

# Oryx

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Oryx - The International Journal of Conservation, is now published quarterly by Cambridge University Press on behalf of Fauna & Flora International. It is a leading scientific journal of biodiversity conservation, conservation policy and sustainable use, with a particular interest in material that has the potential to improve conservation management and practice.

The website, <http://www.oryxthejournal.org/>, plays a vital role in the journal's capacity-building work. Amongst the site's many attributes is a compendium of sources of free software for researchers and details of how to access Oryx at reduced rates or for free in developing countries. The website also includes extracts from Oryx issues 10, 25 and 50 years ago, and a gallery of research photographs that provide a fascinating insight into the places, species and people described in the journal.

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with the larger mammals, i.e. the insectivorous birds, and also the parasites—but it is impossible here to review the whole field, it is so vast. To neglect, however, all this material which is waiting for intensive study in the great natural assemblages of wild life is to ignore a great possibility and funds wisely expended on such work cannot fail to produce an adequate return.

If this paper only serves to reveal the abysmal ignorance which exists with regard to this question of disease among wild life, its incidence and causation, I shall be satisfied.

#### EDITORIAL NOTE.

This question of disease among wild life is of considerable importance to all who are interested in nature reserves or sanctuaries. Much more information is, however, desirable. There is little doubt that further data are procurable and members who have had opportunities of closely observing wild life in Asia, America, and Australia as well as in Africa, are invited to forward facts regarding this question for the information of the Society.

Date and place should be given and any diagnosis of the disease that may be available.

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### GAME PRESERVATION IN 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 Gurkhali buffalo-keepers who began then to invade Assam with their herds, to be followed by ever-increasing hordes of immigrant settlers 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* from 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 Unclassed 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.

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—rhino, buffalo, 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 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.

It takes all sorts to make a world, and it is only to be expected that the cessation of recruitment from Europe will lead to an increase of officers whose interests do not extend to the animal kingdom, for it is the writer's experience that Indians, taking them by and large and with a number of honourable exceptions, regard wild animals as either good to eat—in which case the wise, if improvident, man takes every opportunity to eat male, female, or young in or out of season before the next hungry person comes along—or else as dangerous, in which case the sooner they are cleared out the safer, or else as neutral, when their occurrence in or absence from a forest is not a matter for either congratulation or lament, as the case may be.

The present Government cannot be accused of lack of keenness: a year ago a British officer and a company of Assam Rifles were detailed to spend six weeks touring a district where the inhabitants had got out of hand and were poaching in the Monas Game Sanctuary on a commercial scale, while at the present moment an energetic Assistant Conservator is on special duty at the head of an anti-poaching campaign that is doing some very good work in a large block of timber Reserves. 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 deforestation 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.

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 rhino (*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 rhino, 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 rhino 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 rhino 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 advent of the Assam Rifles dispelled all premature ideas regarding the arrival of Swaraj, and the employment of C.I.D. officers to ferret out the channels through which the booty was being disposed of checked, for the time being, the operations of the financiers in the background : additional

game-watchers were engaged, and an extra-Assistant Conservator has been 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.

It is understood that in the United States of America buffalo-poachers are liable to be shot at sight in the Yellowstone Park, but it is doubtful if such measures would be approved of in backward Assam.

Both Sanctuaries are at present inaccessible for want of roads and camping huts except to those who can travel light, such as poachers and game-watchers, and to those who can command the use of elephants, such as Forest Officers and a few planters. It was pointed out some years ago that this being so it would be quite possible, without the outside world being any the wiser at the time, for a dishonest subordinate in immediate charge of a Sanctuary to sell all the game while his Forest Officer, absorbed in other duties, was earning credit for the good work he might be doing elsewhere in the division. The loss would obviously be irreparable, and it was suggested that in these circumstances the western and eastern portions of the Monas Sanctuary, which with adjacent Reserves contains an effective area of about 150 square miles, should be opened to shooting under very strict supervision, the bag being limited (wounded to count as killed) and very high fees being charged, while the central part was preserved inviolate for the benefit of those interested in studying or photographing wild animals. The Sanctuary is only 10 miles north of the Amingaon branch of the Eastern Bengal Railway, and the interior could very cheaply be made accessible to lorries and cars running up

from the station by constructing a few cold weather roads in flat country ; the whole journey from Calcutta would take less than twenty-four hours of comfortable travel.

It was felt that in this way a healthy publicity would be ensured, because anyone 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 on a paying basis, for whether the East actually is or is not less materialistic than the West, it is certain that no Province will be able to afford idealistic Finance Ministers, and finally it was felt that overstocking of the ground could in this way be guarded against.

There were several reasons at the time for turning down this proposal, the most important being that Government had already recommended Sanctuaries being declared Imperial concerns to be excluded from all Home Rule schemes. Those who will have to decide these matters may find it necessary to excise the Monas area from Assam proper as there is always apt to be friction with Bhutan over boundary questions, but it cannot be supposed that a jealous Swaraj Government would view with approval Kazirunga being made an *enclave* outside its control, unless, that is to say, the whole surrounding tea district went with it for some political reason or other. There is thus a danger that one, and possibly both, of the best rhino localities may shortly be handed over to a Government, which will have to deal with many conflicting claims for financial support, and the members of which will start with little innate sympathy for the problem of protecting wild life.

