

CONSERVATION IN INDIA

**Proceedings
of the**

**SPECIAL MEETING OF THE STANDING COMMITTEE
OF THE INDIAN BOARD FOR WILD LIFE**

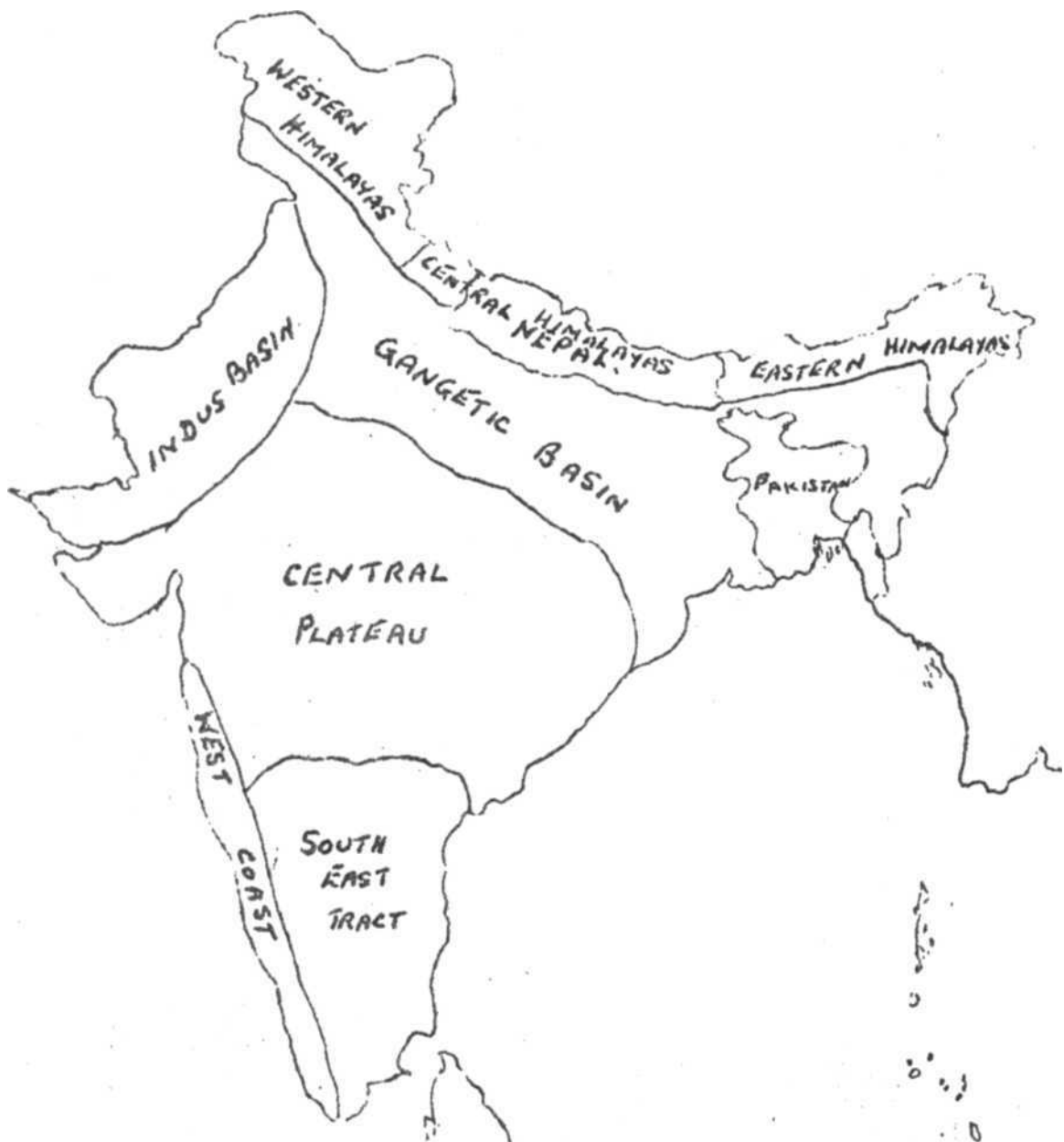
held at

**Vigyan Bhavan, New Delhi, 24 November, 1965
in order to meet the IUCN delegation which passed through
India on its way to Bangkok**



**International Union
for Conservation of Nature and Natural Resources
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SKETCH MAP OF INDIA



WILDLIFE MANAGEMENT

IN INDIA

by M.D. Chaturvedi

What matters is not the trophy but the race; not the quarry, but the chase.

