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WILD LIFE RESERVES IN INDIA: ASSAM.

BY

E. P. GEE, M.A., C.M.Z.S., F.R.G.S.

(With two plates, a map and a table)

Assam consists of two separate administrative set-ups: firstly the province itself which includes all the plains areas, with only a small part of the hills, and secondly the Tribal Areas, which are mountainous, sparsely inhabited and in some cases unexplored. The province itself is, of course, under the provincial government with the usual Forest Department, in whose care are the forests and the wild life contained therein. The Tribal Areas, on the other hand, are under the Governor of the province—the Centre's representative—and his Adviser. A completely separate political department with its own Forest Officers looks after these areas with varying degrees of control. And under the new Constitution it seems that the general relationship of the Tribal Areas with the province will not be vastly different from what it was before.

THE COUNTRY AND ITS FORESTS

As the forests of the plains are mainly close to the foothills, most of Assam's wild life is now to be found near the borderland of these two administrations, provincial and political. It is for this reason that there is all the greater need for a separate Game Warden and/or Wild Life Department, which would be in a position to co-ordinate measures for the protection of wild life in both the provincial and tribal areas. This is particularly important as a large amount of fauna is migratory and spends the cold, dry season in the plains, but resorts to the hills in the rainy season when heat and floods compel the seeking of higher altitudes. Thus they pass from one sphere of control to another, often with disastrous results.

The area of Reserved Forests in the province itself is 6,675 sq. miles, or about 11 per cent of the total area. An effort is being made, it is understood, to increase this area of 11 per cent to something nearer the advocated 20 per cent by bringing in some of the 14,507 sq. miles of Unclassed State Forests. The gradual opening of these U. S. Forests for cultivation in the drive for greater food production has already caused a serious diminishing of this type of forest and the wild life it shelters. The area of actual sanctuaries, where wild life is completely protected, is only 426 sq. miles, or 6.4 per cent of Reserved Forests and .7 per cent of the total area of the province.

With regard to the Tribal Areas it is reported that the authorities concerned have taken steps to reserve some 1,700 sq. miles of forests. A region of 800 sq. miles near the borders of Assam, Burma and China has been declared as the Tirap Frontier Tract National Park, and an access road to it is now being opened up from the Ledo Road.

As head-hunting and inter-tribal wars have ceased, peace and 'civilization' with increasing population is causing an increase in the *jhuming* (shifting cultivation) for greater food production, with resultant loss to forests and wild life. It is obvious that sooner or later more forest reserves, especially in the catchment areas of the larger rivers, will need to be formed both for soil protection and flood prevention as well as for the preservation of the diminishing fauna and flora.

The type of terrain in this part of India varies according to altitude. Near the large rivers of the plains there are vast tracts of *bheels*, swamps and lowland savannah, such as constitute most of Kaziranga Game Sanctuary—ideal country for rhino, buffalo and deer except when abnormally high floods occur. Midway between these plains rivers and the hills are dense evergreen and mixed deciduous forests, which extend far into the foothills. Higher up in the Tribal Areas are thinner mixed forests with bamboo and plantain, and at 4,000 feet are to be found pine, oak, rhododendron and similar forests until the Tibetan type of country is eventually reached in the north. The fauna, only migratory within certain altitudes, naturally conforms to the terrain in which it is usually found.