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, but it is going to be a poor Province, at any rate to start with, and if only some revenue



could be expected from shooting permits and from the sale of captured specimens to Zoological Gardens, there would clearly be less initial hostility for the good cause to face.

Anything in the nature of a Public Park on the lines of the Krüger National Park would be out of the question unless it was under Imperial control, because if the Assamese taxpayer ever wants anything of this sort, he will certainly demand that all predatory and dangerous animals be removed before he disports himself in it.

Apart from the two Sanctuaries mentioned previously, the rhino have one possible remaining refuge, namely, the Balipara Political Area (unless, that is to say, systematic poaching during the last few years has led to extermination there), and if it is found impossible to do anything really permanent or practical for the fauna in the Monas and Kazirunga Sanctuaries, efforts should be made 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.

(4) The local planters are desirous of reviving the Darrang Game Association, which was first formed in 1910 only to die of inanition a few years later. Every member of such an Association becomes a potential gamekeeper, and in any case can be made responsible under a section of the Assam

Forest Regulation for rendering active assistance in the prevention of forest offences, and in the detection of evil-doers.

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

A few particulars regarding some of the species found in Assam are added by way of conclusion :—

*Elephant (E. maximus)*. The country available for wild elephants has been much reduced as the result of land being taken up for settlement while the increasing unwillingness on the part of villagers to tolerate damage to crops will prevent any slowing down of catching operations, but elephants will continue to be numerous in several districts for a long time yet. Over 400 were caught last season by the Forest Department in one area alone, but this was probably the last big Kheddah that the Province will ever see. Casualties used to be heavy during training, but Government took the matter up and has demonstrated that these are unnecessary and that much higher profits follow the adoption of more humane methods. The rumour that a dumpy breed of wild elephant lived on the central ridge of the Garo Hills has been found to be false as regards the existence of herds composed of such animals, but the inquiry showed that exceptionally short-legged specimens are to be met with; it is a matter that some local officer might find interesting to pursue further.

One result of the decrease in the number of wild elephants is the inconvenience experienced in getting about Reserves where elephants have become scarce, as their paths are no longer kept open by the passage of herds.

*The Great Indian Rhinoceros (R. unicornis)* has been dealt with already at sufficient length.

*Rhinoceros sondaicus*.—It is on record that Messrs. Rowland Ward identified the head and shield from a rhino shot by a Forest Officer in the Bengal Doors as belonging to this species, and it would be strange if it did not also occur in the contiguous Goalpara Reserves and Monas Sanctuary. Pairs of smaller, less truculent, and definitely less armoured rhino can be put up in the Sanctuary and these, if not cases

of *R. unicornis* pairing while still far from mature, must be specimens of *R. sondaicus*.

Investigation into this is most desirable, and perhaps the Society could arrange for it being carried out in the course of time. The Kacharies recognize three varieties of rhino, and though their classification is not made on scientific lines, it does not follow therefrom that it is all moonshine.

*The Indian Two-horned Rhinoceros (R. javanicus).*—Formerly common in the Lushai and Manipur Hills and occasionally found in North Cachar, but by now almost hunted to the vanishing point by Lushais and Kukis. The opening up by forest villagers of several big patches of marshy land in the Forest Reserves of South Cachar seriously reduced the number of suitable haunts available for this species. Most of the remaining patches, however, will have to be kept closed to cultivation in order to preserve feeding-grounds for the timber-dragging elephants, and some special steps have already been taken to try and look after the few rhino still left alive in this difficult country where little control can be exercised over *shikaries*. The record flood of July, 1929, drove the rhino up into the hills and very few have been allowed by the Lushais to return.

*The Indian Buffalo (Bos bubalus).*—The great-horned variety, *Macroceros*, formerly existed on the Monas, but had been practically shot out before the formation of the Sanctuary. The writer was fortunate enough to meet the last survivor, a well-known cow, at least a hand higher than the ordinary sized bull with which she was consorting. The Vernay-Faunthorpe Expedition searched for this cow unsuccessfully, and she was never seen afterwards. The best heads come from Central Assam, so there should be some very fine specimens in the adjacent Kazirunga Sanctuary.

The Assamese utilize the services of solitary wild bulls for their domestic cow buffaloes, a magnificent breed which is bound to deteriorate now that wild bulls are getting scarce, and in the absence of anyone interested in scientific breeding. Buffaloes with wild blood in them live longer and are finer

draught animals than those of inferior strains, and the cows give more milk. Their disadvantages are sensitiveness to sun and bad tempers.

The wild and tame buffalo of the marshes live largely on the wild rice plant and are accustomed to warm wallows, but the wild buffalo of the upper reaches of the Monas feed on high-land grasses and bathe daily in the cold river water which would be fatal to the marsh-dwellers. These upland buffalo are possibly a little higher on the leg.

