game shooting the fee need not be large; but for big game it should be more. If a sportsman can afford all the many expenses of big game shooting he can be reasonably required to pay a sufficient fee to reimburse to government, through a Game Fund, some of the many expenses necessary to provide the sport he seeks. It is suggested that the Royalty system of Assam could be reasonably adopted throughout India. The logical French arrangement by which a 'contribution' is automatically levied with every shooting licence and other fee would fall on the right shoulders and much aid the Game Fund. One rupee on every small game licence and rod-fishing licence; more on big game licences, elephant catching licences and any other licences of the kind, would not hurt the licencees. All such contributions would be ear-marked for Game Fund and not diverted to any other purpose. See 'Finances—Wild Life Fund'. See 'Royalties'. *Comment.*—It may be borne in mind that, while asking sportsmen to make reasonable contribution towards conservation of game in their interests, the cost of licences and fees should not be such as to discourage or cause dissatisfaction. See 'Sportsmen'.

58. Magistrates.—*Comment:* Several of the expert contributors to Prater's Series remark that sentences by Magistrates are too lenient in poaching and other cases. See 'Motor Vehicle'; see 'Rewards'. 9 C (iii), p. 10: "Breaches of the Game Laws are always hard to detect, and the only way of stopping illegal killing is by infliction of such heavy fines that the poacher says to himself, I don't suppose I shall be caught, but if I am a £ 50 or £ 100 fine is not such fun—so I won't try it. We got this principle fairly well established in Kenya after a battle many years ago" (Keith Caldwell). "It is very necessary when attempting to conserve wild life to make the law respected by deterrent punishment when offenders are convicted" (Hubback). See 4 G, para 38 (n); see 'Enforcement'.

59. Manuals.—Compilation of Manuals for management of Wild Life, National Parks and Sanctuaries will be necessary.

60. Markhor.—8 (c): "Markhor (in Kashmir) are rapidly decreasing everywhere they exist, and are vanishing from the Pir Panjal and the Kaj-i-Nag. Astor is bad, Chitral worse, and the North-West Frontier Province will soon lose the last of the Straight-horned race" (1928).

61. Motor Vehicle (Use of for Shooting).—*Comment:* All the literature declaims against use of the motor vehicle for shooting or as aid to killing game. Abuses of the rules in this regard are notorious and a matter of public knowledge. The Bombay Act [ref. 9 A (iv)] prohibits the use of Motor Car:

- Section 17. (1) No person shall hunt any game from or by means of a mechanically propelled vehicle on water or land, or by aircraft.
(2) No person shall use a motor car, motor launch or aircraft, for the purpose of killing, driving or stampeding game.

The Sub-Section (2) should have provided against the motor cycle, and the pedal cycle, etc., by insertion after 'car', the words 'or any wheeled vehicle'. Otherwise, would not the user of motor cycle, bicycle, tonga, ekka, jutka, bullock cart escape conviction? Quite rightly has Captain Keith Caldwell observed that Game Legislation is full of pitfalls.

62. Motor Vehicle (Confiscation).—Comment: Special reference is made to paragraph 28 (c) of 4 G. Unless the menace of the motor vehicle is faced, the illegal use of it in connection with game will continue. A lorry-load of bison or other game meat is on its way to the coast: Should not the vehicle be liable to confiscation by the duly authorised convicting Court? This 'shocking predator', the "Mighty Jeep" and its many relatives is at work in many parts of India. The Excise Law provides for the confiscation by convicting Magistrates of motor vehicles used to contravene the excise laws and rules. The game laws should do the same. Press Notice of the 2nd December 1952, of the Nilgiri Game Association Annual Report, 1951-52: "Visitors to the Nilgiris during the season used certain areas for the pursuit of organised nocturnal poaching." Here is an instance where confiscation of even one motor car would definitely halt such poaching. See 4 G, paras 28 (b) to (f).

63. Motor Vehicle (on Forest Roads).—In 3 (e) Champion draws attention to need of control and suggests measures. Also see 4 C, para 11 (b). *Comment.*—The Ceylon Government found it necessary to include in the Amendment Act No. 38 of 1948 a new Section 63 A to provide for placing of road barriers and stopping and searching of vehicles for discovery of firearms. All this on roads running alongside a Strict Natural Reserve, National Park or Intermediate Zone. All conversant with conditions in India are well aware that measures similar to these, and as advocated by F. W. Champion, are very necessary. There will be many objectors to these ideas, and to power being given to the Courts to confiscate the motor vehicle on conviction of an offence against the game laws. Such legislature is logical and reasonable. The main point is that, if poaching offences are to be halted such action as outlined is necessary to achieve the object.

64. Museums.—7 (iii): The Governor of Bombay in his Address to the Society's General Meeting on the 17th March 1930, remarked: "One very important way of arousing that interest in wild life which is its only true protection lies in establishing such Museums as this. 'This' being the Prince of Wales' Museum at Bombay. Also see 4 G, paras 7 and 8 regarding 'Peoples' Parks and Zoological Parks'. In 4 F, M. S. Randhawa remarks that: "The Local Educational Reserve is the counterpart of the college museum and the laboratory".

65. Mysore State.—See 3 (h) by Phythian-Adams. For close seasons and other information regarding birds of both Mysore and Bombay States see 4 D.

66. National Parks.—For National Parks in America and other countries see 3 (a), pp. 3-4; see 'Banjar', 'Kruger', 'Hailey'; and 4 G, paras 6 (a), (b) for National Parks in Assam. Paragraphs 13 and 18 of 4 G should be seen, and 4 F referred to for Randhawa's remarks about National Parks in India. 4 G contains a number of paragraphs regarding definition, formation, selection, location, management and other matters concerning National Parks, and other Parks also. It is

an axiom that no portion of any bit of land which might possibly be of use some day for human needs should be ear-marked for inclusion in a national park. National Parks, Sanctuaries and Reserves to be of any use must be properly guarded. [Keith Caldwell, 9 C (iii), p. 16]. See 'Reserves'. M. S. Randhawa (4 F): "Nature conservation and conservation of soil, forests, grass-land and water are intimately connected and fundamental to forestry, game preservation and management of national parks." Royal National Parks of Kenya, Report for 1951, p. 5: "We are more than ever convinced that it is impossible to preserve wild animals in perpetuity, in any area that contains any permanent human inhabitants" (Chairman of Trustees, August 1952). For National Parks Acts in India see 9 A (ii) and (iii). For Draft of an Enactment Respecting National Parks in Malaya see pp. 149-158 of *Wild Life Commission of Malaya*, Vol. II, 1932. This may have become Law. No information to hand at time of writing. See last para, 'Reserves'.

67. Nature Study.—It is presumed that this subject is within the purview of function 3 (iii) of the constituted Central Board for Wild Life. For many years the Bombay Natural History Society have made efforts to establish in Bombay the need for Nature Study. The subject has been considered in a number of Editorials and Proceedings. Vol. 30, pp. 211-212 (1924): "The Boy Scouts and Girl Guides Associations have an unparalleled opportunity for arousing an interest and active love of Nature in children." The Nature Study movement stagnated, but after a lapse of 25 years the Bombay Government became convinced in 1949 of the usefulness of the Society's Scheme and sanctioned the needed finance, so the talks continued in English, Marathi and Gujerathi. Observations by Mr. Prater at p. 11 of 3 (a) may be seen.

At Poona, in 1924, a Nature Study Club was started by Miss Payne, Inspectress of Girls' Schools, and produced a Magazine "*Out of Doors*". The Bombay Society welcomed the Club: "We hope the good example of the Poona Nature Study Club will be followed by towns and cities all over India." The hopes of the Society have not been realised.

9 C (ii), p. 26, Uganda: "...small game and birds are of educational value for nature study which is being encouraged as much as possible in schools." P. 28, Southern Rhodesia: "Roads and rest camp accommodation is providing opportunities for school children to visit Reserves and augment that part of the school curriculum dealing with fauna, an opportunity they are taking advantage of as is shown by the heavy booking of rest camps during the school holidays." 5 (j), p. 864, 'Education in Schools', Reference made to: "The Youth of to-day must become the conservationists of to-morrow"; to the 1930 Address by Sir Frederick Sykes, Governor of Bombay: "We should aim at teaching the children to appreciate the value of wild life"; to the Address, December 1949, by the Governor of Ceylon to the Ceylon Game and Fauna Protection Society: "There is need for extensive propaganda and education...to convince the younger generation in the schools that they will, and must be, the future custodians of wild life" (to which may be added 'and of the forests also'). At the present time (1952) the I.U.P.N. is making considerable efforts in this direction. Special lessons for the use of educators and the use of teachers and pupils in primary and secondary schools of

a number of countries are being issued. "In spite of its importance to mankind the theme of these lessons is little known or totally ignored by contemporary nations" writes the Secretary-General. See 'Education'.

68. Nilgiris.—See 8 (a) and (b); also 'Associations' and 'Motor Vehicles—Confiscation'.

69. Nomadic Tribes.—3 (c); 3 (j); 4 B, p. 604; 4 G, paras 27 and 32 may be referred to regarding the damage by these people to the National Asset of antelope, gazelle and game birds outside the forests.

The Brochure containing the Speeches delivered at the Conference held in Delhi on the 7th, 8th and 9th June, 1952, to discuss Problems dealing with the Scheduled Tribes (also known as Nomadic Tribes) and the Scheduled Areas, and issued with the compliments of Shri L. M. Shrikant, Commissioner for Scheduled Castes and Scheduled Tribes, will be of greatest value to Wild Life Preservation Boards and Committees which have before them the difficult duty of concerting measures to end all Trapping and Snaring—outside the Forests especially but also inside the Forests. This question is intimately linked with commercialization and marketing of game and other cognate matters.

70. Obiter Dicta.—4 G, paragraphs 38 (a) to (q) contain many such. See 'Definitions'.

71. Orissa.—4 B, p. 605: Remarks upon the terrible destruction to wild life throughout the mostly hilly and forested country comprising the Eastern States from the Godavari River as far as Bengal. See under 'Associations' for the Orissa Sportsmen's Club.

72. Parks.—There are various kinds of 'Parks'. A number exist in, or near, some cities and the larger Municipalities. In course of time many more such will be established. See 4 C, para 12. At the present time (October 1952) it is notified in the newspapers that the Madras State proposes to collect information from Village Panchayats about opening parks and gardens in their areas. All these will naturally afford protection to birds and smaller mammals. The Bombay National Parks Act, 1950 is not designed to provide National Parks for wild life alone. By the definition, 'Park' includes a garden, and the purposes of the Act as stated in Section 4 show that the contemplated Parks are what are termed 'Dual Purposes Parks' in first few paragraphs of 4 G. Section 20 (2) of the Bombay Act provides for protection of flora and fauna, and control of predators, etc. For National Parks for Wild Life see 4 B, p. 615; 4 C, para 13; relevant portions of 4 F; paragraphs 9 to 14 and other relevant parts of 4 G. For Peoples' Parks see 4 C, para 12 and 4 G, para 8. Some of the Peoples' Parks may have lesser status of Municipal Parks which are at present more areas for botanical conservation and recreation of the people than for wild life.

73. Poachers and Poaching.—"Poaching is extensive" states the India Report to the I.U.P.N. See observations of the expert contributors in the Wild Animals of India Series [3 (a) to 3 (j)]. See 'Guns and Greed' 4 B, p. 607, and 4 G, para 28, the whole of which may be read. "Effective steps should be taken to check unlicensed and unrestricted methods of killing and capture" declares the Resolution of the International Forestry Conference held at Mysore in April 1949. See 4 G, para 39 for full text of the Resolution. 9 C (ii), p. 24: "The chief problem is poaching by natives (East and Central Africa)...the

only real remedy is the increase of staffs in the various game departments." Regarding this in India see 'India—Wild Life Reserves'—Both Bihar and Uttar Pradesh. Also see lines in italics under 'Conferences'. *I.U.P.N. 'Bulletin'*, Vol. I, No. 3, May 1952, Editorial Note: "Recent developments in the field of weapons have only increased man's killing power and his 'advantage' over nature itself. More and more game will only be able to survive in so far as man himself is both willing and able to set a limit to killing." Linked with poaching is the prevention of the commercialization of game—including game birds—and all products of the animal. At the present time all shooting rules and laws prohibit use of artificial light for shooting (man-eaters excepted) but it is notorious that use of electric torches and devices is universal. How is this to be stopped? The finding of a solution is a problem for the Boards and Committees. "In British Columbia, the use of a light as an aid to shooting is treated as the worst offence under the game laws and no exception is made whatsoever" (Hubback). See 'Enforcement'; see 'Trade'.

74. Porcupines—Champion [3 (c)] specially mentions the porcupine as being very destructive (to human interests) Randhawa also mentions the porcupine; and see 'Biology'. *Comment*.—It is common knowledge that the porcupine does much damage to various crops, fruits, vegetables, young plantations in reserved forests. Inside the forests it is the business of the forest staff through various methods, and rewards. Outside it is business of the crop owner. Cyanide gas could be used in favourable situations.

75. Protection and Preservation.—4 A: Principles of Wild Life Conservation by Theodore Hubback is of great value for conservation, protection and preservation in the main aspects. All of this, and 4 F by Randhawa will doubtless be studied by Boards and Committees. Address by the Governor of Bombay in 1930: "We are confronted with the almost insurmountable difficulty of persuading the masses to have any regard for the principles of wild life conservation." Here is another problem for the Boards and Committees. One of the answers will be 'Propaganda' and *whole-hearted aid by editors and journalists*. See 'Museums'; see 'Nature Study'.

76. Protection of Nature.—See *I.U.P.N.* All that the Union stands for and all about it is in the article by Lt.-Col. R. W. Burton contributed to "*Science and Culture*", Calcutta, May 1950, and reproduced in *Society's Journal*, Vol. 49, pp. 809–814, December 1950. 6 (h), p. 11: Inaugural Address at The Hague on 20th September 1951 by Mr. van der Goes van Naters: "The Protection of Nature has passed from the concept of a simple establishment of reserve areas to that of a rational management of an entire region, in full harmony with natural laws. It is mixed with town planning, with the science of land utilization, even with the social sciences, to become more and more a chapter of human ecology."

77. Public Opinion.—At the present time public opinion regarding wild life preservation and conservation is almost non-existent in India. It is only through public opinion that wild life can be saved and preserved through all the future years. "Laws are enacted, rules are made and forgotten, for there is no continuity of official enforcement and no public opinion to keep them in mind" (4 B, p. 607). All through the literature the need for public opinion is expressed. At the All-India Delhi Conference, 1935, it was declared that: "Indian

Wild Life could only be saved through Public Opinion and that legislation, however efficient, could do little in matters like these without the whole-hearted support of the public." At this eighteen years later date there is yet no public opinion that matters. An essential to efforts of Boards and Committees giving effect to function 3 (iii) is the widest publicity through government channels and the newspapers, and an imperative help is the whole-hearted aid by Editors and Journalists. On the 16th September 1952 the Vice-President of India said: "It is the duty of the Press to produce the climate of opinion which would help the Government to achieve its objectives. It is possible for the Press to educate the people in the ideals and purposes which we have set for ourselves." 4 A, p. 101: "It is legitimate to presume that there being many reasons for the continuance of wild life in most parts of the world, proper steps for its conservation should be taken, therefore one would expect to receive the support and approval of the public for any sound policy of conservation."

The feeling among the masses that the movement for the protection of wild life is not for them, but for the well-to-do among the people has to be dispelled. That could be largely brought about through the formation of Zoological Parks, Dual-purposes Parks, and Museums attached to them. In that way millions of the people would be attracted to see the interesting spectacle of wild life that is their heritage, and which should be preserved and handed on to future generations. In all this the Press could play a great part; and in course of time a correct public opinion would be gradually formed. See 'Education'; 'Museums'; 'Nature Study'; 'Parks'; and 4 G for Zoological Parks, Peoples' Parks; see 4 B, pp. 606 and 618 for propaganda methods.

78. Remedial Measures (*Alphabetically arranged*).—

Artificial light, prohibition as aid for shooting,
Associations, formation of,
Arms Act and Rules enforcement,
Arms, Crop guns withdrawal when no crops,
Arms, check to increase,
Co-ordination of wild life policy through central authority,
Enforcement of Laws and Rules,
Forest Establishments, increase of for enforcement,
Finances, Wild Life Fund,
Licences, Issuing Authority to consult D.F.O.,
Magistrates, should inflict sufficient penalty,
Markets, all trade of wild life in any form to cease,
Motor vehicles, prohibition as aid in any way for shooting,
Nature Study to be encouraged, Films, Lectures and Literature arranged,
Netting, pitting, use of dead-falls to be prohibited,
Outside forests, control to be arranged and enforced,
Public Opinion, formation of,
Parks and Sanctuaries, formation of,
Shooting Rules: complete overhaul,
Sportsmen: genuine sportsmen to be encouraged,
Tanneries to be controlled,
Trade: all commercialization to be ended,
Trapping and Snaring to be ended.

79. Reserves.—Sec 4 F. M. S. Randhawa: National Nature Reserves and Local Educational Reserves. 'The purposes of the former, which would be within National Parks, are given by the Wild Life Conservation Special Committee of England and Wales and are applicable to India also' says Randhawa, who lists the purposes (a) to (c). The latter link with Nature Study and teaching of biology. Management of Nature Reserves. 6 (b), p. 65. Lucie H. Pluygers (in collaboration with V. Westhoff and M. F. Morzer Bruyas), 1 (c): "The boundaries of a Reserve should be well chosen and preferably be natural ones. Animal wanderings, e.g., seasonal migration beyond reserve boundaries will occur when reserves are too small" (Cahalane, Harroy, Caldwell). 6 (b), p. 68. Victor H. Cahalane, Chief Biology Branch, U.S. National Park Service, Washington D.C., U.S.A.: "If the parks are to function as natural reservations their animal life must be subject to the least possible regulation by man. Park management policy permits interference only to prevent extermination of a species threatened either directly by falling below a safe minimum, or indirectly by rising to such heights as to menace its food supply... When the more effective animal predators are not sufficient in natural numbers, action must sometimes be taken within the sanctuaries in order to avert catastrophic reduction of vegetation." 6 (b), p. 88. "Wild Life Protection Zones", by G. Dennier de la Tour, Argentine: "The real aim of 'Wild Life Protective Zones' will be accomplished only when they completely encircle all special wild life reserves and when they are wide enough to avoid everywhere a sudden transition from a protected area to a non-protected one." Nature Reserves of sufficient extent are necessary within national parks to serve as breeding reservoirs for both animals and birds. These should not be accessible to visitors. See 'National Parks'.

80. Rewards.—The literature considers that rewards for killing carnivora within the forests are unnecessary; that wild dog destruction rewards may be given and range up to not more than Rs. 15; that Magistrates should as a matter of course—except for definite reasons to the contrary—award to forest subordinates the rewards which the rules allow. It is desirable that rewards be given to Headmen of villages for good work by them in connection with conservation within their area. 7 (ii), p. 362: "Rewards are far too rarely given, and very rarely indeed in poaching cases; the detection and capture of a poacher who is armed often involves danger and there is no class of forest crime the detection of which merits to a greater extent the granting of a reward."

81. Rhinoceros.—Assam by E. P. Gee [5 (b)] may be seen. The protection of the species is now the special care of the Assam and Bengal Governments and Forest Departments. The species may or may not survive in Nepal, as to which full text of 5 (e) may be seen. The species needs continued strict protection at all times, and all through the future years.

82. Roads.—For need to have check on vehicles entering forests see suggestion by F. W. Champion in 3 (e). See also para 11 (b) of 4 C and Section 63 A of the 1949 Amendment to the Ceylon Fauna and Flora Protection Ordinance. Similar measures are needed in India.

83. Royalties.—This item is included in the list of suggested receipts into a Wild Life Fund—see 4 B, p. 617. There is provision

for Royalties in the Assam Shooting Rules, and this sensible arrangement might well be introduced in Shooting Rules of all States and Unions. See 'Funds'; 4 G, paras 29 (a) and (b); and 'Licences and Fees'.

84. Salt-licks.—Salt-licks are closely linked with ecological study. "...It must be a part of any vigorous policy of wild life conservation to preserve salt-licks, and if they are recognised, as they should be recognised, as important adjuncts to a congenial environment for many species, then laws to preserve them, and machinery to enforce those laws become imperative." 4 C, paras 10 and 19 may be seen. "Because of their attraction to animals salt-licks should be guarded from poachers in every possible way."

85. Sanctuaries.—Monteith, 3 (c): "Sanctuaries, unless of manageable size as provided for under the 'Block' system in reserved forests may very well in the end prove to be no sanctuaries at all." References for the subject are: 4 B, p. 615; 4 C, paras 14, 15, 18, 19; 4 G, paras 23, 24, 25; Chapter IV of 9 A (iv). There are sanctuaries of several kinds and several purposes as mentioned in 4 C, 14.

86. Shark.—This salt-water predator is mentioned in 3 (a) and 4 A in connection with insulin as just one of the many instances in which it has been demonstrated by science that wild life has perhaps quite unknown and unexpected uses to mankind.

87. Siwaliks.—4 F: "...A well-known instance of result of neglect as to management of hills by conserving the soil canopy...In this connection should be seen the article by M. S. Randhawa mentioned under 'Desiccation'; the complete text of 5 (h); and the sub-leader in the "*Madras Mail*" newspaper of 16th October 1952. See 'Disafforestation'.

88. Species in Danger.—Since 1947 the Manipur race of the Brown-antlered Deer has become exterminated. Lion and rhinoceros have been on the danger list. At present both species have been saved, but continued vigilance is necessary. The Great Indian Bustard is in danger, and will certainly become extinct unless essential steps taken to prevent it. The suggested measure is stated in 4 G, para 32 (c). 4 B, p. 604 may be seen.

89. Sport.—5 (j): "What is sport? It can be said that all sport is governed by unwritten laws, and the general tendency is to give the animal a sporting chance to escape, also to make the sport as great a test as possible consistent with the object in view—the death of the quarry. It may also be defined as measured by difficulty in achieving success."

90. Sportsmen.—4 A: "The true sportsman gradually becomes the champion of wild creatures..." July 1952, "*Field*", Editorial: "For generations it has been widely accepted that the sportsman is the best friend of his quarry." All through the literature opinion is expressed that the presence of sportsmen in shooting areas is one of the greatest curbs on the activities of the poacher. See 4 C, para 20; see 'Orissa'; see 'Licences and Fees'.

91. The State.—4 A: "The State alone can and must take the responsibility for a protective organization which will command the interest of all mankind in its moral, social, economical and cultural development; and thus the political aspect of the question becomes apparent" (Speech made by Prince Leopold of Belgium in London, 18th November 1933). 4 C, para 5: "It is the obvious duty of both

Central and Provincial Governments to employ all possible means of propaganda for the instruction and enlightenment of the people in their responsibilities such as outlined above" (Public health—food—erosion—drink, etc.). 9 C (ii), p. 27: "The game is part of the natural heritage of the country which it is incumbent on the present generation to preserve for posterity."

92. Tourists.—9 C (ii), p. 27, Uganda: "Game is likely to be a great attraction to tourists in Uganda." This could be the same in India.

93. Trade.—4 A: "An essential of game preservation is the prevention of the commercialization of game." 4 B, pp. 605–608 may be seen regarding several aspects of this matter. *Comment.*—All the literature urges that trade in the products of wild animals (and birds) should cease. Who can deny that unless the sale and marketing—and the trapping and snaring—of game birds is ended throughout the country all these will vanish from the land? What can be the argument in favour of continuance of this trade which is more and more rapidly eliminating this natural asset of the people and the nation? Is it in any way necessary that game birds should be marketed for the food supplies of the people? Why should not a general law be passed to put an end to the trade?

It can with reason be said that the trade will put an end to itself through the killing of all the creatures from which it derives its existence. Is that a desirable method?

94. Trapping and Snaring.—See 'Nomadic Tribes' for references. *Comment.*—This trapping and snaring question is one which needs to be fearlessly, thoroughly and energetically faced by all the Boards and Committees. Paragraph 'Time for Decision' (4 B, pp. 605–606) and 'Brief for Action', p. 619 may be seen. In the 1938 U.P. Forest Department Schedule of close time the netting of antelope is prohibited for the whole year; also of peafowl, junglefowl, all the game birds and duck of all kinds. These provisions might well be adopted by all States and Unions.

95. Value of Wild Life (*Vanishing Assets*).—*Comment:* It is through the many researches of science that the value of wild life is being increasingly realised by educated people in all countries of the world. From a material standpoint the value of wild life for the encouragement of tourist traffic is recognised as being of both direct and indirect value to the State. Prominent among the magnets for attracting tourists in India is the spectacle of wild life and its abundant interest for all classes of sportsmen and sightseers. But the assets of India in this field are vanishing by degrees, and will further and more speedily vanish unless well guarded and conserved through all possible means. All this is self-evident and needs no further pleading. It is apparent to everyone, to all the people, or could be made so through the many methods of propaganda available in these advancing days. Formation of zoological parks and dual-purposes parks would greatly help the cause.

96. Vermin.—Schedule I of the Bombay Wild Birds and Wild Animals Protection Act, 1951, may be seen. It is suggested to Boards and Committees that all bats are not 'vermin'. Some species are definitely beneficial to man. Only Fruit Bats should be classed as 'vermin'. Similarly, all Birds of Prey are not inimical to interests of mankind. In his illustrated article "Birds of Prey and Their Uses"

[Vol. 32, pp. 737-743 (1928)] C. H. Donald has shown that not more than five species of birds of prey in India are in any way harmful to man's interests. The real enemies of birds, he says, are rats, mongooses, larger snakes, monitor lizards, and to a smaller extent foxes, cats, and perhaps jackals. Besides mongooses, cats and foxes what keeps down rats and snakes? The Birds of Prey. The article may be read by those who frame Schedules to an Act. As to Bats, see pp. 135-151 of 9 A (v).

97. **Veterinary.**—See 'Cattle Diseases'.

98. **Wardens.**—See the Bombay Act, 1951 [9 A (iv)] for the system there laid down: The State Wild Life Advisory Board—The Wild Life Preservation Officer—Game Wardens. For suggested work of Wardens in National Parks and Sanctuaries see 4 C, paras 10 and 11 and 4 G, paras 9, 10 and 16. See Hubback, 4 A, pp. 105-106.

99. **Water.**—See 'Kruger Park "National Parks"—'Sanctuaries'—and 4 C, para 18 and 4 G, 14 (j). See III of 'Conservation—Multi-purpose Projects'. 6 (b), p. 51, E. M. Nicholson, Nature Conservancy, Great Britain: "...great developments are taking place in human demand for water and in the extent of human interference with water-supply. Such problems as pollution of water and diversions of water courses for formation of reservoirs and other purposes are obvious examples. Water tables may be lowered unintentionally by interference for some different purpose at a remote point, and such indirect effects which may remain unnoticed for several years may decisively alter the fauna and flora." (This has special application to some parts of India at present time.)

100. **Whipsnade.**—See 'Parks' and 4 G, para 7.

101. **Wildfowl.**—See 4 G, paras 31 (c), (d), (e). Migratory wildfowl, it is suggested, should have same close season as indigenous water birds and so help the aim and object of wild life preservation by causing the shotgun to be laid aside (except by crop owners) throughout the country from 15th February to 30th September.

102. **Zoological Gardens and Wild Animal Trade (Zoologist).**—6 (b), pp. 97-99, "Problem of Zoological Gardens and Wild Life Trade", by F. J. Appelman, The Hague, Netherlands: "In fact the real threat to animal and bird life exists in the field and does not come from aviculturists and zoos, which means that it does not come from 'controlled' animal dealers...And we should never forget that for every few dozen zebras, giraffes and other antelopes we see shipped by traders there are many hundreds and even thousands killed in the field which are not known about." In Africa, the appointment of a qualified Zoologist to the various game Departments has been accepted in principle (Report on Visit to East Africa, Captain Keith Caldwell, "Oryx", December 1951, p. 186). See 'Biology'.

CONCLUSION

The first consideration for erection of an edifice is the question of its foundations. The main foundation for the Control of Wild Life in its many aspects may be considered as based on Public Opinion—Finances—Adequate Staff—this latter being a Staff well trained, loyal, trustworthy, and having real enthusiasm and pride in the well-being of the flora and fauna under their charge. Among the many essentials for the superstructure are Real Interest,—Prevention of Commercialization

of Game (Trade)—Repression of Poaching—Enforcement of Laws and Rules. All these and other matters are dealt with in the hundred odd paragraphs of this Summarised Index and its References.

It is the hope of the Compiler that everything set out in this volume will be considered as of some use to all concerned, and as aiding the cause in a practical manner.

Acknowledgment for use of material is made to the editors of the *Journal of the Fauna Preservation Society*, the *Journal of the Bombay Natural History Society*, the *Journal of the Ceylon Game and Fauna Protection Society*, the Director of the Royal National Parks of Kenya and the Secretary-General of the International Union for the Protection of Nature; also to contributors to the several publications for use of their writings, all of which have been of much assistance.

The thanks of all who will read and use this volume, and of the Compiler, are expressed to His Highness the Maharaja of Mysore without whose encouragement and generous financial assistance it would not have been written and published as an aid to the cause of Wild Life in India.

THE WILD ANIMALS OF INDIA AND THE PROBLEM OF THEIR CONSERVATION

3. (a) INTRODUCTORY SURVEY OF THE INDIAN EMPIRE AND THE PROBLEM*

By S. H. PRATER, O.B.E., C.M.Z.S.

Curator, Bombay Natural History Society

The Preservation of Wild Life in the Indian Empire

The purpose of the present series of articles is to give a general account of the Mammals of the Indian Empire.

For many years, the Bombay Natural History Society, through the medium of its *Journal* and other attractive publications, has endeavoured to create and stimulate in India an interest in the wild life of the country.

The necessity for this interest, particularly among our educated classes, is becoming more and more evident with the passing of time. During the past, extensive undisturbed areas of primeval forest, jungle and desert gave safe harbourage to wild creatures, and provided sure guarantee of their survival. But changing conditions in the country, the gradual conquest of forests and waste lands, above all, the building of new roads and the radical improvement in methods and rapidity of transport have left few areas in the Peninsula of India which are free from intrusion by Man. These factors have had and are continuing to have a disastrous effect on the wild life of the country. The danger to it has been accentuated in recent years by the enormous increase of firearms in use and by the inability of many of the Provincial Governments to enforce such laws as exist for the protection of wild animals.

In the past, similar conditions existed in most western countries. Forests were cut down, streams polluted and their live-stock exterminated to meet the needs of the moment with no thought of the morrow. Even in tropical lands, gradually permeated with the spirit of material progress, primitive Nature has had to give way little by little to invading towns and settlements. Ruthless destruction of wild life and a prodigal wastage of natural resources have invariably preceded the establishment of material and prosperous civilization. Thus the magnificent animal life of many tropical and sub-tropical lands—and our country is no exception—has been driven to its ultimate retreat in fast diminishing forests and is to-day threatened with utter extermination.

Even the great marine animals of the sea—the whales and fur-bearing seals—have not escaped this menace of extinction. The solitudes and vast spaces of the ocean have not been able to shelter them from the rapacity of man. Like the terrestrial species, they

* An Address given by Mr. S. H. Prater, M.L.C., C.M.Z.S., the Society's Curator, at the Jubilee Meeting of the Society held in Bombay on the 10th of August, 1933.

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have been subjected to ceaseless persecution, made more easy by the perfection of methods employed in the destruction of life—both human and animal

A Changed Outlook and Some Reasons for it

But in recent years a gradual change has developed in Man's outlook upon the Domain of Nature. This change has been brought about partly by the spread of education and enlightenment. It is engendering a growing opposition to this wanton destruction of life, however much it may profit the destroyer. It is creating the more humane conception that it is the duty of Man to see that the wild creatures of the world are not annihilated. But apart from humanity, which in itself should impel Man to grant to lesser creatures the right of existence, there are other considerations which must influence him.

The spirit of this age, with its urge for discovery and research, with its marked tendency towards the popularization of Science among the masses and the dissemination of its truths and discoveries is fostering a widespread and intelligent recognition of the immense value to man of the myriads of species, vegetable and animal, which share with him this Planet. To-day there is no educated man who does not realise that the realm of Nature provides Science with a vast and productive field for research. There is none who is not impressed with the belief that such research has given and will continue to give us results of great practical and educational value.

There are numerous investigations, anatomical, physiological, ecological, geographic and evolutionary which can only be made by the study of animal life. While considerable data has been accumulated by the study of dead specimens in museums or of the living creatures in the laboratory, the 'whence, how and where' of his existence which Man is seeking to discover cannot be discovered by these means alone. The study of the living creature under the natural conditions of its natural environment is equally important.

It is also true that there are material considerations apart from scientific. We have been accustomed to look upon Beasts of Prey as creatures to be exterminated. But with a clearer understanding of the role they play in maintaining the balance of life we know now that even predatory animals have a distinct value. They are a controlling influence against over-population by species whose unchecked increase would adversely affect the interests of Man. On the other hand, there is the utilization for Man's benefit of animal products such as furs, hides and horns which in themselves represent a valuable economic asset. Furs collected from all parts of the world and assembled in London for sale during the current year were assessed at a value of £3,000,000. There is necessity for conserving the sources of supply, which are not inexhaustible. Again, Science has revealed and is continuing to reveal hitherto undreamed of possibilities in the uses of animal products and their employment in the treatment of human debility and disease. Who can say what products still remain to be discovered which will one day be of priceless value to Man? Finally the wild life of a country is a source of sport and enjoyment to its people—It gives healthy recreation to all classes and is a constant attraction to visitors. It is also a definite source of income to the State because of the revenues realised from the sale of shooting

licenses and on the imports of sporting arms and ammunition. But obviously it is also an asset which may vanish without reasonable efforts for its conservation. For these and other reasons, it is now admitted generally, both in Europe and America, that the natural beauties of a country, its varied fauna and flora are an asset to its people, an asset to be protected and preserved to their own advantage and to the advantage of future generations.

What Other Nations are Doing to Preserve Wild Life

It is interesting and instructive for us in India to know what other nations are doing to preserve wild life.

The movement for the protection of Nature had its origin barely 50 years ago. It is the European nations and the American people who set an example to the World as to what could and ought to be done to preserve wild life within their lands. In the United States of America, the rapid development of the country, the spread of agriculture and industry threatened the destruction of its indigenous fauna. The tragedy was averted by establishing great National Parks or Reserves which not only give inviolable sanctuary to wild animals but also offer the people an added attraction because of their scenic beauty, their historical, geographical or archæological interest.

These National Parks provide the means by which the clash of interests between Man and the Animal is obviated; whereby security is found for the creature without imposing undue restraint upon human progress. The idea gained ground because of the people's approval. To-day, in the United States, there are no less than 40 great National Parks covering more than 3 million acres of land set aside for the protection of wild life.

This magnificent effort for the protection of Nature has its parallel in the British Empire, so rich in the varied aspects of its wild life. In Canada, in New Zealand, Australia and the Union of South Africa great reserves have been created which give shelter and security to the wild life of these lands. The Kruger National Park in South Africa is the largest in the British Empire if not in the world. It covers over 8,000 square miles of territory. No park in the world contains a more marvellous assemblage of wild animals. Quite apart from the protection given to the wild life of the country, this magnificent park fully justifies its existence by way of the yearly increasing revenues it brings to the State. The effort for the conservation of wild life has been equally splendid in Canada. Here again the public response evoked by the numerous National Parks within the Dominion has resulted in bringing in a great amount of money into the country. These measures have been taken by a race of people who are keenly concerned in the progress and development of their countries and nevertheless realise the advantage of making provision to safeguard their wild life from destruction.

Within the last 20 years other nations have followed the example set by the Anglo-Saxon peoples. Switzerland has established her splendid national park amid the scenic grandeurs of the Engadine. Italy and Spain have created similar sanctuaries. Sweden surpasses all Continental countries with her 14 national parks. Finland and Austria have established numerous reserves for the protection of wild animals. Poland and Czecho-Slovakia have created a common park on their frontiers in the region of Tatara and thus incidentally, in

a common desire for the protection of Nature, they have found a happy solution of a vexed territorial problem. Belgium, if not the first in the field, has been equally energetic. The great wild life sanctuary in the Belgian Congo, known as the Parc National Albert, was created by Royal Decree in 1925 and by 1929 increased ten-fold in area. Five hundred thousand acres of mountain and forest have been set apart for the protection of African wild life. This great reserve is open to the students of the world and in the years to come it will prove of inestimable value to scientists and to all who love Nature and are interested in it.

The cause of conservation has been advanced also by various International Conferences the last of which was held in Paris in 1930. In 1900, the British Government convened a Conference in London of the representatives of the Powers which resulted in the London Convention for the Preservation of Animals, Birds and Fish in Africa. It was signed by the Plenipotentiaries of Great Britain, France, Germany, Belgium, Italy, Spain and Portugal, and is described as the Magna Charta of wild life in Africa. In 1913 an International Conference for the Protection of Nature was held at Berne at which 17 Governments were represented. The principal conclusions of this Conference was the decision to establish a central organization to deal with the question of Wild Life Preservation on an international basis. The war made this impossible and it was not till 1928 that the recommendations of the Berne Conference were given effect. A central Bureau, designed to develop as the pivot of an international movement for the protection of wild life was established at Brussels. It is known as the 'International Office for the Protection of Nature'.

Similarly, within the British Empire, the London Conference resulted in the foundation of the Society for the Preservation of the Fauna of the Empire, which has given a great impetus to the movement in England and the Colonies and has now for many years exercised its great influence in the promotion of all forms of wild life protection. Reference must also be made to the American Committee for International Wild Life Protection, representing a unity of the large museums in the United States and to the Dutch Society for International Wild Life Protection.

It will be seen from what has been written that in all civilized countries there is a general recognition of the need for concerted and practical measures to stop the forces of destruction which threaten wild life in all parts of the world. There is in India, too, the gravest need for such concerted action.

India's Wonderful Fauna

In its Fauna and Flora, Nature has endowed India with a magnificent asset. An asset which cannot fail to be generally appreciated by its people if they were led to know something of its worth and interest.

All those reasons which have made the people of western countries strive for the protection of Nature within their borders apply with just as much if not more force to our country. Its wild life, in its interest, its beauty and its marvellous variety, compares favourably with that of any country in the world. There are more than 500 different species of mammals found within the Indian Empire. They include the Elephant associated in India from time immemorial with

the splendour of her princely pageantry, the Gaur or Indian Bison, the largest of existing bovines, the Great Indian Rhinoceros, the greatest of all the rhinos now inhabiting the world, the gigantic wild sheep of the Himalayas, probably the largest of their race, the Swamp Deer, the Thamin and the Spotted Deer, one of the most beautiful of all deer and the Nilghai, the Four-horned Antelope and Indian Antelope or Black Buck the only representatives of these genera. The beasts of prey include the Lion and the Tiger, the most magnificent of all the great cats, and such splendid creatures as the Clouded Leopard, the Ounce and the Marbled Cat. Other species, like our Himalayan foxes, martens, gorgeous flying squirrels and silky-haired langurs are remarkable for the beauty and value of their fur. The Musk Deer and the Civets provide the musk of commerce. Other species are remarkable for the beauty of their colouring. Our little Painted Bat (*Kerivoula picta*) with its brilliant vermillion and black wings, is, without exception, the most vividly coloured mammal in the world. Peculiarity in form and structure is displayed by that strange creature the Flying Lemur, which is neither lemur nor bat but which bears the same relationship to the shrews as the flying squirrel does to the squirrels, or by the Scaly Ant-eater which, with its long scaly body, looks more like a reptile than any form of mammal. Apart from the interest in their symmetry of form, largeness of size, beauty of colouring or strangeness of structure or habits there is always that attraction and charm which the presence of wild life gives to our forests and plains—so dear to the many that live for the outdoor life.

A further interest attaches to our wild life from its association with the folk-lore and the legendary beliefs of the country. It is an interest not confined to India alone, but which has spread among men of culture everywhere because of the esteem and admiration in which her Sacred Books and writings are held.

Some 30 different mammals are mentioned by name in the *Samhitās* (i.e., the four principal Vedas). Among them is the Elephant, the favourite of Indra, whose sanctity is enhanced by the belief that eight elephants guard the eight celestial points of the compass. The Langur or Hanuman Monkey is held in veneration, as is commonly known, because of its association with other warrior monkeys who helped Rama in his campaign against Ravana. The Lion is one of the many incarnations of Vishnu; the Tiger finds mention in the later Vedic texts. The Mongoose figures in the *Mahabharata* as a teacher of wisdom to King Yudhisthira. The Deer is always associated with Brahma, the Creator, and is the constant companion of the God Mahadeva. The Wild Boar is referred to as the 'Boar of Heaven'. It is told how in the primordial floods Vishnu, taking the form of a boar, raised the submerged earth from the waters and supported it on his tusks. One could cite many more references from the Sacred Books concerning the animal life of the country. But apart from this, it is of much interest for us to know that the earliest known record of measures taken for the protection of animal life comes from India. The earliest record, which we possess to-day, is the Fifth Pillar Edict of Asoka by which game and fishery laws were introduced into Northern India in the third century B.C. In this inscription, the Emperor had carved on enduring stone a list of birds, beasts, fishes and possibly even insects which were to be strictly preserved. The

mammals named are 'Bats, Monkeys, Rhinoceros, Porcupines, Tree Squirrels, *Bara singha* — Stags, Brahminy Bulls, and all four-footed animals which were not utilised or eaten'. The edict further ordains 'that forests must not be burned, either for mischief or to destroy living creatures'.

Centuries later, the Moghul Emperors, sportsmen, men of action and born observers that they were, displayed a deep interest in the animal life of the country. Their writings are full of descriptions, some in great detail, of the animals, the plants and flowers of the country over which they ruled. While Babur, Humayun, the great Akbar and Aurangzeb display in their writings their great love of Nature, Jehangir was a born naturalist. It is said of him that had he been the head of a great Natural History Museum instead of being the Emperor of India, he would have been a better and happier man. His profuse and engrossing memoirs are a real Natural History of the animal life of India.

The Problem of Wild Life Protection in India

We have endeavoured to show how great an asset to our country is its wild life and to give the many reasons why we should do everything for its protection. But for the protection given to the Lion in Junaghad State and the Great Indian Rhinoceros in Nepal and Assam these two interesting animals would have been exterminated long ago. The Cheetah or Hunting Leopard, once common in Central India, is now almost extinct in the wild state. The Lesser One-horned Rhinoceros and the Asiatic Two-horned Rhinoceros, once said to be common in the grass jungles of Assam and the Sundarbans, have been practically exterminated in these areas. In many districts wild animals have been totally wiped out. In others, where they were once common, they are now hopelessly depleted. One does not wish to overdraw the picture. There are parts of India where the position of wild life is still satisfactory though insecure. But equally, there are extensive areas where conditions are so appalling that, if left unchecked, they must lead to the complete destruction of all the larger wild creatures which live in them. There is yet another point which must be stressed. Any scheme for the Protection of Wild Life would be incomplete without due provision for the protection of our Birds. Quite apart from a sentimental value, birds render incalculable service to Man. While certain species may damage crops, such harm as is done by birds is overwhelmingly offset by the benefits we derive from them. Without their protection, our crops, our orchards, our food supply would be devoured or destroyed by hordes of ravaging insects. Birds are the principal agency that controls the bewildering multiplication of insect life which, if unchecked, would overwhelm all life on this planet. Birds by reason of their predominating insect food are an indispensable balancing force in Nature. The abundant bird life of this country is one of its valuable possessions. Those who appreciate its value, cannot but strive for its conservation.