MEASURES TO PRESERVE WILD LIFE

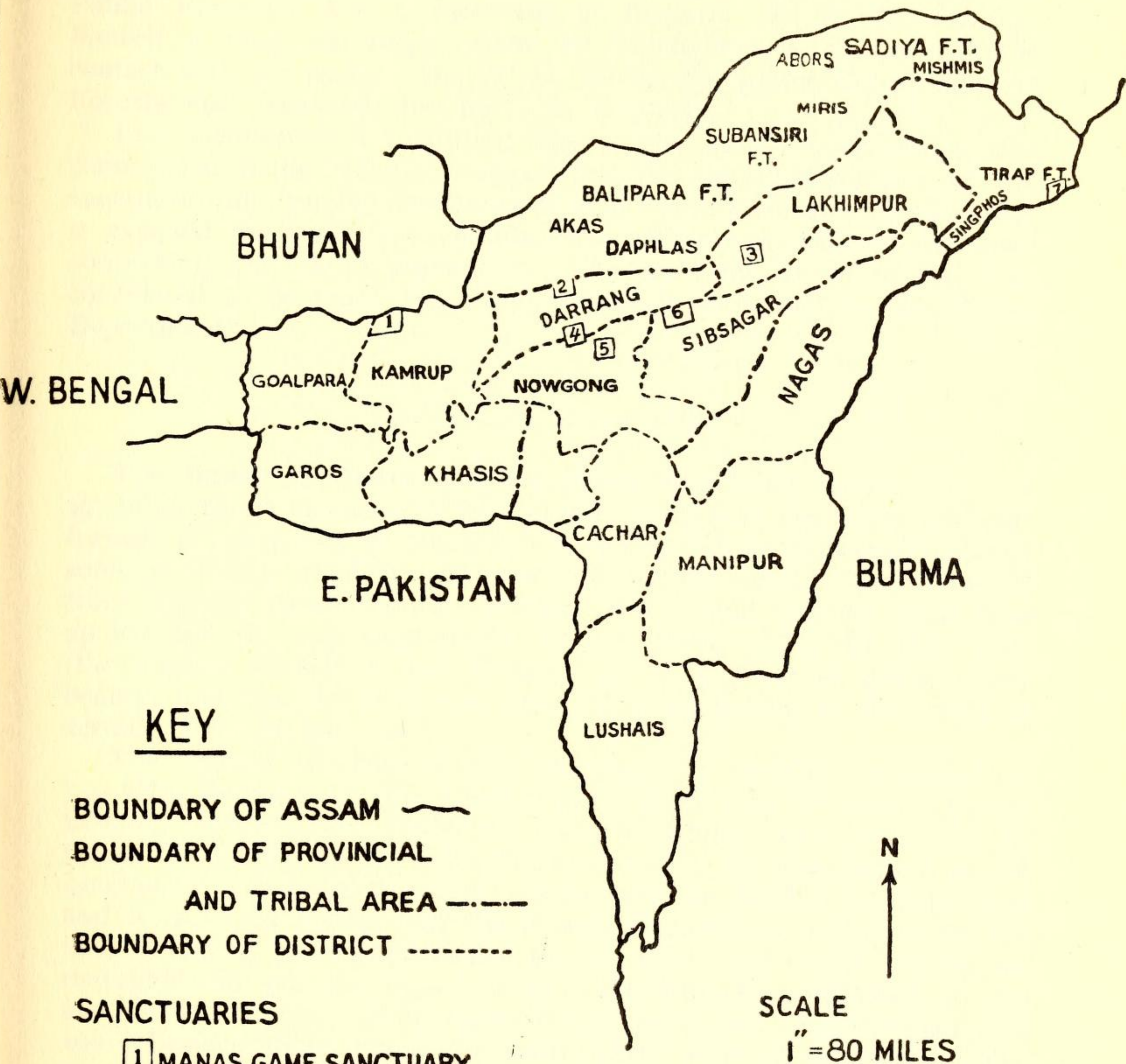
Prior to 1930 little was done in Assam for the preservation of wild life, except the formation of the Manas and Kaziranga Game Sanctuaries for the protection of the Great Indian One-horned Rhino (*Rhinoceros unicornis*), which about 1905 had become very scarce due to the demand for its horn. For the protection of the elephant, of course, measures had been taken with the rest of India in accordance with the Elephant Preservation Act 1879.

In the early thirties, however, the revival of interest in wild life which was evident in most parts of India found Assam with one of its great Conservators of Forests—the late Mr. A. J. W. Milroy. It was due to him that the Elephant Hunting Rules became law, and catching operations were humanized and properly supervised, with immediate releases of cows with suckling calves caught in stockades. Extensive poaching in the Manas area was cleaned up by a company of Assam Rifles. Rhino horns were declared to be forest produce wherever found. Energetic steps were taken to encourage *bona fide* sport and study of natural history, and to prevent poaching and illicit shooting of any kind.

Later the new Shooting Rules for the Preservation of Wild Life in Reserved Forests came into force in 1938, with limits and royalties fixed for each type of game shot by license-holders, and so forth. Then came World War II in which Assam was the scene of preparations for operations in Burma, with vast numbers of military personnel stationed all over the province. The loss to wild life by indiscriminate shooting, dynamiting, etc., was as one would expect in war time, and was accompanied by a decline in effective interest by the authorities and public alike.