I. Distribution of Wildlife.

A reference to the birds and animals living in ecological balance with their surroundings provides the background for wildlife management. The environment, both animate and inanimate, determines the evolution of animal life in a given region. There is no better indicator of environment than vegetation which reflects reaction to the climatic, edaphic, and biotic factors. In its ultimate analysis, vegetation, on which all wildlife depends directly or indirectly for its sustenance, determines the protective colouration, the size, the character and the distribution of birds and animals. It is their habitat from which animals derive their habits.

The physical regions distinguished in India for the description of its vegetation, provide the best basis for a detailed consideration of its rich and varied wildlife. No less than 500 species of mammals occur in the country. Of these, the Flying Lemur, which bears the same relation to the shrews as the flying squirrel does to the squirrels, and the Scaly Ant-eater reminiscent of reptiles, constitute breath taking curiosities. Another celebrity is the little Painted Bat (Kerivula picta) with its vividly coloured vermilion and black wings (18). The regional distribution of wildlife is outlined below :

(1) The Deccan.

a) The West Coast.

The luxuriant rain forest and sholas support a rich and varied wildlife. Species characteristic of this wet region (rainfall : 150 to 200 inches) are the Nilgiri langur (Presbytis johnii), the lion-tailed macaque (Macaca silenus), the Nilgiri brown and the striped neck mongoose, the Malabar civet, and the spiny mouse. The Himalayan fauna (e.g. the Tahr, the pine marten and the European otter) is represented high up in the Nilgiris, suggesting former links during the glacial epoch, and subsequent isolation. Other mammals of this tract are the elephant, the tiger and the panther. Due to high humidity the panther exhibits marked melanism.

b) The South-east Tract.

In the low scrub, and open grasslands dotted with xerophytic vegetation (rainfall below 30 inches), herds of gazelles and antelopes abound. The common associates of antelopes are the common jungle cat, the common fox, the common mongoose, the Indian wolf, the palm squirrel, the hare and a variety of field-rats. In Mysore and Hyderabad, where rainfall is about 35 inches, a much richer fauna consisting of the spotted deer, the wild dog, the sambhar, the sloth bear, the Indian bison, the elephant and the hyaena, is met with. The cheetah (the hunting leopard) once common in this tract is now extinct.

c) The Central Plateau.

The dry type of forest of these highlands supports animal life akin to the southeast tract referred to above. With the increase in rainfall (40 to 50 inches), the character of vegetation changes to what is known as the monsoon forest which is the home of the true Indian fauna comprising the spotted deer, the nilgai, the blackbuck and the four-horned antelope. These typically Indian mammals do not occur anywhere else outside India. The Indian bison, the sambhar and the muntjac occur both in India and in Southeast Asia, Further east of Nagpur, where moister conditions prevail, we have, in addition, the elephant, the wild buffalo and the swamp deer. The tiger and the panther occur throughout the Deccan, adapting themselves to their local environments. The tiger shows marked preference for forested areas. It never crossed into Ceylon. In the Madhya Pradesh one comes up against albino tigers occasionally.

(2) The Indus Basin.

The fauna of the dry and xerophytic forests of this region is reminiscent of similar forests of the Deccan. In the Rajasthan desert, however, where rainfall is of the order of 10 inches or so, one comes up against the desert cat, the desert fox, the desert hare and the desert gerbilles. On the peripheral lands, the gazelle, the muntjac and the blackbuck are common. In Junagadh (Saurashtra), we have the remnants of the Indian lion that once frequented a large tract to the east of the Aravallis.

(3) The Gangetic Basin.

The blackbuck and the gazelle occur in open and dry type of forests of this region.