If we accept this principle of Conservation as it is now accepted by almost all civilized countries, what methods must we employ to give it effect? It is obvious in a country like India, where conditions in different provinces vary so greatly, the methods of conservation must also vary, but it is necessary to arrive at some understanding of the broad principles which underlie the problem. The land may be

classified for this purpose into three main categories: urban lands, agricultural lands and forest and waste lands.

Agriculture and Wild Life Protection

As far as our wild life is concerned, one cannot expect its preservation in urban lands. Nevertheless, we believe that it is time that measures should be taken for the protection of birds in urban areas. Areas actually under the control of Municipalities or Local Boards could be made, with advantage, Bird Sanctuaries, where the killing of birds should be forbidden. There is need to put an end to the wanton destruction of familiar birds which takes place in the immediate vicinity of towns.

The second category—land under cultivation—provides at once the opportunity for a clash between the interests of Man and the Animal. There are two main reasons for this. Firstly, the areas under cultivation in India are extending and will continue to extend to meet the needs of a rapidly increasing population. This has increased by 35 million within the last decade! The need of increasing the available sources of food supply can be met only by the continued absorption of waste lands or forest—the natural domain of wild life. Secondly, there is the equally imperative need of protecting these cultivated areas from wild animals. The depredations of wild animals present one of the most serious handicaps the ryot has to face. In addition to loss of cattle, there is the damage done to crops and, not uncommonly, loss of human life. Therefore, whatever the views of the protectionist, this much is clear. Human progress must continue and in the clash of interests between Man and the Animal human effort must not suffer. But this problem has been faced by other countries. Cannot a reasonable effort be made to face it in our own? That an intensive development of the agricultural resources of a country may accompany a sane and adequate policy for the conservation of its wild life is shown by the measures taken to this end by all progressive nations.

If our wild life is to find protection at all, it must find it somewhere in our forests. It is often claimed that the proximity of forests to agriculture makes them a constant source of harassment to the cultivator. If this argument is pushed to its logical conclusion, the only remedy would be to remove such protection as is now given to wild animals in our forests, for it would not be possible to remove this menace entirely, until all the large wild animals in them were killed, died of wounds or were exterminated over large areas because of their inability to breed. Surely our goal is not the total extermination of our wild life—which is what must inevitably happen unless some form of protection is given to it within its natural domain. While it is essential that the cultivator should have reasonable latitude to defend his property, it is equally essential that there should be certain areas or reserves where the shooting of animals is regulated and where the laws for their protection are rigidly enforced. Such reserves exist—roughly about one-third of British India and Burma consist of Reserved Forest—but, while we have extensive forests to shelter and laws to protect it, our wild life is everywhere on the decrease. The time has surely come when it is necessary for us to review the position and to take such measures as are necessary to give real protection to the wild life of the country. It is the opinion of some that these great

State-owned forests, where laws now operate for the protection of animals, are and must continue to remain the natural sanctuaries of wild life in this country and that they would adequately fulfil the purpose of protection if they were effectively warded. The correctness of this view depends entirely on actual conditions in a particular Province. The extent and nature of the forests, their accessibility, the density of the population and the extent to which cultivation surrounds them are factors which must influence the issue. It may be found that in certain Provinces the establishment of a national park or reserve, in specially selected areas, will provide the only means of giving adequate protection to wild life without hampering agricultural development. It is certain that the creation of such a reserve or national park would give a special status to it, and thus facilitate the passing of special laws made applicable to such an area. Further, the actual selection and declaration as a National Park of certain definite areas would have the practical effect of forcing on the attention of successive generations of officials the importance of saving these areas from any danger of disafforestation and of taking all practical measures for the preservation of the wild animals found within them.

The Need for a Special Organization to Protect Wild Life

Whether our reserve forests remain the principal sanctuaries for wild life in this country or whether in some of the Provinces the purpose is effected by establishing national parks, there is need for a real organization whose sole concern will be the protection of wild animals in these preserves. Our efforts to protect wild life have failed mainly *because of the haphazard methods we employ, the lack of any co-ordinate policy and the lack of any real protective agency to carry that policy into effect.* The Forest Department which ordinarily administers the Forest laws has multifarious duties to perform and, while the Forest Officer has discharged this trust to the best of his ability, he cannot give the question his personal attention, nor can he find time, except in a general way, to control the protection of wild life in our forests. Experience of other countries has shown the need of a separate and distinct organization whose sole concern is the protection of wild life in the areas in which it operates.

Further, the existing laws, as now applicable in many of our Provinces, are obsolete. Naturally, their primary purpose is the protection of the forest rather than its wild life. These laws require consolidation and bringing up to modern standards of conservation. No better guide to our Provincial Governments seeking to amend their game laws exists than the recently issued report of the Wild Life Commission in Malaya. Volume II of this Report gives the general principles of conservation. It shows how these principles may be embodied in an Act and indicates new administrative methods, based on actual experience and on the laws of other countries. With modifications, where necessary, it will serve as a model for Protective Legislation in India.

Lastly there is the all-important question of making adequate financial provision for carrying out the work of conservation.

In these days of depression, when most Governments are faced with deficit budgets, the apportioning of money for this purpose must be a matter of difficulty but, unless and until suitable financial provision is made by the State for the conservation of wild life within its

borders, the effort cannot succeed. This much is clear. Our present haphazard methods have failed. The experience of other countries indicates the system that should replace them. The effective introduction of this system depends upon money being provided to work it. In the United States and in other countries the problem of financing the work of conservation has been helped by the creation of special funds.

The recent Wild Life Commission in Malaya, which made a careful study of this aspect of the problem, strongly urges the creation of such a fund to be termed the *Wild Life Fund* and to be used solely for the purpose of conservation. The idea is that all fees which could be collected under Wild Life Enactments, including any licences or fees for riverine fishing, as well as revenues from all sporting arms licences, permits, duties on arms (sporting) and ammunition (sporting) should be credited to the Wild Life Fund. If any of these fees are collected by another department, then the cost of collection should be borne by the Wild Life Fund. It is the only means by which financial provision can be made expressly for the purpose of conservation. It is the only means by which the money devoted to this purpose will have a definite relation to the revenue derived by the State from wild life sources and which, therefore, can be expended with every justification upon the conservation of these sources. It is the only way to ensure an equitable system of conservation; the only way in which a properly organised department can be stabilised. It is the solution advocated in other countries and one which is equally applicable to any country which undertakes the conservation of wild life on sound lines. If the idea of creating a Wild Life Fund is not acceptable and, if we are yet serious in our intention to do what is possible for the conservation of wild life in India, then we must replace the Wild Life Fund by an alternative policy, which will ensure the allocation of sufficient money to meet the requirements of adequate conservation. It is so easy to refuse a constructive policy and then put nothing in its place. The necessity for conservation being clear, the importance of an adequate financial policy to support it cannot be ignored.

So much for the broad outlines of the problem. They resolve themselves as we have seen into the formulation of a co-ordinate policy for the protection of Wild Life in India, into the selection of suitable areas where our wild life can be protected without undue detriment to human interests, the creation of a special agency for carrying out the work of protection and finally, a revision, wherever necessary, of such laws as exist in order to help these agencies to carry out their task effectively.

It is obvious that in a country so vast as India, with its varying climate and physical conditions, methods in conservation will vary in different provinces. The Society therefore proposes to publish a series of papers by different authors on the protection of wild life in the different Provinces of India. These articles have been written by authorities who have made a special study of the problem in the areas of which they write. Their knowledge and experience enable them to indicate exactly what measures ought to be taken for the protection of wild life and how these measures can be given effect to in a particular Province.

Those who are contributing to this instructive and helpful series are:

Central India, Mr. A. A. Dunbar Brander (late Conservator of Forests, C.P.); Southern India, Mr. R. D. Richmond (late Chief Conservator of Forests, Madras Presidency); Punjab, Mr. C. H. Donald (Director of Fisheries, Punjab); United Provinces, Mr. F. W. Champion, I.F.S. (Conservator of Forests, U.P.); Assam, Mr. A. J. W. Milroy (Conservator of Forests, Assam); Bombay Presidency, Mr. G. Monteith, I.C.S.; Burma, Mr. H. C. Smith (Honorary Game Warden, Burma); Kashmir, Capt. R. G. Wreford (Game Warden, Kashmir); Hyderabad, Mr. Salim A. Ali; Mysore, Major E. G. Pythian-Adams (Nilgiri Game Association).

We have indicated what other countries are doing for the protection of wild life but it must be apparent that the measures which they have taken, whether initiated by Acts of Government or by private enterprise must owe their success to the support of public opinion. There is need for the creation of sane public opinion on the subject of wild life protection in India. At present, such opinion hardly exists and even if it does, in some quarters it may be antagonistic. This is mainly because people do not know, nor has any attempt been made to teach them something of the beauty, the interest and the value of the magnificent fauna of this country. In most western countries there is a wealth of cheap and popular literature dealing with the natural history of those lands. In India such literature as exists, is either unintelligible to the average reader or sold at a price beyond popular reach. Again, in most western countries, Nature Study teaching is a serious part of the earlier stages of the school curriculum. While its main object is to develop the child's powers of observation, it creates a love of Nature and a sense of companionship with life out of doors. It is true that in India feeble attempts are made from time to time to introduce Nature Study teaching into our Primary and Secondary schools. But often such teaching as is given, deals with pine trees and acorns, with polar bears and robin redbreasts, and has little or no relation to the child's own environment. The present series of articles is therefore written with the purpose of providing a popular and well illustrated account which will give people general information about the Mammals of the Indian Empire. Its object is to arouse interest in the Fauna of the country with a view to its protection and not its destruction. It is proposed to issue this series in six parts, dealing separately with the various orders of Mammals. While the series will appear in the Society's *Journal*, separately bound copies will be available for distribution. An important and essential feature of these articles is the large number of coloured and black and white illustrations. An attempt is being made to illustrate most of the more important species of mammals found within our limits. Our ability to undertake this expensive work is due to the generosity of Mr. F. V. Evans, a Vice-Patron of the Natural History Society and one of its most generous benefactors. He is paying for these illustrations. Mr. F. V. Evans was in fact the initiator of these articles on Wild Life Protection in India. It is a subject in which he has always interested himself and the great encouragement and very material assistance which he has given to the Society in advancing this cause must earn for him the gratitude of all those who are interested in this question. Our thanks are also due to the American Museum of Natural History, New York, and to the Field Museum, Chicago, for permission to use some of the pictures which accompany these articles.

Acknowledgements are due to Mr. Pocock of the British Museum and to Mr. W. S. Millard for the help they have given in supervising the preparation of the illustrations.

The Society hopes that these articles will do something towards drawing the attention of people in India to the magnificent heritage which Nature has given them in this country. It hopes they will help them to realise the need for preserving this legacy to their own advantage and to the enjoyment of generations to come, who with the spread of education will be in a better position to appreciate its worth than we are to-day.

3. (b) THE CENTRAL PROVINCES (MADHYA PRADESH)

BY A. A. DUNBAR BRANDER

Late Conservator of Forests, Central Provinces

Game Country: Status and Jurisdiction

Good game tracts exist both in Indian States and in British India. The British Government has no jurisdiction over the game in Indian States. Most of the Indian Princes protect game, and there is a growing tendency for this movement to spread and become more vigorous. In most States the laws or rules for the protection of wild animals are effectively enforced.

No more need be said about the States. With regard to British India, game is found in country having a different legal status, and this must be differentiated:—

(a) Private land.

(b) State land.

Generally speaking, game in (a) has no owner. It belongs neither to the owner of the land nor to the State. The Government, however, has the right to pass laws regulating the slaughter of game, and in most cases such laws have been passed. I shall refer to this in more detail when dealing with game laws.

With regard to State land the great bulk of which consists of Government forest, the State owns the game, and special laws dealing with its protection throughout India have been passed. These laws are administered by the Forest Department. I shall also refer to this in some detail later on.

Types of Game Country

There are four main types of country in which game is found and which I have designated as follows:—

(1) Himalayan.

(2) Terai.

(3) Central Plateau.

(4) Southern.

Position with Regard to Protection in Each Type

Himalayan—The terrain in which the game is found is its chief protection. To destroy it entails arduous and whole-time work, quite incompatible with any prospective profits to the poacher, and, save with regard to certain species which frequent the outer hills, no special measures are called for with regard to this tract.

The Terai.—Very much the same applies to the Terai, but for different causes. This tract of country extends from Dehra Dun along the Himalayan foothills eastward into Assam and thence southward towards the Bay of Bengal. In it the jungle and grasses are so dense that no serious slaughter of game can take place without the extensive use of elephants. These, of course, cannot be employed without sanction and regulation. The amount of game and species to be killed can, therefore, be regulated: game is holding its own and no special measures seem called for in this tract.

The Central Plateau.—This tract embraces the great mass of India and was at one time the finest shooting country and contained the finest fauna in the East. The forest is generally open and although often hilly the hills are no deterrent to a hunter. Unlike the other tracts, nature of the terrain in the Central Plateau is an inadequate protection. Further, the game-holding tracts are not only surrounded by a dense population, but a large interior population of aborigines exists inside the forest itself, to an extent not found in the other tracts. It is in this tract that the recent disappearance of game has been so lamentable and calls for the most urgent remedial measures.

I left India in 1922 but revisited it in 1928, and was appalled to find such a change in so short a period, quite common species being found only with difficulty. The finest game country in this tract is found in the Central Provinces, and I shall deal at some length with the causes which have brought about this state of affairs in that area, as I believe they have a very wide application.

The Southern Type.—As I do not know this country personally I write about it with some diffidence. I have, however, taken a very deep interest in all that pertains to game during my whole service in India, and I believe the following to be fundamentally true. The country is very mountainous and the cover is often dense: less mountainous, of course, than even the outer spurs of the Himalayas, and less dense than the Terai. Nevertheless the combination of these two factors in the same area makes the destruction of game by no means easy; and so far as I know the game is fairly well holding its own except in outlying portions.

Position of Game on Private Lands

As already stated, the game in private lands has no owner. The State has passed laws prohibiting the killing of does and immature animals, sitting over water, and the use of various methods of destruction. To all intents and purposes the laws are a dead letter as there is no preventive staff. The two main preventive services in India are the Police and the Forest Service. The latter has no jurisdiction outside State forest, and the Police take no interest in enforcing the rules. Prosecutions are very rare, and any interest the local constable may take in the matter would often be to share in the booty. The result is that game has almost disappeared from private lands. The main Bombay-Allahabad line runs through some 200 miles of antelope country. Twenty years ago one was almost constantly in sight of herds. In 1928 in four hours I only saw two small herds, watching from the train. The only fauna left in private lands is a few chital and sambar in specially favoured localities, pig in considerable numbers, and a sprinkling of antelope, also lesser carnivora.

The great mass of the country, however, is blank and it will be readily understood that these blank unprotected spaces surrounding Government forest which contain game act as a constant drain on the stock of fauna in the protected lands: there is constant leakage to destruction. In my opinion nothing can save the fauna in these private lands. Its extermination is certain. The people have been educated to destroy it: there is no staff to protect it, and even if the Indian Legislatures could be induced to take measures, financial considerations preclude adequate protection.

State Lands: Position of Game

These mostly consist of State forests where the Forest Act and the rules made thereunder apply; amongst these are included the rules regulating the killing of game. On the whole, these are excellent, and, although I shall suggest certain stiffening to meet modern conditions, nevertheless it is not in the rules themselves but in their application that failure arises. As regards the European and Indian sportsmen who enter the forest to shoot under permit, the rules are absolutely efficacious, and this type of sportsman does no harm. Where they fail is in the prevention of poaching. There is lucrative trade in game; the initial detection of poaching often rests with a lowly-paid forest guard. Men possessing guns often command respect, and the guard finds the easiest plan is to take a percentage of the profits. Moreover, special rewards, which the rules sanction in poaching cases, are far too sparingly given, and the magistrates' sentences are often quite inadequate.

The Main Reasons Why the Destruction of Game has Recently Increased

(1) During the war the rules were relaxed. In certain cases the shooting of does was permitted to make leather jackets for sailors. There was a general activity in the trade in the products of game: tanneries came into being, and what was previously an occasional trade has now become an active competitive one with wide ramifications: a slaughtered deer no longer means merely a gorge of meat for the local aborigines, it is an article of commerce and a valuable one.

(2) There has been a very large increase in the number of gun licences issued as well as a large increase in unlicensed or illegal guns. It is easy to see that with a large number of guns legally possessed, the detection of illegal guns becomes more difficult. Be the causes what they may, the State forests are surrounded by guns, many of which are constantly used in destroying game both inside the forest and just outside it. In the present political situation any attempt to regulate the number of guns to actual requirements for crop-protection is hopeless. The guns have come, and to stay.

(3) *The Motor Car*.—This is perhaps the biggest factor of all, in the disappearance of game, although without the two previous causes its significance would be small. Since the war whole tracts have been opened up—in fact no tract is inviolate—cars penetrating along dirt tracks into country in one day which previously took a week's marching with camels and horses. Every car that moves by day or night has one or more guns in it, and practically every animal seen which presents a fair chance of being killed, without further questions asked, is fired at. Moreover, expeditions go out at night with strong moveable searchlights and shoot down whatever is encountered, and the car enables the booty to be removed. The destruction is terrible. I came across glaring cases during my short three months' trip in 1928. The present game laws were framed before this menace arose, and they require to be reviewed and amended in consequence.

Some Remedial Measures Suggested

- (1) An attempt to check the increase of guns, even reduce them.
- (2) Much stricter control and regulation of tanneries and businesses trading in wild fauna and its products.

(3) Complete review of the rules so as to deal with the motor car amongst other things, and to bring the owner and the driver of any car within the penalties of law-breaking.

(4) Press for stiffer sentences in poaching cases and rewards to subordinates detecting the same. These rewards are at present optional, but should be made as a matter of course, save for definite reasons.

(5) Establishing associations for the protection of Wild Life and rousing enlightened Indian opinion, and enlisting influential men as members of such Societies.

Sanctuaries

As will be seen from what I have written above, the Himalayan and Terai areas are hardly suitable places, even if required, in which to create National Sanctuaries. With regard to the Central and Southern areas, the case is different. In these tracts they will form a useful and interesting purpose, especially in the former, where the fauna can be readily observed, will readily tame, and be a delight to visitors.

My knowledge of the Southern tract does not enable me to suggest any particular area, but as I know every square mile of the Central Provinces I can definitely assert that one area is suited *par excellence* for a National Park. This is known as the Banjar Valley Reserve.

The Banjar Valley Reserve

Situation.—Situated in the South Mandla Forest Division, 30 miles south-east of Mandla, which is the District Head-quarters.

Mandla is almost 60 miles, due south of Jabalpur, and served by first-class road and light railway. There is a fair weather motor road from Mandla to Khana in the centre of the valley.

Maps.—Splendid forest maps on the 4 inch to 1 mile scale made by the Forest Survey can be got from the Map Office, Dehra Dun. These show 25 feet contours, and, if desired, maps showing grass-lands, sal forest and mixed forests (Stock Maps) can be purchased.

Area.—From memory the area is about 40,000 acres, but for the purposes of a National Sanctuary some 30,000 additional and adjoining acres should be included. The Banjar Valley is merely a name given to a forest unit.

General Description.—Broadly speaking the area is a huge amphitheatre surrounded in a circular manner by a range of hills about 3,000 feet high. The bulk of the area is within these hills, but the forest extends down the outward slopes of the hills until the cultivated plains are reached. It is well watered throughout, but this of course could be improved, especially on the hill-tops.

The low-lying portions consist of grass maidans or open plains, young trees being cut back annually by frost. As soon as the contour above the frost level is reached pure Sal (*Shorea robusta*) forest is found. This, however, only extends a short way up the hillsides, where it gives place to the usual mixed forest of 200 or 300 species and bamboos. The rock and soil are metamorphic sand with occasional pockets of black cotton soil.

The Game.—In 1900 this tract contained as much game as any tract I ever saw in the best parts of Africa in 1908. I have seen 1,500 head consisting of 11 species in an evening's stroll. It is

nothing like that now, but it is still probably true to say that it contains more numbers and more species than any other tract of its size in the whole of Asia.

Banjar Valley

Game.—The following species are found in many numbers:

Bison	common	Nilgai	scattered
Swamp deer	common	Bear	common
Sambar	common	Tiger	common
Chital	common	Leopard	common
Barking deer	common	Wild dog	common
Four-horned antelope	common	Hyæna	a few
Mouse deer	common	Jackal	common
	(not often seen)	Fox	a few
Blackbuck	two good herds	Porcupine	common
		Pig	common

and a mass of small rodents and carnivora as well as Langur monkeys.

Chinkara are found on the outliers outside the reserve but rarely.

It will thus be seen that the tract contains all the game animals of the plains of India except chinkara, elephant, buffalo, lion. In 1900 elephants and buffaloes were regular rain visitors. The latter would probably return if given encouragement.

Legal Position

This area is one of the oldest State reserves and belongs to Government. It contains valuable timber and is policed and administered by the Forest Department. Government would not care to give up working the valuable timber in the area, but this need not interfere with the Sanctuary.

It is essential that the area remain State Forest, otherwise the Forest Act would not apply. Also it is absolutely essential for our purposes that the Act should continue to apply. Some form of 'dedication' could no doubt adjust this as there is no incompatibility.

If the Act applies, as it must, and if the Forest Department continues to manage the Forest (timber), as it will, it is clear that our staff must be also the Forest Staff. Otherwise there will be two staffs in the same area, and one will be in opposition to the other. Moreover, the Forest Department has managed the game in India, against great difficulty, with signal success in most cases, and to deprive them of these functions would create resentment, especially, unless it could be shown to be reasonable and necessary.

Banjar Valley

The shooting of game is strictly regulated, but a tremendous lot of poaching takes place. Part of it is always sanctuary, but these sanctuaries which are found in numbers in all districts are merely administrative shooting sanctuaries, resting blocks, pending opening to shooting again. They have nothing like the status of a National Sanctuary.

Some Suggestions

The local Government might agree to the area being declared a National Sanctuary but would, I consider, be more inclined to give the proposal favourable consideration if it was initiated by Indian

gentlemen. It might, therefore, be the best course to first obtain the support of the non-official members of the Legislative Council and it is believed that the conservation of Indian wild life for the benefit of the Indian People is a plea which no party can lightly thrust aside.

Conclusion

I consider that action in India is urgently required, perhaps more so than in Africa. There are I know questions of detail which apply to particular areas and particular species which I have not touched upon but in the above I have attempted to tell you something about India as a whole, and in particular what definite action that might be taken in the Central Provinces.

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3. (c) THE BOMBAY PRESIDENCY (BOMBAY STATE)

BY G. MONTEITH, I.C.S.

In some Forest districts a heavy decrease in the numbers of certain species—those that afford, in addition to the sport of hunting them, desirable trophies—had taken place before the question of protection began to be considered seriously and rules were made under the Forest Act to impose some limit on killing. It must be admitted that up to that time—that is till after the beginning of this century—the main agent of destruction was the ‘European’ sportsman, to give him the title established by long usage in India. Neither the indigenous ‘shikari’ nor the wild dog—two kinds of ‘poucher’ frequently accused—can properly be blamed for it.

* * * *

Trade in Hides and Horns

If there was money in it for the villagers, illicit hunting in Forest districts might be a more serious matter, but I never found much evidence of that kind of inducement. No doubt there has always been some illegal trade in ‘Forest produce’—horns, hides, or meat for the purposes of this article—and no doubt it continues. Sambar leather I know is exported to England, but I do not think much, if any, of it comes from our part of India. I could never in fact discover that there was enough of this kind of trade in the districts I knew to matter very much—unlike some Provinces, to judge by what I have heard and read—or that most of what there was was done through the agency, or to the pecuniary advantage, of Forest villagers.

Protective Legislation

However, such trade is admittedly illegal, and under modern conditions could increase very considerably in the absence of more effectual obstruction than seems to be possible at present, owing, I gather, to the interpretation so far allowed of the words ‘Forest produce’, which makes it incumbent on the prosecution to prove that any animal that is the subject of a case was actually killed in Government Forest. Certain animals are forest-dwellers wherever they may happen to be at the moment they are killed. It is not in this context the killing that is the offence, but commerce in certain kinds of ‘Forest produce’, an offence which by its nature is, in part at any rate, committed outside Forest limits. The contention that the particular animal in question was killed elsewhere than in Government Forest ought not in fact to be relevant. At least the burden of proving it should be on the defence (though I doubt whether that would get us much further). If an amendment of the definition is likely to be of use it would probably be easy to make it, but I think myself that what is wanted is legislation of a wider scope, to include animals that are normally found in non-forest country, for at the present time they are in a more parlous state than the others.

* * * *

Predatory Animals

Before I go on I had better dispose as well as I can of the case against the wild dog, a very interesting creature with a bad name, for he shares in some degree with the inhabitants of villages in or adjacent

to forest the odium of causing game to disappear faster than it can breed. There is a good deal of misapprehension about the actual amount of damage done by wild dogs, based partly on the impression they give of being much more numerous than they really are, and partly on the natural exasperation and prejudice caused by the fact that when the visit of a troop synchronises with that of a sportsman to a particular bit of jungle they undoubtedly often spoil the latter's chances; since the game is for the time being more or less disturbed, and the local tiger, finding his hunting interfered with, moves off. But a troop seldom remains in one place more than a few days. It makes its kill—with luck perhaps a second kill!—and departs, and is seen again perhaps twenty miles away, creating the illusion that there are twice as many wild dogs in that area of forest as there really are. The game settles down again, the tiger returns, and the *status quo* is restored as soon as the dogs disappear, and it is a fact to be noticed that their most regular visits are to those places in which deer—their usual quarry—continue to be numerous.

Predatory wild animals do not, till man intervenes, increase out of proportion to their food-supply.

* * * *

Local Conditions

Some of the old books about 'Wild Sports' in India—classics of their kind—show how little the keen sportsman in the past, District officer, or soldier, or whatever his vocation might be, thought in the midst of comparative abundance about the future, and that the idea of protection of any kind—even of a close season other than what might be enforced by the season of the year—hardly occurred to him. Too often, as in Africa, he slew while he had the opportunity and spared not—(only in India we have not had the professional hunter).

* * * *

The aggregate of execution done in any area depended naturally on its accessibility from large cities, cantonments, or railway centres—in other words on the number of sportsmen that would visit it in a year. We have a good enough example in the Bombay Presidency in a comparison of the state of things in North Kanara with that in Thana at the time when rules and a system of licensing were first put into force. In the latter district when I left it bison survived only in a small herd in one part of the forests, and to-day I am told are extinct: sambar were scarce: cheetal though pretty widely distributed were in small and scattered herds (and I need hardly say that their size generally indicates fairly well whether species that habitually go in herds are plentiful or not): the usually harmless bear, which, like bison, had been not uncommon twenty or thirty years previously, had disappeared altogether. Most parts of Thana, with its two main lines of railway and a sufficiency of tolerable roads, were easy enough of access in pre-motor days from Bombay, Poona, or one of the two or three hot-weather resorts on its borders, to make it worth while for any one with a taste for 'shikar' and only two or three days—say a week-end—to spare, to spend them on a shikar expedition in the Thana District. Kanara was a different proposition. Even after completion of the Southern Maratha Railway it took a good deal of time to get to Kanara for any one not resident in one of the adjoining districts, so that considerable preparation and 'bandobast' were

necessary. Short expeditions repeated at more or less frequent intervals were consequently for most people out of the question. So when 'rules and regulations to govern hunting and shooting' were made there was still in Kanara plenty of game of all the species indigenous to it. It can hardly be argued that the local 'poacher' was so much less efficient in Kanara than in Thana as to account for the difference between the two districts, and the conclusion seems to be obvious.

Local Regulations

(1) *Southern Circle*

The regulations in force in the Southern Forest Circle are in one main respect different from those governing the forest areas of the rest of the Presidency, in that the former include, and are in fact based on, the Central Provinces 'block' system. Mr. Bell and I drew them up in consultation, and they were sanctioned in the face of some opposition on the part of more than one Divisional Forest Officer, but I think Forest Officers in the Southern Circle would be sorry now to see the present system done away with and the old one reverted to. Elsewhere the views of those consulted prevailed, namely, that the existing rules were good enough and the 'block' system was unnecessary and not easily workable in their circles.

That the present state of things in the Southern Circle forest areas is on the whole, as I think it is, satisfactory, is attributable mainly or very largely to the fact that the 'block' system and attendant rules were introduced in good time, that is before the general use of motor transport had begun to make many parts of North Kanara so much more accessible than they were in former days. The restrictions imposed by the old rules—consisting of little more than the necessity, for the purpose of shooting in Government Forests, of buying a licence available for a year, and a limit of the number of head of certain species that might be shot by an individual licensee—would hardly have been enough by themselves to counteract the effect of a much greater annual influx of sportsmen, with the inveterate tendency of the majority to follow one another into well known and favoured localities. The system now in force seems to provide as adequately as any set of regulations can against overshooting of those parts of the Southern Circle forests to which it applies by means of a threefold check. First the ordinary form of licence, that for a block, is valid for a certain period, during which the licensee has a virtual monopoly of that block. Secondly, there is the definite limit to the number of certain species that may be shot in a year by one licensee. The third and perhaps most important check is the limit to the number that may be shot in one block—it varies of course according to conditions, but when the number fixed for any block is reached in respect of a particular species no more of that species may be shot there for the rest of the year. These provisions seem sufficient to counteract over-shooting on licence. Obviously their effectiveness depends a good deal on co-operation on the part of sportsmen, for instance by reporting any cases noticed of unauthorised shooting or other breaches of the law and by furnishing correct returns of their own 'bag'. Such co-operation though occasionally an individual may be neglectful about his return, can for the most part be counted on.

All this has so far worked very successfully. I do not know that many bears are shot in the Southern Circle, perhaps not enough to

warrant a limit being placed on the number assigned to a licence, but it is to be remembered that they were once fairly numerous in Thana and have disappeared from that district. They are nervous creatures and apt to be hasty in action if startled, but generally speaking do no harm.

* * * *

(2) *Northern Circle (Abridged)*

Khandesh—or East Khandesh, was better off than Thana. The bison had gone, but there were plenty of sambar, and, in practically the only locality in the district in which they were found, there was a pretty good stock of cheetal. At one time cheetal had diminished considerably in number through over-shooting but owing to measures taken by Mr. Simcox “a short open season, a limit of one head per licence, and the prohibition of any form of hunting than stalking on foot, or, more accurately, ‘still-hunting,’ they recovered rapidly, and in a few years were again numerous”.

It is remarked that the motor car has changed conditions and it will be necessary to introduce the “block” system as in the Southern Circle. “If the ‘block’ system can be worked in Khandwa it can be equally well worked in Khandesh, and unless it is introduced in Thana I doubt if effective protection is possible there.” “If the Thana forests to take that district alone—were divided up like those of Kanara it should be possible even now (1933) to increase the head of sambar and cheetal (bison I am afraid are past praying for) by systematic closing of a certain number of blocks in rotation, for as long in each case as the results observed from year to year showed it to be necessary, the areas open to shooting having of course each its own annual limit as in the Southern Circle. An obvious advantage of the system over the old one is appreciable simplification for the already hard-worked Forest Officials of the task of supervision.

Sanctuaries

To sum up, the system of licensing that is in force in the Southern Circle having so far proved on the whole adequate there for its purpose, its extension to other parts of the Presidency where there are considerable tracts of forest in fairly regular request for shooting seems desirable. In fact I can see no other means at present available by which the gradual disappearance of the species most generally sought after may possibly be stayed, or the stock increased. Nor can I think of any further measures in supplement that would be feasible. The establishment, for instance, of sanctuaries on the lines of the African Game Reserves (but of necessity on a smaller scale), which I have seen advocated for some parts of India, and which may (though I doubt it) be a practical proposition for them, is manifestly out of the question for Bombay, and likely to be so for a long time to come. Expenditure on a special establishment to look after them could never be justified, and the burden of supervising much larger areas closed to shooting, which would consequently fall on the forest staff, would be made no lighter for them—rather the contrary—by the absence as a matter of course of licensed sportsmen. Sanctuaries indeed other than those of manageable size provided under the rules by temporary closures of blocks, *plus* such natural ones as still exist in parts of different districts by reason of inaccessibility combined with climate, might very well in the end prove to be no sanctuaries at all.

Wild Animals in Non-Forest Areas (Abridged)

.....“Local poachers may be acquitted of blame. The others, from time immemorial...have wandered from one place to another—a gang of them does not want to camp long anywhere, and could not if it would, for they are ‘criminal tribes’ and the Police see to it that they move on..... Antelope and gazelle (blackbuck and chinkara) when I left India had begun to disappear from many places where they used to be numerous, and doubtless the process continues.”.....

Protection in Non-Forest Areas

The difficulty of dealing with this comparatively recent departure is plain, and I must confess I can see no very efficacious way of doing it. Certain measures can of course, and should, be taken, but it is one thing to prescribe rules and penalties, and another to secure their operation, with no particular agency for the most part to rely on. Still, the knowledge that they exist might count for something.

So far little or nothing seems to have been done to limit killing of the species I am now considering. Yet they are clearly no less property of the State than the forest-dwelling species to protect which elaborate regulations are in force. The State is—in theory at least—the owner of all land in a rayatwari Province, with unimportant exceptions, and, as a corollary, of all game to be found on it. If indiscriminate slaughter of game animals elsewhere than in Government Forests cannot be stopped altogether—and doubtless it cannot—yet it is time and more than time for some attempt to be made to delay its progress by rendering certain acts illegal.

A licence for the possession of a rifle can be granted for the purpose of self-protection, of crop-protection, or of sport, for all three purposes, or for any two of them. For self-protection a rifle is with rare exceptions unnecessary and unsuitable, and for crop-protection smooth-bore guns are the most that is needed. Remains sport. In the first place, then, when that is the ostensible object, the licence should prescribe certain definite restrictions on the species of game, and the number of each, allowed to the holder during the period for which it is available. The fee for it should be raised to an amount sufficient to emphasise its dual character—fire-arm and game licence: it should apply only to non-forest lands in the district for which it is issued, all fodder reserves or ‘Kurans’, whether in charge of Forest or of Revenue officials, being excluded: and the species allowed should be only those usually or frequently found outside the main forest tracts—in this Presidency blackbuck and chinkara, but not cheetal. Further, the licensee should be required, like the holder of a licence issued under the Forest Act, to furnish a return of what he has shot within the period of his licence. Such returns, on which very little reliance could be placed,—but they should be required all the same—could be rendered most conveniently perhaps to the Mamlatdars of the licensee’s ‘home’ talukas.

So much for the licence to own a rifle (or gun) for sport, and the conditions to which it should be subject. The next thing to consider is the motor—privately owned, or public conveyance. It should be definitely forbidden, under pain of an adequate fine, to shoot from, or from the cover of, any kind of motor vehicle, and more especially to shoot by the aid of motor head-lights. I believe this prohibition

already obtains in forest areas. The provision that no shooting at all should be allowed from or within a certain distance of a highway should be added in supplement, but it must be admitted that in any case, since cars can be—and are—taken over the roughest tracts across country, it would in practice be chiefly the users of public conveyances that these prohibitions would affect. Still, that would be something.

The last measure of those that I can think of is that to which I referred further back. The sale and purchase of meat or trophies of any kind of game animal, and not only such as can be brought within the definition of 'Forest produce', should be made illegal, and the penalty should be heavy enough to make both buyer and seller cautious. It goes without saying that the bribery of subordinate officials, by the present for instance of part of the meat of an animal shot, is 'illegal gratification', and it is equally clear that it is an offence nearly impossible to detect:—information offered by a jealous rival is about the only means by which it is ever brought to light.

The Motoring Poacher

It was in this context that I mentioned that it was time to get ready for another kind of 'poacher'—one very different from and a good deal more efficient than the resident variety—and this brings me back to the forests, where he has already arrived, though he has not as yet perhaps done very much execution on the whole. The opening up by means of roads for the exploitation of timber of more and more of the high forest areas puts more and more places that were previously hardly accessible within reach of the man who can command the use of a motor car. So far not much advantage seems to have been taken by the unlicensed shikari of roads other than the main Public Works routes that run through forest land, and little damage has been done to species other than cheetal—the most 'get-at-able' for the motoring 'poacher'—but quite sufficient, I am told, to them in some places to give reason for anxiety. If he widens his sphere of operations by taking to Forest roads other species may suffer, but it should be easier to obstruct him here than on the public routes—he will be more noticeable and less mobile, and there is greater likelihood of his falling in with some of the Forest Staff. On the main roads I think the most that Forest Officers can generally do is to keep these gentry moving, but the illegality of shooting without licence should be emphasised by adequate punishment of the offender when he does happen to be brought to book—including attachment of his gun or rifle, which may be unlicensed, or if licensed has probably been brought outside the district for which it is licensed. Ordinarily of course a licence to possess a rifle—or even gun—for sport should not be valid beyond the boundaries of the district in which it is sanctioned.

If distance and the offender's mobility combine to render the already hard-worked Forest official's task difficult in this respect by day, at night it will still more seldom be possible to catch the poacher in the act of poaching—he can get away too quickly. The most that can be done is to watch likely places for him at occasional and irregular intervals—a constant or regular patrol is out of the question—and trust that the knowledge that he may be looked out for, and if caught will be severely punished, will impair the accuracy of his aim. It must always be remembered that this sort of duty is not only arduous and discouraging in its results, but may at times be dangerous. It is a good

deal to ask of a lonely Forest Guard that he should outbluff an armed and probably truculent man—perhaps two or three men—and he may well be excused if he sometimes looks the other way.

Agencies for the Protection of Wild Animals

If things are thus difficult for the Forest Staff in their domain it is clear that the Police—the only agency to all intents that we have in the very much larger non-forest areas—cannot be expected to do much in the way of enforcing the measures I have suggested. Inspection of fire-arms licences comes within the scope of their duties under the Arms Act, and that is almost all they can do. If a constable witnesses or is told of a breach of any of the rules—supposing that something like what I have indicated is done—he will, it may be hoped, report it, and the charge against the offender may be substantiated, but evasion is likely to be easy. The Police have too much to do otherwise for it to be possible to put any of them on special duty as gamekeepers. Local public opinion, what there is of it, will probably be on the side of the offender rather than of the law. If there were large zamindaris in this part of India the problem would be easier, for some measure of non-official assistance could then be looked for, and perhaps local associations formed, as I believe has been done elsewhere.

These species will not have been exterminated of course. Black-buck when hard enough pressed take to the forests, and chinkara are always partly forest-dwellers, being found when undisturbed mostly on the border-line. In forest limits both can, like other species, find present sanctuary, and perhaps indulge the hope of returning some day to their old haunts. I said further back that the formation of larger sanctuaries than what the Forest Game Laws afford, to be looked after by a special department, were out of the question in Bombay for financial reasons. I add here my definite opinion that for forest areas they are also unnecessary. The officers concerned have managed the laws for the protection of game in their own sphere of authority efficiently, and can be trusted to do so in the future, so long as their discretion is not unduly interfered with. The example of Africa, sometimes cited, is clearly no precedent for India—I need hardly set forth the reasons, for that would be to elucidate the obvious. The motor car is likely, it is true, to be an increasing embarrassment, but a special Game Department would be, as far as I can see, in no better case than the Forest Staff for dealing with it. However, I am wandering into an academic discussion—a Game Department is anyhow not a practical proposition for Bombay.

If any rules and prohibitions on the lines of what I have suggested have been enacted already, or are in contemplation. I am sorry for my superfluousness, and can only plead that it is five years since I left India, and that I should have been glad if some one with up-to-date knowledge had been induced to write this article, instead of me. If not, I need only say that except on some such basis I can see no way of reducing even to a slight extent the super-abundance of fire-arm—and especially rifle—licences, or dealing with that infernal invention—how happy we were, game included, without it!—the motor car, and not even a distant hope of restoring to the country-side one of its most characteristic ornaments—blackbuck feeding confidently within view of the highway.

3. (d) ASSAM

BY A. J. W. MILROY

Conservator of Forests, Assam

The question of affording adequate protection to game in Assam is a difficult one that we cannot expect will receive much local attention just now with so many important political changes staged for the immediate future, but in view of the imminence of these inevitable changes in administration it might be undesirable to postpone any longer the consideration of what system of preserving the fauna, whether the present one or something on different lines, will be most likely to survive the introduction of provincial autonomy.

Up to thirty years ago there were still very extensive unoccupied tracts in the Province, the first to disturb them being Gurkhalis buffalo-keepers who began then to invade Assam with their herds, to be followed by ever-increasing hordes of immigrants, after the Brahmaputra Valley had become linked to Bengal by the railway.

Rules regarding close seasons had been framed at an early date for the Reserve Forests in conformity with practice in other parts of India, but game remained entirely unprotected in the waste lands known as Unclassed State Forests, until about 1910 when close seasons were introduced following a letter to *The Times* by Sir Harry Johnston on the indifference shown by Provincial Governments in India to the fate of their wild animals; but as no fees have ever been charged for shooting in the unclassified Forests, there have been no funds for the maintenance of a special patrolling or protective staff, and the protection afforded by the rules alone has consequently been very meagre.

Types of Game Country

Enormous areas of grass and reeds used to extend from the banks of the Brahmaputra towards the hills which enclose the valley on both sides, and it was here that most game used always to be found—rhinoceros, and swamp deer in the low-lying places, elephants, bison and other deer nearer the hills—but these are precisely the very localities that attract the buffalo-herdsmen and the settlers, so that a great deal of this type of jungle has now disappeared for ever and it is only a matter of time before the most of the balance goes too. In these circumstances the policy adopted a few years ago of issuing gun-licences almost indiscriminately has only accelerated what was bound eventually to take place, and what has already occurred in all countries suffering from, or blessed (as the less far-sighted hold) with an increasing human population.

Most of the former great shooting grounds are thus being occupied exclusively by Man and nothing can be done in them for wild animals. There remain for consideration the Reserve Forests, which have been taken up mostly for timber, but which include as Game Sanctuaries two important grassy areas.

Dense, evergreen forests contain comparatively little fodder suitable for game animals, which prefer the more open and the deciduous tree forests, but everywhere in Reserves reasonable game preservation should be looked for, seeing that the sale of shooting permits is a possible source of revenue, that rules exist for the benefit of the various species of animals, and that a Forest Staff is provided by

Government to uphold these and other Forest Laws. It must be confessed, however, that in Assam just as in Burma, judging from some recent Annual Forest Administration Reports from that Province, game preservation is largely a matter of individual whim, and that encouraging results obtained by one Divisional Forest Officer are only too often dissipated during the regime of a successor, who is indifferent to this side of his multifarious duties.