Early in 1949 the Assam Government invited the Bombay Natural History Society to send a party of naturalists to enquire into the wild life of the province, and to offer recommendations for improving and

TIBET



KEY

- BOUNDARY OF ASSAM ———
- BOUNDARY OF PROVINCIAL AND TRIBAL AREA - - - - -
- BOUNDARY OF DISTRICT ·····

SANCTUARIES

- 1 MANAS GAME SANCTUARY
- 2 SONAI RUPA
- 3 PABHA
- 4 ORANG
- 5 LAOKHOWA
- 6 KAZIRANGA
- 7 TIRAP F.T.N.P.

SCALE
1" = 80 MILES

MAP OF ASSAM

publicising the sanctuaries. Mr. Sálím Ali and Dr. Dillon Ripley with another came to Assam in March, and visited the four main sanctuaries. Mr. C. G. Baron gave them assistance and information concerning the Manas Game Sanctuary, while the writer had the privilege of accompanying them into Kaziranga Game Sanctuary and Pabha Reserve. The Conservator of Forests, Mr. P. D. Stracey, himself a keen naturalist, made all arrangements and maintained contact with the party. Mr. M. C. Jacob, the Junior Conservator of Forests also contacted the party in Kamrup.

In a memorandum submitted later to the Assam Government, this commission made valuable suggestions for the improvement of the sanctuaries and for the protection of wild life in general. In particular it exposed the optimistic complacency which had hitherto prevailed concerning the rhino population. The numbers of rhino are now considered to be much less than previously estimated by the Forest Department.

WILD LIFE SANCTUARIES

The **Manas or North Kamrup Game Sanctuary** consists of 105 sq. miles at an elevation of 200 to 700 feet above sea level, and was formed in 1905. It is not quite so accessible as Kaziranga, being some 90 miles by road from Gauhati, the nearest airfield. It is 10 miles from Barpeta Road Railway Station, and a cold weather road runs up through the sanctuary to the Bhutan Hills, along the Beki river (the eastern branch of the Manas). It is a place of great scenic beauty, and has the additional asset of good fishing in the rivers at certain times of the year.

The number of rhino in this sanctuary is variably estimated as 150 (Mr. Baron), 100 (the Conservator), 40-50 (the Divisional Forest Officer), and 8-9 (Mr. Sálím Ali and Dr. Ripley, who saw only the tracks of two during their six-day visit to the western portion of the sanctuary). There is obviously scope here for further investigation, and it is to be hoped that the Forest Department will arrange for this. Pending more information on the matter, it would not be unreasonable to put the figure at 45. Elephant are estimated at 250 and buffalo at 500, while bison would be in the neighbourhood of 100. Besides these there are many other animals and birds. The proposed hydroelectric scheme of the Manas river must be taken into consideration in any plans for the development of this sanctuary.

The **Sonai Rupai Game Sanctuary** consists of 85 sq. miles, is at an elevation of 400 to 700 feet above sea level, and was formed in 1934. This sanctuary is not very accessible, and game in it is extremely difficult to find owing to the impenetrable nature of the terrain and the restricted visibility. It is, however, an excellent Natural Reserve, and will continue to be so if poaching can be eliminated. It is estimated to hold a few rhino (about 5), over 50 bison, some buffalo and other game. Like the Manas Sanctuary, this place is adjacent to the hills and there are good tracts of forests to the east and west, with resultant migrations to the hills and movements laterally.

The **Pabha Reserve** or **Milroy Buffalo Reserve** is an area of 20 sq. miles at an elevation of 300 to 350 feet, and was made a sanctuary in 1941. It is in a most inaccessible place and beyond the scope of tourists and visitors except of the serious naturalist type. It contains little beyond the buffalo, variably estimated from 50 to 150 head. These are a useful stock, as the bulls breed with the domesticated cows.

The **Orang Reserve** is a small sanctuary of about 24 sq. miles, at an elevation of only 200 to 250 feet, and was formed in 1915. It is on the north bank of the Brahmaputra, and is reported to contain about 10 rhino.