With increase in the rainfall in the tarai* and bhabar* at the base of the Himalayas the character of vegetation changes to support the swamp deer, the hog-deer, the sambhar, the spotted deer, the muntjac, the elephant, the jackal, the wild pig, the tiger and the panther. Eastward, in the North Bengal and Assam, we have the remnants of the great one-horned rhinoceros (R. unicornis) and the buffalo, the counterpart of the bison of the south. In the evergreen rain forests of Assam, the fauna of the westcoast replicates itself faithfully including melanism among panthers.

(4) The Himalayas.

a) Western Himalayas.

While many animals of the Indus Basin such as the blackbuck, the muntjac and the gazelle work their way up to an elevation of up to about 2,000 feet, the characteristic representative fauna of the region above is the Kashmir stag, reminiscent of the European red-deer. The sambhar of the foot of the Central Himalayas is conspicuously absent. Other animals inhabiting higher elevations are the ibex, the markhor, the shapu and the snow-leopard. While the brown bear occurs in the snow ranges, lower down the black Himalayan bear is more common.

b) Central Himalayas.

The chain of low lying hills (Siwaliks) that runs almost parallel to the great Himalayas encloses a tract known as the 'dun' (between two mountains). This tract is endowed with a rich and varied flora and fauna that has attracted worldwide attention. The tiger, the panther, the elephant, the hyaena, the sambhar and the muntjac are common. Higher up in the Himalayas, in the 5,000 to 10,000 feet zone, the Central Himalayan animals like the ibex, the shapu, the markhor and the brown bear are conspicuously absent. Here, the Kashmir stag is replaced by the sambhar. The black Himalayan bear, the musk deer, the civet and the goral are common. The panther goes up to an elevation of 8,000 feet.

c) Eastern Himalayas.

In the moist Eastern Himalayas at higher elevations, the fauna assumes an Indo-Chinese character and comprises such forms as the racoon, the hog-badger, the ferret-badger, the crestless porcupine, the goral, the thamin deer and the serow. The snow leopard of the Western Himalayas is replaced by the clouded-leopard, the ounce and the marbled cat.

* The debris washed down by the Himalayan streams spreads out in a fan formation at the foot of the mountainous region, giving rise to a waterless tract, known as the bhabar. Water that sinks in the bhabar oozes out further south giving rise to the tarai (moist) conditions in the tract where the debris spends itself out.

It remains to be added that animals do not recognise any-physical boundaries. They exhibit considerable migration not only from one region into the other but also from and into adjoining countries.

II. The Sanctity of Wildlife

Religious sentiment has played a considerable part in enshrining wildlife in the Hindu pantheon. No less than 30 mammals are mentioned in the Hindu scriptures. Thus, the elephant (Ganesha), the mount of Indra, and the guardian of the 8 celestial points of the compass, has been deified and allotted an annual festival (Ganesh-Chaturthi) in the Hindu Calendar. The monkey is revered throughout the land for the part its forbears played in Rama's campaign against Ravana. Vishnu is said to have incarnated himself in the garb of the lion and the wild boar. The lion is also the traditional mount of the Goddess Kali and appears as a guardian at many a temple in India. The mongoose appears as wise preceptor of King Yudhishtira, and the deer is associated with Brahama, the creator. The Buddhist chapter of the Indian mythology refers to the tiger. Among the birds, mention is made of the swan, the eagle, the crow and the kite (18).

III. Wildlife, a Wasting Asset

Wildlife enjoyed in the past a measure of protection by virtue of the inaccessibility of the forest which sustained and sheltered it. The depredations of forest tribes with their traditional bows and arrows, nets and snares, drives and dogs, were hardly noticeable except on the fringes of the forest. Wild animals continued their uneventful existence until the turn of the 19th century when the British appeared on the scene with their modern weapons, and what was worse, with a licentious lust for killing which passed for sportsmanship those days. The wildlife of the country had to contend with an attack on two fronts. Vast forest areas that provided a haven for wildlife were given away for a song to enterprising adventurers, for raising tea, coffee, rubber, and rice for labour engaged on plantations. The forest succumbed to the irresistible pressure of planters and local population, and with it, the wildlife it supported. With its cover gone, wildlife fell an easy prey to high velocity rifles and double-barrelled guns in the hands of trigger-happy hunters. The dawn of the twentieth century witnessed a systematic destruction of wildlife brought about by the opening up of the forest, the arrival of the ubiquitous jeep and the invention of blinding flashlights. The area negotiated by the jungle folks increased as more roads were built, and opportunities for the sale of venison increased. Netted quails and partridges found favour in many fashionable restaurants in the country.