The Assam Legislative Council have recently declared Rhinoceros horns to be forest produce wherever found, it has become much easier to deal into the trade in these, as horns are now liable to seizure unless their possession can be satisfactorily accounted for. No help from the centre, however, can make up for lack of interest on the part of the officers on the spot, though an enthusiastic Conservator can do much to overcome apathy, thanks to the tradition of loyalty in the Forest Service, but to be really effective he must possess both the time and the inclination to tour 'off the map' and away from the usual comfortable, stereotyped marching routes.

At the worst a certain amount of game of most sorts will linger on in the larger Reserves for some time yet, but not in the smaller ones which can be easily raided, and from which animals are always straying into settled lands bristling with guns: at the best, if the Forest Department does not depart from the policy of recent years as regards Forest Villages and as regards demanding the co-operation in these matters of its subordinates, quite a fair number (in some places sufficient to allow of restricted shikar) of the more interesting species will survive in suitable localities within the forest boundaries.

Increased pressure on the outside land being likely to lead to a demand for catastrophic disforestation of cultivable areas inside the Reserves, it would appear to be advisable to proceed cautiously, when and where needs be, with the formation of Forest Villages, especially of non-resident villages which luckily for wild animals are preferable from the utilitarian point of view, as they do not waste good forest land in hamlet sites and cattle-grazing grounds. Forest Officers in Assam will always be dependent on elephants for getting really inside their forests, and this again is lucky for the game, because it is essential permanently to set aside from settlement adequate and inviolable elephant-grazing grounds while there is yet time, for want of which provident measure other Provinces have had to plant fodder at considerable expense for their Government elephants.

It would be illogical to allow villagers to grow crops in a forest and then to withhold from them the means of guarding the same, but the practice lately enforced of calling in guns for safe custody after the harvest is over is only logical and reasonable, and prevents the villagers from degenerating into professional poachers, as some of them have become in the past.

It had been intended, in order to obtain complete control, to acquire on behalf of Government all the guns owned by Forest Villagers for temporary issue at the right time, together with any others that might be necessary, but this measure has had to be postponed until funds become available again.

Game Sanctuaries

The two Game Sanctuaries of which mention has been made are situated, the Monas towards the north-west on the Bhutan frontier

and the Kazirunga in the centre of the valley on the south bank of the Brahmaputra. Both areas were originally selected for the Great One-horned Rhinoceros (*R. unicornis*) they contained, and a very fine stock of these animals was raised as the result of the protection afforded. Kazirunga, the more low-lying, is particularly suited for buffalo too, the Monas for bison along the Bhutan boundary.

The rhinoceros, our most important animal from the natural history point of view, is a difficult species to preserve even though its destruction is forbidden by law, because all parts of its body may be eaten even by Brahmins and because its horn is reputed throughout the East to possess aphrodisiac properties, while it lays itself open to easy slaughter by its habit of depositing dung on the same heap day after day. The demand for rhinoceros' horns has always been considerable in India, but of recent years China has also been in the market, consequent on the practical extermination of *R. sondaicus* in Lower Burma, Tenasserim, etc., with the result that a horn is now worth just about half its weight in gold. The prospect of a lucrative business led to an organization being formed for passing on rhinoceros' horns and elephant tusks to Calcutta, and the disturbed political conditions provided the virile Boro tribes (Meches and Kacharies) living near the Monas with the opportunity to take up poaching on a large scale.

The operations of the financiers in the background were checked for the time being; the advent of the Assam Rifles restored order; additional game-watchers were engaged, and an Assistant Conservator was placed in charge of the Sanctuary to carry on the good work, but in view of what has happened in Burma, despite the best efforts of the authorities there, one cannot be confident that the fight we are putting up will not prove in the end to be a losing one if we merely continue on present lines.

A fundamental obstacle to success lies in the difficulty of identifying poachers unless these are actually caught in *Flagrante delicto*, and this must always be a rare occurrence when members of a gang have only to separate and run a few yards into the high grass to evade capture.

The author pointed out that the two Sanctuaries (Monas and Kazirunga) need roads and camping huts to make them accessible and attractive to visitors, and parts of the former opened to shooting with strict supervision and with very high fees. "It is felt that in this way a healthy publicity would be assured because any one coming up to shoot or to photograph would have plenty to say if game was found to be very scarce, also that the sanctuary would be put upon a paying basis. . . . It is permissible to believe that the sanctuaries might have some chance of survival if they could be made more or less self-supporting—but precious little otherwise, and the question is one on which we may feel sure, advice from the Society from the depths of its experience would not be resented. "The Assam of the future may very well be proud to think it is taking its stand by the side of other civilized countries in saving its fauna from extinction."

Balipara Political Area

Apart from the two Sanctuaries mentioned previously, the rhino have one remaining refuge, namely, the Balipara Political Area. Here some very valuable protection has been afforded to this animal in one area by a planter who is an enthusiastic game preserver. Efforts should

be made now to enlist the sympathies of the authorities who will have to guard the welfare of frontier tracts for many years to come, and who will doubtless welcome more extended interest being taken in a matter that has now become of world-wide importance to naturalists.

The specially favourable factors in the case of the Balipara Political Area are:—

(1) It will permanently remain outside the influence of the new reforms.

(2) It consists very largely of Forest Reserves, which contain a number of rhino haunts, Gohpur, the Diputa, Gabharu and Sonairupa Rivers and, if buffalo-grazing was stopped, the Bor Dikrai.

(3) The tract is under a Political Officer who is provided with summary powers and the means of upholding them.

The possibilities here are obviously great, and the opportunity of achieving something permanent seems too good to be neglected.

Type of Game

By way of conclusion some interesting particulars and observations regarding some of the species found in Assam are given by Mr. Milroy from the abundance of his knowledge and experience.

There is much regarding the Elephant—Rhinoceros—Wild Buffalo—Gaur—Swamp Deer—Sambar—Hog Deer—and Barking Deer; also some remarks concerning the Wild Boar and the Pigmy Hog. The Wild Dog is also mentioned.

The Pink-headed Duck which is possibly extinct elsewhere is remarked upon.

Readers interested should see the complete text of this contribution, which has had to be cut down as to non-essentials for want of space.

3. (c) THE UNITED PROVINCES (UTTAR PRADESH)

By F. W. CHAMPION

Deputy Conservator of Forests, United Provinces

One among the numerous striking results of the Great War has been an awakening all over the world to the fact that wild animals are tending to become less and less in numbers in many countries, and often species that were common a few decades ago are being, or actually have been, entirely exterminated. Most of us who went through the War saw far too much of killing ever to want to see any more, and the natural reaction has been that a new spirit of sympathy with wild creatures has become firmly established in many countries. Wild Life Protection Societies are springing up here and there, particularly in America and England, and the Society for the Protection of the Fauna of the Empire is doing great work in trying to preserve the wonderful fauna of the British Empire from further wanton destruction. An enthusiastic branch of this Society has been started in India and a very good work is being done, but unfortunately it is not receiving so much support from Indians as could be desired. Indians, many of whom are prohibited by their religion from taking life, should be the very first to support such a Society and a number are already whole-heartedly doing so, but real mass support has yet to be received. This I believe to be very largely due to lack of knowledge of the aims and objects of such a Society, and insufficient propaganda, and I am confident that much greater support will be received in future as a result of the great efforts now being made by the Bombay Natural History Society and the various local branches of the Society for the Preservation of the Fauna of the Empire, which all who have the slightest interest in wild animals should join without a day's further delay. After all, once a species of wild animal has been exterminated, no money, no Society, no human agency can bring that species back to the world, and delay in helping those who are doing their best to save species already threatened with extermination may mean that help, tardily given, is given too late.

Position of Wild Life

The present position in the United Provinces is, perhaps, not quite so bad as in some other parts of India, owing to the presence of a very sympathetic government, an influential Forest Department, and great land-holders, all of whom have always remembered that, within limits, wild creatures have just as much right to exist as the human race. The position inside Reserved Forests and in certain large estates, which is fairly satisfactory, will be discussed later in this article, but first the present state of affairs in the ordinary districts will be considered. It is the conditions in these ordinary districts, composing 80 per cent. or more of the whole Province, which are causing so much worry to those who are interested in wild life. Frankly the position is appalling. The vast increase in gun-licences which has taken place within recent years, combined with the greatly improved means of transport, has caused a drain on the wild life of the districts such as can end only in the almost complete destruction of any kind of wild creature considered to be worth powder and shot. Laws do exist

imposing close seasons, but these laws often are not, and cannot be, observed in present-day conditions. Deputy Commissioners and Superintendents of Police in some cases do their utmost, but they are so over-worked nowadays with political and economical troubles that, however keen they may be, they literally have neither the time nor the energy to try to enforce unpopular laws, which, by comparison with present-day troubles, possibly do not seem very important. Further, the responsible officers in a district are very few in number and it is quite impossible for them to stop bribery among their often low-paid subordinates. A rupee or two or a piece of meat is quite sufficient temptation to an underpaid *chowkidar* not to report an offence under a Wild Animals' Protection Act, particularly as it is often extremely difficult to prove such an offence, and, even if proved, a subordinate magistrate will generally let off the offender with a purely nominal fine. It therefore seems that, in the present state of the country, any Act enforcing close seasons outside Reserved Forests, however well it may be conceived, is worth little more than the paper on which it is written. In actual fact special efforts are now being made in Hamirpur and Meerut Districts, to protect *sambar* and *chital*, but it is not known to the writer how far such efforts are proving successful. Animals like blackbuck and *chital* and game-birds, both in the plains and particularly the hills, are literally being wiped out at an increasingly rapid rate and one wonders if there will be anything left except monkeys and jackals after another two or three decades. There is one bright spot, however, and that is that non-game birds at least are not harried to the same extent as in England because the egg-collector is scarce, and the average Indian boy, unlike his English confrere, does not amuse himself by collecting vast numbers of birds' eggs, only to throw them away in most cases as soon as the boy begins to grow up. Taken as a whole there is no doubt whatever but that the position in these plains districts of the United Provinces is just about as bad as it could be, but one must always remember that these areas are very densely populated and that really there is not very much room for any considerable numbers of the larger game animals, which must tend to interfere with the cultivator and his crops. In any case leopards are found in many places, since they are prolific breeders and very difficult to keep in check, and, even if more adequate protection were given to the game animals in cultivated districts, it is probable that their numbers would still be kept down by a corresponding increase in the numbers of leopards.

Sufficient has now been written to show that the position in the cultivated districts is very unsatisfactory, but that increasing population in already heavily populated areas, combined with the present political and economic distress, makes it very difficult to make practical suggestions for improving matters. What can be done is for large land-holders in sparsely populated districts to preserve restricted areas really efficiently and noble examples of what a great help to the wild life of a country such measures can prove to be is to be found in the great swamp deer preserves of Oudh, notably those of the Mahrani Saheba of Singahi and of Captain Lionel Hearsy. The former of these has been under careful protection for many years and an area of perhaps 20 square miles now contains several thousand head of these magnificent deer. A few are shot annually, but the number destroyed is almost certainly less than the natural increase, and these public-spirited benefactors can justifiably feel that, so long as they maintain

their present standard of efficient preservation, there is no fear of the swamp-deer following the already long list of fine animals which have been exterminated from the United Provinces.

Reserved Forests

Now the position of wild animals in the Reserved Forests, of which the writer, being a Forest Officer, has perhaps a specialised knowledge, will be considered. Firstly the writer would state most emphatically that United Provinces Forest Officers as a class are, and always have been, extremely sympathetic towards wild animals. Few are really heavy killers and quite a number do not shoot animals at all, beyond their requirements for food for themselves or their camp followers. An odd individual here and there, both in the present day and in the past, has possibly let his sporting instincts drive him into becoming a really heavy killer, but the amount of slaughter done by the average forest officer in these Provinces is conspicuously small. It sometimes happens that disgruntled sportsmen state that Forest Officers are selfish or destroy more animals than all other classes put together; but these statements are most emphatically untrue and generally have an inner history, which reveals the accuser as having some personal grudge against an individual Forest Officer, which leads him to make general insinuations which are totally unfounded. None could be keener on the preservation of wild life than the present writer, and, if he thought that his brother officers were indifferent to the preservation of wild animals, he would not hesitate to say so. The writer believes that it would be a great mistake to remove the wild animals inside Reserved Forests from the protection of the Forest Department and place them in charge of a separate Game Department. The present system is working very well and such action would be regarded as a slur on Forest Officers and would alienate the all-important sympathy of the powerful Forest Department.

The United Provinces Reserved Forests are not very extensive and they are all under the personal supervision of Divisional Forest Officers. Poaching does occur to a limited extent, particularly during the monsoon when the forests have to be deserted owing to their unhealthiness, and from motor cars, but such poaching is not very extensive and every effort is made to keep it in check. Elaborate rules, which are constantly being amended, do exist for the issue for shooting licences, for the enforcement of close seasons, and for helping any species which is tending to become scarce. These rules may not be perfect—no rules ever are—but at least their object is to provide shooting for all who apply in the right way, and at the same time to preserve the wild animals in perpetuity without letting them increase to such an extent as to become a nuisance to forest management or to surrounding villagers. Species that, for any particular reason, need help are entirely protected, examples being wild elephants for many years and Sambar in Lansdowne division since an attack of rinderpest in 1927; and senior forest officers are always ready to listen sympathetically to applications for protecting particular animals in particular tracts. Even tigers now have a close season and are not allowed to be shot by artificial light. Some may argue that it is a wrong policy to protect tigers, but at least such protection shows that forest officers consider that even tigers have the right to live in their own jungles.

On the other hand some wild animals, such as deer, do seriously interfere with the management and revenue of valuable forests, and

the forest officer cannot allow deer to increase to an excessive extent. In some cases, particularly where the balance of nature has been upset by the excessive destruction of carnivora, deer have become a positive pest, and it has proved necessary to reduce their numbers. Or again, the proportion of hinds may have become excessive, with consequent deterioration in the size of the stags, so that some of the hinds have had to be shot off; but such destruction is stopped as soon as the position becomes normal once again. It is true that individual forest officers, keen silviculturists who have found all their efforts at improving the forests ruined, have occasionally advocated the total destruction of deer; but it is not the general opinion that such drastic measures are required and interesting experiments are now in progress by which considerable areas, in which plantations or efforts at obtaining natural regeneration of valuable trees are in progress, are entirely closed with game-proof fencing, which keeps out the deer. Such fences are somewhat expensive in initial cost, but they can be moved from place to place as required and are probably the best solution for managing forests both in the interest of the forester and also of the indigenous wild life.

It is sometimes stated that, even in the reserved forests, wild animals are much scarcer than they used to be. The writer cannot speak for 30 or 40 years ago since the old records are not clear and he was not in India at that time; but, even if the head of game had diminished, it is possible that the numbers were excessive in the past or that the memories of those who claim that animals are disappearing are a little at fault. After all, most of us tend to think of the 'good old times', although it is possible that those times were not quite so good as they now appear in perspective. An effort has been made to collect figures of animals shot in the past with those shot nowadays for comparison, but records of 30 or 40 years ago do not give the information required. The following are the conclusions that the writer draws from the figures that are available:—

(a) Taken as a whole the head of game shot recently has generally not shown any marked decrease, except in the mountain reserved forests, where control is not so easy:

(b) Tigers appear to have increased and marked decreases seem to have taken place in the numbers of *nilgai*, *kakar*, wild-dog and black-buck. The decreases are partly due to serious floods and rinderpest epidemics, and are probably natural fluctuations which will right themselves in time. Wild dogs have decreased owing to the large reward paid for their destruction.

(c) The decreases in the number of some animals shot recently are due to the removal of rewards as a measure of economy.

(d) It must always be remembered, however, that the number of animals inside Reserved Forests is probably being artificially swelled by the influx of refugees from the appalling conditions at present prevailing outside. This influx will decrease as animals outside become exterminated. Also modern rifles are so good and shooting with the help of a motor car is so easy, that probably a greater proportion of the existing animal population is shot annually nowadays than was the case in the past.

(e) The Forest Department watches these lists carefully and takes action whenever such action appears to be required.

(f) The general impression of senior forest officers is that, although there have been considerable fluctuations in particular areas,

the game in the United Provinces Reserved Forests as a whole has not markedly decreased during the last 25 years, except in the high hill forests.

To summarise, the present position of wild animals inside the Reserved Forests of the plains and foot-hills of the United Provinces does not give cause for serious anxiety, except for the ever-increasing use of that arch enemy of the wild animal—the motor car. The numbers of wild animals in the mountain reserved forests appear definitely to be decreasing. The position in some zemindari estates is good and in others poorer; and the position in the ordinary districts is almost hopeless.

Some Suggestions

The writer would make the following suggestions to help the present state of affairs:—

(a) *Public opinion*

This is by far the most important of all methods of wild life conservation, and, without it, all efforts to preserve wild creatures will prove abortive. Good work is already being done by propaganda and by lectures, but much more remains to be done. Good illustrated books help greatly and the formation of sanctuaries and national parks, where the general public can see wild animals in their natural state, would all help. Major Corbett as local Secretary of the United Provinces Branch of the Preservation of the Fauna of the Empire Society is doing a lot to assist in this work.

(b) *Laws*

It is much easier in the present state of India to pass a law than to see it enforced, but the writer would greatly like to see laws passed on the following points:—

(1) *Sale of shikar meat, trophies, etc.*—It is of vital importance that a law be passed at an early date totally forbidding the sale of any portion of a wild animal, with certain definite exceptions. Such exceptions would be the dropped horns of deer, and the hides of deer where numbers have to be reduced. Special licences should be issued in such cases and such licences, liable to cancellation at any moment, should be under the personal control of the Divisional Forest Officers, where reserved forests are anywhere near, or under Deputy Commissioners where there are no forest officers. The sale of any *shikar* trophy should be entirely and absolutely prohibited. Such a law, properly enforced, would finish the professional poacher, and would end the nefarious dealings of certain taxidermists who sell *shikar* trophies to those 'sportsmen' who are incapable of bagging anything themselves.

(2) *Limitation of gun licences.*—This is very difficult in the present political state of the country, but at least greater efforts could be made to differentiate between game licences and licences for the protection of the crops, person, property or display. Gun licences for the protection of crops should insist that barrels should be sawn-off short, as such licences are very largely applied for when the real object is poaching.

(3) *Motor cars (and also carts and tongas).*—The shooting of any wild animal from, or within, say, 400 yards of a motor car, cart or tonga, either by day or by night, should be made an offence liable to prosecution. The writer personally would like to stop motor cars altogether from entering Reserved Forests, or, where this cannot be

done, he would like to place check-chowkies at the entrances and exits of such roads, the cost to be covered by a small wheel-tax. Fire-arms would either have to be deposited at such *chowkies* or would be sealed, so that they could not be used while inside the forests. The excuse of requiring fire-arms for protection *en route* should not be accepted, as passengers in motor cars very rarely need protection from wild animals, except possibly from occasional rogue elephants or man-eaters. Luckily recent economies have resulted in the abandoning of some of the motor-roads in the Reserved Forests of the United Provinces. The writer would like to see them all abandoned! The old time *shikari* or Forest Officer managed perfectly well without them, and they tend only too often to make his modern successor slap-dash and lazy.

(4) *Protection of rare stragglers.*—It occasionally happens that a rare animal, such as a rhinoceros, strays into Reserved Forests from Nepal or elsewhere. Such animals should be rigidly protected with a fine of, say, Rs. 2,000, or imprisonment, for their destruction. The excuse that 'If I don't shoot it, someone else will' should never be accepted in such cases. The recent law passed in Bengal for the protection of the rhinoceros, should be extended to the whole of India.

(5) *Rewards.*—The writer considers that Government rewards for destroying wild animals should be given far more sparingly than in the past. Luckily, recent economies have resulted in a great reduction in the rewards offered, and it is sincerely to be hoped that such reduction will be permanent. Rewards in the past have encouraged poachers and have sometimes caused an upset in the balance of nature where they were misapplied. They are really quite unnecessary except for man-eaters and notoriously destructive creatures such as porcupines....

Since writing the above I have been reconsidering this question and have read up a certain amount of literature on the subject. On the whole I have little to add to what I wrote before except that I am not so certain as I was that the head of game inside the United Provinces' Reserved Forests is not decreasing. I was posted to N. Kheri Division in 1921 and I returned there again in 1931. Although still a good place for animals in 1931, I would estimate that there had been at least a 25 per cent. decrease in nearly all species during that decade. The reasons for this reduction I would put down to (a) Motor cars making shooting far easier than it used to be, (b) the destruction of game in the adjoining areas outside the forests resulting in a smaller influx and greater damage to animals straying outside.

I am now in Bahraich Division in Oudh, which has a reputation of being a good game division. I have now been here for 5 months and, so far, I have found game of all kinds to be rather scarce, although I hear that more animals come in from Nepal in the hot weather. The reasons for this apparent decrease are the same as in Kheri, i.e., motor cars and destruction of animals outside the forests, combined with increased poaching along and near the Nepal border....

On the whole I am afraid that there is a distinct doubt that the game inside the reserved forests—particularly in Oudh, where motors now penetrate to every corner—is so plentiful as it was, although the present position does not give rise to the same anxiety as is the case with other areas not under the control of the Forest Department.

3. (f) THE MADRAS PRESIDENCY (MADRAS STATE)

By R. D. RICHMOND, I.F.S. (Retired)

Provisions for the Protection of Wild Life

In a consideration of the preservation of the fauna of the Madras Presidency it is to be remembered that here, as in the rest of British India, the State owns large areas which have been constituted Reserved Forests and which, *if properly administered* in this regard, form permanent abodes for game and other animals. All possible types of country are represented and all the larger animals with the exception of the antelopes, are thus provided with *potential* sanctuaries. The habitat of the antelope is for the most part the plains and open fields, but there are certain areas of reserved forest in which they are able to, and do, take refuge.

The area under the control of the Forest Department is some 16,000 sq. miles. Under the Forest Act simple trespass is an offence and shooting is not permitted except on licence, the grant of which is governed by close conditions. Game protection *is a definite duty* of the forest staff and even if the charges are large (the average of a divisional charge is over 500 sq. miles of forest and that of a beat, the smallest division is 10 sq. miles) the machinery for protection exists.

Thus the fauna is provided with somewhere to live permanently and an organization to protect it, even if the personnel of that organization is small and sometimes neglectful of this particular item of its duties. But while there can be no chance of the 16,000 sq. miles of Reserved Forest being appreciably reduced there is a danger of comparatively small areas essentially the habitat, or within dangerous proximity of the habitat of particular species, *e.g.*, the Nilgiri Tahr and the gaur, being alienated and to guard against this a second line of defence has been devised, such areas being *declared* to be game preserves. The whole 16,000 sq. miles is of course a game preserve, but the whole of it is not *essential* to the preservation of the fauna and, where certain species would find themselves unduly restricted by the alienation of the country they exist in, special steps have been taken to preserve it as public property. Although any area may at any time be closed permanently, or temporarily, to the shooting of all animals, or any particular animal, the policy is not to form preserves of considerable area, in which nothing may be shot, as it is considered that one of the best methods of controlling poaching lies in the presence of licensed sportsmen. Shooting is closely regulated in theory at least; though a licence to cover a year's shooting, except in two areas where the shooting is controlled by specially formed associations, may be obtained for the very small sum of 15 shillings. The number of head of each kind which may be shot is prescribed, as is the size of head, the sitting up over water holes or in machans is forbidden and modern tendencies have been guarded against by the prohibition of shooting from motor cars or with artificial light, except in the case of carnivores. Certain animals other than those preserved for sport and which were becoming scarce, *e.g.*, the Malabar squirrel and the black monkey are specially protected, while the shooting of game and other birds is regulated to some extent. Orders exist prohibiting the grazing of cattle in areas specially assigned to the gaur, this step being taken to save them from contact with rinderpest. The grant of rewards for the destruction of wild dogs has been resumed.

While the closest attention is paid to certain classes who will not ordinarily infringe the rules, it is to be feared that the Indian licenceholder, few of whom shoot for sports' sake who pays little attention to the conditions of his licence, and who will entrust his gun to other parties, is poorly controlled. And of recent years the policy has been to grant licences to possess arms to a greater and greater extent, and any one with a gun who lives within reach of areas containing game, is a potential poacher. Also a class of licence, that for crop protection, is responsible for considerable damage; damage which might be mitigated would those responsible consent to the peasant being put to the inconvenience of depositing his arm with the police at times when there are no crops to protect. A further handicap to game conservation is the extremely rapid Indianization of the Forest Service; officers of the new class take at present little or no interest in natural history, or in the preservation of wild life and, as a rule, other activities prevent them from paying sufficient attention to a part of their duties with which they are in little personal sympathy. The difficulty is that there is no public opinion on the subject of game preservation in the country and until this has been created, little will be accomplished. The jungleman is principally poacher, for food or to obtain meat for sale.

The Status of Wild Life

In the Godavari, where the gaur is probably on the increase, chital and sambar are not as numerous as they were: much of the damage, strangely enough, being done with the bow and arrow. For very many years there has been little game in the Ganjam District, so little in fact that the balance of nature is upset and the district is principally notorious for man-eating tigers. The populated north of the vast tract of Vizagapatam and Jeypore, which is a Native State, has little game left in it, but the sparsely populated south is well off for all kinds and is the only place in the Madras Presidency where the buffalo is found. Very little of these areas are Reserved Forests. The Eastern Ghats are of little interest, except for chinkara at the foot-hills and some antelope on the plains. The 2,000 sq. miles of the Nallamalai hills contain plenty of game of all kinds and it is strange that the gaur does not occur. What are known as the Ceded Districts contain very little at the present day. Once the haunt of the elephant, forest destruction preceding cultivation, and accelerated by the goat, has had the inevitable result of driving the game away as well as of reducing parts of the country almost to the condition of desert. There are however, still antelope and chinkara, while sambar are to be found on the hills of Cuddapah and Chittoor; in fact there is still plenty of game in the latter district, even if the glory of the Chamla Valley has departed—due to fewer Europeans visiting it. The Javadi and Salem hills contain gaur which are closely protected and which do some damage to forest works, but the rest of the game animals are poorly represented. The same may be said of the Madura District, principally interesting from the fact that a herd of gaur was cut off when the railway was constructed and, well protected, have persisted. The Palni Hills of Madura provide representative animals on the slopes, the Nilgiri goat (*Hemitragus hylocrius*) on the edges of the plateau (7,000 ft.), while the gaur occasionally visits the plateau. But protection is none too good in spite of a constituted game association. Tinnevely is moderately well off and here too the Nilgiri goat is to be found, though the numbers

have decreased considerably. The forest area of South Coimbatore is famous for the 'Grassy Hills', on the borders of the Cochin State, at an elevation of 6,000–8,000 ft.; the Nilgiri goat being common, while elephant and gaur are to be found on the open grass. This forest division contains in one particular part, the white bison which appears to be developing into a distinct variety.

The North Coimbatore and Kollegal divisions have perhaps suffered more than most, including, as they do, so many villages, from the increase of poaching; but other and perhaps temporary factors are at work, if anything is to be inferred from the varying incidence of the number of game animals in a certain locality: Reported in 1893 as denuded of game, once very common, the old state of affairs was restored from 1901 onwards while there is now again complaint of scarcity. Elephants have increased to an inconvenient extent in numbers of recent years.

The forests of Malabar, that is to say the protected areas, for there are very considerable tracts of private forest land in which there is no protection or shooting regulation, are for the most part exceedingly well stocked with game and other animals of all kinds, particularly elephant and gaur—the forest areas belonging to Government are more compact than elsewhere and there is far less population inside them and on their edges—consequently there is less poaching.

To judge by the complaints of damage done by wild animals it would be supposed that South Kanara teemed with wild life; but such is far from being the case, the complaints being in reinforcement of agitation for the abolition of the forests. But in the upper hills there are sambar and there are a few gaur—also elephants. The tiger, accused of killing great numbers of domesticated cattle (and it is a fact that the mortality of cattle from wild animals is greater here than elsewhere) is in fact rare, the delinquent being the panther, living in low rocky hills distant from the real forests, and killing cattle as there is nothing else to live on.

The Nilgiris, a district at elevation from 1,000–8,000 ft., is richer in fauna of all kinds than any other. Naturally well endowed in this respect, protection in the last forty or fifty years has been good on the whole. The shooting is regulated by a Game Association, the members of which are those who take out annual shooting licences—these are mostly Europeans—and a special protective staff is entertained. The Nilgiri Tahr, its habitat is the Nilgiris (north of which the family is unrepresented until the tahr is found in the Himalayas), Madura, parts of Malabar, Cochin, Travancore and Tinnevely in the extreme south, has definitely increased of recent years; sambar abound on the plateau (a beneficial practice is now permitted in the shooting of a limited number of hinds), gaur, vulnerable to epidemics of rinderpest from time to time, chital and sambar are common on the slopes and lower plateau, muntjac are exceedingly common, as are also elephants. Tigers are commonly found on the upper plateau. The extension of the planting industry has reduced the area available, but there is still plenty of room and, whereas certain animals may appear to be reduced in numbers from time to time in different places, there seems to be no ground for apprehension that game animals are decreasing. A falling off in the number of sambar stags shot by licence-holders by no means justifies the belief that this deer is becoming more scarce—the fact is that there are fewer warrantable stags to shoot for the reason that the best have been shot year after year.

Recommendations

There is no need to apprehend that the fauna of Madras is decreasing to a dangerous extent *at present*, though it would be idle to pretend that there are not forces at work which should be guarded against. Apathy on the part of a new class of officer, who is not interested in sport or natural history, and the increased facility with which arms may be legally possessed may both be corrected. Public opinion may in course of time be developed, though this will necessarily be a slow process and it will be fatal if the impression is formed that the interests of the cultivator will not be protected. There is ample room for the wild animals in the considerable areas of forest land which is the property of the state and which need never be alienated, all that is required is the determination to make protection effective. 'Preserves', in this Presidency at all events, appear to be uncalled for—the whole of the forest area is a 'preserve'—and the regulations permit of certain parts being closed to shooting either permanently or temporarily. 'National Parks', if by these are meant areas which are specially protected and in which no shooting by the public is allowed, but which are maintained so that the public may see and study the habits of wild animals, are on a different footing. These should be of great general interest and educational value and tend to promote that public opinion which is so desirable. A difficulty in connection with these 'National Parks', however, is their location; they should be near areas of considerable population, and be served by roads; also the forest should be of a type which allows of the animals being easily seen. It is perhaps sometimes overlooked that conditions in different countries vary and that what may be suitable in Africa, for example, is inappropriate in Madras.

It will not be easy to find an area which fulfils all the essentials; a considerable sum of money will ultimately be required and it cannot be expected that National Parks will be self-supporting; but the first steps are being taken and it may be hoped that they will bear fruit.

Suggestions are from time to time heard as to the desirability of establishing a separate game department under a Warden. Those who advance this view possibly have the conditions of Africa in mind; in India there is already an organisation one of the duties of which is to protect the animals as in the case of the other contents of the forest—the appointment of a Warden, and some additional staff, would lead to dual control and friction: nor is there any need for it. Properly controlled and supported, with some strengthening in certain places, the ordinary staff of the Forest Department *should* be well able to do what is required.

But the Department requires greater support. It is essential that the authority responsible for the issue of licences under the Arms Act should consult the forest authorities on applications, in respect of residents in, or near, the forest; that guns concerned in shooting offences be confiscated, that the Magistracy should attach greater importance to offences of this class and it is extremely desirable that the sale of flesh at certain seasons should be declared illegal. Finally it is anomalous that the head of the Forest Department should, in theory, be unconcerned with this branch of the work of his department, at present in the hands of an authority which has no occasion to go into the forests and which is not in any way concerned with other branches of forest administration.

3. (g) COMMENTS ON MR. RICHMOND'S NOTE

BY R. C. MORRIS, F.Z.S.

In the note on the 'Game Preservation in the Madras Presidency' it is mentioned that there is an area of 16,000 sq. miles providing a natural Sanctuary for the fauna with the Forest Department as an organisation to protect it, the protection of game being a definite duty of the Forest Staff.

This may be said to apply to nearly every country holding forests with a Forest Department to control the same. Although in theory the machinery for protection exists, and shooting is regulated, in practice it has been found, and I fear always will be found, that Game Protection is relegated to the background as Forest Officers find that the whole of their time is taken up by other work, in other words, the preservation of the fauna takes a back seat to the protection of the flora. That the Forest Department have failed to afford the necessary protection for the fauna cannot be gainsaid, nor can Forest Officers be expected to devote the required amount of time to Game Preservation, however interested they might be in the matter, and I am sorry to say that in many cases these days there is little interest.

It is mentioned that areas denuded of game in 1893 were restored to the old state of affairs from 1901 onwards. I think it would be more correct to have said 'denuded of chital' instead of game. I am fairly sure that the author had before him a note written by a Collector in 1893, and if I remember rightly this only referred to chital in a particular area.

I do not agree with the opinion that there is no cause for apprehension that the fauna of the Madras Presidency is decreasing to a dangerous extent. This statement covers the whole of the fauna and I consider that chital, blackbuck and chinkara have certainly decreased to a dangerous extent and will be extinct in South India not many years hence unless steps are taken in the matter. The Nilgai in South India have already gone the same way.

I entirely disagree with the opinion that the appointment of a Game Warden and special staff for the control of a National Park, Game Sanctuary for the fauna in the Ordinary Reserves is unnecessary, nor can I see how the present staff of the Forest Department will be in any better position to control the fauna, still less a National Park or Game Sanctuary, than it has been in the past. I cannot see how any friction could arise if the Chief Conservator of Forests controlled both the Forest and Game Departments, the Game Warden if required being a Forest Officer specially seconded for this purpose as was the case in Burma. To my mind it is quite certain that a Game Department would improve matters considerably whether a National Park was established or not, and if any doubt exists on this point a visit to Ceylon might be made to compare the condition of game in areas under the control of the Game Association or Game Department in Ceylon with that in the areas controlled only by the Forest Department.

I do agree with the author in his opinion that the present dual control in connection with shooting licences should cease. Shooting licences should be issued by the District Forest Officers (on behalf of the Collectors). Further no arms licences should be issued by District

Magistrates to people living near Reserved or Unreserved Forests without the District Forest Officers being consulted in the matter: more important still Magistrates should be made to take a far more serious view of poaching offences and offences under the Arms Act (illegal possession of guns) than they do at present. Punishments meted out to poachers are ridiculous: an inveterate poacher is not worried at all at the prospect of serving two or three months' imprisonment occasionally.

The status of Wild Life in the Madras Presidency may be put shortly as follows:—

1. (a) *Within Government Forests.*

In one or two districts, take Ganjam for example, there is little or no game left. In other districts a few species exist thinly scattered, and in parts of the districts of Coimbatore, Malabar, Madura and South Kanara game, with the exception of chital and antelope, is still fairly plentiful. The reason is not far to seek. These districts hold areas which have been difficult of access to the poacher and here game still holds its own. Chital and antelope live in country that is easily poached and unless early measures are taken chital, blackbuck and chinkara will be exterminated in South India not very many years hence, just as the Nilgai have been. I say that certain areas 'have been' inaccessible to poachers as with modern guns and cheap electric torches the present-day poacher is a far more dangerous enemy to game than he was in the past. Poachers are now penetrating into parts they have never been into before, and it is a certainty that in course of time no part of the jungle will be free from the poachers' activities. Take for example, the Biligirirangans. Were it not for the presence of Planters residing on the hills to put a curb on poaching sambar on the hills would be exterminated. At the northern end of the hills, in the Kollegal Division far from these Estates, very few sambar are left, most of them have been shot out by the Sholagas who hold guns sometime back 14 guns were seized in one day, but the Sholagas (hold just as many now). In the Mysore part of the hills very few sambar exist although the area is known as the Chamarajnagar Game Sanctuary. What applies here also applies to other districts with the exception of the Nilgiris where the Nilgiri Game Association run a fairly good show. In the more accessible tracts of the Coimbatore, Malabar, Madura and South Kanara Districts the status of Wild Life is parlous in the extreme.

The new experimental measure for the compulsory inoculation of village cattle in the Kollegal and North Coimbatore Divisions should keep bison comparatively free from rinderpest, and it is a measure that I should like to see carried out in other districts where bison occur.

(b) *Outside Government Forests.*

Very little game exists, and the remnant is rapidly vanishing.

2. (a) *The species of animals for the protection of which there is a special urgency.*

Chital, blackbuck, chinkara, 4-horned antelope and, in some parts sambar.

(b) *Animals which do not require vigorous protection but need a modified form of protection.*

Bison only should be placed in this category.

Legislation

3. *The effectiveness of the laws at present in force in various Provinces which regulate the killing or trapping of Wild Life in Government*

Forests. Proposals for their improvement where necessary, particularly in regard to the use of motor cars, dazzle light, nets and pits.

The present laws in force in the Madras Presidency would be very effective if properly enforced. Suggested improvements are:

(1) Considerable moderation in the issue of gun licences especially in areas adjacent to reserved or unreserved forests; (2) the necessity of Magistrates consulting District Forest Officers on all applications for arms licences when the applicants reside within poachable distance of reserved or unreserved forests; (3) the necessity for far more severe and deterrent punishments on offenders convicted under the Forest Laws and the Arms Act; (4) the necessity for District Forest Officers to treat the subject of Game Preservation as one of their most important duties; (5) stricter rules in regard to the use of motor cars for shooting. It is suggested that the Governments concerned should prohibit the shooting of large or small game within 100 to 200 yards of any public road.

There is already a rule against shooting any animals except the carnivores with a torchlight, and I do not think this can be improved upon if enforced properly.

The stricter enforcement of the laws against netting and pitting, both of which are carried on in out-of-the-way parts (instances have been reported recently), and the prohibition of either netting or pitting in *unreserved* forests.

4. *The control of slaughter of Wild Life outside Government Forests.*

This is a more difficult matter, and I am not sure whether Government have any legal right to put forward measures for the control of slaughter in private lands. This is probably a case of educating the land-owners on the matter.

5. *Legislation controlling sale of hides, horns, etc.*

In the Madras Presidency I do not think there is any legislation in force at present prohibiting the marketing of flesh, hides and horns of game animals either in close season or out and such legislation should be enacted at a very early date. A law against the export of plumage exists; and legislation prohibiting the marketing of all parts of game animals throughout the year is very necessary.

Under the heading of legislation I should like to see the Indian Chevrotain or Mouse Deer added to the list of animals completely protected, and the use of a shot gun (buck shot) on all deer and antelope should be prohibited.

In Coimbatore a slip is now added to all shooting licences asking the licensees to look for and report to the District Forest Officer of the Division in which they are shooting all cases of poachers' machans on trees, or hides on the ground, over water and salt-licks which they may come across and this should be made one of the clauses in the Rules attached to shooting licences. If Government could be persuaded to agree to the immediate dismissal of any Forest Guard in whose beat an illicit hide or machan is found the would-be poacher would receive a tremendous knock, as no Forest Guard is going to risk losing his job to help a poacher whatever inducement the latter may offer him.

Administration

6. (a) *The desirability of definitely laying on the Forest Department the duty of preserving the Fauna and Flora (and not merely trees)*

in the areas in their charge; (b) the desirability of creating a distinct organisation within the Forest Department for the protection of wild animals within Government Forests.

I consider it is definitely desirable to create a special department, to be controlled by the Chief Conservator of Forests, for the protection of wild animals within Government Reserved and Unreserved Forests. The control of both the Forest and Game Departments by the Chief Conservator of the Province should remove most causes of friction that may otherwise occur between the two Departments, whether the Game Warden is a seconded Forest Officer or not. However much District Forest Officers are encouraged to treat Game Preservation in the proper light this interest is bound to fade again in course of time and will only be kept alive by the existence of a Game Department with which the Forest Officers will have to co-operate in full. The existence of a Game Department is bound to improve matters whether National Parks or Game Sanctuaries are established or not.

7. *The formation of National Parks or in the alternative of strict Nature Reserves where possible, and*

8. *The question of making separate financial provision or the creation of a special fund for carrying out the work of conservation.*

If the formation of a National Park in the Madras Presidency is considered unfeasible, I do not think the necessity for a separate financial provision will arise as a Game Department would presumably be financed under an increased Forest Budget; but for the creation of a National Park or Game Sanctuaries separate financial provision would be required. Two areas do exist in the Madras Presidency which could be turned into National Parks provided communications are improved, and here the value of having the Chief Conservator of Forests as the head of both Departments will be seen, as in one of the areas the improvement of communications will assist considerably in the extraction of forest produce. In this case the term 'National Park' will not be correct as forest work will be carried on in that area, and it would be a Game Sanctuary, but in either category the control of the fauna in this area should fall on a Game Department, and would have to have a special staff in permanent control special funds for financing the work being drawn from the most obvious sources, i.e., the revenue derived from:—

- (1) Game licences;
- (2) Licences and permits for sporting arms;
- (3) Import and export licences for the above arms;
- (4) Duty on sporting arms and cartridges;
- (5) Licences to sell or store sporting arms and cartridges;
- (6) Fishing licences;
- (7) Fines and penalties for infringement of shooting rules;
- (8) Fines imposed for offences connected with poaching, etc.;
- (9) Sales of confiscated and picked up trophies and parts of game animals and birds (both game and protected).

The other area is I consider eminently suitable for the formation of a National Park and should be self-supporting in course of time.

General

9. *The position of the Cultivator in relation to Wild Life and the provision which might be made for the protection of human life and property in the neighbourhood of forests from the ravages of wild beasts,*

The damage done by wild beasts, *other than elephants*, is very much exaggerated. Elephants do a lot of damage, in fact unless early measures are taken to deal with the elephant menace it will be, and has been in the last few years, an intolerable hardship on the cultivator whose lands are adjacent to or surrounded by forests in which elephants occur. It is suggested that one of the best methods to meet the elephant problem is the appointment of three or four salaried men to shoot the leading offending bulls at the time crops are being raided.... It is only during the harvest season, or for a month before, that the damage from elephant occurs. Ivory from elephants shot would be handed over to Government and should cover the salaries paid out. A strong fence round fields will keep out most of the other animals that matter. The protection of human life hardly comes into the question as regards the cultivated areas of the Madras Presidency, except it be from elephants, and here again the shooting of solitary tuskers has long been advocated being as often as not potential rogues, and nowadays many of them are wounded by the muzzle-loading and cheap breech-loading guns of the ryots in cultivation....

One of the most important aspects of bird protection should be kept well to the fore: the necessity of showing the cultivator where he does wrong in killing out many of the species of birds found on his land, and for this purpose an ecological bird survey should be made of every Province which will prove of immense value in demonstrating the birds that are the friends and the enemies of the cultivator.

10. *Measures to restrict the possession or use of weapons which may be used for poaching.*

A great curb to poaching would be the recall of all guns issued for the purpose of crop protection: immediately harvesting is over, the issue of weapons to applicants must be curtailed: this is very important.