The **Laokhowa Reserve** is another small sanctuary for rhino of 26 sq. miles, at an elevation of 200 to 250 feet. It is on the south bank of the Brahmaputra, west of Kaziranga, and is supposed to contain about 20 rhino. Being overshadowed by its more important neighbour Kaziranga, this place is seldom visited and receives little attention.

The **Kaziranga Game Sanctuary** is the chief sanctuary of Assam for rhino and other game. It is 166 sq. miles in extent, is at an elevation of 200 to 250 feet above sea level, and was formed in 1908 when as a Reserve it was closed for shooting in order to protect the few remaining rhino from extinction. It became known as the Kaziranga Game Sanctuary in 1928, and was opened to visitors in 1937 when it was known that rhino had considerably increased in numbers. It stretches from milestone 116 to 140 on the main Assam Trunk Road, mid-way between Gauhati and Dibrugarh, and is very accessible to visitors. Only 50 miles from the regularly used airfield of Jorhat, its fame as a show place should increase.

The number of rhino in Kaziranga was believed to have been about 300 in 1940, when one could go in on inspection elephants and see a dozen quite easily. Nowadays, however, a similar visit would produce only half that number, and a number of rhino are known to have died of anthrax in 1947—no less than fourteen carcasses having been found. The present population is reckoned as being 150 head, and needs careful protection from trespass by domestic cattle.

In addition, there are about 500 head of buffalo in this sanctuary and numbers of hog deer, barking deer and pig. Swamp deer are becoming rarer, probably due to poaching. The bison have disappeared, but a small herd of elephant still remains. Kaziranga is also a valuable sanctuary for fish and wild-fowl which abound in and on its numerous *bheels*, and the poaching of these *bheels* needs elimination. It is to be hoped that the authorities concerned will pay heed to the resolution passed by the recent UNSCCUR conference of UNESCO, which urged that all steps be taken to make Kaziranga a good and inviolate sanctuary, free from cattle trespass and other harmful influences.

The **Tirap Frontier Tract National Park** has only just recently been gazetted. It is a mountainous region in the corner of Assam where the borders of Burma and China meet, rather inaccessible and



A half-grown rhino is cine-filmed by Dr. Dillon Ripley and Mr. Salim Ali in Kaziranga Game Sanctuary.



This herd of wild buffalo in the Pabha Reserve stood for their cine picture, and then disappeared into cover.



This full-grown bull rhino in Kaziranga Game Sanctuary charged us once, and was thinking about repeating his charge as this picture was taken.



Photos by

Author

A catch of fourteen wild elephants in a stockade in Assam.

impenetrable. The official description of the park as a wild life sanctuary is: 'The area chosen is a meeting place of Burmese and Indian flora and fauna and will be the only place in the world where certain species such as takin, musk deer and serow are protected, and it is believed that a few specimens of *Rhinoceros sumatrensis*, which is extinct elsewhere, survive in the proposed park.'

The writer has lately been making careful enquiries, however, and it appears to be very doubtful if these rhino still exist. Musk deer, takin and serow are probably to be found in greater numbers on the north bank of the Brahmaputra in the foothills of the Himalayan Range, in less inaccessible places. In fact it seems doubtful if a wise choice has been made by the authorities concerned for a National Park in this forbidding area, which is more in the way of being a Natural Reserve suitable only for the more serious type of scientific naturalist. It is five days' march from the nearest road, and lacks any kind of track except a few made by wild elephants. It would be a pity if money was expended on a project of such doubtful value, when other urgent proposals for the protection of wild life are having to be shelved. There may yet be time to reconsider the necessity of creating this park, and the present Adviser to the Governor has assured the writer that the fullest consideration will be given to the views expressed above. In the meantime the axe of economy has descended abruptly on this as well as on other similar projects.

THE MORE IMPORTANT FAUNA

Elephas maximus. The Indian Elephant is Assam's most important animal from the economic point of view. The revenue from elephant royalty and monopoly fees collected after catching operations has been considerable in recent years:

1945-46	282 elephants	Rs. 2,41,702
1946-47	350 elephants	Rs. 4,23,642
1947-48	370 elephants	Rs. 4,43,332

In spite of these numbers having been caught and others having been shot by holders of Control Licenses, the elephant population seems to be in a strong position. If an average of 334 elephants are captured or killed each year, it would mean that if their numbers remained the same their total population would be in the neighbourhood of 5,350 head for both the province and the Tribal Areas. The valuable stock of wild elephants should not be allowed to suffer too severe a reduction. The policy of the Forest Department has wisely been to allow catching operations only in those areas in which elephants are known to be on the increase, or causing serious damage to crops. In addition to this, holders of Control Licenses destroy the occasional rogue or solitary male doing damage.