Unable to fend for themselves many species were driven to the verge of extinction. The Indian lion, which for its bravery, invincibility and regal gait, inspired the priest, the poet and the painter alike, was wiped out of existence by the so-called British sportsman of the East Indian Company. Up to the beginning of the 19th century, the lion stalked the Indus Plain and the Central India Highlands covering an area of about ¼ million square miles. By about 1850, the lion was well on the way out, despite repeated protests one reads in the sporting journals of the time.* The lion is confined today to a small tract (550 square miles) viz. the Gir forest in Saurashtra. Like most protected monuments of the country, the lion owes its existence to the foresight of Lord Curzon the celebrated Viceroy of India at the turn of the 20th century. During the post-independence era a second home for the lion has been found in the Benares Division of Uttar Pradesh.

The hunting leopard (the cheetah) followed suit. Once a pet of the Ruling Princes in their blackbuck hunts, it is now as dead as the dodo. Its unfortunate resemblance with the wily panther proved its undoing. The Asiatic two-horned rhinoceros (R. sumatrensis) of Assam, and the lesser one-horned rhinoceros (R. sondaicus) of the Sunderbans have gone. The great one-horned rhinoceros (R. unicornis) has been saved from the hunters of its horns, prized as valuable aphrodisiac, by declaring it a protected animal and nursing it in the Kaziranga Sanctuary in Assam. In West Pakistan, the days of the straight-horned markhor are numbered. The urial of the Punjab is likewise threatened. The wild buffalo is no longer to be seen in areas to the east of the Godavari. The pink-headed duck is gone for good. The monal, the tragopan and the peacock are still with us because a rigid control on the export of their feathers has been enforced. Otherwise they would have disappeared as would the Bird of Paradise from New Guinea.

It may be noted that during the last 2,000 years, the world has lost 77 species of mammals. Of these, 39% have disappeared since the turn of the 20th century (24.1). It is not sufficiently realized that once a species, more particularly a gregarious one, begins to go downhill, its rehabilitation becomes extremely difficult. And, yet there is no natural resource that reacts so readily to protection as wildlife, provided it is not allowed to cross the critical stage when recovery becomes difficult, if not impossible.

* The Bengal Sporting Magazine (1833-41); the Sporting Review 1856; the Oriental Sporting Magazine, 1866.

In India, the following species have already entered a critical stage of their existence :

a) Mammals

- (i) Snow and clouded leopards.
- (ii) Indian wild ass.
- (iii) Kashmir stag.
- (iv) Musk deer.
- (v) Markhor (Kashmir).
- (vi) Thamin, the brow-antlered deer of Manipur.
- (vii) Pigmy hog.

b) Birds

- (i) Great Indian bustard.
- (ii) Monal.
- (iii) White-winged duck.

The list is not exhaustive. Some game animals have reached the verge of extinction in a given locality, but hold their own in another one.

IV. Why Preserve Wildlife?

In her rich and varied wildlife, India has a precious heritage of which she may justly be proud. It behoves us to act as a custodian of this asset and pass it on to the generations to come. We have seen our wildlife is woven into the mythology and the folklore of the land. It finds a place of pride in the Hindu Scriptures. The lion, the elephant and the bull are depicted in the temples of India. To signify their fearlessness and indomitable courage, the proud and the powerful sought in the past to shine in the reflected glory of the lion, Thus the founder of the Moghul empire in India, Zahir Uddin Mohammad assumed the title of Babar (the lion). The Pathan King who drove Babar's heir to the throne (Humayun) from Delhi, called himself Sher-Shah(the Lion King). It was the lion which lent fanciful courage to the warriors of India who styled themselves as Singhs (lions). The national emblem of India carries 3 lions.