Rewards should be offered, *and paid out promptly*, for information leading to the seizure of illicit guns, *and action taken to recover the weapons immediately information is received*. What frequently happens is this: A Sub-Inspector of Police receives information that an illicit gun is to be found (either in a hut, a grain pit, a hay-stack or more frequently in a watchman's shelter on a tree). Instead of prompt action being taken days elapse before *constables* are sent to recover the weapon and in the meantime it has been removed. To my knowledge this has occurred time and again, the informers get no reward or compensation for their trouble, and so give no further information in regard to any other weapons they may get to know of. The same delay has been experienced over Range Officers taking action when illicit machans and hides are reported, even when instructed to proceed immediately to the spot by their District Forest Officers. A few days are allowed to elapse before action is taken, in the meantime the poachers get wind of the matter and the machans or hides are removed.

A Forest Guard should be immediately dismissed if a poaching case in his beat is not reported by him. It is suggested that a Monegar, Village Munsiff, or Village Headman should be heavily fined if a case of illicit possession of arms is discovered in his village or villages under his jurisdiction. There is not the slightest doubt that every Village Munsiff or Headman knows exactly what arms there are in the village or villages under his jurisdiction, whether licensed or unlicensed.

3. (h) MYSORE STATE

BY MAJOR (LT.-COL.) E. G. PRYTHIAN-ADAMS, O.B.E., F.Z.S.

The State of Mysore is an elevated table-land varying in altitude for the most part from 2,500 to 3,000 ft. above sea-level. The Western Ghats rising to some 5,000 ft. bound it on the west and break the force of the South-West Monsoon. On the south are the Nilgiri Hills and on the south-east the Biligirirangans, the highest point of which is about 5,000 ft. above sea-level. In the interior the country is undulating and in many parts hilly. Generally speaking the northern part of the State consists of open plains with occasional rocky hills, the centre is the most intensely cultivated, while on the western and southern fringes are the denser forests. The total area of the State is some 30,000 sq. miles of which forests cover over one-tenth. The forests are divided into: (1) Game Preserves which are closed to all shooting and fishing except by special permission; (2) State Forests corresponding to Reserved Forests in British India where the pursuit of game is illegal except on licence; and (3) District Forests which now hold little but small game, panthers and wild pig.

Mysore is the fortunate possessor of a fauna so diverse and varied that few other parts of India can equal it. The extensive open plains of the north are the home of numerous herds of blackbuck, which extend more or less over all cultivated areas of the State; the more broken country holds chinkara and wolves, while Nilgai though uncommon are still reported to exist in certain parts. The forests contain herds of elephant and bison, and a good head of sambar and spotted deer, while lesser fry, barking deer, wild pig, etc., are common in suitable localities. The State contains some famous tiger grounds and panthers are ubiquitous though hunting leopards are probably now extinct. Bears are fairly common in certain parts and wild dogs even more so. The list of indigenous small game includes the Great Indian Bustard, Florican, Peafowl, Jungle and Spurfowl, Partridge, Sandgrouse (two or more varieties), several species of Quail, Green, Blue-rock and Imperial Pigeons, and the Indian Hare, to which must be added in the cold weather countless numbers of Snipe, Duck and Teal and some Bar-headed Geese, which find rich subsistence in the paddy fields and on the irrigation tanks with which the State is so well provided. Apart from game birds Mysore is particularly rich in bird life both resident and migrant, and it is to be hoped that before long a regular scientific survey of it will be carried out as has been already done in other parts of South India.

The principal rivers of the State are the Cauvery and Kabbany, and on the northern border the Tungabhadra, and there are numerous subsidiary streams, all of them holding the snub-nosed crocodile and immense numbers of fish: mahseer, carp, murrel, labeo, etc., providing not only excellent sport but also an important item of food-supply to the population.

The above short survey will show how varied the Fauna is, and it now remains to compare the past with the present, to consider the Game Laws, and to make any suggestions for further safeguarding an asset of such importance.

For information about wild life in the State in years gone by we are largely dependent on the well-known works of Sanderson and other sportsmen. In those days there were apparently no game preserves and one gathers, no game laws either. Big and small game of all kinds was plentiful and the bags obtained were certainly larger than would be possible now. But already by 1900 a distinct decrease was noticeable for Russell writing in that year remarks that: 'One has only to read old sporting books and even so comparatively recent a one as Mr. Sanderson's and to know the forests as they are at this day, to fully appreciate the terrible rate at which game has decreased and is ever decreasing in Mysore'; and personal enquiries from older residents in the State confirm a great decrease of big game in the District Forests, and to a lesser degree in the State Forests, though the position in the Game Preserves is less unfavourable.

Due consideration must however be given to the inevitable restrictions imposed on wild life by the opening up of fresh areas to cultivation, the increase of population and consequent increased number of arms licences, and improved communications, and means of transport, and if all these are taken into account, it would be unreasonable to consider the present position as unsatisfactory, though certain steps are most desirable to prevent further deterioration.

Elephants which are strictly protected as in British India continue to provide sufficient numbers for the famous kheddahs as and when required. There is no dearth of bison and good heads are still obtainable. Sambar and spotted deer are still to be found in fair numbers. Blackbuck which in some parts were certainly in danger of extermination before the War have now largely recovered, thanks to protection. Tigers are as numerous as ever in Shimoga and Bandipur though they appear to have deserted Sanderson's old shooting grounds on the south-eastern border, probably owing to all the deer there having been killed off. Panthers continue to be as much a pest as ever. Wild dogs are certainly not on the decrease in spite of the reward placed on their destruction. Bears seem to have changed their habits to some extent and to have become more nocturnal than in Sanderson's time, but though harder to find they certainly exist in fair numbers. Wolves certainly have decreased, which will not be regretted by sheep-owners whose herds used to suffer severely from their depredations. Up to about 1914 a few were shot almost every year close to the capital but a careful search in recent years has failed to discover their existence within many miles of the city. Turning to birds the only resident which has seriously decreased is the Great Indian Bustard. A few pairs still exist in favoured localities in the centre of the State, their numbers slightly increasing as one goes north, but at the best there are very few left and their survival if left longer without protection is most unlikely. Great numbers of partridges and junglefowl are snared and sold in the towns throughout the year and this unrestricted slaughter is already having its effect though there is little fear of their extermination at present. Of the migratory birds duck and teal have certainly greatly decreased in numbers during the past ten years but this is a matter hardly within the control of the State authorities though some improvement might be effected in the case of the spotbill duck and whistling teal numbers of which stay to breed locally, were the trade in their eggs made illicit. The shooting of Demoiselle cranes might well be prohibited in certain areas where their pursuit offends the religious

prejudices of the inhabitants. Their numbers are so vast that there is little fear of their being seriously reduced, but protection seems desirable for the reason given, as more than one fracas has already occurred in this connection.

So far as is known the only attempt to introduce exotic fauna was the importation of a herd of fallow deer a few years back but unfortunately the experiment failed as they were quickly killed off by wild dogs. There should however be less difficulty in introducing gooral which could be obtained without much trouble from the lower Himalayas and for which an ideal locality could be found in the isolated Gopalaswamibetta hill. Such an addition to the fauna would be of great interest as at present this species is unknown in South India.

The Game Laws of the State were revised in 1931 and on paper serve as a model of their kind. In general they follow those in force in the Nilgiris and other parts of British India, but there are two important clauses which strike a new note in Game Preservation in India, viz.: (1) classification of tigers as 'game' with an annual bag limit of two; and (2) imposing on private owners the necessity for taking out a licence before they can shoot game on their own land. The damage done by tigers is often much exaggerated and the help which they give to the ryot by destroying deer and pig forgotten, and the Mysore Government deserves great credit for its bold step in giving them some form of protection, an example which might well be followed in other parts of India. The clause regarding private lands is of course on the lines in force in Great Britain and as such is a distinct advance, though it might have made clear the inalienable right of the owner to game on private land, a most important point which seems to have been overlooked in other parts of India also, as the private owner can do so much to protect the wild life on his land if educated to do so.

A noticeable omission from the Laws is any clause dealing with that modern pest the motor car shooter. Shooting from cars is indefensible; it is not sport but slaughter, and far too many animals escape to die a lingering death. It has been very rightly banned in East Africa with severe penalties, and recently we understand in the Bombay Presidency and in the Nilgiris and Mysore which justly prides itself on being an advanced State would do well to follow this good example. At present the practice is on the increase, and one hears almost incredible stories of bursts of rapid fire at herds of bison, of animals shot and left to rot by the roadside, and of lorries specially equipped with spotlights for poaching sambar, etc., at night. No shooting should be permitted within 100 yards of a car, and heavy penalties enforced for breach of this rule.

As has been said above, the existing Game Laws are a model of their kind, but as has been found in other parts of India, it is one thing to pass a law and quite another to enforce it. The public generally and many even of the subordinate officials appear to have no knowledge of the existence of these laws, far less of their provisions, and poaching is widespread and largely unchecked. Public opinion is not yet sufficiently educated to realise the importance of the preservation of the fauna, and until the scope and purpose of the Game Laws are more widely known, it cannot be expected that their provisions will be generally observed. Much good would be effected if the subordinate Government Officials of all Departments concerned were made to realise their responsibility in the matter, and this applies with

particular force to the Forest Range Officers who if they like can put a definite stop to all poaching.

But still more important is the education of public opinion which can best be effected by propaganda in the Press, by lectures and nature classes in schools and colleges, by the formation of local associations for the study and protection of wild life, and by collaboration with similar societies already existing in other parts of India.

Equally important is the creation of a Wild Life Fund to which would be credited all revenue from arms licences, shooting and fishing licence fees, fines for offences, etc., while the Fund would be used to pay rewards for the destruction of vermin, for preventing poaching, and for the upkeep of a Game Warden and National Park. At present there are in the State no sanctuaries for wild life, though to a certain extent the Game Preserves take their place, but a stricter supervision is required if these are to fulfil a really useful purpose. It is suggested that part of the Bandipur Game Preserve might with advantage be turned into a National Park. This area holds a good head of game and wild life generally, and being adjacent to the strictly preserved Mudumalai forest under control of the N. G. A. could be easily policed. Bandipur lies on the main road some 50 miles equidistant from Ootacamund and Mysore City, and a well organised Park there should prove a great attraction. The existing Travellers' Bungalow could be easily enlarged to provide the necessary accommodation.

There is no doubt that the presence of sportsmen in shooting areas is one of the greatest curbs on the activities of the poacher, and more encouragement should be given them by reducing licence fees which are at present excessive in comparison with the bag obtainable and by throwing open to the general public some at any rate of the Game Preserves.

Legislation is also required to prevent the sale of game in the close season; this would considerably restrict the activities of the motor poacher who shoots solely for gain.

To sum up, the present position of wild life in Mysore is, considering all the factors involved, not unsatisfactory; but this position will certainly deteriorate seriously in the near future unless steps are taken to prevent it, in which connection the following are suggested as most important:

- (1) Strict enforcement of the existing Game Laws;
- (2) Education of public opinion in every possible way;
- (3) Formation of a Wild Life Fund;
- (4) Prohibition of all motor car shooting;
- (5) Prohibition of sale of game out of season and control of traffic in hides and horns;
- (6) Protection for the Great Indian Bustard;
- (7) Encouragement of genuine sportsmen; and
- (8) Establishment of a National Park.

Mysore has been blessed by Nature with an unusually rich fauna, and every possible step should be taken in time to safeguard it and to make its people realise the importance from every point of view of such a national asset.

3. (j) HYDERĀBĀD STATE

BY SALIM A. ALI, M.B.O.U.

The Hyderābād State occupies an area of about 82,000 sq. miles of the Deccan Plateau. Its north-eastern boundary adjoins the Chanda District of the Central Provinces, renowned among sportsmen of the last century as an ideal game country. Hyderābād State at one time, not so very long ago, provided some of the finest big game shooting—especially tiger—in India, and even at the present day in spite of the penetration and colonization of vast tracts of forest land and the consequent depletion of wild life, there still exist in the Dominions parts which are in no wise inferior to the best that can be found elsewhere within the Indian Empire. Some idea of the abundance of tigers in the last century can be obtained from the fact that the famous shikari Col. Nightingale (who died at Bolarum in 1868) alone killed during his service over 300 tigers, the majority of which were in Hyderābād territory.*

Status of Wild Life

The wild life of Hyderābād is as varied as it is interesting. Tigers are still comparatively numerous in the forests of the Eastern and Western Circles, which also contain some gaur. Leopards and sloth bears are fairly plentiful; sambar, cheetal, muntjac, four-horned antelope, nilgai, blackbuck, chinkara, hyænas, wild dogs, jackals and wild pig are found in suitable localities, while there still remain a few cheetahs or hunting-leopards and wolves. Besides these, porcupines and many other species of smaller mammals are found. A few buffalo are said to occur in the Eturnagaram Range of the Mūlūg Talūka (Warangal District) but their numbers are very small. The shooting of buffalo and gaur has been totally prohibited for some years past, owing to which they have, for the time being, been saved from extinction.

In his *Reminiscences of Sport in India* (published 1885) Major-General E. F. Burton mentions a herd of twelve wild elephants near 'Percall' Lake in 1847, which were said to be descendants of animals that had broken loose in the wars about 200 years previously. In 1866 this herd had increased to fourteen or fifteen individuals. Nothing is known as to what became of them until the 1909 edition of the *Imperial Gazetteer*, which stated that there was one single female still left in those parts. Despite the above, however, Nawab Hāmid Yār Jung Bahādūr, the Inspector-General of Forests, informs me that no elephants in a wild state have been heard of in Parkal Talūka within the memory of the oldest man living.

Provision for Protection of Wild Life

Up to the year 1897 or thereabouts, there were apparently no restrictions in Hyderābād against tiger or any other shooting. The

* It is of interest to note that since this article was written, the heir apparent Prince Āzan Jah Bahādūr and party recently (ca. May 1935) in the course of 33 days shooting killed 35 tigers, in addition to bears, sambar and other game in the preserves of Pākhāl, Mūlūg and elsewhere.

present Game Regulations came into force from 28 September 1914. For the purpose of their application, the Dominions are divided into four circles which include both reserved and open forests. They also include Jāgīr and Samastān forests as well as the private Game Preserves or *Shikārgāhs* of His Exalted Highness the Nizām. The Pāigāh Nobles, who have extensive estates (the largest being that of Nawab Moin-ud-dowla Bahādūr which covers an area of 1,287 sq. miles) the owners of Samastāns, and the Jāgīrdārs manage their own forests and are entitled to regulate shooting on their private domains. The rules relating to close seasons, shooting of does and immature animals, and the restriction against shooting buffalo, gaur and hunting-leopards are, however, applicable to them. Theoretically speaking, therefore, no shooting can be done in the State without either a licence from the Government or a permit from the Pāigāh Nobles, Samastān-owners or Jāgīrdārs concerned.

According to the Game Regulations only one circle is thrown open for shooting each year from 1 March to 31 May and again for ten days at Christmas. For blackbuck the open season is 1 December to 31 May. Only half the number of districts comprising such circles are open at a time, and shooting areas in these open districts are also defined. Certain areas are thrown open and others closed to tiger shooting from time to time depending upon the increase or decrease of these animals.

Forest Areas

The most important game forests at present are:

Eastern Circle

1. Warangal.
2. Khammam.
3. Karimnagar.
4. Nizāmābād.

Western Circle

1. Asifābād (formerly known as Jangāon).
2. Nirmal.
3. Mahbūbnagar.

In addition to the above, the forests of Garlāh Jāgīr and Pāloncha Samastān contain big game.

The three principal *Shikārgāhs* of H. E. H. the Nizām are:

1. Pākhāl, situated in the Pākhāl and Mahbūbābād Talūkas of Warangal District and managed by the Forest Department under whom there is a special *Muntazim* or Warden and a staff of watchers. Area 345.75 sq. miles.

2. Saroonagar, and

3. Alampalli both situated in the Atrāf-e-Balda District and managed by a special establishment under the Sadrūl Mohām, Sarf-e-Khās Mubārak.

The Pākhāl Preserve contains mostly all the big game animals of the State, while the other two which are in open scrub country, have chiefly blackbuck, hare, partridge and quail.

The *Shikārgāhs* are governed by special rules sanctioned by the Nizām. The Pākhāl *Shikārgāh* was abolished some years ago which led to a rapid felling and bringing under cultivation of some of the jungles, with a corresponding diminution of wild life. About four years ago the preserve was re-established. Though for all practical

purposes the area is a sanctuary (H. E. H. himself is not keen on shooting, and the two elder princes generally shoot there only about once a year or so) it is doubtful whether with the exception, perhaps, of tiger, the reservation contains as much game as may be expected. The game-watchers that I came across when on ornithological survey work in this part of the country struck me—most of them—as thoroughly inefficient, and information supplied by them, wherever it could be tested, proved unreliable in nine cases out of ten. From my experience of these men (unfortunately the *Muntazim* himself had died just a few days before my coming to Pākhāl) it is not inconceivable that a good deal of poaching is tolerated by them, either actively or through indifference or neglect. A proper enquiry alone can show if at the present time game is really in any better position here than elsewhere in the State forests, if indeed as much. Col. R. W. Burton informs me that in connection with the visit of a Viceroy in 1902 or thereabouts, Mr. Hankin, the then Inspector-General of Police, and Mr. Biscoe, Conservator of Forests, went through the Pākhāl country on purpose to see what game there was. They told him afterwards that they had seen *no* 'animal', and only one peafowl!

Depletion of Game Animals

In spite of the measures promulgated for the protection and preservation of the fauna, which theoretically speaking should give adequate protection to the existing species, Hyderābād unfortunately is no longer the prolific game country it was during the last century, and even during the past thirty years there has been a steady and perceptible diminution. The chief causes of the decline will be analysed later; in the meantime, it is interesting to collate the present conditions with whatever little information we can gather concerning the recent past. In the middle of last century the country between Hingoli and Bōkar (Nāndēd District, Western Circle) was famous for tiger and Col. Nightingale shot many of his animals there. In two seasons (March-April) 1897 and 1899, Brigadier-General R. G. Burton of the then Hyderābād Contingent, killed twenty-six tigers in Sirpūr-Tandūr, mostly round Jangāon—the present Āsifābād. On his last visit to this district in 1899 he still found tigers as numerous as ever, and heard fifteen years later that they were just as abundant. He always thought there was a great breeding-ground of tigers in the stretch of Hyderābād territory south of the Peinganga River in the Bēla and Rājūra Talukas of the Sirpūr-Tandūr District and sees no reason why it should not now be as full of tiger as it was thirty-five years ago. Whatever the reason, those conversant with modern conditions in Hyderābād will agree that this is unfortunately not the case. The Ajanta Range all along the Khāndēsh border north of Aurangābād to Kannad was also famous for tiger in the early part of the last century, but now merely harbours occasional stragglers.

There were a few herds of gaur in Sirpūr-Tandūr in the 1890's. One whole herd was reported to have perished from foot-and-mouth disease at Mānikgarh. These animals are now very scarce, and though I often heard of their occurrence, I actually saw only one pair at Ūtnoor, and from the footmarks I came across in that part of the country they were obviously rare. In spite, however, of the total prohibition of the killing of these bovines, I came across more persons than one who boastfully claimed to have shot them in recent years!

"In days when cheetal were in vast number in the Kinwat (Berar) there were scarcely any in adjoining Hyderābād territory across the river. The same with regard to antelope of which there were vast herds in Berar, but few over the Nizam's border."

Jerdon, in the first quarter of the last century, referred to herds of thousands of blackbuck in the country around Jālna. According to Col. R. W. Burton there were in 1897-1903 blackbuck and chinkara along the railway line between Secunderābād and Manmād, but fast being wiped out. In 1892 he saw herds of many hundred blackbuck when marching through the country. In 1903 these herds had dwindled to a dozen to twenty, not more. Though still fairly plentiful in some of the remoter part of the Mahrattwāda Districts, blackbuck are fast disappearing with the advance of colonisation and increasing facilities of swift transport, coupled with a complete disregard on the part of the man with the gun for age, sex or season. Herds of more than a few individuals are now uncommon, and heads of any decent size difficult to find.

General Burton says that in 1895-99 there was plenty of feathered game in Hyderābād—Grey and Painted Partridge and Sandgrouse. This is now in a particularly bad way and needs speedy and drastic measures to restore it to anything like its former abundance.

My work in connection with the recent Hyderābād Ornithological Survey (1931-32) took me to many parts of the country once famous for game, and I made a point of investigating as far as possible into the present state of affairs. On the whole, it seemed to me that compared with accounts of even as recently as thirty years ago, the condition is distinctly poor, and this conclusion has since been confirmed by the State Inspector-General of Forests. It is true that tigers are still plentiful in certain portions of the Godāvāri Forest Belt, but a rapid diminution in their numbers is inevitable if the present attitude of apathy is persisted in and things allowed to drift as now. Moving about the country as a non-official outsider, I had many opportunities of entering into conversation with people in every walk of life from whom much useful information could be gleaned concerning the subject. Moreover, once their initial suspicion was allayed and they perceived that my interest was chiefly confined to collecting birds, they came out with a good deal more about their exploits with the larger game animals than it would have been possible to extract by direct cross-examination. All I had usually to do was to lead them up to a point and leave them to damn themselves! Even after due allowance for bravado and for shikari's tales, the magnitude of the wanton destruction of life that goes on everywhere, was manifest.

What struck me as curious was that in spite of the formalities and obstacles in the way of getting shooting licences and the limits of bags, as prescribed under the Regulations,* almost every man possessing a gun boasted of the number of tiger, sambar, cheetal, often gaur and other game he had shot and was still continuing to shoot! The more discursive ones could, with sufficient encouragement, usually be made to reveal the objectionable methods they employed, which they often did not unmix with a certain measure of pride in their achievements. In the course of my wanderings in the forest at Nelipāka

* Clause 21 even says 'no application from non-officials will be entertained' but this I understand is now obsolete.

(in the Pāloncha Samastān), Amrābād, Ūtnoor and elsewhere, I constantly came upon machāns built on trees or pits dug round the edges of swamps or pools in nullah-beds, etc., from whose concealment these relentless gunners slaughtered every animal that came to drink, regardless of the season or whether it was male, female or young. The pity of it is that in many cases this destruction is made possible not only by a passive connivance of the petty officials who have a share in the spoils, but often with their direct abetment. A petty police, revenue or forest official who hears guns popping off almost every night close to his village even in seasons when there are no crops to justify them, can usually be induced to 'keep the peace' if he receives a leg of venison as hush-money. I say this with first-hand knowledge, and it is a fact known well enough to many of the higher officials with whom I had occasion to discuss the question, but who are powerless to put a stop to the practice under prevailing conditions. Sambar and cheetal are perhaps the worst sufferers, and in areas where they were plentiful as recently as 10 years ago, a marked decline in their numbers is noticeable.

It is sad, but nevertheless true, that some of the greatest offenders are not the ignorant ryot and the village shikari, but directly or indirectly they are people like vakils, officials (usually, but not always, petty!) and well-to-do and so-called educated citizens who should know better. They either do the slaughtering themselves, regardless of Regulations and time of year, or lend out their guns to professional shikaris, or encourage the latter indirectly by commissioning them to procure game for them or by readily buying up whatever is offered for sale at all times of the year.

This indirect sort of abetment is not confined to four-footed game, but applies largely also to game birds such as partridge and quail. While on survey work on the outskirts of Aurangābād town in the second half of April (1932), I came upon a party of professional snarers complete with paraphernalia and decoy birds. Investigation showed that these men had been commissioned to catch bush-quails for a dinner being given the next day by a military 'Burra Saheb' of the British Cantonments! These professional snarers—Pardis and others—are veritable pests, but it is only thus that they are able to carry on their nefarious operations year in, year out, with the result that in many areas feathered game has been reduced to the verge of extinction. In the words of a highly-placed police officer who was also a keen sportsman and Nature-lover and strived at all times to ensure an observance of the Game Regulations, 'The man with the gun does not do half so much damage (to feathered game) as the snarer. He is like a broom, for he sweeps everything before him into his net.'

Principal Reasons for Depletion of Game

Some of the causes contributory to the rapid and steady depletion of wild life in the Hyderābād State have been hinted at above. Many of them are the same as obtaining in other parts of India, but there are others which are peculiar to the Dominions and the direct outcome of conditions there prevailing. To tabulate them all, they are as follows:

1. Enormous and continued increase of population in the last two decades as shown by the Census Reports of 1921 and 1931.
2. Improvement, extension and opening up of new roads and railway lines (*cf.* the Kazipet-Belharsha line and others) and the introduction and penetration of motor cars and buses, which combined

with (1), are having the effect of throwing open large tracts of country that hitherto provided a refuge to wild life.

3. The facilities provided by (2) in bringing distant game tracts within speedy and comfortable reach of the man with the gun.

Places such as Ūtnoor which formerly took three days by bullock cart over tracks little better than boulder-strewn ravines are performed in 1932 by motor car in about as many hours !

4. Shooting from motor cars and buses both by day and by night is a growing menace. The practice has assumed alarming proportions since the Game Regulations were promulgated in 1914, and since it is apparently not contrary to law, it is freely indulged in by all and sundry.

5. The non-existence hitherto of the Arms Act and the easy availability of cheap guns of foreign and local manufacture, and of gunpowder and percussion caps for muzzle-loaders.

6. Indiscriminate poaching and slaughter of game for commercial purposes at all times of the year.

7. Wholesale snaring, netting and trapping of game birds such as partridge and quail, often at all seasons, and the taking of their eggs.

8. Droughts and epidemics.

9. Wild dogs.

Remedies Suggested

1, 2, 3. Increase of population, clearance of forest lands, extension of cultivation and of transport facilities are the natural concomitant of progress, and it would be unreasonable to check these, except perhaps (1), for which suggestions are out of place here ! No case can be made out for protection of wild life at the expense of human interests. However, a strict observance of the Game Regulations in such areas should be enforced and punishments of a deterrent nature meted out to offenders uniformly, regardless of rank or social position.

4. Shooting from cars and buses, especially by night with the aid of powerful headlights and electric torches, should be made unlawful.

5. The recent introduction of the Arms Act into the State has not been a day too early. The restriction it will impose on the possession of firearms and on the purchase of ammunition, gunpowder and percussion caps should, if properly enforced, have a beneficial effect on wild life in course of time.

6 and 7. It is a fact that most of the poaching—slaughtering and snaring—is done for monetary gain and is encouraged directly or indirectly by people who have no excuse for pleading ignorance of the law. It is an axiom that if there were no receivers of stolen property there would be no thefts committed which, in the main, is unassailable. Therefore, if the promiscuous *purchase* of the meat, hides and horns of game animals (except perhaps of game birds in season under a regulated system) was made illegal, as well as the *sale* of these articles, the chief incentive to poaching would be eliminated and a great deal of professional poaching would disappear. I suggest that as regards partridge and quail, areas should be set apart in rotation to remain entirely closed to *snaring* and *trapping* at all seasons, until such time as they become sufficiently replenished. The taking of eggs of all game birds should be made punishable.

8. *Droughts* can be remedied to some extent by the provision of reservoirs and by means of canals and channels leading from them. This has already been partly achieved in certain areas, *cf.* Pākhāl and Nizāmsāgar Lakes, and others. In times of drought, such places tend to draw round

them animals from distant parts and, wherever possible, adequate forest land should be set apart near such reservoirs to provide harbourage to wild life at ordinary times, and specially in seasons of water famine.

Epidemics

According to the Inspector-General of Forests, no epidemics among wild animals are reported, and no measures are taken to protect game in the forest against them. That measures are called for, however, is patent; an instance has been given above of a whole herd of bison being exterminated by foot-and-mouth disease near Mānikgarh and the late Mr. E. Ogilvie, a District Superintendent of Police, informed me that some years ago hundreds of animals perished in the Warangal District in a similar epidemic.

Large tracts of game country have been known to be cleared by rinderpest and foot-and-mouth disease contracted from infected cattle left to graze in forests inhabited by wild animals. Measures should be enforced that as soon as the first signs of an outbreak of these epidemics are detected in village cattle, they should be prevented from being let loose in Government forests containing game. One epidemic of this sort, as is well known, will do damage from which it will be difficult for game to regain its position for years afterwards. Often the damage is irreparable, and in many cases the serious diminution, or even complete extinction, of bison and buffalo in certain areas can be traced directly to disease contracted in this way from domestic cattle.

9. *Wild Dogs* do considerable damage to game, and in spite of a recent suggestion that their ravages have been over-estimated, it cannot be denied that measures devised to reduce their numbers in certain other Indian States and Provinces resulted manifestly in a corresponding increase of such animals as sambar and cheetal which are their favourite prey. It may be a fact that they actually drive away more game than they kill, but it is none the less true that they do considerable slaughter. Moreover, the game thus driven out often suffers heavily in an indirect way by being forcibly exposed to other dangers perhaps just as great, if not greater. It may, for instance, be driven from its forest fastnesses to the neighbourhood of villages and cultivation, where it stands a good chance of falling to the gun of the village shikari or poacher, or in the case of young animals, to his dogs.

When I was at Āsifābād, the surrounding country was overrun by wild dogs, in consequence of which forests said to contain a fair amount of game ordinarily, were bare. I shot a wild dog which was later sent with the shikari to the kutcheri for claiming the prescribed reward. The Tahsildar was wholly unaware of any reward having to be paid! Enquiries of the Inspector-General of Forests elicited that some years ago rewards were paid for killing wild dogs (as per Clause 42 of the Game Regulations) but due to disuse this had become a dead letter and no rewards were now being paid. In my opinion, no case has been made out for the discontinuance of the rewards and the sooner they are reinstated the better.

The existing Game Regulations, with perhaps a few alterations and additions, are sound enough on paper. Their application and enforcement is quite another matter. Mr. Hankin, a former Inspector-General of Police, tried his best during many years, but though a forceful and able officer, it is doubtful if he was able to effect much. Neither have the authorities at the top relaxed their efforts since, but for all practical purposes the position has not improved. In my opinion

the immediate way of dealing with the problem as far as the State is concerned, would be to form a small committee comprised of a competent non-official sportsman and naturalist, and Forest, Police and Revenue interests to go into the matter thoroughly and *de novo*, and to investigate the exact present position of wild life from district to district. Having once determined this, and with due regard to the varying conditions, they should be able to devise practicable measures for giving effect to the remedies suggested above and to any others that may seem to them necessary.

There are extensive tracts of forest in the State which might be demarcated and set apart as Wild Life Sanctuaries on the model of the National Parks now in existence in most civilised countries of the West. Three suitable localities suggested by the Inspector-General of Forests for such reservation are: (1) along the cart track from Āsifābād to Ūtnoor-Ādilābād District; (2) Amrābād-Mahbūbnagar District; (3) around the newly constructed Nizāmsāgar Lake—Mēdak District. For the administration of these reservations and also for a proper administration of the Game Regulations in other State forests, the need of creating a separate and efficient Game Department becomes imperative. This should consist of a Game Warden with a staff of assistants, and watchers of the right type. It should either be subject to the Inspector-General of Forests and work in full co-operation with his department, or better still be directed by a small committee consisting of the Inspector-General of Forests, the Inspector-General of Police, the Revenue Member and the Game Warden (*ex-officio*). By a curious anachronism, shooting licences are at present issued by the Political Department. Whatever may have been the origin and desirability of this practice in the past, it is clear that the function should now be transferred to the Forest Department where it rightly belongs. Later it could be taken over by the Game Department. The present procedure has little to recommend it; it results in unnecessary inconvenience and lack of co-ordination which does not make for efficiency.

After a proper investigation into the problem of wild life conservation in the Nizām's Dominions, as elsewhere, it emerges more clearly than ever that at the back of all the senseless slaughter and law-breaking, which has brought about the present sorry plight, is the apathy of public opinion towards the need for the preservation of our fauna. The backing of public opinion is vital to the success of a campaign of this nature. Lectures and the exhibition of suitable cinema films should be organised in order to rouse the public from its apathy and make it realise the value and importance of wild life, and appreciate the measures and the arguments put forward for its protection and preservation. A beginning must also be made with children in the schools, by means of properly arranged Nature Study programmes, so that they will grow up to a love of Nature and to a sense of their responsibility for the conservation of wild life which is their natural heritage. Let us hope it will not be too late before the necessary steps are taken by the authorities.

I am indebted for much interesting information concerning game in the Hyderābād State in the recent past to the two veteran sportsmen brothers Brigadier-General R. G. and Col. R. W. Burton, and to Nawāb Hāmid Yār Jung Bahādūr, the State Inspector-General of Forests, for his ready and willing co-operation in supplying me with a great deal of authentic data relating to modern conditions and to the existing Game Regulations and their administration in the Dominions.

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4. A. PRINCIPLES OF WILD LIFE CONSERVATION

BY THEODORE HUBBACK, F.Z.S.

Introduction

Are the principles of Wild Life Conservation to continue as elusive conceptions without material form, or are they to become a living presence increasing in virility year by year?

There appears to be a danger that these principles will be sacrificed for private profit. The present tendency to exploit all natural resources regardless of the future will eventually result in the disappearance of many species of the larger fauna unless such tendency is drastically checked.

Until it is recognized that Wild Life is a valuable natural resource and that the benefits derived from an unguarded resource are wasting benefits, waste will continue till the resource has gone and the benefits have vanished.

* * * *

No natural resource is more sensitive to conservation than wild life, and no natural resource has suffered more from lack of conservation. During the last fifty years species have been exterminated due to this deficiency.

Wild life is only just being recognized as one of our valuable assets, but this recognition is so tardy, especially in some of our Colonies and Dependencies, that there is a very real danger of the recognition coming too late. The days when efficient conservation may be possible are rapidly passing away.

Unfortunately it is a fact that those principles of conservation which it is imperative should be applied to wild life preservation are seldom understood by those who have the power to further or retard the measures desired. The lack of proper financial provision is, I believe, the real reason why in some of our Colonies and parts of India and Burma we are losing our wild life. Those who hold the keys of the money bags never appear to be conservationists!

I shall endeavour to show in this article how senseless it is to expect to save wild life unless the true principles of conservation are recognized and adopted. The 'hit or miss method' of a budget allowance for what is erroneously called 'game protection' will never achieve the saving of our wild life.

To conserve wild life resources you must have a fairly accurate idea of what you have to conserve and what you wish to conserve. In other words, you should know what your stock consists of; you should know where it is to be found; you should have a knowledge of its ecology, numbers and status.

These alone are questions which cannot be answered except after careful research and skilled inquiry.

Let us take the larger forms of wild life and consider certain species. Wild elephants, for instance, may have, as they have in

India and elsewhere, an economic value, apart from the value of their ivory, because they are used for domestic and transport purposes. Therefore, there is probably in such countries a desire to conserve elephants for economic reasons and it is not desired to see the wild stock, the natural resource, exterminated. A wild elephant is certainly out of place in a highly cultivated or industrial area, but not out of place in his jungle habitat, and so long as it is desired to conserve wild elephants for economic reasons, so long should we retain sufficient of their habitat to make that conservation a possibility. But principles of conservation cannot be based solely on such premises. I merely give the above illustration as an instance of one reason for consideration of the problem from an economic outlook.

There is much wild life which we cannot claim as having to our knowledge any direct commercial value to the community, although its æsthetic value may be very great.

One will readily divide the classes of commercially valuable and æsthetically valuable wild-life resources by thinking of fur-bearing wild animals, and the many attractive song-birds which delight our hearts and soothe our nerves. People desire that both classes should be conserved, but for dissimilar reasons. Then again wild life is conserved for recreation all over the world, another reason different from those quoted above.

It is legitimate to presume that there being many reasons for the continuance of wild life in most parts of the world, proper steps for its conservation should be taken, and therefore one would expect to receive the support and approval of the Public for any sound policy of conservation.

It is useless to imagine that you can conserve wild life without spending money on an organization to do so. You get very little in this world for nothing and wild life conservation is no exception to the general rule of having to pay for a good article.

An International Conference for the Protection of the Fauna and Flora of Africa was held in London in November, 1933, and a convention was ultimately signed by the representatives of nine Governments.

Besides the representatives of the Governments immediately concerned the Governments of the United States of America, India and the Netherlands sent observers to the Conference.

This Convention embraced many phases of conservation and should prove of inestimable value to African Fauna and Flora.

Although the recommendations are far-reaching and are vital to a proper system of conservation the question of how the expenditure on such proposals should be met was not referred to in any of the documents published.

Possibly it was not within the province of this Conference to deal with or even refer to the question of financial arrangements: such matters are left to the Governments concerned. Nevertheless the whole constructive policy of conservation may break down, whatever resolutions are passed, unless financial provision is assured for that policy.

It is clear, I think, that as a Nation we are anxious to preserve and keep from extermination the fauna in our charge. To an International Conference for the Protection of Nature held in Paris in July, 1931, the Prime Minister, Mr. Ramsay MacDonald, sent a message of which the following is an extract:

'In the Territories for which they are responsible His Majesty's Government in the United Kingdom regard themselves as trustees for the Protection of Nature not only in the interests of their present inhabitants, but in those of the world at large and of future generations.

'The wonderful fauna and flora with which Nature has endowed the world have already suffered grave losses. Animals and plants of great scientific interest and often of great beauty have been exterminated, objects of great geological interest have been destroyed and the beauties of Nature defaced. Lovers of Nature may do much to stem this process, but if their object is to be secured the active co-operation of Government is essential.'

The obligation of a Nation towards the wild life in its territories is well stated in a speech made by the present King of Belgium, when he was still Prince Leopold, at a dinner of the African Society held in London on November 18, 1933. He said:

'The protection of nature raises problems of universal importance, the evolution of which cannot be left to the initiative of isolated groups, whose action is necessarily limited, and who are unable to enforce in their entirety the effective measures of preservation which are necessary.

'The State alone can and must take the responsibility for a protective organization which will command the interest of all mankind in its moral, social, economical and cultural development; and thus the political aspect of the question becomes apparent.'

Are we, as a Nation, to allow the conservation of wild life to be undertaken by local Governments as a purely domestic policy? The pronouncement of the Prime Minister is against this.

Yet during the last few years, serious steps have been taken by local Governments to prejudice considerably the work of conservation by withholding funds and reducing personnel, making constructive methods impossible. Financial stringency has been the excuse.

In my opinion these unfortunate *contretemps*, which most seriously affect the status of the fauna, can be and should be avoided by a recognition of the fact that there is an intimate connection between the revenue derived from Wild Life Resources and the amount of money that can be spent on its conservation.

This is the base on which a sound financial policy for efficient conservation can be built.

Whatever laws are passed, without adequate means to enforce them, the work of conservation must fail; and to inaugurate successfully a real service for the conservation of wild life there must be a definite financial policy to deal with it. So long as funds can be cut off, which reduce, or even abrogate, the service for conservation, while the methods of destruction are left unchecked by any practical application of the law, so long will our work fail. We must appreciate the fact that failure means the ultimate disappearance of the wild fauna.

We are not concerned at the moment with the laws: their general principles are, broadly speaking, agreed to, and although not consistent throughout our Territories and Colonies could easily be brought more or less into a condition of co-ordination. The great importance of inviolate reserves is now widely recognized, but steps to implement the laws for such sanctuaries are awaited.

What we are concerned with are ways and means to enable the laws we have to be properly enforced.

A method has been adopted in many parts of the United States whereby a 'Game Fund' is established by law—embodied in fact in the Game and Fish Laws—by which all revenue, direct and indirect, derived from Wild Life Resources is credited to the Fund. That money is kept apart from the general revenue and earmarked for the conservation of wild life. The most striking example of the success of this method can be seen in the results obtained in Pennsylvania, U.S.A. This State was 'shot out' in 1890, but in that year a few of the people realized that drastic steps would have to be taken if their wild life was to be saved. Finally a Board of Game Commissioners was appointed, and when the Board began its work in 1896 its funds consisted of the sum of G. \$ 800 only. In 1913 a sum of G. \$ 97,000 was available; in 1930, G. \$ 1,413,251 was the amount budgeted for the fiscal year, June 1, 1929, to May 31, 1930.

Not only was a large revenue obtained, but a 'shot out' State was turned into one of the best sporting States on the eastern side of North America.

Can we afford to ignore such methods which have proved so strikingly successful? I think not.

Another method is by the 'yard-stick,' whereby the amount to be spent on conservation of wild life is budgeted according to the estimated revenue for the year from Wild Life Resources.

But whichever system is used it must be laid down by law, that in the case of a fund—call it 'Wild Life Fund' if you like—that fund cannot be raided or interfered with by the Legislature. The Budget Commissioner, or whoever is the officer handling finance, cannot be allowed to interfere with the proposed expenditure provided it is within the estimated revenue of the fund, or the limits of the measurement by 'yard-stick'.

Whichever system is adopted it must be recognized that the service for the protection of wild life will be expected to protect certain types and forms of the fauna which do not produce any direct or indirect revenue, but still require expenditure on their preservation for other reasons.

It may therefore be necessary before a substantial fund has been built up, to obtain from the general revenue funds for the conservation of insectivorous birds, and other forms of wild life which are of utilitarian value. Later on, as in Pennsylvania, when a solid revenue is assured, such requests will be unnecessary.

The direct and indirect revenue which should be credited to the department for the conservation of wild life should consist of:

Game Licences.

Licences and Permits for Sporting Arms.

Import and Export Licences for Sporting Arms.

Duties on Sporting Arms.

Duties on Sporting Cartridges.

Licences for Purchase of Sporting Arms and Sporting Cartridges.

Licences to Sell or Store Sporting Arms and Sporting Cartridges.

Fishing Licences.

Fines and Costs.

Sales of Confiscated Articles and Picked-up Trophies.

The expenditure should include:

Salaries, Allowances and Transport of Officials.

Construction work on and maintenance of National Parks,

Sanctuaries and Reserves.

Building and Maintenance of Offices.

Predatory Animal Control.

Fencing.

Rewards.

Court Expenses.

Sinking Fund for Leave, Gratuities and Pensions.

The Officer-in-charge of the Conservation Department, with the opportunities that a stable financial policy would give him, could surely organize a service which would not only benefit the wild life of his country but would be of inestimable value to the country itself.

What we are now doing for conservation of wild life in many places is just so much waste of time, because we have never got past the stage of treating the work as a casual matter which can be undertaken by any one.

It is useless trying to build up a staff knowing that just as the work of conservation is beginning to make its mark it is liable to be dispensed with at the behest of some ephemeral office-holder.

The whole matter turns on proper measures being taken to finance the work required. If the system of the 'Wild Life Fund' is adopted, and the organization necessary and possible with the funds obtainable placed in the hands of experienced conservationists, success is assured.

Adequate funds at the disposal of an efficient organization—you cannot have such an organization without adequate funds—would enable the proper guarding of wild life resources, the proper policing of sanctuaries and reserves, the building up of a loyal service for these objects, all of which are quite impossible so long as the position of the staff and the execution of the work has no foundation for lack of a financial policy.

In actual practice the work of successfully conserving wild life is one of considerable difficulty and is highly specialized work. Few have the aptitude to become practical conservationists, and still fewer have the knowledge or experience to enable them to exercise that aptitude if they possess it.