The wild buffalo in the Diyung Valley of the North Cachar Hills are very distinctive with short legs, great barrels, and straight horns without the backward sweep before coming forward again to form the tips. Many Mikir buffaloes ran wild about 1897, when their owners had died from Kala-azar, but probably the whole stock had tame ancestors as they closely resemble the so-called "Manipuri Buffalo" which is brought through Manipur from Burma for sale in the Surma Valley.

*The Mithun or Bison (Bos gaurus).*—Just as the buffalo is having a bad time from everyone wanting to grow rice where it wants to live, so the bison, though safe from the Hindu and living in hills in which shifting cultivation alone is practised, is suffering from the hillmen, who sit up at night over saltlicks and plug everything that comes along; consequently it is already only a tradition in many hills where formerly numerous. Solitary bison bulls breed with the tame gayals (*Bos frontalis*) in the neighbourhood of the Kutcha Naga villages in North Cachar and consequently the tame animals there are coloured the same as the wild ones, but wherever there has not been any infiltration of wild blood for a long time, as in the Abor Hills and parts of Manipur, albinism in varying degree is common, many *Mithun* being pied like Friesian cattle.

A Kachari gamekeeper, a bold man not given to romancing but also not infallible, declares that he has encountered and is scared of a larger, redder, fiercer *mithun* to be found at a few places on the Bhutan border, and the same story is told by the Mikirs in the hills on the Kamrup-

Nowgong border away on the south bank. This may have something to do with the alleged large "*moh-mithun*" and smaller "*goru-mithun*" of the Assamese Plains. The writer before he had heard about the supposed red variety was once eating his breakfast at dawn on a cliff while camp was being struck, while two bull *mithun* were mooning about in the rocky river bed below. One, as ascertained by glasses, was young but was as big as the old black fellow; the young one was very markedly red even to the naked eye at a range of 500 or 600 yards, and was either a freak in colour or else belonged to a separate variety, associating perhaps with one of the black kind after having been driven out from its own herd. Circumstances always arose to prevent the fruition of the expeditions planned to investigate the matter but as there is some possibility, if not probability, about the story being true, it is to be hoped that somebody will one day be able to find time to go and camp in those parts and inquire.

*Swamp Deer, Barasingha (Rucervus duvaucelii).*—This beautiful deer will soon only be found within protected areas, as it is so easily shot by poachers using elephants in their business. The horns in Assam are poor.

*Sambhur, Hog Deer, and Barking Deer (Rusa unicolor, Hyelæphus porcinus, Muntiacus muntjak).*—Are all common in Assam. The sambhur is the big-bodied, solitary Malayan type with small antlers; both sexes display that extraordinary raw patch on the lower side of the neck, for which no reasonable explanation has been suggested. Specimens reared in captivity do not develop it.

*The Indian Wild Boar (Sus cristatus)* is abundant and still interbreeds with village pigs. These without occasional crossing with the wild stock often develop white patches, like the tame *mithun*, either in the form of blazes or white socks.

*Pigmy Hog (Sus salvanius).*—Not uncommon in places but seldom seems to be shot.

*Wild Dog (Cuon rutilans?).*—All villagers and many Europeans in Assam assert that there are two kinds of wild dog, a larger species hunting in pairs or small families and

a smaller species hunting in packs. The writer had only come across the latter once and so long ago that he was beginning to think he must have been mistaken until an opportunity occurred a couple of years ago on the Barak in Manipur to observe this small variety at close range. A sambhur hind was standing in the water staring into a little hidden bay and occasionally stamping her foot. While the boat was being paddled quietly up the pool a wild dog appeared on the bank, apparently to act as sentry, and not noticing the boat at once it proceeded to perch itself on a rock. It was not only considerably smaller and more foxy looking about the ears and muzzle than the familiar wild dog, but in place of the rather short thick tail it had a regular brush, which it curled gracefully forward just as a fox would do when sitting down. There were about a dozen of these dogs round the corner worrying the skin of a sambhur fawn, which had been devoured before the very eyes of the mother standing less than 30 feet away. This was being discussed one day at a station on the hill-section of the Assam-Bengal Railway called Harangajao when a Gurkhali herdsman chipped in to say that both varieties of wild dog killed cattle of his during the Rains: he distinguished them as Hindu and Mussulman dogs. A good reward was promised if he would bring in skins and skulls of both kinds, but without any result.<sup>1</sup>

The most interesting bird that Assam can boast of is the Pink-headed Duck (*Rhodonessa caryophyllacea* Latham), which is possibly extinct elsewhere. There were a good few at one time in some lagoons known to the writer and a few friends, but their number was unfortunately thinned out by a doctor baboo posted in the locality in connection with Kala-azar duty, who was the possessor of a gun and, if he liked eating these duck, of a most indiscriminating palate. The jungle which protects the lagoons is gradually being cleared away and with it the last of the duck is likely to disappear.

<sup>1</sup> Two Asiatic wild dogs appear in the Zoological Society's List: *Cuon dukhunensis* (Sykes), this is the ordinary Indian wild dog. The other is *Cuon rutilans* (S. Muller) of S.E. Asia-Burma, Malaya, etc.—Ed.