The cultural value of wildlife can be scarcely denied. Our forests will be dull and dismal without their sprightly denizens; the countryside will be bleak and bare without its colourful birdlife. What would India be without her noble lion and the royal tiger, without the proud peacock and the painted pheasant, without the mighty buffalo and the colossal rhino, without the stately elephant and the sleek deer? The study of wildlife is no less rewarding to the biologist. Its ecological balance that obtains in Nature may not be disturbed with impunity. The Middle East, once a cradle of civilization, is today largely a desolate desert. Stripped of its natural defences that it had in its tree growth, this tract has lost all its wildlife. There are a hundred names in Arabic for the lion, but no lion. The forest and its fauna constitute the natural environment of Man. The least little upset in its balance is apt to have far reaching consequences which redound on him in the long run.

Quite apart from providing opportunities for recreation and healthy sport that tests the prowess, the patience and the perseverance of the hunter, wildlife has no mean role to perform in the general economy of the countryside. Fishing and shooting provide food and constitute a source of income to the State, Animals fetch fair prices from the zoos, The bird-life keeps pests and insects under control. In addition, wildlife provides a tourist attraction which no country may spurn. The income from the safaris in Africa and the shikaris in India is quite considerable. Some of the animal products are renowned for their medicinal value, e.g. musk, insulin, etc.

V. Man and his Environment

The clash between the interests of Man and Animals must be resolved in a rational manner, Wildlife management does by no means envisage the preservation of all animals regardless of their role in the economy of the countryside. Predators that destroy the field crops and prey upon other animals have to be kept under control. The claim of the forest which supports wildlife rests on both the physical and economic grounds. Reckless destruction of the forest leads to the deterioration in the physical field which adversely affects the productivity potential. With diminishing crop returns and more and more mouths to feed, the forest has to yield to the axe and the plough for raising more food. This causes further deterioration of the physical environment and consequent diminution in crop returns, resulting in even greater demand for forest land, and establishing thereby a vicious circle from which there is no escape. The solution of India's food problem lies in intensive, not in extensive agriculture. Land use in India is to be modified, therefore, in the light of the productive- protective and social roles of the forest in the balanced economy of the country. Land is to be permanently dedicated, therefore, for the maintenance of the forest and its colourful denizens.

VI. Wildlife Legislation

The protection of wildlife was enjoined as far back as the 3rd century B.C by Emperor Asoka. On his Fifth Pillar Edict are inscribed names of birds, beasts*, fishes and insects (?) which were to be preserved. The Edict further ordained the protection of the forest from fires. Later, the Moghul Emperors evinced considerable interest in wildlife. No one was allowed to hunt the lion except the royalty. The memoirs of Jehangir read like a treatise on wildlife.

During the British regime the destruction of wildlife at the hands of trigger happy hunters reached alarming proportions resulting in the adoption of stringent measures. In 1887, the Wild Birds and Animals Protection Act was passed. It was subsequently repealed by Act VIII of 1912. The Forest Act XVI of 1927 dealt with the regulation of hunting and fishing inside the State forests. The game laws enacted sought control over poisoning, netting, snaring and pitting of animals and birds. "Close" periods for various species were indicated. Grant of licences on payment of nominal dues was introduced. A special act for the protection of elephants was also passed. Various States enacted Game Laws of their own, e.g. the Punjab Wild Birds and Wild Animals Protection Act of 1933; the Bombay Act XXVI of 1951, etc. In the Uttar Pradesh, the National Parks Act was passed in 1934, under which the Corbett Park was originally constituted.

Poachers have always been hard to apprehend and even harder to convict. It is necessary that the burden of proof in the case of offences against game laws should be on the defence, and punishments and penalties should be adequate to prove deterrent.

Prevention of killing for trade and profit constitutes the key stone of preservation. Trade in animal products should be put down with a heavy foot. It is the fun accompanied by greed that spells destruction to wildlife. Birdlife has suffered considerable damage due to the dreadful plumage trade. The Great Indian Bustard is on the way out. While the Monal pheasant and the tragopan in the Himalayas have been saved by the ban imposed on the export of their feathers, the peacock, the black partridge, egrets, jungle cocks, paddy-birds, king fishers, jays and rollers, orioles and a host of other birds have likewise been given a lease of life by putting a stop to the lucrative trade in their feathers.

A special feature of the Indian Game Laws is that they largely relate to hunting inside the State forest.. Game outside does not get similar protection due to want of an organization for game preservation.