But the real menace to any sound policy of wild life conservation lies in that ugly word 'indifference'. This is generally synonymous with 'ignorance'. The latter is easier to overcome. There is often a feeling, in a new country especially, that exploitation can be better carried on by not paying too much notice to the claims and rights of the indigenous fauna. In the United States of America there has frequently been an outcry against the creation or extension of a National Park by certain of the get-rich-quick fraternity. These people are sometimes described by the elusive expression 'vested interests'. This class of opposition to the conservation of natural resources will be found in many places, generally coming from local inhabitants who are looking for immediate profit and immediate 'development'. Sometimes this indifference to conservation is shown by Governments—no doubt for the same reason.

The opposition to a National Park Project may come from the fact that the conservation would then be real and effective. That, I think, is the truth.

By leaving the financial arrangements for the service of conservation to local Legislatures we are taking a great risk of losing our fauna altogether. Some Legislatures might not object to a *dénouement*!

India, Burma and Malaya have adopted a policy by which many firearms are now in the possession of those whose observance of the laws for the preservation of wild life is only governed by the chances of detection if such laws are disregarded; and although during the last few years the issue of weapons for the destruction of wild life has been great, funds or personnel to ensure the observance of the laws for preservation have not been increased, in some cases they have even been curtailed.

Usually the argument used to justify the supply of arms to the ryot is to enable him to defend his crops; in most cases his crops can be much more efficiently protected by a stout stake and rail fence. In the case of large wild animals, such as elephant, the frequent wounding by firing at them with any sort of missile, even bird shot, merely aggravates the trouble. Guns issued for crop protection are used for poaching, and such poaching can only be kept in check by the enforcement of an energetic policy through an adequate organization.

In the Dominions, especially Canada, the value of the conservation of wild life is well recognized and the work well organized. It is in countries such as India, Burma, Ceylon, Malaya, British Borneo and parts of Africa that so much yet requires to be done.

The principles of conservation have not been fully and generally applied in these countries.

In India there are no appointments of Game Wardens as such, conservation work being entrusted, as a side-show to the Forest Department. Burma had a Forest Officer appointed as a wholtime Game Warden, but directly there was financial stringency, the billet was discontinued, and is still discontinued. A Forest Officer with a full-time job was appointed as an Honorary Game Warden: he subsequently resigned. Another Forest Officer has now been appointed Game Warden.

At the recent Conference on Indian Fauna it was resolved that the Provincial Governments should be asked to appoint Game Wardens. Also that licence fees, etc., accruing from wild life resources should be spent on conservation.

Even these principles had not been recognized, or at least not publicly advocated, in India as vital to the conservation of wild life.

Dr. R. L. Spittel, President of the Ceylon Game and Fauna Protection Society, speaking in London at a meeting of the Society for the Preservation of the Fauna of the Empire on October 8, 1934, did not hesitate to emphasize the parlous condition of the wild life in that Island. Here are some extracts from his Address:

'Those who know our jungles have long realized that unless protective measures are instituted, the wild life of so small an island as ours would soon be doomed.

The story of the Ceylon Game Protection Society, since its birth some thirty-eight years ago, is that of a long-sustained struggle to interest Government in the protection of the larger fauna, which, but for its efforts, would hardly be worth speaking of, to-day.

Owing to the interest taken by Sir Henry McCallum, the then Governor, the Dried Meat Ordinance was passed in 1908 and the Game Protection Ordinance in 1909 when the Yala and Wilpattu Sanctuaries were established; the first real step in protection was then taken.

But since that time things were allowed to drift, and the situation was becoming very alarming.

Game is now scarce even in our remotest jungles, largely because thirsty animals are killed in months of drought (June-August) at water-holes, and their dried flesh bartered. Up to some years ago shooting had to be done by moonlight. The slaughter then was not anything like as terrible as it became with the introduction of the electric torch, by the aid of which animals could be killed nightly throughout the year.

But worse than that, parties began to ply the jungle roads at night in cars equipped with powerful spot-lights, carrying a battery of guns and hand-torches. They blazed away at the gleaming eyes of "timid hunted hares", deer, leopard, or anything they met. One such car to my knowledge was responsible for six deer and a dozen hare in a single night and another for twenty-eight hare in a few hours. One man, accustomed to driving out occasionally for an hour or two at night, accounted in about six years for no less than thirty-five leopards.

When animals thus worried became shy of the roads, the "spot-light sportsman" carried his torch along jungle paths, giving the creatures no quarter in their seclusion.

Then breech-loaders became cheap and began to replace the muzzle-loaders of villagers, who also acquired torches, and the animals were harassed out of existence. Their carcasses always commanded a ready sale to passing buses.

You will inquire, "Were there no game laws to put a stop to this?" There were, but they were not enforced. A policy of *laissez-faire* made even people who should have known better forget the existence of these laws. There was no prohibition against the shooting of any but game animals by night, even with spot-lights from cars. And men going out on the pretence of shooting leopard and pig did not scruple to kill any sambar and deer they met. Sport had degenerated into night-shooting with lights or driving jungles with gangs, legitimate stalking being practised by few.

We, like other countries, realize to the full that this is the age of the destruction of the world fauna, and that many species will be exterminated unless provision is made for their protection.

The spectacle of wild animals in their natural surroundings is one of the greatest joys of man. The true sportsman gradually becomes the champion of wild creatures, and it is chiefly owing to his initiative and understanding that sanctuaries have been established. Nowhere, perhaps, has this been better exemplified than in Ceylon. The religion of the land is mainly Buddhism—perhaps the only religion in the world that extends its benevolence to animals—yet the outcry for protection has come not from the Buddhist, but from the men who shoot.

A sorry picture of the failure of a Colonial administration to enforce its own laws.

Malaya has been, due to unstable and vacillating administrative methods, in a state of disturbance and uncertainty regarding what should be done for wild life, and is still in that state, despite the fact that a full constructive programme in the Report of a Commission appointed to inquire into the whole matter was submitted to the Malayan Governments so long ago as 1932.

In Africa recent reports made at the instance of the Fauna Society showed that in West Africa at least no satisfactory methods of wild life conservation exist.

The destruction of elephants in Uganda goes along merrily, and the following figures taken from the Game Warden's Reports are instructive:

1930 . . .	892	These elephants were officially destroyed.
1931 . . .	1,211	
1932 . . .	1,210	
1933 . . .	1,380	
1934 . . .	1,603	

In the Annual Report of the Uganda Game Department for 1934, the following words appear (para. 34):

'This gives an aggregate wastage of 13,096 elephants, which is the minimum for the period (ten years), and with the addition of tuskless juveniles which are not shown on the returns, and a percentage of elephants which perish in swamps and are never found, the grand total can be taken to be approximately 14,000, truly a stupendous figure.'

Stupendous indeed !

The stock of elephants must be enormous to stand this destruction, because in addition to the above figures, many hundreds of elephants must have been killed or died in other ways. But perhaps this is merely the backdoor to 'birth control', because such disturbance as must result from the harassing, inseparable from so much killing, must react to hinder normal breeding. There is some fatal period reached in the life-history of wild animals when the continuing abnormality of a disturbed existence appears to break their spirit and they are then liable to cease to produce their species. This psychological phenomenon is not properly understood, but is recognized as existing by persons who have studied wild life at close quarters.

These are only meagre outlines, space forbids an extensive review, but they indicate that we have a long way to go before the principles of conservation are applied as they should be applied in some of our Possessions.

In America it is now fully recognized that organizations for wild life conservation are necessary and that proper financial support should be forthcoming based on the revenue which accrues from wild life resources.

Wide latitude in dealing with the funds at their disposal is given to the officers who carry out the conservation programme.

To illustrate this policy I wish to quote from a statement made by Mr. Slautterback, the Executive Secretary of the Pennsylvania Game Commission, at the Annual Meeting of the American Game Association, held in New York, in December 1929. Mr. Slautterback having addressed the meeting on the subject 'Budgeting Game Funds,' was asked certain questions and gave certain answers. Here they are:

MR. ADAMS: As I understand it, you have a separate game fund in Pennsylvania to which all the revenues from licences go automatically, but in making any expenditure against that fund must you receive legislative sanction ?

MR. SLAUTTERBACK: No.

MR. ADAMS: Must you get sanction from any budget commission or any one outside of the Game Department ?

MR. SLAUTTERBACK: We prepare our budget, holding it within our expected revenue. This is presented to the officer and he naturally

approves the budget if our several items are within the estimated revenue. I am referring to the State budget officer.

MR. ADAMS: In the last analysis have they the authority if they wish to use it of making any changes in your set-up, or simply inspect it to be sure that it stays inside of your anticipated revenue?

MR. SLAUTTERBACK: Your explanation is correct—to inspect it to see that it remains within our revenue but to be used for no other purpose except for game protection and propagation purposes.

CHAIRMAN-QUINN: Your Budget Commissioner has no authority to disapprove the budget if it is within your income?

MR. SLAUTTERBACK: He has not.

JUDGE MILES: I would like to ask if it is necessary that the funds accumulated to this department have to be appropriated by the Legislature before it is available?

MR. SLAUTTERBACK: They are not appropriated by the Legislature.

The Game Commissioner is made responsible and is held responsible for the work and is given the power and means with which to do it.

As the exact opposite of this, I should like to mention a case in Malaya where a Game Warden's monthly bills were held up and sent back to him, although they were certified by the guarantee of the Game Warden's signature, because one bill, a recovery for a small petty-cash payment to an illiterate native, was witnessed by one person only and not by two as required by a general order!

Such red-tape entanglements can scarcely come within the category of the 'principles of conservation'.

After all, what are the principles of conservation which we can apply to wild life?

I think we may claim that the chief object of conservation of wild life must be to prevent the disappearance of species. We cannot say we don't want such-and-such a species because it eats our fowls or disturbs our garden; its benefits to the universe in other ways may be more important than our pet fowls or our local garden.

We can say we don't want such species in our backyard and we can take steps to protect our property, but we are wrong if we say such-and-such species should be exterminated. Our knowledge is much too incomplete to allow us to say anything of the sort.

Most people would have answered in the affirmative a question regarding the desirability of the extermination of the shark, and yet the first discovery of insulin, a drug which has brought relief to thousands of diabetics, was made in the liver (pancreas?) of a shark (see *Journal of Mammalogy*, No. 2, Vol. 6, p. 87, 1925).

Therefore, I think the practical application of steps to prevent extermination of species must be the foundation on which to build our framework of conservation.

This can be done in many ways, but the most certain, most equitable and most spectacular method of achieving this is by setting aside certain areas of suitable land as permanent sanctuaries for the fauna.

Conservation must be recognized as a specialized subject and the execution of the duties necessary to conserve any natural resource should be entrusted to, and undertaken by, persons whose training and practical experience enable them to know what is required to make

such conservation a success. This sounds like a platitudinous argument which is redundant in its obviousness ; and so it is, but unfortunately the intelligent minds in this world are in the minority, and it often happens that conservation work is looked upon by the unenlightened mind belonging to someone who is in a position to place conservation on a low plane of activity, as work which can be looked after by any one as a spare-time job. No greater mistake could be made. Until it is recognized as essential to make full-time appointments for those in charge of the work of preservation and protection, so long will the work fail ; as it has failed everywhere in countries where preservation of the fauna is professed but the application of the principles of conservation refused. Certainly we must recognize as one of the practical applications the entrusting of the work to persons with full responsibility to carry out the duties necessary.

We must guard against a present tendency to treat a Game Warden as a conservationist only as a last resort....

But, if a Game Warden is to achieve the objects of conservation he must only take extreme measures when really necessary. It is unfortunately the truth that much unnecessary killing, wounding and suffering is inflicted under the guise of crop protection. Have a proper financial policy with a Wild Life Fund; allow the Game Warden full powers to spend it; then these matters would be dealt with by those who would know what to do and relief could be, and no doubt would be, given to cultivators by fencing and other methods. The dangerous policy of 'control' if not properly controlled is a real menace to the future of many species.

An important principle of conservation is the utilization of natural resources for the benefit of mankind. We cannot improve on Theodore Roosevelt's definition of conservation as 'preservation through wise use'. Only such use may be made of wild life species which we desire to conserve as will ensure that the stock is not dangerously depleted.

A wise policy of wild life conservation will provide for:

- (1) Adequate laws for protection.
- (2) Adequate areas as permanent sanctuaries or refuges for species in their known habitat.
- (3) Adequate organizations to enforce the former and administer the latter.

If these three principles are insisted on, then we may have some hope for the future of the fauna of our Empire, but unless steps are taken, and taken soon, to recognize the critical state of the wild life in many of our Colonies and Dependencies, and to check the present rate of destruction, the future can be contemplated only with apprehension. To those who know how inefficient and inadequate in many places our methods of wild life conservation are, the wild life in such places appears doomed to extinction.

You can replace trees; you can sustain domestic animals by private breeding ; but wild life must have an environment of its own in which to thrive and increase in a natural and normal fashion.

The price to pay for the neglect of the observation of conservation principles as applied to wild life is a terrible one—no less than the disappearance for ever of species after species.

*'Qui nunc it per iter tenebrosus illuc unde negant redire
quemquam.'*

4. B. WILD LIFE PRESERVATION IN INDIA—INDIA'S VANISHING ASSET

BY LIEUT.-COL. R. W. BURTON

This contribution to the *Journal* of the Society was in course of preparation when there appeared in the *Madras Mail* newspaper of 6th January 1948, an article by Mr. D. Dorai Rajan under the caption, 'Preserve India's Wild Life—an appeal for Government Action.'

It is well that the first ventilation of this urgently important subject in the public press since the 15th August 1947 should have been put forward by a national of the new India.

Mr. Rajan's plea deals with South India only, so a similar plea with regard to both the dominions into which this sub-continent has been recently divided is now placed before the members of the Bombay Natural History Society—which has been for many years in actual fact an All-India Society—and the readers of the *Journal*, and through them to the public at large, the Governments of India and of Pakistan; all the Provincial Governments and rulers of States, and all owners of land.

The Bombay Natural History Society

For many years the Society, through the medium of its *Journal* and other attractive publications, has endeavoured to create and stimulate in India an interest in the wild life of the country. During the past sixty years there have appeared in the *Journal* upwards of fifty longer and shorter articles and editorials on the subject. It was to a great extent owing to the Society that Act XX of 1887, 'An Act for the preservation of Wild Birds and Game' (passed after nearly 30 years' agitation in the matter), was replaced by 'The Wild Birds and Animals Protection Act (VIII of 1912) which, together with the Indian Forest Act (XIV of 1927) is the basis of all rules in force at the present time.

Principles

In all civilized countries there is a general recognition of the need for concerned and practical measures to stop the forces of destruction which threaten wild life in all parts of the world. The principle is the same everywhere, the methods to be employed must vary in every country, and will also vary in different parts of the same country. That has special application to India as a whole, and is the reason why legislation on wild life in this country has been complex and difficult.

'Until it is recognized that Wild Life is a valuable natural resource, and the benefits derived from an unguarded resource are wasting benefits, waste will continue until the resource has gone and the benefits have vanished. No natural resource is more sensitive to conservation than Wild Life, and no natural resource has suffered more from lack of conservation. During the last sixty years species have been exterminated due to this deficiency' (Hubback).

At the present time the pace and extent of the waste is alarming. In this country there is the gravest need for concerted action.

'In its fauna and flora nature has endowed India with a magnificent asset. A further interest attaches to our wild life from its association with the folk-lore and legendary beliefs of the country. It is an interest not confined to India alone, but which has spread among men of culture everywhere because of the esteem and admiration in which her sacred books and writings are held' (Prater).

Birds

Although birds are not now persecuted to the same extent as animals, yet an enormous amount of unnecessary and preventible damage is going on. One bright spot in India, as Champion has remarked, is that non-game birds are not harried to the same extent as used to be the case in some western countries, for the Indian boy does not amuse himself by uselessly collecting vast numbers of birds' eggs. But India had the dreadful plumage trade, which was far worse.

The Great Indian Bustard is becoming increasingly scarce and has gone from areas where it was common not many years ago. The Monal Pheasant and the Tragopan of the Himalayas have been saved only through prohibition of export of plumage. Other birds saved from what would have practically become extermination through the extremely lucrative plumage trade were peacocks and black partridges, egrets, jungle-cocks, paddy-birds, kingfishers, jays and rollers, orioles and a host of others. The governments controlling Pondicherry, Goa and other ports on the coasts of India co-operated, so the traffic was stopped. But there were many subsequent cases of smuggling, and these will certainly recur if the plumage trade measures are ever relaxed.

All interested in bird life should take warning through perusal of Mr. Dodsworth's illuminating article (17).

Now that Burma is separated from India it behoves the governments through their Customs Departments to be increasingly vigilant, not only at all the ports but through the post offices and along the land frontiers also.

Nomadic Tribes

In all tracts where the snaring and netting of ground game is the hereditary occupation of various nomadic tribes partridges, quail, florican, hares are fast disappearing. These people, expert in their calling for untold generations, sweep the country as a broom sweeps the floor; nothing is passed over, nothing is spared.

The time has long past when snarers of indigenous game birds should be allowed to continue to earn a livelihood in that way; in any case all markets should be denied them, and public opinion should recognize that flesh of such wild creatures is not in these days at all necessary for human existence and should ban the killing of them for food alone. Properly regulated sport may be allowed during the seasons prescribed by local governments in respect of each species.

Within a considerable distance also of Calcutta, Bombay, Madras and other large places markets are supplied in season and out of season through other agencies and local 'shikaris' in spite of the local government close season rules under Act VIII of 1912.

Even if legislation on lines suggested in this article is effected, however much it can and may help in the endeavour to protect wild life, anything like *practical* success is possible only if there is a strong

Public Opinion co-operating with the Governments. That cannot be too often reiterated.

Value of Birds

In connexion with all that is written above the thought-provoking article, 'Bird Protection in India: Why it is necessary and How it should be controlled,' by Sálím A. Ali, M.B.O.U., contributed in 1933 to the U.P. Association should be read by all governing bodies. Indeed it is most essential to national India that bird life should be adequately conserved. For 'Quite apart from a sentimental value, birds render incalculable service to man. Without their protection our crops, our orchards, our food supply would be devoured by hordes of ravaging insects. Birds are the principal agency that controls the bewildering multiplication of insect life which, if unchecked, would overwhelm all life on this planet' (Prater).

Species in Danger

Mammals

The Great One-horned Rhinoceros has only been saved by special measures and these, if in any way relaxed, will inevitably lead to its extinction. A close relative to the above, the Lesser One-horned Rhinoceros (*sondaicus*), which has been within the memory of many an inhabitant of the Sunderbans jungles and other tracts, has completely disappeared—none now exist on the soil of India. The Asiatic Two-horned Rhinoceros which occurred in parts of Assam has gone from there for ever, and both these species are approaching the vanishing point in Burma and other countries where they were formerly in fair number. In Burma the Thamin Deer is probably doomed to extinction.

In Western Pakistan and neighbouring mountains the Straight-horned Markhor is rapidly disappearing; and if the Punjab Urial is not carefully preserved that species will not long survive.

The Indian Antelope (Blackbuck) is becoming increasingly scarce and will eventually only be preserved through protection; to a less extent the same can be said of the Indian Gazelle. The Cheetah or Hunting Leopard, was not uncommon in the central parts of the Peninsula but is now practically extinct in a wild state. The Wild Buffalo has almost gone from the areas east of the Godavari River where it was common not long ago; and it needs continued protection in Assam. The Asiatic Lion in India has only survived in its last stronghold through protection in the Gir Forest of the Junagadh State in Kathiawar.

'In many districts the larger animals have been totally wiped out. In others, where they were once common, they are now hopelessly depleted. There are a few parts of India where the position of wild life is to some extent satisfactory, though insecure. Equally there are extensive areas where conditions are so appalling that, if left unchecked, they must lead to the complete destruction of all the larger wild creatures which live in them' (Prater).

Year in year out there is terrible destruction throughout the enormous tract of mostly hilly and forested country comprising the Eastern States, from the Godavari River as far as Bengal, some of which are being now merged into India. The methods of the aboriginal tribes inhabiting this huge area (and other parts of India also) are those of extinction, for they net, snare, shoot all edible living creatures at all possible seasons and particularly during the hot weather months when

water at the few pools is a necessity to all and renders them an easy prey.

In the Himalayan mountains also where control is difficult wild animals are definitely decreasing, and only to be found in any number in the more inaccessible places.

Time for Decision

The Governments have to decide without delay if wild life is to be effectually preserved or the present lamentable state of affairs allowed to continue. In the latter event there can be but one result—the total and irreplaceable extinction of some forms of wild life, with everywhere woeful reduction in number of all wild animals and many species of birds.

There is no middle course. Half measures will be futile and waste of time. Wild life is a national and natural asset which, if it is ever lost, can never be replaced. It is necessary that governments should give a lead, a strong and unambiguous lead.

India and Pakistan should be proud to stand side by side with other civilized countries of the world in saving their fauna from extinction.

In these days public opinion should recognize that flesh of wild animals is not necessary to human existence; but public opinion may not eventuate for many a long day. Meat-eaters want something for nothing and care not how they get it. Posterity means nothing to them.

One instance. In November 1947 six shot carcasses of chital hinds were found with a man in a country bazaar in a British District. Police said prosecution doubtful because no evidence as to where the animals were killed. But a so-called 'Sanctuary' was not far distant. Burden of proof should be on the possessor. In any case Rules under Act VIII of 1912 must have been contravened and conviction could have been had.

Legislation, and that very speedily, should absolutely prohibit offering for sale, possession for sale, or marketing in any way the hides, horns, flesh or any other part of any indigenous wild animal throughout the year. And, as was done by Notification in 1902 to suppress the plumage trade, so also should the trade in products of wild animals be stopped by prohibition of export by sea, and by land now that Burma is independent of India.

It would appear that there is no possible objection on religious or other grounds to a general law throughout the whole country to the above effect. Profits are large and really deterrent sentences would be necessary.

Public Opinion

At the present time public opinion as to wild life preservation is almost non-existent in this country. It is only through public opinion that wild life can be saved and preserved through all the future years.

Hear a great statesman of former days in another land:—

'In proportion as the structure of a Government gives force to public opinion, it is essential that public opinion should be enlightened' (George Washington).

In these days that is done through the many avenues of propaganda.

Propaganda

Political parties in this country have been able to rapidly rouse and educate public opinion in all kinds of political matters. Is it not

therefore possible that through like efforts the thoughts of the people can be directed towards the necessity of the conservation of this national asset of wild life? It *can* be done. Great are the powers of propaganda.

Let the secular and religious leaders of the people lend their great influence and abundant powers of persuasion to furtherance of this most pressing need. Where there are religious influences at work wild life is sacrosanct. All of us know that. We see it everywhere: peafowl, parrots, pigeons, monkeys, nilgai and other species—fish in sacred river pools. Even where some of these creatures cause much loss and damage to growing crops and to gathered grain they are protected through religion.

Where the rulers of States have made their wishes known and enforced, wonderful are the results. Instances are known to those having this subject at heart; a number are known to the writer.

Enemies to Wild Life Preservation:

Forgetfulness—Indifference—Ignorance—Greed for Gain

Laws are enacted, rules are made and forgotten, for there is no continuity of official enforcement and no public opinion to keep them in mind.

India

Within not many years Act VIII of 1912 was forgotten, the wide scope of its provisions unknown. The rules under the Act were ignored and its provisions a dead letter.

1933. 'The Governor in Council has reason to believe that there has been little improvement in the administration of this Act and that subordinate officials are, not infrequently, offenders against its provisions, × × × × it is believed that sheer ignorance of close seasons is in many cases the cause of offences against the Act'....

Ceylon

Notwithstanding a much interested and powerful Game and Fauna Protection Society, the many difficulties of which are related in Vol. 35, pp. 666 *et seq*, it has not been possible to effectually preserve wild life. The Annual Report for the 54th Season states:—'Poaching in undoubtedly on the increase, and in some areas wholesale destruction goes on.' And that is after 54 years of endeavour to save the fauna of the island for posterity!

How could it be otherwise? In 1907 the reply of the Ceylon Government to urgent representations of the Society for effective action elicited the reply, 'Our Game Laws are quite efficient, but we regret we have not the power to enforce them'. It would seem that the same answer would have to be given to-day.

Up to now the position in India has been similar to that. 'The laws and rules are well framed but are not sufficiently enforced' (Editors). It cannot be too often asserted, 'Existing laws and rules are excellent in themselves but it is in the efficient application of them the trouble arises' (Editors).

Guns and Greed

Apart from genuine sportsmen, it is the possessors of guns and rifles who do the greatest amount of harm. In many cases it is not the actual licensee who does the damage, but the illegal habit of

lending or hiring out the weapon to others. Could the abuse of licence granted as a personal privilege be stopped much good would result. But how is this to be done? Only through public opinion could it be effectually curtailed. So what? Suggestions as to Arms Act, if carried out, would do some good.

It is as a poacher that man is the great destroyer; and the main incentive is profit by selling hides, horns, meat—to a less degree, is it meat only. In some places local dealers finance the village shikari, providing him with guns and ammunition in exchange for hides, etc. Sambar and chital hides and heads are openly bought and sold in many bazaars and there is nothing to prevent it. Sale of trophies is common in many large towns and cities. To deprive sellers of their markets by effectively enforced legislation and through public opinion is the only way to remove temptation to kill for profit. If there were no buyers there could be no sellers. Utopia!

Crop Protection

It has always been pointed out, and is notorious, that crop protection and other weapons are used for the slaughter of game animals in adjacent and further forests regardless of all laws, rules, age, sex, season, or any other consideration whatever than profit. All this and other poaching is mostly carried on in Government Forests, for there are to be found more animals than outside them.

So far as crop protection goes the argument in the mind of the cultivator is that if there are no animals the crops will not be eaten, so he may as well hasten the coming of the welcome day and meanwhile make money for himself and provide meat to the community.

Guns

The great increase over former years in the number of licensed guns is producing its inevitable adverse effect; and there is the mass of unlicensed weapons carefully concealed and constantly used. While the reduction in the number of weapons is admittedly a difficult matter—the withdrawal of crop protection guns during the seasons when the crops are off the ground and the guns not needed for legitimate use is a reasonable proposition. That would be of much benefit as those are the months in which they do the most harm.

A suggestion from Assam was that crop protection guns now owned by villagers (more especially those inside Government Forests) might be acquired by Government for temporary issue at the right time and withdrawal when no crops, or for other reason.

It is not likely, however, that Provincial Governments would adopt these gun withdrawal suggestions on account of practical difficulties and extra work to District Magistrates and other officials.

A proposal advocated by many is that crop-protection weapons should be licensed for cut-short barrels only. Cogent arguments against such modified weapons are that they are more liable to be loaded with buckshot, so causing many animals to be wounded and lost; are dangerous in hands of such persons as ordinary cultivators; and such restriction would cause an increase of concealed weapons for poaching.

It has been demonstrated in South India by Colonel R. C. Morris that bamboo-tube rocket-firing 'guns' are both cheap and effective for scaring crop-raiding wild-elephants, so firearms need not be used against them by cultivators.

Such 'guns' could also be effectually used in many forest areas against other crop-raiding animals and so enable a large reduction in the number of guns now licensed for ostensible crop protection.

The Arms Act

Some Suggestions

Firearms licences are issued for:—

(1) *Sport*.—These should be breech-loaders, and in case of rifles may be magazine weapons. Automatic weapons and muzzle-loaders should not be licensed for sport. The former lead to indiscriminate firing, the latter to cruelty through use of buckshot, bits of iron, old nails, etc.

(2) *Crop and cattle protection*.—These should be smoothbore guns only; and being by law available at holder's residence only, due care on part of licensing officer can limit use of the weapon to *within village boundaries only*. These are surveyed and marked in forest maps so above entry would have effect of a conviction where otherwise a loop-hole might exist. Perusal of an annotated edition of Arms Act and Rules is illuminating as to number of avenues for escape of the wrong-doer under all categories.

(3) *Personal protection*.—The only weapons allowed, unless the licence is for sport also, should be revolver or pistol. A rifle or shotgun is easily robbed and just as easily turned against the possessor.

(4) *Display*.—This meaning 'show with ostentation' such weapons only as are non-lethal should be licensed for this purpose.

In all cases licence should be plainly crossed with words 'Sport only' or 'Personal protection only', etc., as the case may be.

Licences for possession of smoothbore guns are ordinarily issued on application and without previous enquiry. Other licences are issued to persons of approved character and status, this latter being as may be prescribed by the Local Government.

Were the foregoing suggestions adopted there would be no real hardship to any one, and wild life might greatly benefit.

Agriculture and Wild Life

For purposes of wild life conservation lands may be classified in five main categories:—*Urban—Agricultural—Waste—Private—Forest*.
Urban Lands

In these, measures should be taken for the protection of all birds. Areas actually under the control of municipalities or local boards could with advantage be constituted bird sanctuaries where the killing of, or taking the eggs of, any wild bird should be forbidden. The necessary machinery is at hand in Act VIII of 1912, relevant sections of which are here given for use with this and other parts of this contribution.

Whereas it is expedient...

1. (1) This Act may be called the Wild Birds and Animals Protection Act, 1912; and
- (2) It extends to the whole of British India, including British Baluchistan, the Sonthal Parganas and the Pargana of Spiti.
2. (1) This Act applies, in the first instance, to the birds and animals specified in the Schedule when in their wild state.
- (2) The Local Government may, by notification in the local official *Gazette*, apply the provisions of this Act to any

kind of wild bird or animal other than those specified in the Schedule which, in its opinion, it is desirable to protect or preserve.

3. The Local Government may, by a notification in the local official *Gazette*, declare the whole or any part thereof to be a close time throughout the whole and any part of its territories for any kind of wild bird or animal to which this Act applies, or for female or immature wild birds or animals of such kind; and subject to the provisions hereinafter contained, during such close time, and within the areas specified in such notification, it shall be unlawful—

- (a) to capture any such bird or animal, or to kill any such bird or animal which has not been captured before the Commencement of such close time;
- (b) to sell or buy, or offer to sell or buy, or to possess any such bird or animal which has been captured or killed during such close time, or the flesh thereof;
- (c) if any plumage has been taken from such bird captured or killed during such close time, to sell or buy or to offer to sell or buy, or to possess such plumage.

4, 5, 6, 7. Penal and other provisions.

8. Nothing in this Act shall be deemed to apply to the capture or killing of a wild animal by any person in defence of himself or any other person, or to the capture or killing of any wild bird or animal in *bona fide* defence of property.

9. Repeals Act XX of 1887.

The Schedule

- (1) Bustards, ducks, floricans, jungle fowl, partridges, peafowl, pheasants, pigeons, quail, sand grouse, painted snipe, spur-fowl, woodcock, herons, egrets, rollers and kingfishers.
- (2) Antelopes, asses, bison, buffaloes, deer, gazelles, goats, hares, oxen, rhinoceros and sheep.

In 1915 (Vol. 24, p. 382) it was pointed out that the practice of taking the eggs of sitting pheasants and partridges is becoming increasingly common and to this malpractice the Act provides no safeguard. That suggestion has not been followed. To the above may now be added that it is a common practice to rob for food the eggs of indigenous wildfowl—the Spot-bill Duck and the Cotton Teal.

The suggested amendment to Section 3 was addition of a clause regarding eggs and nests. This suggestion is now against brought to notice as desirable.

‘To take or possess, to sell or buy, or offer to sell or buy, an egg or eggs or nest of any such bird.’

Agricultural Lands

Here lies the clash between the interests of Man and Animal; for which there are two main reasons.

Firstly, the population of the country is increasing by about five millions yearly, so the areas under cultivation are extending, and must continually extend to the utmost limit, which means the continual absorption of all cultivable waste lands and secondary forest lands.

Secondly there is the imperative need of protecting present and future cultivated lands from wild animals.

In some parts, where cultivation is contiguous to or near Reserved Forests the depredations of wild animals present one of the most serious handicaps the cultivator has to face. The animals are not only deer

and pig and some species of birds, but nilgai, monkeys and parrots which are protected by religious beliefs.

'Human progress must continue, and in the clash of interests between Man and the Animals human effort must not suffer. But this problem has been faced by other countries. Cannot a reasonable effort be made to face it in our own? That an intensive development of the agricultural resources of a country may accompany a sane and adequate policy for the conservation of its wild life is shown by the measures taken to this end by all progressive countries' (Prater).

But in those countries there is universal literacy, a people easily educated to a proper public opinion, and where the masses do not clamour for possession of guns and rifles and even for repeal of the Arms Act.

Waste Lands

These are beyond redemption as to wild life, and in any case all that are at all cultivable will soon be merged with Agricultural lands.

Private Lands

The general consensus of opinion is that in most ordinary tracts the position is hopeless. The people have been educated to destroy, and there is no agency to stop it. Only through the owners themselves and through propaganda can any change be wrought: and before these operate the position is likely to be beyond any remedy.

Some private lands, however, have forests for which rules have been framed to regulate hunting and shooting, while in others no rules have been framed. The wild life situation in all these depends on the amount of control exercised by the land-owners. Some United Provinces land-owners maintain renowned Swamp Deer preserves.

The Wild Birds and Animals Protection Act, 1912, deals with the right of private owners only in so far as it prohibits the shooting of the specified animals whether on private lands or elsewhere. This prohibits private owners killing females of deer, etc., and killing during prescribed close seasons.

Government Forests

These are of several kinds and mostly under the Forest Department, but some are under Revenue Department; none of the latter are Reserved Forests.

While it is essential that the cultivator should have reasonable latitude to defend his property, it is equally essential that there should be certain areas of Reserved Forests, where the laws and rules for protection of wild life are, or should be, rigidly enforced.

State-owned Reserved Forests, similar forests in the Indian States in the Terai tracts of the frontier States of Nepal, Sikkim, Bhutan and some private forests are now, and must continue in future to remain the natural sanctuaries for wild life in this country.

That purpose they would adequately fulfil as regards most of the species in the Schedule were they *adequately guarded*. That is the crux of the whole problem. And with that is linked the proper enforcement of the relevant laws and rules governing the possession and use of firearms and the control of legitimate sport.

Legitimate Sport

Shooting Rules and licence conditions for Reserved Forests as at present framed for the several Provinces and Districts, also for some of the larger States, are good and well adapted to local conditions.

They provide against all conditions, all malpractices, including the motor vehicle and use of torch against deer.

Licence fees are on the whole rather cheap; and where the Shooting Block System does not obtain, and District or Forest Division licences are issued for a whole year on payment of a very small fee, the introduction of the Block System would cause a larger number of sportsmen to visit the forests. This is productive of much good, for when right-thinking sportsmen are in the forests, poaching is held in check for the time being; and the sportsman can (or should) report such malpractices as come to his notice.

The short term licence system also enables the controlling officer to regulate the number of species, whether deer, etc., or carnivora, for each block in his Division. Such control preserves the balance of Nature and aids efficient protection.

Where a change is necessary is the adoption everywhere of the Assam arrangement by which the sportsman has to pay a fixed royalty for each animal shot by him under his licence. The system makes sportsmen more careful as to animals they shoot at, and aids needed funds for a Wild Life Department.

Wild Life and/or Game Associations

Where these exist they are, if well organized and conducted, wholly productive of good. There is the Association for the Preservation of Game in the United Provinces through which the All-India Conference for the Protection of Wild Life was held at Delhi in January 1935 and the Hailey National Park established in the Kalagarh Forest Division. At the Conference it was declared that, "Indian Wild Life could only be saved by Public Opinion, and that legislation, however efficient, could do little in matters like these without the whole-hearted support of the Public". How true. Where is the Public Opinion? Where is the support of the Public? What is the state of wild life at this thirteen years later date?

In Northern Bengal are three Shooting and Fishing Associations:—

- (1) Darjeeling Fishing and Shooting Association.
- (2) Tista-Torsa Game and Fishing Association.
- (3) Torsa-Sankor Game and Fishing Association.

In Madras is the 69 years old Nilgiri Game Association but for which little wild life would now exist in that district. Continuity of purpose, efficient control.

In 1933 an Association for the Preservation of Wild Life in South India was inaugurated at Madras by the then Governor of the Presidency, but it came to nothing and has never been heard of since then. Continuity of Purpose—Public Opinion these basic essentials do not exist. Without them there can be no effectual preservation of wild life for posterity.

Natural Enemies of Wild Life

Tigers.—Where in forest areas deer have been excessively reduced in number through poaching the tiger turns increased attention to cattle killing. The tiger needs the pursuit of deer to satisfy his hunting instincts, and where the balance of nature in this respect is not unduly disturbed he is of benefit, as also the panther, to the cultivator of land within the forests and along its borders, for he keeps the deer and wild pig population within natural limits. But where the stock

of deer is unduly reduced not only are all the deer killed out but the tiger is forced to prey on cattle ; and as these are penned at night he is compelled to change his habits and hunt by day. That is when he takes great toll of grazing cattle and sometimes turns against the people also. Then the cultivators clamour for protection from the menace brought about by the unlawful poaching done by themselves and others.

Panthers.—These are less destructive to village cattle as they prey on sounders of pig and a variety of smaller animals ordinarily ignored by the tiger; but they also kill cattle and other domestic stock to a greater extent when the balance of nature has been disturbed. In areas where panthers have been unduly reduced through rewards for their destruction there has resulted such an increase of wild pig as to necessitate rewards to reduce their number.

Even predatory animals (not wild dogs) have a distinct value as a controlling influence against over-population by species whose unrestricted increase would adversely affect the interests of man.

The balance of nature cannot be unduly disturbed with impunity.

Wild Dogs.—These are wholly destructive of game animals and can be given no mercy. Rewards should not exceed Rs. 15 for a larger sum induces frauds of several kinds. Disbursing officers should have by them skins and skulls by which to check those produced; and skins for reward must have tails and skulls attached and these be effectively destroyed when reward paid.

Best methods for reducing wild dog population are through digging out breeding lairs, and strychnine poisoning of carcasses by instructed persons.

Crocodiles.—In the jungles of India the crocodile is not the menace to human life that he is in Borneo, Sumatra, etc., and Africa. But where there are dry-season jungle pools in reserved and other forests crocodiles do an enormous amount of damage to all creatures, deer especially, which are forced to drink at those places.

It should be the duty of the Wild Life Department to destroy as many of them as possible. Visiting sportsmen should also give help in the matter.

Unnatural Enemies

Cattle diseases.—A great cause of much periodical mortality to buffalo and bison is through rinderpest. Against the introduction of this by grazing cattle effective action has been found impossible.

Crop Enemies

Elephants.—Effective legislation was enacted in 1873 and 1879 to protect the elephant. In these days of mechanical haulage the preservation of these animals is not necessary in such large number as formerly. In some areas it is now very definitely necessary that regulated thinning out of herds and crop protection methods be initiated to protect land-owners and cultivators from the great damage they suffer. This should be done by the suggested Wild Life Department on systems to meet local conditions.

There is also the need to have proclaimed rogues speedily dealt with. In most cases these animals have become dangerous because cultivators wound them by use of inadequate weapons. Local sportsmen may or may not be available to quickly deal with these beasts with consequence of further delay and more loss of life and property.

Where elephants have to be thinned out or killed the Wild Life Department's specially recruited and trained set of men—6 to 8 for each Province needing them—armed with Government rifles and controlled by the Provincial Warden can be directed to the area. They would also deal with proclaimed carnivora.

It can be anticipated that the demand for elephants in India will before long be reduced to the few needed for timber extraction in difficult areas, for riding and transport duties by the Forest and Wild Life Departments, for ceremonial purposes, for ivory, and for zoological purposes.

Therefore it can be reasonably said that elephant herds in some areas—Southern Circle, Bombay, North Coimbatore, Kollegal and the Wynaad for instance—could be reduced to a minimum; and herds in parts of Bengal, Assam, Orissa, in places where they may be greatly oppressing the cultivators could be also thinned out.

These suggested operations would not in any way endanger the continuance of the species.

Wild Pigs.—Deer and the like are crop raiders, but it is the wild pig which is the principal crop destroyer both in the open country, adjacent to the forests and within the forests. Where the balance of nature has not been disturbed the larger carnivores take care of the surplus pig population harbouring in the forests. It is not by the lone-working cultivator with his gun that any impression is made on the number of pig.

Some 25 years ago it was realized by the Bombay Government that damage to crops by wild pig amounted to crores of rupees. Measures to deal with the trouble outside Reserved Forests included clearance of cactus and thorn thickets and other such coverts together with organization of inter-village pig drives. Those measures will have had good results if continued as a fixed policy, but not otherwise.

At the time of writing (end of January 1948) the Government of India have been asked by the Government of the Central Provinces to supply arms and ammunition for use of cultivators against wild pig.

If the weapons are used against pig only, and at organized drives only, good may result, but if not so controlled they will assuredly be turned against the fast dwindling wild life.

National Parks

Those who have knowledge of the subject are of opinion that India is not yet ready for these. The Hailey National Park, the situation of which conforms in most respects to conditions laid down for a sanctuary (Smith) is specially situated and may be a success. A full account of it would be welcomed by members of the Society.

The Banjar Valley Reserved Forests area in the Central Provinces is perhaps suited for eventual status of a National Sanctuary (not Park). The case for it is outlined by Dunbar Brander. Buffalo, lost to it not many years ago could be re-introduced; otherwise it contains all the wild animals of the plains except elephant, lion and gazelle. Elephants are not wanted as there are plenty in other Provinces.

Even fifteen years ago the area was admittedly tremendously poached.

Sanctuaries

All sportsmen are agreed that these are of little use unless adequately guarded and, as that has not yet been found possible in India,

such areas merely become happy hunting grounds for poachers from far and near. The constant presence of sportsmen of the right kind has been found the best guarantee for preservation of wild life in Reserved Forests.

There are however, tracts and forests where wise forethought and administration can, with the willing co-operation of the people if that can be obtained, do much to preserve wild life for posterity.

Under the present re-organization of India a number of the smaller States, and many lands privately owned, within which wild life has had no regulated protection, will now be brought within the laws of the rest of the country to the benefit of wild life in all its aspects—if the laws are properly enforced.

The notable contributions on the Problem of Wild Life Preservation by Mr. S. H. Prater, the Society's Curator, on the 10th August 1933, and by forest officers for India, and Smith and Hubback for Burma are of the greatest value and recommended for careful study by all governments in this country.

A Wild Life Department

Forest Officers of the regime now ending have been of opinion that animals inside Reserved Forests should not be removed from the protection of the Forest Department and placed in the charge of a separate department. Their argument has been that the present system has worked well; such action would create resentment and alienate the all-important sympathy of the powerful Forest Department; and that a Game Department would be in no better case than the Forest Department for dealing with breaches of laws and rules.

On the other hand sportsmen and others with many years of experience are of opinion that under the present changed conditions Forest Officers, while not relieved of all responsibility, should be relieved of their present whole-time onus and share the burden of preservation of wild life with a specially organized Wild Life Department.

Why should not the two departments work amicably in liaison? There need be no friction. The appointment of Honorary Wardens has not always proved a success, not on account of any disagreements but because the conservation of wild life is a whole time duty which no man with other interests and work to do can efficiently perform. There could be Honorary Wardens to assist the Government Wardens and enthusiasts could be found for that work.