The recent epidemic which caused the death of at least 55 wild elephants in the North Cachar Hills is a cause of great concern. The outbreak, which occurred last June and July, has not yet been fully investigated. A similar epidemic some ten years ago in exactly the same area caused many deaths of elephant and bison, and it is to be hoped that the Forest Department will be successful in their efforts to prevent a recurrence.

Rhinoceros unicornis. The Great Indian One-horned Rhinoceros has the honour of being Assam's most important animal from the point of view of scientists and naturalists. It is becoming rarer each year, in spite of supposed protection. The rhino population (as far as this species goes) is probably now as follows: Nepal 50 (6 were recently shot by two Indian diplomats), Bihar 5, Bengal Duars 30, Cooch Behar 20, Assam 240. Total 345. Assam's total of 240 are believed to exist in these localities: Manas 45, Sonai Rupai 5, Orang 10, Laokhowa 20, Kaziranga 150, and elsewhere 10.

It will be realized, then, that it is on Assam that rests the main responsibility of preserving this valuable species from extinction for posterity. This is especially important as it is thought that the two other species—the Smaller One-horned or Javan Rhino (*R. sondaicus*) and the Sumatran Two-horned Rhino (*R. sumatrensis*)—have by now become extinct in India, though a few may remain in the Chittagong Hill Tracts of East Pakistan.

Bibos gaurus. The Gaur or Bison is becoming increasingly rare in Assam, and will soon be non-existent except in the sanctuaries. It is believed that a herd still exists in company with buffalo in the North Cachar Hills at Langrao Haju. The possibility of giving this fine creature full protection wherever it may be found could be well considered by the Forest Department. The wild bulls often interbreed with the domesticated Mithun (*B. frontalis*) or Gayal, in the hills.

Panolia eldi. The Brow-antlered Deer or Thamin has become practically extinct, except possibly near the swamps bordering the Logtak lake in Manipur where they were reported in small numbers recently. This is an animal needing complete protection. The other species of deer appear to be holding their own in the localities which favour them, except Swamp Deer which are in need of more protection.

Sus salvanius. The Pigmy Hog is found along the Himalayan foothills in Goalpara and Kamrup districts, but is now becoming very scarce.

The Carnivora are to be found in usual numbers, with an occasional white tiger and a fair number of black leopards.

The Pink-headed Duck (*Rhodonessa caryophyllacea*) used to be Assam's most interesting bird. Mr. Milroy reported it as being very scarce in the early thirties, and it is not known if it has been found since that time.

The Takin (*Budorcas taxicolor*), the Serow (*Capricornis sumatrensis*) and the Goral (*Nemorhaedus*) are found in the Tribal Areas at varying altitudes, usually, many days' march from the nearest road. Even more difficult to find is the Musk Deer (*Moschus moschiferus*).

OUTLOOK FOR THE FUTURE

The writer recently contacted the provincial Hon. Minister of Forests and the Conservator, and was assured that the suggestions

contained in the memorandum submitted by the Bombay Natural History Society's commission had been studied, and that proposals were being drawn up for their implementation as far as possible. It is intended, apparently, to proceed with the sanctuaries one by one, with Kaziranga first where a tourists' hut is to be constructed, and a pen made for the ecological study of a pair of rhino. It is hoped that a Game Warden will be appointed to work with and under the Conservator, and that the game staff of the province will be increased.

At the same time, however, it has become apparent that owing to lack of funds all proposals for new work have been shelved for the time being. This is disappointing news. It is surely false economy to postpone all measures for the improvement of this sanctuary, which is one of the most important in the world and has such great potentialities as an attraction for visitors and tourists, who should be encouraged so as to make the sanctuary self-supporting. Moreover the recent news of intensive poaching in Kaziranga makes us regard the future with concern. For a very small sum of money it is obvious that considerable improvements of an urgent though temporary nature can be effected as a gesture. The permanent and costlier work could wait until more funds and staff are available.