It has not been that all Forest Officers have been keen on the preservation of the larger game animals; some sylviculturists have expressed definite opinions against any deer being allowed in the forests, but movable fencing has been found a sufficient protection to special plantations.

In these days of intensive exploitation of timber and forest produce the work of forest administration has become more and more exacting and the officers find it exceedingly difficult to give time in office and out of doors to work which brings in no revenue and is considered of subsidiary importance.

Would not Forest Officers welcome the considerable measure of relief which the formation of a Wild Life Department would afford them? Surely they would. Neither their pay nor their prestige would be in any way affected.

It has been experienced that an unbribable staff of Game Watchers has been difficult to procure. That again is strong reason why there

should be whole time Wardens whose interest would be to prevent malpractices.

A Wild Life Department means that continuity of purpose without which all endeavour is of no avail.

Money and Funds

The whole question is a matter of money.

Wild life cannot be effectually conserved without spending money on an organization for the purpose. It is necessary to recognize the fact that there is an intimate connection between the revenue derived from wild life resources and the amount of money that can be spent on conservation.

This is the basis on which the financial policy should be built, together with the recognition that *wild life is a national asset and it is the responsibility and duty of the State to preserve it*. Therefore the fund will need such State grants as may be necessary to make the department effective, more especially in the commencing years.

It should not be possible for funds to be cut off, reduced or abrogated by governments. The Wild Life Fund, as it might be termed, should not be within the control of any Finance Department, Central or Provincial. It should be established by law, kept apart from General Revenues, earmarked for conservation of wild life and protected from any possible raiding of it or interference by the Legislatures.

Staff

It is useless to build up a staff knowing that its position is insecure and at the whim of some ephemeral office holder.

It would be for the Central Government to decide on the method of establishing the fund, its control and other measures considered necessary in regard to it.

Funds

It is reasonably argued that the considerable revenue accruing to the government, both directly and indirectly, through existence of wild life in this country should be applied to the conservation of the resource or as this contribution has endeavoured to demonstrate, the resource will continue to dwindle and eventually vanish.

Suggested Receipts and Expenditure:—

Receipts

1. Customs duties—import of sporting arms and ammunition.
2. Licence fees—dealing in sporting arms and ammunition.
3. Licence fees—inland transport of sporting arms and ammunition.
4. Licence fees—possession of sporting arms and renewal of same.
5. Licence fees—if any) Crop-protection weapons.
6. Licence fees—shooting in Government Forests.
7. Licence fees—elephant catching in Government Forests.
8. Royalties on animals shot or wounded in Government Forests.
9. Fines for breaches of shooting rules in Government Forests.
10. Fines, costs and sums received for compounding of offences against shooting rules.
11. Court fines for offences against wild life laws and/or rules.
12. Receipts on sales of confiscated articles.

13. Sales of picked-up tusks, horns and produce of animals destroyed by Departmental Control Staff.
14. Sales of skins of carnivora on which rewards paid.
15. Sales of tusks not allowed to sportsmen in some cases.
16. Licence fees for fishing in Government Forest waters.
17. Any other items accruing, such as donations and/or subscriptions to Wild Life Fund, income on Films produced by the Department and other miscellaneous items.
18. A special contribution towards game conservation (as is done in France) automatically levied at the same time as fees 4, 6, 7 above.

Expenditure

1. Salaries and allowances of officers.
2. Do do. and clothing of staff.
3. Transport of officers and staff.
4. Building and maintenance of Offices.
5. Do do. of living quarters for officers and staff.
6. Purchase and maintenance of weapons and ammunition for animal control.
7. Rewards for destruction of carnivora and other pests.
8. Rewards to Forest Guards.
9. Payments to informers.
10. Court expenses.
11. Stationery and correspondence.
12. Contingencies.
13. Sinking Fund for leave, gratuities and pensions.
14. Improvement of scanty water supplies.

Organization

Some suggestions

The Central Game Fund to be maintained in the office of the Ministry for Agriculture. The Wild Life Department to be linked through the Ministry of Agriculture with the Provincial Agricultural and Forest Departments.

Each Province to have a Provincial Warden, and as many Deputy Wardens as found advisable or necessary. These Wardens to rank with Conservators and Deputy Conservators of Forests respectively, and Game Rangers and Guards with corresponding Forest Department ranks.

Should the idea of a Wild Life Department be considered a suitable committee could work out all details. Recruitment of staff would need to be through careful selection of applicants in all grades; and there would have to be deputation of some of the Provincial Wardens to America and other countries to acquire knowledge of principles, methods, and all useful details.

Propaganda.—During the years 1932 to 1936 there was a good deal of wild life propaganda in the public press at the instance of the U.P. Association, also in South India, but all that quickly died down. Then came the war years and now the present difficult times. Wild life has greatly suffered.

Educative propaganda needs constant reminders and exhortations to the public. Only if the subject is frequently repeated will it gain a hearing.

It is commonly said that it will take years and years to arouse public opinion as to wild life. But we daily see what the present

leaders of public opinion in this country can do in many ways vitally affecting the present and future lives of the masses, how speedily laws are enacted and far-reaching measures put into motion. There is for instance, the vast organization for further education of the literates and the initiation of universal literacy for the masses. There seems to be no reason why wild life preservation could not also be given the highest priority. Some of the reforms could wait, not that they should, far from it, but the wild creatures cannot wait—and survive.

Wild life preservation does not only mean the protection of animals and birds, it means a fight against the destruction which is going on at an increasing pace—particularly against deer—and is not of Nature's ordering. It is simply asserting the right to live of the undomesticated animals and indigenous birds.

An atmosphere of mistrust and suspicion is all too common among uneducated people, so the beneficial intentions of measures towards wild life preservation are apt to be misconstrued unless the objects and reasons receive the widest publicity through Government channels, and the newspapers.

The years are passing; this great national asset is wasting away. It is the duty of every government to preserve it for posterity. The urge should come from the highest levels.

Propaganda Methods

The time is *now*.

The Ministry of Information and Broadcasting could make it a routine matter to keep this subject constantly before all classes of the people. Special talks could be given on All-India Radio, and other systems.

The Educational Department could cause all governing bodies and educational institutions to issue pamphlets, organize lectures, lantern slide talks, and issue of suitable leaflets to all colleges, high schools and primary schools. All this could be worked out on the lines of the anti-malarial campaign which was an India-wide effort. But it must be a continued effort.

For the literate classes there are the newspapers and other publications as media for propaganda; and for all classes there is the cinema screen.

Suitable slogans could be devised and shown as a routine matter at commencement and during intervals of all cinema shows, accompanied twice a week by a short talk in regional languages.

In 1944 (14-1-1944) the Natural History Society resolved that a popular Nature Magazine be published by the Society, and in 1947 (5-6-1947) it was decided that simple natural history booklets be issued in the several languages. The magazine idea was held up during the war years but measures to give effect to both resolutions are now in progress.

Moral support of the Government is essential and financial aid a necessity.

A Brief for Action

1. A decision by the Governments.
2. Issue of a general law to prohibit sale, possession, marketing of meat, hides, horns, etc., of indigenous animals and of birds.

3. Enforcement of Arms Licence rules and conditions.
4. Enforcement of laws and rules under Act VIII of 1912 and Act XIV of 1927.
5. Formation of a Wild Life Department.
6. Propaganda.
7. Generally all possible steps towards saving wild life.

Through the continued efforts of their leaders the peoples of India were roused to political consciousness. Through their long sustained efforts they attained political freedom. Will the leaders and the people not now demonstrate to other civilized nations that they are equally capable of preserving wild life for posterity? Surely they will. Because they should, and because it is demanded for the prestige of India.

* * *

It was the intention of the Society and the writer to submit this pamphlet to Mahatma Gandhi with appeal for his powerful advocacy. Alas! it was not so ordained.

Yet, in view of the late Mahatma's well-known sympathy with all things created, it may surely be hoped that the peoples of India and of Pakistan will respond to this appeal in accordance with what would without doubt have been his wishes and his guidance for the preservation of wild life in this country.

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- p. 863. A Central Board for Wild Life : This Board was constituted at Delhi on the 4th April 1952 by a Minister of Food and Agriculture Resolution. It will function through States' Wild Life Committees and will meet at least once in two years.

If this Central Board and the States' Committees have before them in correctly summarized from the principal contents of all the main wild life contributions to the *Journal*; the 16th October 1950 thirteen page Memorandum by the writer; and the Address delivered by M. S. Randhawa to the Section of Botany, 35th Indian Science Congress, Allahabad, 1949. (Nature Conservation, National Parks and Bio-aesthetic Planning in India), and study and apply all that is practicable in them there should be good results; *but* the States' Wild Life Committees need to be formed quickly and all that is decided speedily put in motion or results will be of little avail, also too little and too late as has proved to be the case with previous Conferences and Committees.

4. C. PRESERVATION OF WILD LIFE IN INDIA:

Supplement to the Article Published in Vol. 47, pp. 602-622 of
Jour. Bom. Nat. Hist. Soc.

BY LIEUT.-COL. R. W. BURTON, I.A. (RETD.)

In its flora and fauna Nature has endowed this country with a magnificent asset which cannot fail to be appreciated by the people when they have been taught to realize what they possess, and the need for both conservation and protection. A considerable effort to that end was made in May this year (1948) through a 24-page pamphlet widely distributed by the Bombay Natural History Society in government and official circles in both Dominions, and publicized through the Press.

Although there has been almost no response from the public, there are indications that the Central and Provincial Governments now recognize that something should be done to conserve the varied fauna of the Indian Forests to save it from the gradual extinction with which it is threatened.

But this is not sufficient. There is, it is submitted, urgent need in India for creating and stimulating, among the educated classes in particular, a real interest in the wild life of their country.

Some people are even saying that wild animals are a nuisance and should receive no mercy.

2. Some Aspects of Conservation

Preservation of wild life has many aspects. Unreasoning insistence on the sanctity of all wild life will serve no useful purpose, since real human interests must prevail whenever these are in conflict with wild life. But all over the country, outside the reserved and other forests, there is much wild bird and animal life urgently in need of protection. Sanctuaries and National Parks are all very well for satisfaction of what little public feeling there may be in regard to wild life, but these alone cannot adequately conserve the wild creatures of this great country. It is essential to take a long view and introduce in all primary and secondary schools instruction of the children on intelligent lines; for it is the youth of to-day who have to be the conservationists of to-morrow, and without the support of public opinion in the future no efforts by governments will give lasting results.

3. India's Story

'It is through our great culture, religion and art that India's story spread far and wide in the past' said the Prime Minister of India in April this year, and it is in those fields the people have now to vindicate their political freedom. But not least among the causes for the former renown of India has been that wonderful variety of wild life which is now the vanishing inheritance of the people of to-day. It is the obvious duty of the governments and the people to guard and preserve this asset for posterity.

4. Value of Wild Life

Apart from consideration of profit to the national finances and of national pride, the spectacle of wild birds and animals in their natural surroundings is one of the greatest joys of civilized man. The study of them and of the marvellous flora of this land of Hind can, and should, give healthy interest and recreation to all classes.

In power politics a well informed public opinion is the world's greatest security. So also in regard to wild life; real and correctly informed interest on the part of the public is its greatest protection.

5. Duty of the Public and the Governments

Improvement in the fields of public health, of growing more food, of preventing erosion, of drink prohibition, of conservation of fish supplies and many other aspects of public life cannot be satisfactorily achieved by government efforts alone. The public also have their responsibilities, and unless these are discharged by the people no amount of effort on the part of the government can have adequate results. So also in this matter of wild life protection and preservation.

It is the obvious duty of both Central and Provincial Governments to employ all possible means of propaganda for the instruction and enlightenment of the people in their responsibilities such as outlined above.

6. Vanishing Assets

Much of the wild life of India, a large part of which is found in no other country in the world, is fading away and will certainly disappear unless adequately protected and conserved. In the more open and inhabited areas, it is the common people who have mostly to be relied upon to stay the hand of destruction. In the Reserved Forests and more remote tracts it is the man in the wilds who has to be taught and trusted to prevent the larger species from being reduced to that narrow margin which spells eventual extinction; and it is the weighty responsibility of the departments in control to protect the fauna and flora of those areas.

This responsibility cannot be satisfactorily discharged in either remote or accessible areas unless the executive staff of both the Forest Department and the Wild Life Department (if formed) consists of wholly trustworthy and impeccable subordinates.

Therein lies the success or failure of wild life protection and preservation in this or any other country.

7. Value of Wild Life

In all countries the encouragement of tourist traffic is recognized as being of both direct and indirect value to the State. In India there is much for the people of other lands to see and admire. There is almost no end to the list of archaeological treasures, of customs and habits of humanity which could be cited to illustrate the inexhaustible interest of India as a panorama of the past; there are endless subjects for the artist and photographer in scenery, in portraiture, in sculpture; but prominent among the magnets for attracting tourists is the spectacle of wild life, and its abundant attraction for all classes of sportsmen and sightseers.

8. Forestry and Wild Life

The claims of forestry and wild life are often in conflict. The system that has hitherto obtained, which combines forestry with wild life preservation and protection, is unsatisfactory. India owes a great debt of gratitude to the many officers of the Imperial Forest Service who, throughout their service, worked continually and persistently to enforce wild life protection laws and rules, and to have them perfected. To them is due such stock of the larger animals—deer in particular—as existed at the time of the transfer of power in 1947, and has been already, in a number of areas, so woefully reduced.

True preservation can never go hand in hand with true forestry. This has been proved in practice in many countries where it has been soon found that the objects and ideals of the two are sometimes antagonistic.

Protection and preservation are not synonymous. Protection alone may, in time, do definite harm if preservation is ignored.

To continue the protection and preservation of wild life which includes the organization and management of all National Parks, Sanctuaries, Reserves as the duty of a department already overworked, and none of whose officers have been trained in the required methods, is not practicable and should give way to better arrangements.

9. Necessity for a Wild Life Department

In other countries, which have tackled the problems of wild life protection and preservation with conspicuous success, forestry is under separate management, the two departments working in liaison when and where necessary.

A Wild Life Department means that continuity of purpose without which all endeavour is of no avail.

'Adequate and comprehensive laws are on our Statute books. These laws are not being adhered to and enforced owing to the responsible department being given dual duties, their other duties coming first and game preservation second. The immediate need of a special Game or Wild Life Department cannot be overstressed' (Editorial in June 1948 issue of the *Journal of the Ceylon Game and Fauna Protection Society*).

This is the situation in India at the present time.

10. Duties of Wild Life Departmental Wardens

It is the first duty of a Wild Life Department to do everything possible to prevent conflict between game and human interests. In Reserves and Sanctuaries, where such are necessary, in addition to the ordinary requirements of the Forest Department, roads, cart tracks and paths have to be kept in repair and others opened as found necessary. Boundaries have to be kept clean. Animals soon get to know these so well that they learn not to cross them during the shooting season in the contiguous Reserve. Rest camps and staff quarters have to be built and kept in good order, with wholesome water-supply ensured; patches of jungle have to be cleared for grazing and then burnt off periodically; salt-licks and water-supplies have to be improved or provided. Detailed maps and plans have to be prepared. Animals in the Parks, Sanctuaries or Reserves have to be observed, local habits noted, and a near census taken and plotted on

suitable maps for periodical review. Supervision of these activities are the duties of the Wardens.

Other Duties.—A Warden has to be a trained observer, able to train and educate his staff, also to inspire them with enthusiasm and real pride in the well-being of the creatures under their charge.

From this it is obvious that all members of the staff have to be most carefully selected. They must be keen on the work before them; lovers of wild life; of sound health and good physique; amenable to discipline; trustworthy, and as far as possible unrelated to neighbouring population.

In the upper grades they should be able to read and understand the wild life literature, which should be provided.

A manual should be compiled for their general guidance.

Guards and watchers should be well paid, clothed, housed and cared for at all times and seasons.

11. Field Duties

The main activities of wardens lie in the field. They have to be most carefully selected from among applicants who have a real interest in wild life. When approved, they should be seconded to other countries to acquire knowledge of principles, methods and all useful details. Besides fieldwork there will be much office work such as mapping of areas; receiving and tabulating reports; directing enquiry into cases of ordinary poaching, spotlight shooting and other mal-practices, and of alleged damage by animals; ordering and directing the destruction of proclaimed animals; issuing of licences and permits, suggesting and aiding publicity work; general administration of the staff; dealing with correspondence and returns and all sorts of other business.

(a) One of the most important duties is the need to gain the willing co-operation of village headmen to whom, on his recommendation, rewards should be granted for good work and correct influence.

Unless village officers and revenue officials, the police, the sub-ordinates of the Forest Department and the general public co-operate with the two departments and the Government, poaching cannot be held in check.

(b) A suggested check to curb night shooting from cars on roads passing through forests is (i) to appoint a couple of Ranger road patrols, provided with jeeps or motor cycles, to make surprise visits to the haunts of such marauders; (ii) instruct constables on duty at certain key-points to take numbers of all motor vehicles entering or emerging from jungle roads, and inspect them if need be; (iii) erect road barriers at night on selected roads, where motor vehicles can be stopped, inspected, and have their numbers taken.

Necessary powers could be provided for this.

(c) As aid for enforcing laws and preventing wild life exploitation there should be close co-operation between the Police and Customs, and of both of these with the Wild Life Department.

Is it not apparent that the Forest Department by itself cannot be expected to deal efficiently with all these matters, besides carrying out the multifarious duties pertaining to forest administration in all its branches? Can there be any doubt in the matter?

12. People's Parks

These already exist in, or near, a number of cities and larger municipalities, and are of several kinds. A park of this description

- has been recently formed near Bombay and styled a National Park. In course of time many more People's Parks will be established; and in view of the greatly increasing demand for land, for all purposes, near fast-growing towns it is necessary that speedy steps be taken to acquire land for these greatly needed parks. By reason of their situation all such existing parks, and those to be formed in the future will be sanctuaries for wild birds and small animals. The lay-out of future People's Parks should be planned with this in mind.

(a) In many People's Parks there could be museums to house archæological, botanical, geological, natural history and zoological exhibits; to show pictures of birds, animals, snakes and insects for the interest and instruction of the public.

Assembly of the people in these parks would afford suitable opportunity for loud-speaker talks by means of propaganda vans on wild life and kindred subjects. This is one of the many ways in which paragraph 5 above could be implemented.

13. National Parks

The more general meaning of 'National Park' is 'An area dedicated by statute to the preservation, not of this or that animal, but a community of animals, in fact, of Nature which means Nature militant, Nature maintaining the balance through the law of tooth and claw' (H. G. Maurice). These areas are thus inalienably established for the preservation of the flora and fauna in all its aspects, and dedicated for all time to, and for, the people.

(i) Of the famous National Parks of the world, one such is the Yellowstone National Park in America and another the Kruger National Park in Africa which has an area of 8,000 square miles and was in existence for thirty years before public access to it was permitted.

(ii) In India there is the Hailey National Park in the Kalagarh Forest Division of the United Provinces, the precise area and design of which is not known to the writer. In Assam steps have been recently taken through notification in the Provincial Gazette to set aside an area of 800 square miles in the Tirap Frontier Tract to be known as 'The Frontier National Park' of which part of the boundary is the Indo-Burma frontier.

(iii) Some people think that once National Parks are in being the game in the rest of the country can go, and the sooner the better. In Kenya the strong Game Policy Committee of 6 unofficial and 4 official members, with an unofficial chairman, appointed in 1939, held a directly opposite view, viz., 'the formation of National Parks will justify still further intensification of game control measures, where necessary, but will certainly not justify any policy of laxity or uncontrolled slaughter. Recommendations of the Committee were held up by the War, but early in 1945 the necessary ordinance was enacted.'

14. Sanctuaries

Sanctuaries are of several kinds. There are sanctuaries for the preservation of a particular species of animal, or for a special bird or group of birds; for general purposes such as areas of Reserved Forest in which no shooting is permitted for a year, or a series of years. In India there is a sanctuary in Bengal for the preservation of the Great One-horned Rhinoceros, and several for the same species and also for the wild buffalo in Assam.

General purpose sanctuaries have been formed in Reserved Forests of most of the Provinces, and in a number of States.

(a) There are also strict Natural Reserves and Intermediate Zones which are not so designated in India. They have these in Ceylon. In the last named only, which corresponds with what we know as Reserved Forests, is shooting allowed under rules and conditions of licences.

(b) It is necessary for the well being of Parks and Sanctuaries that Reserved Forest should be contiguous with these on all sides so that the surplus stock of animals may overflow, risk of cattle disease be lessened and guarding made less difficult.

'All indigenous species of fauna and flora ought to be represented, but the introduction of exotic types of either should be religiously avoided' (Stevenson-Hamilton).

(c) Importation of cattle diseases into National Parks, Sanctuaries and contiguous Reserves should be guarded against in every possible way. Besides conveying disease, grazing cattle eat and trample down all vegetation, break stream banks and start gully erosion. Sand and silt work into pools stifling fish and aquatic life. The balance of nature is disturbed, the food supply of animals greatly lessened, and much damage done to struggling saplings. Goats, as is well known, are deadly enemies to forest growth and sylviculture.

15. Bird Sanctuaries

In Ceylon, there are 21 Sanctuaries chiefly for the preservation of bird life. In India there are none, so far as known to the writer (except one on a small scale at Seringapatam in Mysore State) specially for the protection of birds. In some parts of the country these are urgently needed for protection of egrets and other beneficial birds.

In India, all matters concerning the protection of wild life are regulated by 'The Wild Birds and Animals Protection Act, VIII' of 1912, and by Notifications and Rules under that Act and the Indian Forest Act, XIV of 1927, and other measures enacted by Provincial Governments such as the Game Act of the Central Provinces.

It is the opinion of the writer of this note that schedules to the various Notifications and Rules under the above, should only specify species of birds which may be shot (no snaring or other methods) during prescribed open seasons. They should declare birds of all other species to be absolutely protected throughout the year. This would tend to uniformity throughout the country in all the Provinces, States and Unions, and would much simplify matters for the public and the administration. It would greatly benefit the cause of wild life. There is a note on the subject in the August number of the Bombay Natural History Society's *Journal* (Vol. 47, p. 780).

Section 8 of Act VIII of 1912 provides for *bona fide* defence of property: and in the Ceylon Ordinance of 1937, Section 58 makes a similar provision.

16. Ceylon Ordinance

'An Ordinance to provide for the protection of the Fauna and Flora of Ceylon' became law on the 10th March 1937. This Ordinance embodies practically all the Regulations and Principles of the epoch-making Africa Convention of 1933. It is a comprehensive and well-thought-out Act and, if it is continually and effectively enforced should ensure the survival of Ceylon wild life for all time.

Although this Ordinance has existed for over 11 years it is the opinion of all in close touch with the question that wild life in the island is doomed unless a Wild Life Department is created to enforce the laws.

17. Action Required

It is suggested that the Central Board of Forestry outlined in paragraph 12-D. of the Proceedings of the All-India Conference of 8th and 9th September 1948, should pass this note in review, as also the contents of the 24-page pamphlet referred to earlier on in this note, and make such representations as are found necessary or advisable for India as a whole, and for each of the Provinces, States and Unions.

(a) It is hoped that the snaring of game birds, hares, antelope and gazelle will be wholly prohibited at all seasons throughout the country, for the time has long gone by when snarers should be allowed to earn a livelihood in that way.

18. Formation of Sanctuaries and National Parks

In the formation of these much forethought is necessary. They have to be considered with the ultimate object clearly in view. Some will be just Sanctuaries, and some will be intended to pass through the stages of strict Natural Reserves before achieving the status of National Parks. Others will be designed, from the commencement, as National Parks and, in such cases, action would be taken after the most mature consideration from every point of view. All animals depend for their existence upon a suitable environment, and this should be preserved, as far as may be, intact for wild birds and animals.

(a) *Water*.—'Ordinarily, game will not graze more than six miles away from drinking places in the course of a day' (Kruger Park).

Where there are perennial streams, lakes, marshy places, etc., no problems arise. But in some parts of India seasonal streams cease to flow; pools form and dry up; animals have to dig in the sand for water. At such times animals suffer much. They become a more easy prey to carnivora and the ubiquitous poacher. Not so many years ago, at time of a famine in the Central Provinces, animals—even tigers—were found drowned in wells adjacent to villages.

In the Kruger National Park, at the present time (1948), the question of water-supply is a serious problem to the park authorities. As much as a quarter of the park area is hardly ever grazed in any year, and in dry years extensive parts of the park are untouched.

Here is an object lesson as to need for a very long view regarding the vital question of water-supply in all parts of the area.

(b) *Food*.—Needs of all the species in the area have to be considered. It may be necessary to de-forest selected level patches of jungle to provide grazing. In these, and in jungle valleys, annual grass-burning is a necessity, for neglect in this allows excessive growth of bush and thorny scrub which comes up with rapidity, blocks the glades, and through increasing denseness of the vegetation causes migration from the area of animals such as sambar and chital.

To promote prosperous breeding seasons there must be plenty of grass and water.

The needs of bison and buffalo have also to be thought of and improved if necessary. For some of the animals, and for birds, squirrels, monkeys and other creatures fruit-bearing trees and shrubs

may have to be planted. In fact, the question of food also has to be considered in all its aspects.

(c) *Wild Buffalo*.—It is desirable to foster the restoration of herds of these fine animals to something approaching their former number in the forests of South-East Chanda, Bastar, Jeypur and other parts of the erstwhile Eastern States area.

(d) *The Sloth Bear*.—This animal—peculiar to Ceylon, India and Assam—is no longer found in some parts where once common, and is in need of both protection and preservation. Hitherto it has not been protected in any area of its habitat in this country. It should receive protection in a number of areas from which it is fast disappearing; and should be preserved in all parks and sanctuaries situated within its natural habitat.

(e) *Beasts of Prey* other than wild dogs, should be allowed in each park or reserve where they at present exist. So long as their numbers do not become excessive, tigers and panthers have a useful place in nature. If one animal is stressed at the expense of another, the balance of nature is upset and disastrous results may follow. The policy should be not to interfere with nature, unless shown by periodical censuses to be absolutely necessary.

When tigers and/or panthers are unduly killed off, deer greatly increase, also wild pig. The deer take to barking trees in forest plantations, and both species encroach on cultivation, for which they will travel long distances.

Surplus deer population, should that arise, can be controlled by shooting of hinds, which is a well known practice in all deer forests in Europe and has been found necessary in some States of the U.S.A. In most forests in India the carnivora exercise the necessary and natural control.

The obverse is also true. In many parts of this country at the present time deer have been so much killed off that tigers increasingly prey upon the cattle and not infrequently take to man-eating.

19. Conditions Governing the Formation of Sanctuaries

Sanctuaries, if they are to be effective, must, among other considerations:—

1. be suitably sited with sufficiently well distributed and permanent water-supplies for the several species;
2. be sufficiently large to allow animals to live in them all the year round without inducement to wander outside. About 300 square miles may be taken as a minimum;
3. contain no human habitations or cultivation;
4. comprise natural game country having abundant water, food and cover;
5. be free from grazing rights, since domestic cattle spread disease besides reducing the food and water-supplies; they also disturb the forest and give opportunities for poaching;
6. be undisturbed by timber extraction and other forest works;
7. possess security of tenure and not be liable to sudden changes of constitution or control;
8. be sufficiently inaccessible to prevent the animals being molested and harassed by villagers and others encroaching upon their boundaries;
9. be sufficiently accessible to permit of frequent inspection by responsible officers and their staff. To facilitate this they must have necessary motorable roads, cart-tracks, and riding or footpaths.

10. contain one or more 'salt-licks'. (These natural 'licks' are of vital importance to the conservation of wild life. Because of their attraction to animals they should be safeguarded from poachers in every possible way) (Hubback, Vol. 42, pp. 518-525, 1941).

For each sanctuary one or more riding elephants are essential to facilitate proper inspection of the area at all seasons. In many forests this work is otherwise too exhausting to be thorough.

20. Sportsmen

It is most desirable that sportsmen of the right type should be given every encouragement to visit the contiguous reserves, as also the more remote forests. They should be asked to endeavour, by precept and example, to teach the villagers to take more interest in the local fauna and its protection.

Permit-holders should be invited to enter, in the form provided on reverse, both positive and negative information as regards the numbers and conditions of game in the Shooting Block by replies to listed questions such as 'How many of each species of game did you see? How many tigers, panthers, bears do you think were in your block? Did you see any signs of illicit shooting such as pits, machans, hides near water or salt-licks? Did you hear shots fired by day or by night and, if so, in what locality?'

Remarks on headmen and shikaris would be appreciated; also any unusual incidents.

21. Conclusion

Without a Wild Life Department as suggested herein the survival of much of the wonderful wild life of India is inconceivable and a great national asset will disappear, never to be regained as the majority of the unique species will become extinct.

Acknowledgment for use of material is made to the editors of the *Journal of the Society for the Preservation of the Fauna of the Empire*, the *Journal of the Bombay Natural History Society*, the *Journal of the Ceylon Game and Fauna Protection Society*; also to contributors to the above for use of their writings, which have been of much assistance.

4. D. WILD LIFE PRESERVATION—BIRDS

BY LIEUT.-COL. R. W. BURTON, I.A.

In the Madras Presidency, as far as I have been able to ascertain, there has been only one Local Government Notification under Section 3 of the Wild Birds and Animals Protection Act VIII of 1912, namely Notification No. 574, published at pages 1564–1566 of Part I of *Fort St. George Gazette*, dated 3rd November 1914 as amended by Notifications No. 412 of 29th August 1916 and No. 295 of 25th June 1917.

Under the above Notifications specified species of Orioles and Woodpeckers are protected all the year round; the Indian Roller, Grey and Red Jungle-Fowl and Red and Painted Spur-Fowl, also four species of Kingfisher, are provided with close season from 1st February to 30th June.

Peafowl, Bustard, Florican, and indigenous duck and teal have a close season from 1st June to 30th September.

Four species of Egret are protected from 1st June to end of February, and the Common Heron from 1st December to end of February.

Of the species listed in the Schedule to Act VIII of 1912 the following are given no protection—no close season:—

Partridge, Pigeon, Quails, Sandgrouse

The Notifications provide protection, etc., for certain birds in the Shevaroy Hills, and nothing in them affect the Nilgiri Hills.

It is difficult to understand why the Indian Roller and the bright-plumaged Kingfishers should be refused all the year round protection, also the Egrets.

The Indian Roller does great service to agriculture and should undoubtedly be wholly protected.

Egrets are birds of much use to the cultivator, the Cattle Egret in particular being especially useful to the cultivator of paddy (rice), as it is, '—chiefly, if not entirely, insectivorous in its diet and passes its life in the service of Man, clearing his fields of harmful insect pests and his cattle of their noxious parasites. Grasshoppers, locusts, bugs, beetles, ticks and blood-sucking and biting flies form their ordinary diet' (W. W. A. Phillips in the Ceylon Fauna Society's *'Loris'* for June 1948).

Throughout the world, where the species exist, the egret is renowned for its usefulness and should be protected throughout the year. In Ceylon, notwithstanding complete protection under the laws, great slaughter of fledgling egrets and destruction of their eggs takes place, so it is likely that similar destruction occurs in many parts of India also especially in these days of meat hunger and shortage of food.

Partridges.—In the Mysore State close season for partridge is 1st March to 1st September.

At the present time (breeding season), and for years past, partridge and quail are quoted in the Madras Municipal Corporation, Moore Market price lists as available to purchasers at stated prices. It is possible that in parts of Madras Province within reach of large markets partridges are yearly becoming more and more scarce.

Thirty-five years ago the railway companies passed orders prohibiting acceptance of wild birds and game for rail transit during prescribed close seasons. In these days it is necessary that similar orders be issued as well to all bus owners.

Under the Mysore State laws, Junglefowl, Spurfowl, Partridge, Sandgrouse, Quail, Pigeon, Bustard, Florican, Duck, Teal, Goose, Snipe, Demoiselle Crane, Plover, Golden Plover are provided with specified close seasons. *No birds other than those mentioned above except birds of prey may be shot.*

Omitting Bustard and Florican as having become increasingly scarce, and Demoiselle Crane, Plover, Golden Plover as better protected, while inserting Woodcock, Pheasants, Houbara and deleting the reference to birds of prey, that is a very simple and practical law understandable by all and a guide for adoption by all Provinces when the welcome day arrives for the whole urgent question of the Preservation of Wild Life to be considered by the Central and Provincial Governments for final legislation.

4. E. PRESERVATION OF WILD LIFE

With Comment by Lieut.-Col. R. W. Burton, I.A.

By M. D. CHATURVEDI, B.Sc. (Oxon.), I.F.S.

*Chief Conservator of Forests, and now Inspector-General of Forests
and Vice-Chairman of the Board of Control*

Lt.-Col. Burton is to be congratulated for the missionary zeal with which he has championed the cause of wild life in India. Forest Officers who spend the best part of their lives in jungles get to know and love their animal associates to the extent of being jealous of sportsmen. The credit for whatever protection was afforded to our wild life in the past goes to the lone forest officer who among his multifarious duties found time to enforce the game laws and apprehend poachers. In the United Provinces, it was at the initiative of the Forest Department that the first National Park in India was constituted. This year, I succeeded in creating the Rajaji Sanctuary in the Siwaliks, which comprises shooting blocks once reserved for the Governor-General. Not unoften a Divisional Forest Officer would initiate special closure for deer after a severe rinderpest had taken its toll and decimated their number. In the Saharanpur Siwaliks, I used to arrange special watering facilities for our animals. Champion's photographic studies of wild life are known the world over.

2. Far be it from me to belittle the part played by eminent sportsmen like Col. Burton in rivetting the attention of the public to the need of preserving wild life. Officers of the civil and military services have rendered yeoman service to this noble cause.

3. While agreeing with much that Lt.-Col. Burton has said in his valuable pamphlet on 'Preservation of Wild Life'* and in the supplement issued later, I cannot reconcile myself with the view expressed by him that the interests of wild life come in such sharp conflict with forestry, that forest officers cannot be entrusted with the task of looking after animals, a task which they have performed so well for the best part of a century. Theirs has been a labour of love. I do not deny our shortcomings, but I do feel that the contribution of several generations of forest officers towards the preservation of wild life deserves better appreciation.

4. I must confess, I see the advantages of organising a separate Wild Life Department, the best justification for it being its ability to cover vast areas outside the reserved forests. In the early stages, however, the balance of advantage would lie in enlisting both the services and the co-operation of forest officers in the stupendous task of preserving wild life. True, forest officers are not conversant with the modern technique adopted in the preservation, control and protection of wild life. But, what I submit for the consideration of enthusiasts like Lt.-Col. Burton in that after all said and done, an average forest officer knows far more about wild life than an average civilian or an agriculturist or even a sportsman. One wonders where the game wardens and upper grade assistants will come to be recruited from in

* Reproduced in the *Journal of the Bombay Natural History Society*, August 1948.

Burton's scheme. In no other walk of life is even a nodding acquaintance with the animal kingdom available except in the forestry profession.

5. There is at present neither need nor room for organising a separate Wild Life Department. Might I urge that the solution of the problem lies in the adoption of a middle course? The cadre of the Forest Department should be supplemented to enable it to organise wild life preservation on modern lines. What is needed is not the creation of a separate department consisting of a large number of whole-time officers, a host of clerks, menials, orderlies and other paraphernalia, but the appointment of regional wild life officers working in close collaboration with the existing Forest Departments and their vast organisation for surveying, mapping, policing and maintenance of roads and resthouses.

6. The sort of organisation which I envisage for the United Provinces is as under:—

(i) Provincial board for the preservation of wild life.

The board will consist of the following members:—

- | | | | |
|--|----|----|---|
| (1) Honorable Minister in charge of the forests or his Parliamentary Secretary (<i>Chairman</i>) | .. | .. | 1 |
| (2) A member from each of the 2 houses of legislature | .. | .. | 2 |
| (3) Enthusiasts from sporting circles | .. | .. | 2 |
| (4) Chief Conservator of Forests | .. | .. | 1 |
| (5) Director of Agriculture | .. | .. | 1 |
| (6) Director of Veterinary Services | .. | .. | 1 |
| (7) A senior Commissioner | .. | .. | 1 |
| (8) Provincial Wild Life Officer (<i>Secretary</i>) | .. | .. | 1 |

The functions of this board should be advisory. It will be a sort of standing committee to advise Government in respect of legislation to be enacted for the preservation of wild life. The board will direct its secretary to devise ways and means to enforce existing game laws to afford facilities for tourists and to secure protection from and for wild life. The board will meet twice a year.

(ii) The Provincial Wild Life Officer will be recruited from among (1) experienced forest officers noted for their studies of wild life and (2) eminent sportsmen. There will be no age-limit. He will have two regional officers to assist him who will be styled as game wardens. Each game warden will have 2 field assistants.

(iii) *Offices*.—The Provincial Wild Life Officer will be attached to the Chief Conservator but will have an office of his own. Regional game wardens will utilise the divisional office organisation and will be attached to specific divisions in which sanctuaries are situated.

(iv) *Menials*.—Each Wild Life Officer will have *shikari* orderlies.

7. The budget provision for the above organisation will be somewhat as under:—

				Scale of pay	Average annual pay
				Rs.	Rs.
(1) Administrative and executive staff—					
Wild Life Officer 1	..	..	500-50-1,200		11,351
Game Wardens 2	..	..	250-25-400- E.B.-30-700-		
			E.B.-50-850		14,208
Field assistants 4	..	..	75-5-120		5,224
Total ..					30,783

	<i>Scale of pay</i>	<i>Average annual pay</i>
	<i>Rs.</i>	<i>Ss.</i>
(2) Clerical establishment—		
Senior Clerk 1.. ..	80-5-100-6-130	1,411
Typist 1	60-3-90-4-110	1,080
Junior Clerk 1.. ..	60-3-90-4-110	1,080
Draftsman 1	50-4-90-5-125	1,264
Total ..		4,835
(3) Menials—		
Shikari orderlies 6	25- $\frac{1}{2}$ -30	2,064
(4) Travelling allowance including that of members of the board ..		12,500
(5) Contingencies, photographs, etc. ..		4,818
Total ..		55,000

8. All expenditure incurred on the preservation of wild life should be debited to a separate budget head. Similarly, all revenue from

- (1) Shooting and fishing fees,
- (2) Fines for breaches of shooting rules,
- (3) Sale of horns, hides, tusks and other trophies,
- (4) Sale of animal photographs,
- (5) Fees charged from sportsmen for the occupation of rest-houses,

should be credited to a separate head of revenue.

9. Associations organised in the past for the preservation of wild life have seldom functioned. The Association for the preservation of Game in the United Provinces is virtually a defunct body. The Forest Department has contributed a sum of Rs. 1,200 per annum as a grant-in-aid for many years to this Association. This year, I have not been able to contact the Secretary, despite many reminders and no one is forthcoming to take the grant sanctioned by Government.

10. Here is an inexpensive organisation which is likely to be self-supporting in due course. It has a fair chance of being accepted by Provincial Governments without much ado. Anything more elaborate, I am afraid, would remain an idle dream.

[Lieut.-Col. Burton comments on the above as follows:—

This constructive note is the first communication regarding my pamphlet received by the Society, or by me, from any officer of the Indian Forest Service. As such it is very welcome; also because criticism by an experienced officer of the Forest Department has much value.

Mr. Chaturvedi appears to have overlooked the handsome and well deserved tribute expressed in paragraph 8 of the supplement (published ante at pp. 290-299) to the many officers of the Imperial Forest Service who, throughout their service, worked continually and persistently to enforce wild life protection and the laws and rules in regard to it, and to have them perfected.

In paragraph 4 of his note the Chief Conservator sees the advantages of organising a Wild Life Department. In the next paragraph he says there is neither need nor room for organising a separate Wild Life Department, and advocates a middle course which he outlines in some detail.

In other countries it has been found that half measures are futile and waste of time; and that there is in fact no satisfactory middle course.

The Chief Conservator wonders where the wardens and upper grade assistants will come from. Surely it can be envisaged that the bulk of them will be obtained from among those of the Forest Service who have at heart, as has the C.C.F., the interests of the wild animals, and birds they have seen daily in the forests through the years of their service. Recruitment of staff would be through careful selection of applicants in all grades.

All things have a beginning. Perhaps the scheme drawn up for the United Provinces by the Chief Conservator will herald the commencement of the much needed all-India policy envisaged in Section D of the proceedings of the Conference held at Delhi on the 8th-9th September 1948 to secure the implementation of a co-ordinated forest policy dealing with inter-Provincial and national matters.

There is no matter more wholly national than the effective protection and preservation of that Wild Life which is the Vanishing Asset of the peoples of this country.'—Eds.]

4. F. NATURE CONSERVATION, NATIONAL PARKS AND BIO-ÆSTHETIC PLANNING IN INDIA

An Address to the Section of Botany, 36th Indian Science Congress,
Allahabad, 1949 (Abridged)

BY M. S. RANDHAWA, I.C.S., M.Sc., F.N.I.

Deputy Commissioner, Ambala (E. Punjab)

Gentlemen, the subject which I have chosen for my address—the problem of “Nature Conservation, National Parks and Bio-æsthetic Planning in India,” is one not of merely botanical interest. It deals with a problem which requires the urgent attention of the biologists, administrators, legislators and all thinking citizens. The problems of conservation of nature attracted attention of biologists in most progressive countries of the world. In the United States of America this problem was tackled as early as 1872 when the first national park for the preservation of fauna and flora was established. In the United Kingdom a special committee was appointed in 1945 with Dr. J. S. Huxley as Chairman and Professor A. G. Tansley as Vice-Chairman to consider the general problems of wild life conservation and the scientific and administrative requirements. The special committee submitted its report on “Conservation of Nature in England and Wales” to the Minister of Town and Country Planning who presented it to the Parliament in July 1947. This report contains many suggestions which can with advantage be adopted in this country as well.

* * * * *

The type of areas which are in need of conservation can be classified under the following categories:—

I. *National Parks and Nature Reserves.*—National Parks may be defined as extensive areas of beautiful and relatively wild country with characteristic landscape beauty, which are also wild life sanctuaries for the preservation of big game, or other mammals and birds, in which access and facilities for public open air enjoyment are also provided, so that the people may be able to observe wild life of all kinds in its natural surroundings at close quarters. There is also need of nature reserves in the National Parks, which act as breeding reservoirs for shy animals, which it is desired to encourage and which are not accessible to visitors.

II. *Geological Monuments and Other Areas of Outstanding Value.*—These include rocks, exposures or sections which because of their great geological interest should be preserved as Geological Monuments, and which should be given the same protection as to archæological buildings and monuments. These should be protected from mining, excavations, prospecting and drilling or similar operations.

III. *Local Educational Reserves.*—These include small areas of local country containing representatives of local flora, which are reserved for educational purposes for the benefit of schools and colleges.

National Parks

Uncontrolled destruction of wild life has been going on in many countries all over the world, and as a result of this natural fauna has dwindled and many species have become extinct... With the modern

means of rapid transport such as motor car, jeep and aeroplane, the whole world is becoming so speedily opened up to travellers, tourists and traders, and with the increasing population, so much uncultivated land is coming under the settler's plough, that the need for the preservation of fauna in National Parks and Reserves is being increasingly felt.

National Parks and Reserves were originally established in the United States of America. There are 26 National Parks in America covering a total area of 1,500 square miles.

* * * *

The lead of U.S.A. has been followed by other countries such as Canada, Australia, New Zealand and the Union of South Africa. In South Africa, the Sabi Game Reserve was founded in 1898, and in 1926 it was renamed as Kruger National Park. The Albert National Park in Belgian Congo was created mainly due to the efforts of an American naturalist Carl Akeley. Due to the creation of this sanctuary for wild animals the Gorilla has been saved from extinction. The Swiss National Park is about 62 square miles in area, and arrangements are provided in it for enabling the student and tourist to enjoy the more spectacular fauna and flora.

National Parks in India

In India the necessity of creating National Parks has found a tardy recognition. Dr. Bains Prasad has thus summarised information about National Parks in India:

"In 1934 a very great advance was made in the United Provinces through the great personal interest taken by the enlightened Governor of the Province, Sir Malcolm Hailey, as a result of which the National Parks Act of 1934 was passed. This Act provided for the establishment of National Parks and for the preservation of wild life or other objects of scientific interest and for incidental matters provided therein. As a result, the Hailey Park was demarcated as a National Park in the famous Patli Doon and the hill forest to the south of it consisting roughly of an area of 99·07 square miles. Under the Act the word 'animal' was defined as 'mammals, reptiles, or birds,' and it was an offence to kill, injure or disturb any animals or to take or destroy any eggs or nests of any birds in the park. The conditions under which the people were allowed to enter or reside in the park were laid down in the Act and were to be enforced by the Forest Department. In Assam certain areas had already been demarcated as game sanctuaries and more stringent action was being taken to preserve wild life which according to some reports had been reduced by almost 75% within recent years. Reference may also be made here to the Chamarajanagar Sanctuary of the Mysore State Forests which had been established with a view to offering complete immunity for animals and thereby making it possible for them to thrive without interference. Introduction of other animals not found in the area was to be attempted, and the sanctuary was to provide facilities for the scientific study of the life-histories of different indigenous species of game."

National Nature Reserves

There is a clear need of establishing nature reserves within National Parks. The principal purpose of such nature reserves, as given by the Wild Life Conservation Special Committee of England and Wales are as follows and are applicable to India also:

(a) "To conserve and manage, for the enjoyment and interest of visitors, and for the use of naturalists, students and teachers, sites of biological, physiographical and geological importance and characteristic stretches of the natural vegetation. Similar considerations would apply in a less degree to other areas which, though not so valuable on strictly scientific grounds, have just as much importance because of their general charm or because they contain objects of marked beauty—whether rocks, trees, or flowering plants.

(b) To establish breeding reserves for scientifically encouraging particular species or communities of species the preservation or wider spread of which within the park it is desired to promote. In such reserves public access would have to be more or less restricted.

(c) To set aside areas so managed as to attract rare, interesting and beautiful species not at present living in the park or its surroundings."

The authorities who are made responsible for the management of the reserves should keep close touch with University or educational centres, as well as main local natural history societies. A need would also arise of providing small handbooks on nature reserves, explaining with the aid of maps, photographs and sketches the scientific significance of the reserve.

Local Educational Reserves

Lack of field training for teachers as well as students, is one of the most serious deficiencies in current biological education in India. Without field training or facilities for nature study, teaching of Botany or Zoology tend to become lifeless and warped. Thus there is need of local educational reserves for all colleges where biological sciences are taught. The local Educational Reserve is the counterpart of the college museum and the laboratory. These reserves would open a vast and a stimulating field of knowledge in a discipline which trains such mental attributes as acute power of observation, patience, concentration, detailed ordering of thought, and the appreciation of form and colour. Visits to these reserves under proper guidance would provide a liberal education to the students in one of the most stimulating and formative fields of thought. These are gains which can not be quantified in terms of money. A beginning in this direction has been made in Delhi Province, where the local government has placed an area of 20 acres on the 'Ridge' at the disposal of the University of Delhi, Department of Botany. This piece of land will be enclosed with barbed wire, representative trees and shrubs would be labelled and efforts would be made to introduce other local plants also which can grow under these conditions.

Need of New Policy

With the liquidation of the feudal order and the merger of States into Unions, the problem of wild life preservation has acquired a new significance. Whatever may be the faults of princes and rajahs, it must be said to their credit that they preserved the wild animals and forests of their States. With the growing demands of cultivators who want to save their crops from harmful animals, there is need of clear formulation of policy. There is immediate need of initial survey of all proposed National Parks Areas. While there is necessity of maintenance of good vegetational balance and preservation of rich flora and fauna in the National Park Areas, the general wild life policy must

be such as will not prejudice the use of developed agricultural land. The interests of the cultivator and the lover of nature must be harmonised. The apprehensions of farmers that National Parks and Nature Reserves will develop into uncontrolled sanctuaries where pests and weeds will be allowed to flourish, and which will spread into surrounding agricultural lands must be allayed. The biologists must give lists of harmful and useful birds and animals. While the friends of the cultivator should be encouraged in the National Parks, the enemies must be exterminated. The biologists should also give a finding whether campaigns should be started for the destruction of wild boars, porcupines, monkeys, bats and parrots who cause enormous damage to crops and gardens. Before any such campaigns are started, it should be ascertained whether wholesale destruction of certain birds or animals may not have harmful repercussion elsewhere, on account of the upsetting of balance of power between various organisms. An action which *prima facie* may appear sensible and desirable may have far-reaching and most unpleasant and unforeseen consequences fifty years hence. As the authors of the reports of 'the Wild Life Conservation Special Committee' observe, "A conservation policy directed to maintaining any particular biological equilibrium entails constant vigilance and a fine-scale 'management' of a kind comparable to the most highly developed farming". The Special Committee further recommends the establishment of a National Biological Service, which should include not only systematists, but also others. As the Committee further observe, "Though the ability to recognise and name an organism is the first essential stage, it is by no means the last. The ecologist, the planter, animal physiologists, the geneticist, the student of behaviour, the soil scientist, the climatologists and the statistician each has his prominent place in the picture. But standing level with the biological sciences, though too often neglected in the context of nature preservation, are the geological and physiographical sciences; for it is from the nature and distribution of the rocks and from the configuration of the earth's crust that the natural beauty of scenery and its living carpet are derived."

The Committee further enumerates the functions of the proposed Biological Service as follows:—

"(a) The scientific and practical management and maintenance of the series of National Nature Reserves in such a way as to provide:—

- (i) Reservoirs for the conservation of the main types of wild life (plant and animal species and communities) represented in the country;
- (ii) Facilities for the conduct of fundamental and applied research and survey;
- (iii) Certain educational facilities for students;
- (iv) Facilities for the amateur naturalist and members of the public to observe and enjoy nature;

(b) The provision of advice and the conduct of any scientific work that may be required by the National Parks Commission in relation to National Parks and Conservation Areas;

(c) Making local representations on scientific questions affecting conservation (e.g., to local planning authorities and Advisory Committees) and the watching of sites of special scientific importance which are not National Reserves, with the object of interesting their owners in a sound conservation policy;

(d) The central representation of informed biological opinion in relation, *e.g.*, to protective legislation and the effects of pest control;

(e) The biological survey of National Reserves and the conduct of wider surveys, distributional recording, etc., with the ultimate aim of carrying out a thorough survey of wild life throughout the country as a continuing process since plants and animal communities are essentially dynamic organisations subject to rapid and far-reaching changes;

(f) The conduct of, as well as the provision of facilities for long term and short term field research;

(g) The conduct of such research on problems affecting forestry, agriculture, drainage, water-supply, erosion and coastal accretion, landscape and amenity conservation, etc., as the respective authorities may consider could with advantage be undertaken by the Biological Service;

(h) The maintenance of a central bureau of information for the digesting and indexing of all data relevant to the work of the service whether derived from that work or from external sources;

(k) The maintenance of liaison with the central and local authorities concerned, with other reserve-holding bodies, with academic and other centres of research, and with the public."

Need of a Central Biological Service for India

In India also there is need of a Central Biological Service under the Ministry of Agriculture of the Government of India to deal with problems relating to conservation of nature, national parks and fisheries. Dr. Bains Prasad, who realised the importance of this problem is also of the same opinion. He observes, "The multifarious problems involved cannot be tackled properly until the all-India nature of the problem is realised and a separate department of the Central Government made responsible for this work. While leaving the local problems to various Provincial Governments and Native States, a Central Department should be responsible for dealing with the policy of conservation of wild life for India as a whole".

The Central Biological Service may be co-ordinated with the Indian Forest Service, and may form a part of it.

* * * *

Protective Legislation

(Under this head the author refers to the January 1935 All-India Conference assembled at Delhi, and the Punjab Wild Birds and Wild Animals Protection Act of 1933, under which District Fauna Committees with Game Inspectors and a number of Game Watchers were linked with District Fauna Committees with the Deputy Commissioner as Chairman.)

"There is need of protective legislation on the lines of the Punjab Act of 1933 in other Provinces also."

(In regard to all this the compiler would remark that were all these admirable arrangements carried through with necessary continuity of purpose, all should have been well with wild life in Northern India, and the natural history education of the children—and perhaps with the rest of India also; for pictorial charts showing the close season and the birds and animal friends and foes of the cultivator were designed for wide circulation in schools, panchayat-ghars and police stations.)

* * * *

Nature Conservation and Soil Erosion

Nature conservation, and conservation of soil, forests, grass-land and water are intimately connected... This question is just as fundamental to agriculture, horticulture, forestry, game preservation fisheries, etc., as it is to the management of the National Parks.

The forest-covered Siwaliks have degenerated into bare hillocks which are not capable of producing enough for even the starving population of human beings, goats or cattle; much less of providing food and shelter for wild life.

What remedies should be adopted to check soil erosion? Closure to grazing and its substitution by grass-cutting and stall-feeding, replacement of goats by sheep which are less destructive, have been suggested. Agricultural practice in areas in the Himalayan and sub-montane areas also need to be modified. Terracing, bunding, contour ridging, contour furrowing, crop rotation and strip cropping also require attention. However, the sovereign remedy is re-afforestation, and "PLANT MORE TREES" should be our slogan for next decade.

Note.—Forest Officers will know that *Polygonum molle* is valuable as an agent for reclothing landslips.

The remaining eight pages of the Address contain valuable suggestions regarding a BIO-AESTHETIC PLAN and its cognate subjects. These, instructive though they are, need not be reproduced here for purposes of this compilation. Those interested may see the complete Address.

4. G. A MEMORANDUM

Memorandum submitted by Lieut.-Colonel R. W. Burton on the 16th October 1950 to the Under-Secretary to the Government of India in the Department of Scientific Research, New Delhi, for use by the Sub-Committee constituted by the Advisory Committee for Co-ordinating Scientific Work to examine and suggest ways and means for setting up National Parks and Sanctuaries in India.

The Sub-Committee met at New Delhi on the 23rd and 24th July 1951.

1. Preliminary.—(a) It is suggested that the Sub-Committee consider this Memorandum para by para and make suitable suggestions to the Advisory Committee.

(b) It is also suggested that the Sub-Committee Members refresh their memories by reading through the original pamphlet, *J.B.N.H.S.*, Vol. 47, No. 4, August 1948 and the *Supplement* to it Vol. 48, No. 2 of April 1949.

(c) Some of the Members may not possess these. Suggest the references may be made available to them on loan from the Office concerned: also other references mentioned in this Memorandum.

2. Legislation—National Parks.—The several National Parks Acts enacted in India are not available to me. So far as I know, these Acts have not provided for the *Board of Trustees* system of control which has been considered in other countries (U.K. and Kenya) as giving the greatest security.

“Governments and policies change, demands based on economic needs or political expediency arise which, though they may be of a temporary nature only, it may be difficult for the Government to resist, and a Park established by an Ordinance could with moderate ease be modified or abolished by another. “...” The areas chosen can be leased by the Crown (The State) to the Trustees for a period of 999 years, the Trustees being empowered to carry out their duties in accordance with the conditions laid down in the Deed of Trust...lease is harder to break (than an Ordinance) and, in our opinion, gives the greatest security, which is the goal at which we aim.”

3. I suggest that a National Edifice designed to last a thousand years should have the best possible foundation. Perhaps, in India, Trustee System is not necessary. The Law Officers will know. Whatever is the more secure may be adopted.

4. Two Kinds of Parks.—The Sub-Committee will doubtless have in mind two kinds of National Parks. No. 1 Wild life purposes only. No. 2 Dual purposes, viz., for both wild life and monuments.

5. Definitions. No. 1.—An area dedicated by Statute for all time to and for the people for the preservation of the flora and fauna of the selected area in all its aspects. No. 2.—“An area dedicated by Statute for all time to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” (P. 565. *Proceedings and Papers, International Technical Conference for the Protection of Nature*, Lake Success, 22-29, VIII, 1949.)

6. Number and Location.—No. 1. Suggest there may be as far as possible one in each State and Union.

(a) *Assam*.—Suggest that the lately Gazetted Tirap Frontier National Park be not further proceeded with as regards Tourists. It may be tried out as a sanctuary for the species that are now in it.

As to Frontier National Parks reference may be had to the before-mentioned Lake Success Proceedings and Papers. Suggest that at the present time it is not expedient to form any National Park or Sanctuary having any part of the area contiguous to any of the Frontiers of the Republic of India

(b) *Assam*.—Suggest possibility of a National Park along the Dinapur, Nichuguard, Kohima, Mao, Karong and Imphal to the Logtak Lake of the Manipur State as suggested by Mr. E. P. Gee, see Vol. 49, p. 87.

(c) Of No. 2 suggest Mount Abu and such area around the Hill as may be available for a dual purposes National Park. The Sub-Committee will have other places in mind for similar purposes (Mandu, Parasnath and others).

7. Zoological Parks.—These, on the lines of Whipsnade Park in England, are suggested as show places attractive to tourists of other countries, and for the instruction and enjoyment of the people of cities and large towns: Bombay, Calcutta, Allahabad, Jaipur, Delhi, Nagpur, Jubbulpur, Indore, Gwalior, Hyderabad, Mysore, Bangalore, Madras may be mentioned; there are others also.

(a) *Area* of such Zoo Parks may approximate 500 acres or one square mile. They will require secure and permanent fencing all round the perimeter.

(b) It is in mind that in these Parks, birds and animals should not be confined in cages but afforded the greatest possible liberty—carnivora included. For the two articles descriptive of Whipsnade, see Vol. 36, p. 378 and Vol. 39, p. 321.

(c) It is envisaged that these Zoo Parks would become completely self-supporting, enhance the wild life prestige of India, and be much appreciated by all classes of the people in the several States and Unions.

(d) *Amenities*.—For each of these parks there would need to be provided a small, well designed township of strictly enclosed and limited extent with suitable Hotels, Restaurants, Garages and other accommodation for the visitors of all classes; also a Bazaar, Market, etc. Rail communication is desirable; otherwise good and sufficient approach roads. Near the entrance gates would be motor vehicle and cycle-parking places.

(e) *Funds*.—In the first instance the Zoo Parks would be financed by the governments concerned.

(f) *Water*.—Where at all possible sites selected for Zoo Parks and Peoples' Parks (see below) should have running streams or canals passing through or near them.

8. Peoples' Parks.—(a) Nearly all that is in mind as to these is in para 12 of the *Wild Life Supplement*.

(b) To that is now added that all these Parks should contain sheets of water to attract wildfowl and waders. In New Zealand, small Municipal Parks on the above lines are a great asset to the towns, especially in the South Island.

Establishments for both the above Parks would be arranged by the cities and towns with which they are linked. The Staff designations might be Park Superintendent, Officer, Assistant, Attendant and the uniforms designed accordingly.

9. **National Parks: Establishments.**—Suggest these should necessarily, be separate from the Forest Department establishments.

(a) *Personnel* in all grades may, at the commencement, be obtained from the Forest Department by nomination and by selection from among applicants from the Forest Department Cadres.

(b) In some of the grades ex-military men might be employed.

(c) It is in mind, based on observation in India, Burma, Ceylon that guards and watchers had best not be from among neighbouring populations.

(d) *Designations.*—Suggest Warden, Deputy Warden, Assistant Warden, Park Superintendent, Ranger, Guard, Watcher, Fire-Watcher, Attendant for the several grades.

(e) *Dress:* As may be designed. "In case of ranks below Ranger suggest 'National Park' on head-dress with designation on chest. From Warden to Ranger inclusive shoulder strap indications of status.

10. **Training.**—As may be arranged. (a) Suggest three Officers may be deputed soon as may be, to America, Europe, United Kingdom to acquire knowledge of principles—methods, and all useful details regarding National Parks, game control, conservation and management.

(b) Suggest these three Officers should possess B.Sc. Degree, have wild life preservation at heart, and have force of character.

(c) They would have much to learn, and much would depend upon them in regard to success of National Parks and Sanctuaries in India.

(d) In due course compilation of a *Manual* would be necessary.

(e) *Salaries.*—These would be suggested by the Sub-Committee and the Advisory Council and be decided by the governments. They might approximate those of the Forest Department in the corresponding grades.

11. **General Remarks.**—Suggest that at the present time there is urgency in selecting, demarcating and providing for the lay-out and administration of the areas to be devoted to the purpose of Wild Life National Parks where such are contemplated.

12. **Selection of Area.**—A long-term view, fifty years and more, with much forethought and mature consideration is necessary. Every aspect has to be weighed and considered; for it can be anticipated that within the stated number of years all usable land will be required for the ever-advancing claims of agriculture, forestry and other human activities. Therefore, so far as can be foreseen, none such should now be taken up for a National Wild Life Park.

13. Suggest the *Selection Committee* should be composed of representatives of all Departments concerned, together with two or three co-opted non-official members.

14. **Points to Consider.**—(a) The area should comprise natural game country having abundant water, food and cover for all the creatures in it.

(b) *Size* should be large enough to prevent overcrowding of species and permit of overflow into contiguous Reserved Forests which should be on at least three sides of the park.

(c) It may be eventually necessary to have much of the park protected by *fences*.

(d) The area should contain no human *habitations* other than those required for essential Warden and Park Control Establishments.

(e) *Forest Operations.*—There can be no extraction of timber and other forest products other than providing essential needs of the

park; also no mining, quarrying, or water-supply project other than for essential need of the park area.

(f) *Type of Forest* should be such as to allow animals being seen by visitors—in some parts from the roads and others from elephant-back.

(g) The park should be not too far from considerable areas of population.

(h) Should be served by *roads* existing, or to be improved or made, and have motorable roads within it for visitors and paths for the riding elephants on hire for the visitors.

(i) *Water*.—For this a very long view is necessary. There must be an ample and perennial supply for all species; and for the park establishments and the visitors. Tanks, or sheets of water, or marshes are a very great asset.

(k) *Food and Grazing*.—Needs of all the creatures have to be thought of and provided. In fact, the vital question of food has to be considered in all its aspects and for all seasons of the year.

(l) *Environment*.—All animals depend for their existence upon suitable environment, and this should be preserved, as near as may be, intact.

(m) Size of the park has to vary according to availability of land and requirements.

(n) Natural *Salt-licks* are essential to every park and are of vital importance to the conservation of wild life. Because of their attraction to the animals they should be improved if necessary and safeguarded from poachers in every possible way.

15. Lay-out.—(a) There should be a system of broader and narrower fire-lines and communication paths as obtains in well managed Reserved Forests.

(b) There would be suitably sited Quarters with water-supply, by well if necessary, for Guards and Fire-Watchers at outlying parts.

(c) Telephone communication would be established to connect these with the Park H.Q. Establishment Office near the Main Entrance. Along some of the paths tree machans for benighted patrolling staff may be necessary.

16. Management.—(a) Basic to all success is need for trustworthy staff. Wardens have to be trained observers; able to train, discipline, and educate their Establishments in all their duties; to inspire them with enthusiasm and real pride in the condition of their park and the well-being of the creatures under their charge.

(b) *Selection*.—From this it is obvious that all members of the Staff have to be most carefully selected. They must be keen on the work before them; lovers of wild life; of sound health and good physique; amenable to discipline; trustworthy, honest and as far as possible unrelated to neighbouring population.

(c) In the upper grades they should be able to read and understand the wild life literature, which should be provided.

(d) A *Manual* would be compiled for their general guidance.

(e) All Establishments should be well paid, housed and cared for at all times and all seasons.

(f) There should be cordial relations and close co-operation between the Establishments of the National Park, the Forest Department, the Police, and Establishments of the Civil Administration in all essential grades.

17. Forestry.—(a) It may be necessary to de-forest selected patches of jungle to augment grazing. In these, and in jungle valleys, and along the wider fire-lines annual grass burning is a necessity; for neglect in this allows of excessive growth of bush and thorny scrub which comes up with great rapidity, blocks the glades, and through increasing denseness of vegetation causes migration from the area of species such as sambar and spotted deer.

(b) The narrower fire-lines and the footpaths should be annually cleared by hand implements.

(c) Where exotic fodder plants, such as clover, have been safely introduced in the not-far distant parts of the same tract of country, the cultivation of them could be added with advantage to the local grazing supplies. Advice of scientists could be obtained.

(d) To promote prosperous breeding seasons there has to be plenty of grazing and water. Where there are elephants, rhinoceros, buffalo, bison their needs have also to be thought of.

(e) For some of the animals—bears, monkeys, squirrels and for birds, fruit-bearing trees and shrubs should be planted.

(f) Near selected salt-licks there could be suitably constructed tree-platforms to enable approved visitors (on payment) enjoy the sight of wild animals in a state of natural environment.

18. Census.—(a) Basic to any management measures is as accurate as possible knowledge of the size of the population, and the yearly changes in its size.

(b) To the above end repeated censuses should be the basis of intelligent management of game resources. The reduction of stock, if necessary, should include the culling of female animals, and of males also should that be indicated.

(c) Habitat improvement through modification of timber and grazing arrangement can be made to increase game-carrying capacity.

19. Carnivora.—It would be necessary to maintain the right balance between carnivora and herbivora.

19. A. Park Management includes encouragement of the deer, pig and monkey population to provide food for the larger carnivora and so lessen depredations on domestic stock outside the area. Wild dogs would have to be destroyed as interfering with food supply of tigers and panthers.

20. Crocodiles.—The Park Staff would take any measures found necessary in respect to these animals.

21. Elephants.—Control as regards these, and all other animals so that they do not unduly conflict with the use of land for production purposes is the duty of the Park Warden and his Establishments. It is the duty of the Warden to keep the population of game and wild fauna within reasonable bounds.

22. Education of Public.—Research by scientists, and management by Warden and Staff should be complemented by education of the public in general, and in the neighbourhood of the park in particular, so that they may support the programme.

23. Sanctuaries.—Selection of areas to be declared as sanctuaries within Reserved Forests has always been decided by the Forest Department, and this excellent arrangement should continue.

24. Special Sanctuaries.—Conditions governing what may be termed 'special sanctuaries' which may be used as show places for tourists, and may perhaps in some cases eventually attain the status

of National Park, are contained in para 19 of *Wild Life Supplement*. To that para should now be added para 14 (n) above as to salt-licks.

Some of the other paragraphs in 14 are also applicable to formation of 'special sanctuaries'.

25. Preservation and Guarding.—It has been remarked in several places by others as well as myself that laws, rules and orders in respect to guarding the forests and shooting within them are excellent in themselves, but the difficulty lies in enforcement. That applies to both inside and outside the forests.

26. Legislation—Game Act, Bombay State.—In the Bombay State at the present time a New Game Act is at the stage of being enacted. It is suggested that this Act may be taken by the other States and Unions as a model on which to frame their own Acts and Rules.

I have had something to do with the drafting but have not seen the final draft so might have some suggestions to make.

* * * * *

The text of the Act, "The Bombay Wild Birds and Wild Animals Protection Act, 1951"—together with Statement of Objects and Reasons, is at pp. 818-852 of Vol. 49, No. 4 (1949).

Provision is made in the Act for confiscation of firearms by the convicting Court, but not of 'vehicles' as I urged should be done in conformity with the Excise Act (see under Poaching).

Definition of 'animal' is omitted. It might be:—

" 'animal' means any animal alive or dead whether vertebrate or invertebrate or any portion thereof and includes a bird, fish or reptile."

'Vegetation' is not defined: it might be:—

"vegetation includes any form of vegetable matter alive or dead"

" 'trap' needs definition:—

"trap' includes any contrivance or device by means of which any animal can be captured, injured or killed."

Schedule I. Vermin.—This is defective in that neither all species of *Bats* nor all *Birds of Prey* are harmful to the interests of man or of wild life conservation; indeed, some of each of these species are directly beneficial to man's interests.

In the above respects the Bombay Act is not yet, as was hoped it would be, wholly satisfactory as a model to be used as a guide to similar Acts in other States and Unions.

The Rules under the Act are not yet to hand.—R. W. B., November 1952.

27. Trapping and Snaring.—Again it is urged that the time has long gone by for Nomadic Tribes and other persons who gain their living by trapping and snaring of game birds, antelope, gazelle and other creatures to be turned to other pursuits.

Thousands of people have been deprived of their hereditary occupations and turned to other pursuits in the interests of the prohibition campaign. These harmful trappers and snarers could be dealt with in a similar manner—and with good reason, for they are exterminating birds and animals which are the inherited asset of the people and the State.

Notices could be issued to all such who are licensed that these are terminated from a stated date. Alternative to that is the disappearance of some species and the eventual extermination of others.

28. **Poaching.**—(a) In two respects the Laws and Rules need important amendment: *Poaching through use of the motor vehicle.*

Poaching through use of the electric torch.

Unless these two forces of destruction are halted, the larger wild life of India is doomed to extermination. That is my contention.

(b) An essential of game preservation is the prevention of the 'commercialisation' of game. Much of the poaching done—in South India at any rate—is for gain by sale of the meat or other products of the animal.

(c) It is necessary, I submit, that the Laws and Rules be amended to provide that in case of conviction, the Court may order confiscation of the *motor vehicle*, cycle, wheeled vehicle, firearm, torch or other gear used in the commission of the offence, in addition to any other penalty provided by the law. There is ample precedent in the Indian Excise Act and Rules; and now there is support from the United Kingdom:—

Editorial, The English *Field* newspaper, 6th May 1950:
Salmon poaching penalties.—After nearly two years of deliberation and taking of evidence the Government's Committee on poaching and illegal fishing for salmon and trout in Scotland has made its report.

* * * *

"The Committee's recommendations for dealing with the situation may be briefly summarised as: adequate penalties upon conviction; the introduction of licences for the sale of salmon and trout; the obligation to mark packages of salmon and trout when despatching by post or rail; the forfeiture of all gear including motor cars on conviction. There are, of course, other suggestions for greater efficiency in detail.

The Tweed (England) has already provision whereby carts for transporting the illegal fish are subject to forfeiture. This provision, *which should include motor cars, quite definitely*, ought to be made applicable to the whole country. It would be best to make the provision compulsory on conviction, and not leave it to the discretion of the lower Court" (*my italics*).

This is good precedent for my proposal that provision needs to be made, in India, for the confiscation of motor vehicle in case of a conviction for poaching.

(d) My contention is that the preservation of game animals, which are the property of the State and a National Asset, is of at least equal importance to the prevention of smuggling of opium, liquor and other things penalized under the Excise Act (Recently—1952—in the Madras State, in a liquor smuggling case, the order of the Court confiscating the motor vehicle was upheld on appeal to the High Court).

(e) It naturally at once jumps to the mind that, from one point of view, some of the subordinate staffs entrusted with the enforcement of the game laws will joyfully welcome this new idea; while others, who are loyal to the necessity of preserving the animals from destruction, will acclaim the extra power given for the suppression of offences.

(f) The new Bombay Act has accepted the idea as to firearms, but not as to motor vehicles. Half measures are seldom effective.

(g) The Sub-Committee may carefully consider all the above and make recommendations to the Advisory Committee.

(h) A recent Amendment to the Ceylon Ordinance gives power to halt and examine motor vehicles passing along certain roads. Such provision might with advantage be adopted in India.

29. Royalties.—(a) The Sub-Committee may recommend that the system of Royalties provided in the Assam Rules should be introduced into Reserve Forest Shooting Rules of all States and Unions.

(b) I can see no objection to this system. Sportsmen who can afford the many expenses entailed by shooting big game can be reasonably asked to make this further contribution towards the expenses incurred by the State in conserving the animals for their sport.

30. Rewards for Carnivora.—Within Reserved Forests there should be no rewards for killing tiger or panther, except in case of those which have to be proclaimed. Rewards for wild dogs should remain and be sufficiently attractive.

31. Bird Sanctuaries.—(a) In Ceylon there are upwards of 20 bird sanctuaries, in India almost none. There are indications that the people in rural areas would give good support to bird protection, except perhaps where the species is desired for food.

(b) Bird Sanctuaries are desirable all over the country, and the Sub-Committee may so recommend through the Advisory Committee to all States and Unions.

(c) *Wild fowl.*—At the Lake Success International Conference for the Protection of Nature in August 1949 it was shown that the decreasing number of migratory duck had become a matter of concern among Western nations.

(d) It was considered that much could be done by prohibiting netting of wild fowl on lakes and smaller waters, and that every nation should be prepared to make the necessary sacrifices towards that end. Something on those lines could be done by the governments and people of India.

(e) In the Madras State indigenous duck and teal are afforded a close season from 1st June to 30th September. The period might be from 1st April and apply to all species of wild fowl and water birds. Under the guise of netting, both migratory and indigenous birds will be taken; also, at present, the people are taking the eggs and fledglings of indigenous duck, and that should be stopped. The Sub-Committee may recommend as above.

32. The Great Indian Bustard.—(a) is now a vanishing species and will surely be exterminated unless effective measures are taken to preserve it for the country.

(b) The bird lays only one egg, is large and conspicuous, and is slaughtered for food by nomadic tribes and others.

(c) The only remedy is to apply provisions of Act VIII of 1912 by Notification under Rules provided by the Act and give whole year protection. At the same time all District Officers in all States and Unions where the bustard is found should be directed to ensure by all means in their power that the Notification is obeyed.

The Sub-Committee may recommend as above to the Advisory Committee:—

(d) The Lesser Florican is exceedingly scarce and needs whole year protection.

33. Close Seasons—Game Birds.—(a) The biological conditions of bird life strictly govern reproduction. Not only must birds be undisturbed during the breeding season, but equally during the preceding phases, and subsequently, until the young are able to fend for themselves.

(b) Existing Schedules are all too complicated through attempting to give precise close seasons for this, that and the other bird. For this reason they are confusing to even educated sportsmen and not understandable by many of the ordinary people (Vol. 47, pp. 778-780 may be seen in this regard).

(c) Schedules might provide for all game, and some other birds, from 15th February to 30th September as a common sense close season.

34. Outside Reserved Forests.—Paragraphs 27, 31, 32, 33 refer to these areas.

35. Within Reserved Forests—National Parks and Sanctuaries.—(a) Some aspects of wild life in these appear to be in considerable danger.

(i) "Forests can themselves become a menace to cultivation." Deputy Prime Minister, Dehra Dun, 2nd April 1950.

(ii) "It is vital that the sentiment of the farmer must be raised against all animals that destroy his crop. It is only when the farmer co-operates with us in destroying wild animals, that we can hope to reduce the great loss incurred," p. 10, *Madras Information*, June 1950.

(iii) "The biologists must give lists of harmful and useful birds and animals. While the friends of the cultivator should be encouraged in the National Parks the enemies must be exterminated. The biologists should give a finding whether campaigns should be started for the destruction of wild boars, porcupines, monkeys, bats and parrots who cause enormous damage to crops and gardens.

Before any such campaigns are started it should be ascertained whether harmful repercussions...upsetting balance of power...An action which *prima facie* may appear sensible and desirable may have far-reaching and most unpleasant and unforeseen consequences 50 years hence." Address by M. S. Randhawa, I.C.S., 36th Indian Science Congress, Allahabad, 6-4-1949, p. 4 of reprint in this Volume.

(b) It is suggested the Sub-Committee may read all of Mr. Randhawa's Address and bear it in mind; also the above (i), (ii), (iii) when making recommendations to the Advisory Committee.

36. National Parks and Sanctuaries.—It seems that many people have the idea that once these are in being the game in the rest of the country can go, and the sooner the better.

As regards game birds it is a very wrong idea. Even now, partridges and junglefowl are fast disappearing, and all the game birds are in need of protection.

It is possible that, at certain seasons, partridges and other game birds may eat grain if given a chance. But it may be regarded as certain that the damage done to crops is small, and is balanced by the good they do by destroying insect pests and seeds of harmful weeds. Partridges in particular are almost wholly beneficial, and he who would try to make out a case against them would be an ignorant man.

The Sub-Committee may keep in mind that much as will be the good resulting from well cared for and well guarded National Parks and Sanctuaries, there is need for game preservation throughout the rest of the country [see Vol. 48, No. 4, p. 293, para 13 (iii)].

37. Funds for Wild Life.—(a) The Sub-Committee may see the List at p. 617, Vol. 47, No. 4, August 1948 and consider that revenue should aid the source from which derived, and make suitable recommendations.

(b) In France there is a Special Contribution towards game conservation automatically levied at same time as licence fees. This is earmarked and cannot be used for any other purpose.

It is suggested this logical item may be added as item 18 of the List and apply to items 4, 6, 7.

38. Obiter Dicta.—The following are taken from various papers contributed by experts to the International Congress, Lake Success, August 1949 and presented as useful to keep in mind.

(a) "Game" should include Mammals, Birds, Reptiles.

"Animal" means any vertebrate animal other than a domestic animal.

(b) The *management* of wild life resources both animals and birds, can only be established on a scientific basis.

(c) Any wild animal population must not only be undisturbed during its *breeding season* but equally during the preceding phases.

(d) In respect to all projects and measures concerning wild life there should be a wholly accurate background of scientific knowledge and research.

(e) *Conservation and Control* must be combined into a common policy. There should be a balanced picture of control, as well as conservation; that is, conservation means preservation *plus* control.

(f) *Conservation* implies the preservation in perpetuity of a reasonable quantity of game and wild fauna on account of their educational, scientific, economic, recreational and æsthetic value. "An important principle of conservation is the utilization of natural resources for the benefit of mankind" (Hubback).

"*Conservation* means the management of plant and animal life" (D. E. Wade, p. 33, *I.U.P.N. Proceedings and Papers*, Lake Success Conference).

(g) *Control* implies the need, which is growing fast, as human population increases, to keep the population of game and wild fauna within reasonable bounds, so that the animals do not unduly conflict with the use of land for production purposes.

(h) *Game Control* may be defined as the sum total of the measures that must be taken in the interests of man's crop lands, cattle, etc.

(j) *Game Control* has a hundred aspects and a thousand facets; on its successful prosecution depends the survival of much of the larger indigenous fauna of any country, and of the game also.

(k) *Game Control* needs exact knowledge and experience and cannot be left to casual effort.

(l) *Game Conservation* means the management of game in the interests of the animals and the people using the land. And there are the troubles from the upset of the balance of nature.

(m) *Game Preservation* means the shielding of game from man and his instinct to kill.

(n) Once disregard of the law is allowed to start, there is no stopping it.

(o) There should be no kind of admission that a man may hunt to provide himself and his dependents with food.

(p) Game Reserves and other areas which cannot be properly administered become the happy hunting ground of poachers.

(q) National Parks, Sanctuaries, Reserves must be adequately guarded.

"'Adequate' means a staff, well-trained, loyal, trustworthy and having enthusiasm and real pride in the well-being of the flora and fauna under their charge" (Keith Caldwell) ('clarification' of that is a Wild Life Department, or similar organization within the Forest Department).

39. International Forestry Conference, Mysore, April 1949.

The closing Resolution:—

"It is recommended that forests be zoned into Strict Natural Reserves, National Parks and Intermediate Areas, and a system of Sanctuaries, close seasons and rest periods within open seasons, and rest periods with open seasons be enforced.

"Effective steps should be taken to check unlicensed and unrestricted forms of killing and capture, and that protective measures be adopted for the preservation of threatened species by declaring them to be partially or absolutely protected, and a rigorous control and prevention of the sale and export of both live animals and skins, and, if necessary, by a complete embargo."

40. Close Season for Big Game.—In a Note published in Vol. 39, No. 3, p. 621, "Close Seasons for Big Game—Are they beneficial?" Colonel R. C. Morris states the various breeding seasons and shows that, in the majority of cases, the protection of a close season is supposed to afford is not, in fact, beneficial to the animals.

The argument is:—

"In view of the fact that during the close season a very large number of animals are slaughtered by poachers who cannot then be disturbed by sportsmen in the jungles, consider that a general close season in respect of big game should be abolished in South India."

I am in full agreement with that. The same argument would apply all over India. So far as law-abiding sportsmen are concerned no close season is necessary, and what he may, or may not shoot at is entered on his licence.

41. Lands—Multi-Purpose Projects.—Apart from the Reserved Forests, National Parks and Sanctuaries now in existence or to be established in the future there are, in many parts of India, lands which have been or will be taken up by Governments in connexion with water-control projects, irrigation works and canals.

All these are capable of more or less afforestation and wild life development. There will be in the current records of the Department of Scientific Research representations by the Director of the Zoological Survey of India in this respect, and no doubt they are being considered by the Advisory Committee.

42. It is only the backward state of Indian Fisheries and the ineffective methods of fishing which have so far saved the river fisheries of India from utter ruin.

I will not trouble the Sub-Committee with all that could be said regarding this aspect of wild life preservation; the river fisheries of India are now as they were in days of Dr. Day and H. S. Thomas, and growing worse. Through all these years there has been, as in case of animals and birds, failure to enforce the laws and rules.

Harmful effects of faulty fish-ladders have been stated by fisheries experts in the pages of the *Journal of the Bombay Natural History Society*. It would appear that up to now no ladder has been designed that is suitable to the weir and dam constructions of the rivers of India. Probably, more effective than any ladder would be some provision for free exchange of fish population above and below the dam by means of a suitably aligned outlet from the upper waters, as at Mettur.

The Bombay Act of 1951 prohibits only the poisoning of fish, for this should be substituted:—"taking of fish through poison, dynamite or other explosive."

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EDITORIALS: THE JOURNAL OF THE BOMBAY NATURAL HISTORY SOCIETY

7. (ii) GAME PRESERVATION IN INDIA

BY THE EDITORS

Game Preservation wherever it may be undertaken embodies the same principle—the principle that, in order to afford game animals that peace and protection which will enable them to live and reproduce their kind without damage to man, man should only be allowed to damage them under certain rules and should be restricted from ruthless destruction. How is this principle applied in India?

Let us take first the factors which adversely affect the existence of game and then consider the remedies or lack of remedies.

The prime factor adversely affecting the existence of game is MAN. Man affects the existence of game in two ways; firstly as a settler, by clearing the forest and waste lands and driving the game away from its natural habitat; secondly as a destroyer, by protecting his own preserves from intrusion yet pursuing animals life within the fastnesses of its retreat. Disease is a second adverse factor to be reckoned with; rinderpest has accounted for a large number of bison and buffalo in Peninsular India, while foot and mouth disease has in recent years seriously affected game animals in Kashmir and the Himalayan ranges. A third adverse factor might be said to be the killing of game by predatory animals, yet this factor we might set down as a natural check on over-increase, and unless the balance of nature has been upset by extraneous causes its effect on game as a whole is not considerable. The remedy against man would appear to be obvious, namely, the provision of extensive areas of absolute wilderness affording harbourage to wild life, and so long as there are refuges safeguarded by their very nature against usurpation by man so long will wild life thrive and maintain its existence, provided there is no epidemic disease. In India the possession of such areas has been one of the main factors tending to the protection of its wild fauna and there should be little danger, for the present, of any of the existing species being exterminated.

Viewed as a whole, therefore, the present condition of game in India would appear decidedly good—but for how long will this status be maintained? In some parts of the country, as in the Central Provinces, there has already been serious depletion and in other areas there is an almost complete disappearance of game.

In making a plea for the protection of the wild fauna of the country we must urge that apart from the purely sympathetic motives which should impel man to permit to lesser creatures the right of existence there are other, perhaps less worthy and more material, thoughts and motives which are worth considering. These reasons are put forth on the assumption of course that animal life is worth preserving *somewhere*.

From the scientific standpoint there are innumerable investigations—anatomical, physiological, ecological, geographic, taxonomic and evolutionary, which can only be made from the study of animal life. Biology has already produced many conceptions of practical and educational value. The role of the parasite, the predator, the scavenger,

in the economic web of life has, besides its purely educative significance, a not wholly useless application to social relations.

And what about the purely economic aspect? Even predatory animals have a distinct value as a controlling influence against overpopulation by species whose unrestricted increase would adversely affect the interests of man. Again there is the utilization for man's benefit of animal products, such as furs, hides and horns, which in themselves present a valuable economic asset and are in themselves a plea for the conservation of the sources of supply. Have these economic possibilities been exhausted? A few years ago Insulin, that priceless boon to the diabetic, was discovered in the liver of a shark. Who knows what animal products yet remain to be discovered which will be of priceless value to man?

The principle of conservation being admitted, what are the methods to be employed? The principle is the same in every country, the methods to be employed must vary in every country and will probably vary in different parts of the same country.

Let us consider some of the different methods of conservation in vogue in different parts of India.

In the United Provinces shooting rules close and open shooting blocks for alternate fortnights. This system provides and ensures fortnightly periods of constantly recurring rest. In the Terai type of jungles, where shooting blocks are small and game can be very thoroughly disturbed by a line of elephants beating them day after day, the system is an absolute necessity.

In the Central Provinces the forests are parcelled out into shooting blocks usually of a large size. One block, usually a central one, being reserved as a Sanctuary; this, coupled with the extensive size of the blocks, secures game from undue disturbance. There is here, and in other parts of India also, a strict limit to the kind and number of animals which may be shot in a given block, and, in addition, an individual limit is imposed on all sportsmen, whether exempted from permits or not.

In Southern India the game laws are not applicable to the various Provinces as a whole and in certain areas no game laws exist. The Nilgiri Districts and those parts of Coimbatore and Malabar which are so effectively controlled by the Nilgiri Game Association are the only areas with special laws excepting the areas known as Reserved Forests where the number of animals that may be shot is controlled by licence.

The position as regards game in Assam is simple; here the game areas are divided into waste lands, reserve forests and hill forests. The immense areas of waste land which existed at one time are now being rapidly cultivated by immigrant settlers or used as grazing lands by an invasion of buffalo-keeping Nepalese, so that game in these lands is rapidly losing ground. In reserve forests shooting is controlled by licence. For the better protection of rhinos, large areas of grass and swamp land have been included in these reserves and treated as sanctuaries. In the hill forest areas conditions are steadily approaching those obtaining in waste lands where an increasing human population is gradually driving game from its quondam preserves. Whilst game in Assam will be less and less exempt from molestation as cultivation approaches forest boundaries, it must be admitted that there is little danger of game in Assam becoming extinct for a great many years so

long as extensive forests continue to exist and to provide safe harbourage to game.