It costs very little money to plan new sanctuaries, and these are urgently needed before it becomes too late. In the province there are several forests of great scenic beauty and still abundantly stocked with wild life, which should immediately be formed into sanctuaries, or even National Parks. In the northern portion of Goalpara district, at the foot of the Bhutan Hills, are some delightful Sal forests with streams for fishing and plenty of game including Peafowl (rarely found elsewhere in the province), Florican, Spotted Deer or Chital (*Axis axis*), and even a few rhino. While admitting that the mere gazetting of new sanctuaries without a proper supervisory staff lays them open to the danger of increased poaching, this procedure should not be detrimental if accompanied by publicity and visitors in sufficient numbers. An interested public intent on sight-seeing, photography and fishing (with rod and line) should prove to be the unpaid champions and protectors of the wild life of their district.

In the Tribal Areas there are some places in the Balipara Frontier Tract, such as Rupa, and in the Sadiya Frontier Tract, eastern portion, where the creation of sanctuaries or National Parks could be considered. Above all, the Logtak lake of Manipur State, now merged with the Centre and possibly later to be merged with Assam, is famed throughout the world as a paradise for wild-fowl and other birds. The few Thamin reported to be surviving in that locality require protection, and a National Park of this area could be formed with controlled shooting of wild-fowl for *bona fide* license-holder sportsmen only. In fact the whole stretch from Dimapur, where there is some big game still surviving, via Nichuguard, Kohima, Mao, Karong and Imphal to the Logtak lake could at once be a self-supporting National Park of immense possibilities for the preservation of wild life and as an attraction for tourists.

There are signs of an increasing volume of public opinion in Assam in favour of the preservation of fauna, and many sportsmen

are now more interested in shooting with the camera. Of late many speeches and broadcasts on Assam's wonderful flora and fauna have emanated from important officials in Shillong. These cannot but augur for the good of wild life. But they are not enough; they must be followed up by at least some action and active encouragement to all the junior categories of forest staff.

Much depends on the Conservator himself, and as Mr. Milroy wrote: '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 . . .' It is to be hoped that the Forest Department, on whose interest and endeavours so much depends, will find the active support of the public and achieve the ultimate success they deserve in the task of preserving Assam's fauna for posterity.

PARTICULARS OF WILD LIFE SANCTUARIES IN ASSAM

Name of Sanctuary 1	Estd. year 2	Sub- division 3	District 4	Area 5	Cover conditions 6	Animals 7	Route for visitors 8
1. Manas or North Kamrup Game Sanctuary	1905	Barpeta	Kamrup	105 sq. miles Elevation 200-700	North—thick forest South—grass and reeds. Rivers, streams and bheels. Road up R. Beki	Rhino 45 Bison 100 Buffalo 500	Barpeta Road Rly. Stn. (10 miles) Gauhati Airfield (90 miles)
2. Sonai Rupai Game Sanctuary	1934	—	Darrang	85 sq. miles Elevation 400-700	Forest and grass etc. Streams and bheels No roads	Rhino 5 Bison 50 Buffalo 20	Missamari Rly. Stn. (2 miles) Tejpur Airfield (25 miles)
3. Pabha Reserve	1941	North Lakhimpur	Lakhimpur	20 sq. miles Elevation 300-350	Forest and grass Streams and bheels No roads	Rhino — Bison — Buffalo 100	Jorhat Airfield (40 miles)
4. Orang Reserve	1915	Mangaldai	Darrang	24 sq. miles Elevation 200-250	Grass River and bheels No roads	Rhino 10 Bison — Buffalo —	Mazbat Rly. Stn. (15 miles)
5. Laokhowa Reserve	—	—	Nowgong	26 sq. miles Elevation 200-250	Grass Streams and bheels No roads	Rhino 20 Bison — Buffalo 50	Nowgong (15 miles)
6. Kaziranga Game Sanctuary	1908	Golaghat	Sibsagar	166 sq. miles Elevation 200-250	Some forest Mostly grass Streams and bheels No roads	Rhino 150 Bison — Buffalo 500	Jorhat Airfield (50 miles) Gauhati Airfield (130 miles)

Total number of sanctuaries 6
 Total area of sanctuaries 426 sq. miles
 Percentage of sanctuary area in relation to forest area 6.4
 Percentage of sanctuary area in relation to total area of province .7
 Longest period for which sanctuary has been in existence 44 years