The conditions prevailing in Assam may be applied to India as a whole. On broad principles land may be classified in three main zones—urban areas, agricultural areas, and forest and waste areas. As far as animal life is concerned we cannot expect its preservation in urban lands. Cultivated areas with their domestic animals and crops provide at once an opportunity for a conflict between man's interests and those of the wild species, and in such land the plea for protection cannot carry weight. We come finally to forest areas and waste lands where, as shown, excellent laws suited to local conditions have been framed for the protection of wild life yet nevertheless game is decreasing where once it abounded.

Existing game laws are excellent in themselves but it is in their efficient application that the trouble arises. As far as the agency of man is concerned there is no mystery attached to the causes of trouble. Firstly, while the licence-holder is restricted by the terms of his licence from doing undue damage, the poacher is affected by no law. He slaughters indiscriminately everything that he sets his eyes upon, regardless of sex, age, or season, he sits over salt-licks and water holes, indulges in night shooting and does all that he should not do. Secondly, emphasis must be laid on the great increase in recent years in the number of gun licences issued which increase is producing, and will continue increasingly to produce, its inevitable effect on game in forest areas and lands immediately adjoining. Thirdly, there is a mass of unlicensed guns carefully concealed but constantly used, and there is also the loaning of firearms by accommodating licensees to friends and retainers, and finally there are the professional trappers and gangs of men with dogs who slay and devour all that falls before them. Those in control of forest areas cannot be altogether exonerated for the ineffective application of the rules. Conservators of Forests and Divisional Forest Officers are not necessarily interested in game preservation, and in addition there often exists the clash of interests between the silviculturist and the game protector, for game can do considerable damage to young teak and other valuable forest timbers.

If the game in Reserved Forests and Sanctuaries is to be protected a more rigid application of the laws is necessary—the stimulus for which might be obtained by an executive order from above. Much might also be effected by co-operation with the police since every constable is in law 'a forest officer'. A more liberal system of rewards for the detection of forest crime, particularly of poaching, is another point worthy of consideration. Rewards are far too rarely given and very rarely indeed in poaching cases, the detection and capture of a poacher who is armed often involves danger and there is no class of forest crime the detection of which merits to a greater extent the granting of reward. It is evident that much of the poaching that is done in forest preserves is carried on for profit. It is significant that the decrease of game in certain areas has corresponded with the increase in the export of skins, principally of bison, buffalo, sambar, etc. Bison, chital and sambar hides are openly sold in the bazaars and there is nothing to prevent these sales. If the poacher is deprived of his market the temptation to kill would be largely removed and it would appear that there could be no possible objection to a general law throughout India forbidding the sale by unauthorized persons of any portion of big game animals—

whether hides, horns or meat and with adequate penalties annexed for those who break the law.

As to the question of gun licences, it may be assumed that in 99 cases out of 100 they are not obtained for the purpose for which they are granted as it is the merest fiction to suppose that the guns are used exclusively for crop protection, which is the only legitimate purpose to which they can be put. While the reduction in the number of licences may perhaps be a difficult matter, it would seem a perfectly fair proposition to have all the 'crop protection' guns called in during the hot weather when there are absolutely no crops to protect. It is during the hot weather, when water is so scarce and the jungles are so thin, that 80 per cent. of the damage is done. It has been found useful, where gun licences are required solely for crop protection purposes, to have several inches of barrel removed. Lastly a suitable penalty might be imposed for the use of a gun except by the licence-holder in person.

The formation of suitable game sanctuaries has been proposed by many as a solution. Game sanctuaries to be effective must fulfil the following conditions: They must be fairly large, must possess a perennial water-supply and must as far as possible be protected against fire and, what is most important, they must have a special staff to look after them. Each preserve will require well-paid watchers with a game warden over them—the game warden should be well paid and given considerable preventive powers. The case for the game warden and his special staff is that many forest officials have neither the time nor perhaps the inclination to apply themselves especially to game preservation. The exploitation of timber and forest produce is annually increasing and forest officers find it more and more difficult to get away from work which brings revenue so as to be able to pay sufficient attention to a question which in this material age is considered to be one of subsidiary importance. A game warden requires special qualifications and besides being a sportsman must also be a naturalist with a knowledge of the ways and habits of the animals he is called upon to protect. The objection to the game sanctuary is that it is expensive both as regards the extent of forest land which must be sacrificed for the purpose and as regards its maintenance by a well-paid warden and an unbribable staff. Besides it may be maintained that a long period of protection in the same area is probably a mistake. Nullahs maintained as sanctuaries in Kashmir for considerable periods were found, on reopening them to shooting, to be almost empty of game. Lastly an 'unbribable staff of subordinate game watchers' would be difficult to procure. The Nilgiri Game Association which, at considerable expense, maintained a staff of seventeen game watchers, abolished the system as these were found to be quite useless and their duties have now been taken over by ordinary forest guards.

The whole question of game protection and the tightening up of the laws affecting it is in the main a question of money. The formation of a special game protection fund in the various Provinces might be well worth considering. The fee for shooting in the splendid jungles of the Central Provinces is Rs. 9 per mensem. This paltry sum is to cover the cost of a special guard who often acts as a sort of orderly to the permit-holder. Game protection is of interest to the sportsman and it is right that he should contribute towards it. Shooting

blocks might be classified as (a) the very highest class, (b) good blocks, (c) poor blocks. The permit-holder might be charged Rs. 1-8-0 per day for (a), Re. 1 for (b), and annas 8 for (c). When one considers what people have to pay for sport in other parts of the world, this is not a suggestion that would be seriously opposed even in India where only the poor reside. In addition a special charge might be made for shooting bison, buffalo and the more sought-after species of game. The money raised by these means should be earmarked for game protection. The formation of such a fund might be sanctioned by the Local Governments and applied for the purpose of supplementing rewards to forest guards, to paying informers, poisoning wild dogs and vermin, killing crocodiles in jungle pools, improving scanty water-supplies, etc., in fact all measures which might be helpful to game. It would be a simple matter to calculate by a perusal of the permits issued in past years what sum the proposed scale of fees would bring in in a given district. Whilst the measures proposed above might not maintain wild life at its present level they would, we consider, have a beneficial effect and help to retard the process of depletion now going on.

MISCELLANEOUS CONTRIBUTED ARTICLES TO THE JOURNAL OF THE BOMBAY NATURAL HISTORY SOCIETY

8. (e) JUNGLE MEMORIES

BY MAJOR (LT.-COL.) E. G. PHYTHIAN-ADAMS, O.B.E.,
F.Z.S., I.A. (Retd.)

Extract from concluding pages of the Series, 'Jungle Memories'. Contributed by Lieut.-Col. E. G. Phythian-Adams, O.B.E., F.Z.S., I.A. (Retd.), to the 'Journal of the Bombay Natural History Society', Vol. 50, No. 3, pp. 466-468, April 1952.

Conservation

Before bringing these Memories to a close, it may be worthwhile to look back and consider the changes in sporting ethics during the past 50 years, and their resultant effect on wild life. When I landed in India the standard of sportsmanship was very high indeed, and approximated very nearly to what the Greek writer Arrian wrote 1800 years ago regarding the people of Britain, who he said 'hunt for the beauty of the sport, and consider the killing of the prey to be of minor importance'. Gone, it seemed for ever, were the days of the butchers of the 70's and 80's of last century, whose bloody exploits are so unblushingly detailed in certain old shikar books. The game laws too had been tightened up and were rigidly enforced. In fact it seemed reasonable to assume, without undue complacency, that the future of wild life in India was secure for many years to come.

Then came the two World Wars and their aftermath—the disappearance of many who could have passed on the traditions they had inherited, and a general disrespect for law and order. The increasing use of motor cars too, enabled an ever-increasing number to indulge in a new form of shikar, and to slaughter animals with a minimum of exertion or risk, subordinating all ideas of sportsmanship to the desire to kill. With India's attainment of independence, matters went from bad to worse. There was undoubtedly a widespread belief (which persists even to-day) that the game laws in force till then were introduced by alien rulers to serve their own ends, and might now be safely disregarded. Their real purpose, to conserve wild life, was, and still is, completely ignored. Gun clubs were formed in many places, ostensibly for crop protection, but mostly for the high profit to be derived from the sale of meat. With few exceptions everyone possessing a firearm uses it for the indiscriminate destruction of game, regardless of sex or season. Persons without the least experience of shikar fire with buckshot at all kinds of animals, of which many in consequence escape to die a lingering death. If a dangerous animal is not killed on the spot, no attempt is made to follow it up, with the result that it becomes a source of danger to some unfortunate villager. The game laws are not adequately enforced, since forest subordinates are in many cases afraid to report poachers lest their families suffer reprisals, or else the social status of the offender ensures his immunity. These things are matters of common knowledge, and it is no exaggeration to say that if the slaughter taking place all over the country

continues at the present rate, game animals in India will soon become practically extinct in all but the most inaccessible areas.

They are having much the same trouble in the U.S.A., and the solution there is a nation-wide conservation pledge: 'I give my pledge as an American citizen to save and faithfully to defend from waste the natural resources of my country; its soil and minerals, its forests, waters and wild life'. This pledge, with a badge, and the slogan 'The Game Law Violator is a Thief', is given the widest possible publicity through the press and in other ways. It is being taken by millions of adults, and by school children also, and there is no doubt, that it is bringing home to all classes the importance of conservation. If that can be done in the great democracy of the West, why should it not succeed in India also?

Unfortunately it is only too obvious that in this country to date, in spite of much propaganda, the real object of conservation is very far from being understood.

Wild life is a very real national asset, and no one can object to all reasonable steps being taken for its preservation.

APPENDIX "A"

Summary of Speeches Made at Mysore on the Occasion of the First Meeting of the Central Board for Wild Life from 25th November to 1st December 1952

In his Inaugural Address on Tuesday, the 25th November 1952, His Highness the Maharaja of Mysore and Chairman of the Board, expressed the genuine pleasure with which the Members of the Board are welcomed by him to Mysore, and the diffidence with which he accepted to be Chairman of the Committee of the Central Board for Wild Life set up by the Government of India. He observed how fortunate it is that we have as Vice-Chairmen Shri K. S. Dharma-kumarsinghji of Bhavnagar and Shri M. D. Chaturvedi, the Inspector-General of Forests, and remarked upon the strength and inspiration afforded by the distinguished body of Naturalists, Conservationists and experienced officers of the various Forest Departments of the different States of India who are serving on the Board.

In the days of yore, he said, it was the Kings, the Nawabs and the Rulers of this country who were responsible for maintaining large tracts of forests where many of the wild animals were preserved for their hunting and shooting expeditions. With the unfurling of the scroll of Indian history these conditions have changed, he remarked, and the protection once afforded to these animals was no longer available to them with the result that many of the finest of these game animals have nearly reached the verge of extinction—some have already become extinct; but now, he said, thanks to the foresight and forethought of the Government of India it is once more possible to look forward to and welcome the rehabilitation of some of our vanishing species of game.

Passing in review the many and varied problems before the Board he referred to the need envisaged by the government to preserve some species while at the same time controlling others which are harmful to man's interests, he mentioned the several functions of the Board now assembled for its First Session. Remarking upon the aims and objects of the International Union for the Protection of Nature he stressed the duty owed by each generation to the next in respect of the Preservation of Nature. 'It must never be forgotten' he urged, 'that these gifts of Nature, once destroyed can never be restored by all the ingenuity of the present age'. Quoting the dicta of Mr. Munshi, the former Food Minister and now Governor of Uttar Pradesh, he reminded the people that unless we become nature-protection minded India will not have a chance of survival.

The basis of all animal life is plant life, he said, and the link between plants and animals is more strong and intimate than is ordinarily imagined, for plant cover greatly influences the natural animal population. Nature, and the conservation of natural resources he remarked, will have necessarily to be based on a long range policy. '.....We have to bestir ourselves before it is too late to establish National Parks and National Reserves as a national trust under statutory authority not subject to the casualties of party politics and departmental whims.' He pointed out that our wild life assets are vanishing and we require educative propaganda, urgent legislation and swift

executive action to save the situation. 'It is the duty of the Central and States Governments to take action in this regard.'

Proceeding further, His Highness said that the need has been felt and met with varying degrees of efficiency in many parts of the world, and growing awareness of necessity for the protection of nature is felt in many lands; while in India the problem is no less urgent, and intelligent planning in this respect has become necessary. He greatly stressed the urgent need to deal with the erosion problem.

It is tragic, he remarked, that two species of rhinoceros have vanished from the soil of India within the memory of many people now living, and the Brow-Antlered Deer of Manipur has been totally exterminated within the past five years. The lion has to be more rigidly protected within its last retreat in the Gir Forest of Junagadh, add the Great Indian One-Horned Rhinoceros is in need of most careful conservation. His Highness observed that certain species had diminished within his own recollection, and the Nilgai is becoming extinct over most of South India. There is need, he remarked, for the Forest Department to give to wild life the degree of scientific attention it deserves. He strongly deprecated the method of irrational grants of lands so as to form little pockets inside forest areas when equal extents of land could well have been made available on the outskirts of the forests. 'An indiscriminate cultivation in the interior of the forests is calculated to destroy the flora and fauna and to bring about a needless interference with Nature's Reserves.'

Dealing with National Parks and Sanctuaries His Highness observed, that certain areas by reason of the wealth of surviving floral and faunal life deserve to be statutorily protected on a National Park footing against man's exploitation. Also, he observed, 'there are other areas situated not far from the cities which could be developed into People's Parks like the one found near Bombay or in Nairobi National Park in Kenya. Museums and natural history laboratories could be established in these centres for the instruction and interest of the people.' He also remarked upon the several kinds of sanctuaries, and that the rhino and wild buffalo in Assam had been saved by these means.

Nature Reserves, he said, besides playing the part of a storehouse providing raw material for the laboratory also form an ideal observatory for the naturalist, and the economic advantages of protecting Nature are now recognized by the whole world. The manifold discoveries of science, in agricultural economy, for example, declare most urgently the danger of thoughtlessly destroying vegetable life. As animal life depends upon plant life the one cannot exist without the other so the protection of wild life imperatively demands protection of natural life and surroundings. 'It is up to the members of the Board to suggest the most efficient and effective means by which a glamorous but now fast disappearing fauna may be saved before it is too late.'

It is clear, His Highness remarked, that a good amount of planning and scientific attention is necessary in setting up parks, reserves and sanctuaries. The area has to be selected, the conflicting claims of man and wild life have to be reconciled, scientific care of wild life has to be taken, proper personnel found, reasonable laws made and arrangements made to give facilities to visitors to observe wild life. He pointed out the several benefits that would arise and that there would be the necessary income from various indicated sources. His Highness made mention of the way the problem was treated in Ancient India and cited

significant passages in Kautilya's *Artha Sastra* and other ancient records. Concluding, His Highness made an appeal on behalf of the Board to the Government and the Committees of the States to extend their utmost co-operation and help to the Central Board in the discharge of the responsible duties entrusted to them; and closed with recital of the Vedic Hymn of Hope the last stanza of which has the striking lines:—

“Rise up. Living life has come to us. The dark
has passed away. The light comes. She has
abandoned the path for the Sun to go. We have
come where men prolong their life.”

The *Inspector-General of Forests* in his Address to the Meeting at the Final Session remarked upon the strange paradox that the man who kills the animals for sport is he who loved them most, and as support to this mentioned the services of a veteran sportsman about to leave India and took the opportunity to express gratitude for all he had done in furthering the cause so dear to our hearts. Referring to His Highness's Inaugural Speech he observed that there is no recommendation of the Board which had not been carefully examined by him. On behalf of the Board and the more spectacular of the birds and animals and of other wild life in need of protection he expressed gratitude to Dr. Deshmukh, the Union Minister of Agriculture, for the signal honour done by his presence and support on this occasion.

As a token of their affection, he remarked, the bisons of Bandipur have sent one of their stockings mounted as a table-lamp which His Highness, our Chairman, has directed should be presented to the Minister with the hope that it would act as a beacon-light for the cause so dear to us. On behalf of the Members of the Board he expressed grateful appreciation for the unstinted hospitality and unbounded generosity of His Highness the Maharaja and the Rajpramukh of Mysore. Also the thanks of all to the Chief Conservator of Forests in Mysore and his Staff for the splendid arrangements made for holding the Session.

Finally, as Secretary to the Board at this Meeting he expressed gratitude to all for the earnestness which they had brought to bear on the tasks assigned to them. Striking a note of warning he said that organisations of this nature are apt to lapse into inanition due to sheer lack of interest and be killed by a plethora of rules, regulations and bye-laws. Conveying the advice of Dr. Deshmukh to cut clean through red-tape and have only one rule of business, *viz.*, business first: he expressed the hope that this Board, under the able guidance of His Highness would grow from strength to strength.

Speech of Dr. Punjab Rao Deshmukh, the Union Minister of Agriculture, delivered at the Plenary Session of the Central Board of Wild Life at Mysore, on the 1st December 1952.

The Minister remarked upon the precious heritage of wild life which should be looked upon as a sacred trust to be handed over to generations to come; and referred to the far-reaching recommendations made by the Committee appointed in 1935, the implementation of which had suffered from the handicaps of the strains and stresses of World War II and its aftermath. In 1949, he said, the threads were again picked up and a Sub-Committee appointed by the Government of India to examine in particular the question of the Constitution of National Parks and Sanctuaries.

The Sub-Committee felt that the interest of wild life can be best served by setting up a permanent organization at the Centre whose

chief function would be to keep a constant vigil on the management of wild life throughout the country. The outcome of that is the present Board and its deliberations in these historic environments of Mysore.

He earnestly hoped that it will be possible for the States to constitute standing Wild Life Committees on the lines of the Constitution of the Central Board to deal with the day-to-day problems which arise in the management of wild life. Giving praise to the Chairman of the Board who is the Maharaja of Mysore he remarked that his exhaustive treatment of the subject had left little for him to add. It is comforting, he remarked, that rightful claims of the agriculturist for protection from the depredations of predators have been given due recognition in their deliberations. 'Attention needs to be focussed only on the preservation of wild life which does not come in conflict with man and his pursuits. Our efforts should be directed in maintaining a balance not only between the vegetable and animal kingdom but among the animals themselves. 'The recommendations of the Board' he observed, 'reflect the earnest efforts brought to bear upon the problems, and he noted with gratification the stress laid upon the urgent need to provide protection to some of our animals whom our improvidence has driven to the verge of extinction. He was glad to note that the Board has drawn special attention to the need for nursing the lion population in another centre besides the Gir Forest, and is in complete agreement with the view expressed by the Board that we are running an incalculable risk (in that respect) in placing all our eggs in one basket.

Pointing out that the task of preserving wild life over so large a country is attended with serious difficulties, he said it would not do to rely only on legislation but is of utmost importance to arouse the public conscience against the insensate killing of our beautiful birds and animals who cannot defend themselves against modern weapons of destruction and the insatiable greed of man. We must create an atmosphere which will convert a poacher into a preacher for the preservation of wild life, and inculcate a spirit of sportsmanship into our people.

Concluding, the Minister expressed a feeling of gratitude to His Highness the Maharaja and the Rajpramukh of Mysore for having given his valuable time to the problems before the Board, and added that the future of wild life is safe in his hands. He also thanked all the Gentlemen of the Board for the service rendered to this noble cause.

Speech of His Highness the Maharaja of Mysore at the Final Session of the Central Board for Wild Life, on the 1st December 1952.

Addressing the Union Minister of Agriculture and Mr. Hanumanthaiya, the Chief Minister for Mysore State and Members of the Central Board, His Highness expressed his appreciation and gratitude for the honour of having worked with the gentlemen of the Board on the problems that faced them at this Session. In other felicitous terms he also expressed his pleasure in having added to his circle of friends, men of ability, wisdom and experience. He considered that he could say with justifiable pride that 'we have been able to make a good job of the work entrusted to us'. 'We may not have achieved sensational results, but I do believe we have spot-lighted the dark corners where ignorance of wild life and its management existed, and I believe too that we have created an All-India interest in wild life and its vanishing assets and have succeeded in making our plea for wide public sympathy.

We have, if I may say so, packed a year's labour into a week's duration.' He wanted to draw the attention of the public, the great public of India, through the good offices of our fair-minded and efficient press to some of the recommendations of the Board. He mentioned in particular the fact that it is the lion's head that adorns the Asoka pillar which is the motif of the Republic of India. It is but right, he declared, that everything humanly possible should be done to increase his numbers and give him special protection and consideration.

It will be noticed, His Highness said, that provision has been made by the Board for creation of 'Abhayaranyas' or forests where animals can live without fear of man and so enable the fauna of the country to have an undisturbed place where they can propagate their species without interference from any human agency whatsoever. Along with this, he said, recommendations have been made for the formation of sanctuaries for medicinal plants and herbs of botanical value. 'It is a step in the right direction, for it is now a recognized fact that plant life is an invaluable and indispensable link in the Nature protection scheme of a country. Thirdly, he said, there is the interesting recommendation for Zoological Parks for nowhere in India is there such a park, which would seem to afford ideal conditions for preserving and nursing rare species of wild life in manner not possible in zoological gardens. In such parks the animals would live practically in their natural surroundings and the people would look at them from behind protecting fences. 'This proposal deserves earnest consideration at the hands of the public and the several governments.'

Finally, he said, the Board have rightly suggested that they should be given a recognized place under the statute as an 'Institution of National Importance'. 'For the first time in India's history of recent times wide public interest has been aroused in the 'wild life' of the country. The deplorable state of ignorance, indifference and apathy on the part of our nation in respect of the country's magnificent flora and fauna is giving way to an intelligent and sympathetic appreciation of their vital place in the life of the land. This marks a splendid chapter in the history of Indian public opinion. May it be a harbinger of a new era of prosperity!' In the Union Minister, he concluded, we find a sincere supporter of this national cause which, so long neglected and relegated to the background, has now been taken up in earnest by the Government of India.

APPENDIX " B "

Resolutions Adopted by the Central Board for Wild Life at Its First Session Held in Mysore from the 25th November to the 1st December 1952

1. THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS that its name be changed to "INDIAN BOARD FOR WILD LIFE", so as to specify its precise territorial limits for international purpose.

Name.

2. WHEREAS India's heritage of wild life is fast becoming a vanishing asset in respect of some of the country's notable animals, such as, lion, rhinoceros, tragopan, cheetah, etc.

WHEREAS the preservation of the fauna of India and the prevention of the extinction of any species is a matter of great national importance, and

WHEREAS protection in balance with natural and human environment are also matters of urgent national importance,

Declaration of the
Central Board for
Wild Life as an
Institution of
National
Importance,

THE CENTRAL BOARD FOR WILD LIFE

RECOMMENDS to the Government of India that, despite the existence of entry 20 "Protection of Wild Animals and Birds" in

List II (State List)

(i) to devise ways and means for the conservation and control of wild life through co-ordinated legislative and practical measures, with particular reference to seasonal and regional closures and declaration of certain species of animals as 'protected' animals and prevention of indiscriminate killing;

of the Seventh Schedule to the Constitution of India, the Central Board for Wild Life, with the marginally noted functions assigned to it under the

(ii) to sponsor the setting up of National Parks, Sanctuaries and Zoological Gardens;

Ministry of Food and Agriculture Resolution F. 7-110/51-R. of the 4th

(iii) to promote public interest in wild life and the need for its preservation in harmony with natural and human environment;

April 1952, be declared by Parliament by Law to be

(iv) to advise Government on policy in respect of export of living animals, trophies, skins, furs, feathers and other wild life products;

an institution of national importance as envisaged in Items 62 and 64 of

(v) to prevent cruelty to birds and beasts caught alive with or without injury; and

List I—Union List—of the VII Schedule to the Constitution more speci-

(vi) to perform such other functions as are germane to the purpose for which the Board has been constituted.

ally as the proper exercise of the functions of the Board

will involve recourse to action under one or more of the following entries in the Union and concurrent Legislative Lists:—

List I—Item 5.—Arms, firearms, ammunition and explosives.

List I—Item 13.—Participation in the International Conferences Associations and other bodies and implementing of decisions made thereat, e.g., the International Union for the Protection of Nature.

List I—Item 41.—Trade and Commerce with foreign countries; import and export across customs frontiers—in so far as living animals, trophies, skins, furs, feathers and other wild life products are concerned.

List I—Item 42.—Inter-State Trade and Commerce with respect to matters specified against the preceding entry (No. 41).

List I—Item 81 (Union List).—Inter-State migration (of wild life).
List III—Item 17 (Concurrent List).—Prevention of cruelty to animals.

List III—Item 29 (Concurrent List).—Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants.

List III—Item 33 (Concurrent List).—Trade and Commerce in and the production, supply and distribution of the products of industries where the control of such industries by the Union is declared by Parliament by law to be expedient in the public interest.

[Sub-Section (2) of Article 246 enables Parliament to make laws with reference to any of the matters enumerated in List III.]

Amendment of the
Constitution of
the Central Board
for Wild Life.

3. WHEREAS the Constitution of the Central Board for Wild Life set up by the Government of India requires elaboration and amplification with a view to devising ways and means for the proper fulfilment of its aims and objects,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that each State Government should be requested to set up a State Wild Life Board consisting of representatives of various organisations and interests to deal with the day-to-day administration of local Wild Life problems.

Note.—The co-ordination of the activities of the State Boards will be effected through the Central Board for Wild Life.

(b) that Honorary Regional Secretaries should be appointed as the Board's representatives to cover on its behalf the various regions in India.

Note.—Appointments of Honorary Regional Secretaries will be made by the Government of India and duly notified in the *Gazette of India*. Each Regional Secretary will maintain liaison between the Central Board and the State Boards. It will be necessary to make provision for the travelling allowance of the Regional Secretaries for the journeys performed by them in their respective regions in the discharge of their duties assigned to them by the Board.

(c) that Dr. S. L. Hora, Director, Zoological Survey of India and President, National Institute of Sciences, India, should be appointed as the Honorary Secretary-General of the Board.

(d) that for the day-to-day administration, an Executive Committee consisting of the following be constituted:—

The Non-Official Vice-Chairman (*Chairman*).

The Regional Secretaries.

The Secretary-General.

The Secretary of the Central Board (*Secretary*).

Note.—The Executive Committee will be vested by the Board with authority to function on its behalf in the disposal of day-to-day business.

(e) that the Constitution of the Board should be so amended as to cover the above recommendations.

Executive
Committee.

4. WHEREAS it is necessary to provide the Executive Committee of the Board with authority to carry on the day-to-day business of the Board and to take action on its behalf while the Board is not in session,

THE CENTRAL BOARD FOR WILD LIFE RESOLVES

(a) that the Executive Committee is vested with full powers to take necessary action in pursuance of the objects of the Board to deal with the day-to-day business of the Board and to address the Central Government and other authorities on various matters concerning the business of the Board;

(b) that the Executive Committee will transact its business by circulation as far as possible and will meet at least once in 6 months;

(c) that the Executive Committee will frame bye-laws for the disposal of its own business as well as the business of the Board subject to the ratification of the Board;

(d) that the Proceedings of the Executive Committee shall be circulated to the Members of the Board in the form of periodical Bulletins;

(e) that in the event of a decision to be taken in respect of a State, the representative of the State concerned on the Board shall be co-opted; and

(f) that the Executive Committee is authorised to make verbal alterations in the language of the Resolution to be presented to Government.

THE CENTRAL BOARD FOR WILD LIFE RESOLVES

5. That its grateful appreciation of the generous arrangements made for holding its Inaugural Session at Mysore should be conveyed to the Government of Mysore.

In particular, the Board would like to convey its gratitude to His Highness the Rajpramukh for his unstinted hospitality and for the interest he has taken in the Proceedings of the Session.

The Board also acknowledges with thanks the assistance rendered by the Chief Conservator of Forests, Mysore and his Staff in organizing visits to various institutions and making arrangements for the delegates.

6. WHEREAS the preservation of Nature in its unspoiled state is deemed essential for its educative and aesthetic value;

WHEREAS wild life in India is progressively diminishing,

WHEREAS some of the wild animals have already become extinct or are on the verge of extinction,

AND WHEREAS the maintenance of an equilibrium between the vegetable kingdom and the animal kingdom and among the animals themselves is of importance to mankind,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS THAT THE ATTENTION OF THE STATE GOVERNMENTS SHOULD BE DRAWN TO THE NEED FOR :—

(a) the creation of National Parks in conformity with the general objectives laid down by the International Union for the Protection of Nature and affiliated bodies,

provided that should a State create a National Park, the advice of the Central Board for Wild Life will be taken to ensure its national character.

Note.—The term 'National Park' for this purpose would generally denote an area dedicated by statute for all time, to conserve the scenery and natural and historical objects of national significance, to conserve wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations, with such modifications as local conditions may demand.

(b) the creation of Wild Life Sanctuaries (or Wild Life Refuges) of such size and in such numbers which the needs for the preservation of wild life, more particularly of the species which have become scarce or which are threatened with extinction, may demand.

Note.—1. The expression 'Wild Life Sanctuary' shall denote an area constituted by the competent authority in which killing, hunting, shooting or capturing of any species of bird or animal is prohibited except by or under the control of the highest authority in the department responsible for the management of the Sanctuary. The boundaries and character of such a sanctuary will be kept sacrosanct as far as possible. Such sanctuaries should be made accessible to visitors.

Thanks to
Mysore
Government.

Protection of
Nature and Wild
Life.

2. While the management of sanctuaries does not involve suspension or restriction of normal forest operations, it would be generally desirable to set apart an area of 1 to about 25 square miles within a sanctuary where such operations may not be carried out, to ensure the nursing up of wild life undisturbed by human activities. Such sacrosanct areas may be declared as '*Abhayaranya*', i.e., a forest where animals could roam about without fear of man. Such a sanctuary within a sanctuary would also ensure the preservation of plant life unspoiled and undisturbed.

3. In the management of sanctuaries, control should be exercised over elements adverse to the maintenance of wild life, including destruction of vermin and predators. In the case of any difficulty, expert advice may be obtained from the Central Board for Wild Life.

4. In the event of a sanctuary being located in one State contiguous to a sanctuary in another State, the desirable co-ordination may be affected through the Central Board for Wild Life.

(c) imposing restrictions on the issue of shooting permits and by the prohibition of shooting in State Forests of a particular species for such periods as may be deemed necessary in order to attain the objectives in regard to the preservation of wild life.

Note.—Special 'preservation plots' may be constituted where plants of medicinal value or species of special botanical interest may need to be preserved along with or without wild life.

(d) encouraging members of the public interested in wild life to assist in the preservation of wild life by appointing them as Honorary Wild Life Officers who will perform the duties and enjoy the powers and privileges of Forest Officers in respect of preservation of wild life delegated to them.

Note.—All the Members of the Central and the State Wild Life Boards as well as Honorary Wild Life Officers should be issued with a badge of office and an identity card in consultation with the Central Board for Wild Life.

(e) the setting up of Zoological Parks for the purpose of entertainment, recreation and study of animal life.

Note.—1. These parks should provide ideal conditions for rescuing and multiplying any species on the verge of extinction.

2. A Zoological Park is different from a zoological garden, inasmuch as it provides space and secures conditions similar to those in the natural habitats for the housing of animals, which are not possible in zoological gardens.

(f) modelling the administration of zoological gardens of the various States along the lines of Alipore Zoo, Calcutta.

Note.—The maintenance of Zoos at a high standard of efficiency is desirable, and advice in this respect may be obtained from the Honorary Secretary-General of the Central Board for Wild Life.

(g) declaring the following species as protected animals:—

- | | |
|-------------------------------|--------------------------------|
| (i) Indian Lion. | (viii) Musk Deer. |
| (ii) Snow Leopard. | (ix) Brow-antlered Deer. |
| (iii) Clouded Leopard. | (x) Pigmy Hog. |
| (iv) Cheetah. | (xi) Great Indian Bustard. |
| (v) Rhinoceros (all species). | (xii) Pink-headed Duck. |
| (vi) The Indian Wild Ass. | (xiii) White-winged Wood Duck. |
| (vii) Kashmir Stag. | |

Note.—This list is illustrative and not exhaustive and may have to be added to from time to time to suit local

conditions. Legislation should be enacted where necessary to secure complete protection of these animals and birds which are on the verge of extinction.

7. WHEREAS the Indian lion, which not long ago was distributed throughout North-West India,

WHEREAS the Indian lion has now receded to the confines of Gir Forest in Kathiawar Peninsula, and whereas the Indian lion is an animal of national importance requiring rigorous protection,

**Protection of the
Lion.**

THE CENTRAL BOARD FOR WILD LIFE

VIEWS with great alarm the dangers attendant upon concentrating the remnant lions in a single locality and not immune from epidemic and other unforeseen calamities;

RECOMMENDS that an additional locality as a Sanctuary for the lions in a suitable area should be developed. In the selection of this locality, the original range and environment of the lion shall be taken into consideration.

AND REQUESTS that the attention of the Government of Saurashtra should be invited to the need for associating the Central Board for Wild Life in the management of the lions of the Gir Forest.

8. WHEREAS unrestricted trading in trophies, skins, furs, feathers and flesh is detrimental to the wild life resources of the country,

**Trading in Trophies,
Skins, Furs,
Feathers and
Flesh.**

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that the export of trophies, as defined in the Bombay Protection of Wild Animals and Wild Birds Act 1951 (XXIV of 1951) should be prohibited except in cases which are covered by a *Certificate of Ownership* issued by the prescribed authority of the Central or State Governments such as Forest or Revenue Officers, etc., or whose ownership is otherwise established.

Note.—This provision will not apply to the re-export of trophies sent to India for finishing on the production of a certificate of the owner.

(b) that legislative control of internal trade in trophies should, for the present, await the experience to be gained in the Bombay State where legislation in this respect is being brought into force shortly.

(c) that, in the meanwhile, in order to discourage trading in trophies inside the country and to prohibit (a) the netting of birds and animals during 'close' periods, (b) their sale, (c) the sale of venison, (d) the sale of fish and parts of other wild animals, the Government of India should invite the attention of the State Governments to the advisability of enforcing the provisions of Act VIII of 1912, as amended from time to time, or such other legislation as might have been enacted or extended for the purpose.

9. WHEREAS in the interests of wild life, and for humane reasons, it is necessary to prevent cruelty to animals and birds during captivity and transit,

**Prevention of
Cruelty to
Animals.**

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that the co-operation of the Society for the Prevention of Cruelty to Animals (S.P.C.A.) should be sought in this connection and that Honorary Wild Life Officers in every centre be requested to report all cases of cruelty to animals and birds in captivity and during transit.

10. WHEREAS extensive netting of wild animals and birds is prejudicial to the maintenance of the balance of Nature and is detrimental to the wild life of the country,

**Netting of Wild
Birds and Animals.**

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that the netting of wild animals and birds should be stopped during 'close' seasons and that no exemptions should be permitted on grounds of tribal or caste customs, livelihood, profession or usage.

Export and Import
of Living Animals
and Birds.

11. WHEREAS the unrestricted export of living animals and birds tends to deplete the fauna of the country,

AND WHEREAS the unrestricted import of animals and birds is not in the interests of local fauna,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that the Chief Controller of Imports and Exports be requested to fix the annual limits for the export of each valuable species of wild life to zoos, scientific institutions and circuses outside India on the recommendation of the Secretary-General of the Board,

(b) that all requests for imports of living specimens of wild life by zoos, scientific institutions and circuses in India should be routed through the Honorary Secretary-General of the Board,

(c) that the *excise duty* to be levied on the export of animals for circuses should be double the duty levied on animals intended for *bona fide* zoos and scientific institutions,

provided that gifts and exchanges between *bona fide* zoos be exempt from such duties.

(d) that the State Governments be requested to give priority to the requirements of zoos in India in respect of species of wild life over the requirements of foreign zoos,

provided that the restrictions contemplated in the aforesaid clauses shall not apply to exports of species classified as 'vermin'.

Note.—The phrase 'vermin' is defined in the Bombay Wild Animals and Wild Birds Protection Act (XXIV of 1951) as "any animal or bird specified in Schedule I and includes any animal or bird declared to be vermin under Section 18".

'Close' Season.

12. WHEREAS, owing to lack of uniformity in the periods prescribed by different State Governments as 'close' seasons, it is difficult for the Transport Authorities to keep a check on 'close' season offences,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that movements of living birds be prohibited from 1st April to 30th September which, for all practical purposes, will be treated as 'close' season for purposes of transport.

Note.—This restriction will not apply to movements for *bona fide* purposes, e.g., exchange of specimens by zoos and transport of birds by circuses, etc.

Statistics.

13. WHEREAS it is essential for the Central Board to maintain statistics of species of wild life,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that all State Governments be requested to furnish information on the following points to its Secretary-General:—

(a) surplus species held by their zoos for disposal,

(b) species required by their zoos, and

(c) animals that can be captured in their forests.

Symposiums.

14. WHEREAS it is necessary to focus attention on problems of educating the public on the value of wild life,

AND WHEREAS Zoos and National Parks are institutions for such education,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that symposiums should be held at an early date on the needs and requirements of

(a) Indian Zoos, and

(b) management of National Parks and Sanctuaries so as to assist in the formulation of policies in regard to the maintenance of Wild Life exhibits in the Zoos and the management of National Parks and Sanctuaries.

15. WHEREAS it is necessary to secure public co-operation in the enforcement of measures for the protection of wild life,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that members of the public interested in Nature should be invited to become *Honorary Correspondents* to the Board in matters relating to wild life; and

(b) that Members of the Board should be appointed as *Honorary Wild Life Officers* on behalf of the Board in respect of the Resolutions and Recommendations passed and such instructions as may be issued from time to time by the Board.

16. WHEREAS it is necessary to preserve wild life in the country as a whole,

WHEREAS the existing machinery for the protection of Wild Life in areas outside the purview of the Indian Forest Act XVI of 1927 or adaptations thereof, is inadequate, and

WHEREAS the protection afforded to wild life in areas within the purview of the Indian Forests Act XVI of 1927, or adaptations thereof, requires strengthening,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that necessary legislation be enacted at an early date by the Centre or the States as the case may be.

Note.—The attention of State Governments is invited to the existing legislation for the protection of wild life in various States and, in particular, to the 'Bombay Wild Birds and Wild Animals Protection Act No. XXIV of 1951' and the Rules framed thereunder.

17. WHEREAS there is reason to believe that there is need for the amendment of existing 'close' seasons observed in respect of birds and animals,

WHEREAS the list of animals and birds now treated as vermin needs re-examination with a view to limiting it to only those animals and birds which should be kept in check,

WHEREAS in some parts of the country there is wholesale destruction of wild life with the help of dogs,

WHEREAS shooting from vehicles, with or without blinding spot or head-lights, shooting with torches, shooting over salt-licks and water holes, destroying animals by using poisons, explosives and poisoned weapons, catching animals and birds by nets, traps, pits, snares, etc., and killing animals by driving them in snow or by fire require to be discouraged in the interests of the preservation of Wild Life,

AND WHEREAS the use of buck-shot wounds rather than kills animals,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that States do review, in consultation with the Central Board for Wild Life, and, if possible with their contiguous States, their 'close' seasons for the various animals and birds to be protected,

(b) that States should re-examine their lists of 'vermin' from time to time to ensure that only harmful species are so classified, and

(c) that the attention of State Governments be invited to the urgent need for devising ways and means and of adopting such measures, including enactment of legislation, to discourage if not to prohibit, these practices in the interests of wild life.

18. WHEREAS indiscriminate slaughter of wild life is often indulged in with the aid of guns ostensibly held for crop-protection,

**Co-operation of
Public in Enforcement
of Measures
for the Protection
of Wild Life.**

**Wild Life
Legislation.**

**'Close' Seasons,
Illicit Shooting, etc.**

**Crop Protection
Guns.**

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

*(a) that ways and means be devised to ensure that guns issued for crop protection are used only for the protection of standing crops and that the use of such guns for hunting or shooting should be prohibited unless the licensee secures such other licences as are prescribed,

(b) that the quantity and type of ammunition available to the holders of such guns should be restricted by the licensing authorities to such as is required for protection of crops only.

Note.—Licences should be generally issued for single-barrel guns only.

**Buffer Belts
Around Sanctuaries,**

19. WHEREAS much destruction of wild life goes on in areas contiguous to Sanctuaries, and

WHEREAS cattle-borne diseases are spread in such sanctuaries by domestic cattle from surrounding areas,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that buffer belts of sufficient width be declared around all sanctuaries within which no shooting, other than required for legitimate crop protection, will be permitted and within which no professional graziers will be allowed to establish their cattle-pens.

**Inoculation against
Cattle-borne
Diseases.**

20. WHEREAS many preventable cattle-borne diseases among herbivorous wild animals result from contact with infected domestic cattle in the neighbourhood of "forests",

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that State Governments be requested to inoculate systematically and periodically domestic cattle in the neighbourhood of National Parks, Sanctuaries and Reserves where and when necessary.

Publicity,

21. WHEREAS insufficient use is being made at present of the existing facilities of publicity afforded by the Press, Screen and Radio, for wild life protection,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that adequate publicity material be issued from time to time by the respective Central and State Publicity Departments in close collaboration with Forest Departments and other organisations,

(b) that enthusiasts be approached to give publicity to wild life,

(c) that documentary films dealing with various aspects of wild life be produced by Governments in consultation with the Central or State Boards for Wild Life for exhibition in both urban and rural areas,

(d) that amateur cinema-photography of wild life be encouraged, and

(e) that the All-India Radio be requested to afford special facilities for wild life broadcasts.

Education,

22. WHEREAS there is general lack of knowledge regarding conservation of nature and the value of wild life, and

WHEREAS it is essential to educate public opinion in matters of wild life,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that special steps be taken to popularise wild life by introducing stories in school text-books, by producing attractive charts, by organising special lectures and through the establishment of Zoos and Zoological Parks in the neighbourhood of large cities.

Liaison,

23. WHEREAS for the purposes of education and publicity co-ordination of such Departments as Forest, Agriculture,

Horticulture, Scientific Research, Transportation (Tourist), and Information and Broadcasting is essential,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

that steps be taken through the Central and State Wild Life Boards to co-ordinate the activities of all connected Departments in matters of management, publicity and education concerning wild life.

ADDENDA AND CORRIGENDA

<i>Page</i>	<i>Para</i>	<i>Line</i>	<i>For</i>	<i>Read</i>
7	4	10	620	619
8		31	606	604
8		42	612	611
10	14	2	613	611-612
11		5	605	604
15	23	2	4 G	4 B
15	25	12	606 and 619	605-606 and 617
16	27	3	614	612-613
17		3	608	607
18		1	617	615-616
19		8	608	606
19		14	608	607
23	54	8	609-611	608-610
23	55	16	609-610	608-609
27	69	1	604	603
27	71	1	605	604
27	72	14	615	613
27	73	4	607	606
28	77	6	607	606
29		28	606 and 618	605 and 617
30	83	2	617	615
31	85	4	615	613-614
32	94	5	619	617-618
33		8	After 9 A (v).	Elimination of the natural enemies of pigs, porcupine and deer tends to multiply them. See "Carnivora".