* The mammals mentioned in this edict are : bat, monkey, rhinoceros, porcupine, squirrel, swamp deer, bull and all 4-footed animals not utilized or eaten.

VII, Public Opinion

While there is little to be desired in the matter of enactment of Game Laws, there is almost an unbridgable gap between legislation and its implementation. Reliance on deterrents, penalties and punishments is of little avail without healthy public opinion against the insensate killing of voiceless denizens of the forest. Public interest must be aroused to the pitch of revolt against the wanton destruction of the valuable asset that India has in her colourful wildlife. The cultural, ethical, aesthetic, recreational and sporting aspects of wildlife deserve a wider recognition than is usually accorded. In order to mould public opinion we must begin at the beginning and catch one young. Animal stories, photographs, pamphlets, posters, films and lantern slides should be utilized in advancing the cause of wildlife in schools and colleges. It is the rising generation that should be enthused with a missionary spirit in the protection of our rich and varied heritage in our wildlife. It is to be noted that it is public opinion in India which protects monkeys, parrots, peafowl, fish, pigeons and nilgai.

Paradoxical as it may appear, the staunchest support for the preservation of wildlife comes from those who indulge in its destruction, viz. the shikaris in India and from the safaris in Africa. Everyone kills the thing he loves: the proud by possession, the poet by faint praise, the biologist by giving it a Latin name, and the sportsman with a gun. There are only two tragedies in the life of a sportsman: one not getting the trophy he is after; and, the other more serious one, getting it. There is nothing so heart-rending as not getting the tiger you want; and yet there is nothing so heart breaking as finding the handsomest of God's creation lying at your feet.

VIII. The Bombay Natural History Society

For its preservation, the wildlife in India owes a debt of gratitude to the Bombay Natural History Society which through its journal and other publications has sought to stimulate public interest during the best part of 75 years. It was largely through its efforts that game laws were enacted and modified from time to time. The part played by the Zoological Survey of India in advancing the cause of wildlife has by no means been small. Various Game associations (The Nilgiri Game Association founded in 1879, the Bengal Fishing Association, the Madras Game Association, 1933, etc.) have exercised control on shooting and fishing and set up a standard of sporting ethics.

IX. The London Convention, 1900

The genesis of the movement for the preservation of wildlife goes back to the year 1900 when the British Government convened a conference in London for the purpose. This celebrated London Convention for the preservation of wildlife in Africa was signed by France, Belgium, Italy, Spain, Portugal and Great Britain. It has since come to be regarded as the Magna Carta of wildlife in Africa.

X. International Conference for Protection of Nature, 1913

In 1913, an International Conference for the Protection of Nature was held in Berne (Switzerland) at which 17 countries were represented. A central organization to deal with wildlife on an international plane was proposed. The World War I, however, intervened and the recommendations of the Berne Conference were not implemented until 1928 when a Central Wildlife Bureau was established at Brussels. It was called the International Office for the Preservation of Nature : I.O.P.N. (18(2)).

XI. The International Conference. Paris, 1931

It was as a result of the efforts of this organization that an International Conference for the preservation of wildlife was held in Paris in 1931. Mr. Ramsay Macdonald, the then Prime Minister of United Kingdom sent the following inspiring message to this Conference :

"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 the process, but if their object is to be secured the active cooperation of Government is essential."
(12(1)).

XII. The London Conference, 1933

Soon after, another international conference was held in London in November, 1933. At a dinner of the African Society held in London on November 18, Prince Leopold of Belgium observed

"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 responsibility for a protective organization which will command the interest of all mankind in its moral, social, economic and cultural development; and, thus the political aspect of the question becomes apparent."

At this London Conference, India sent an observer. The deliberations of this conference aroused a great deal of interest in the protection of wildlife throughout the British Empire. A Society for the Preservation of the Fauna of the Empire was formed with branches in India, Burma, Ceylon and elsewhere. In the Punjab, new Game Laws were enacted in 1933; in the Uttar Pradesh the National Hailey Park was brought into being by an act of legislature in 1934. About the same time the Journal of the Bombay History Society sponsored a series of contributions on the preservation of wildlife (24.III).

XIII. The Delhi Meeting, 1935

In 1935, wildlife enthusiasts from all over India met at New Delhi to devise ways and means for the preservation of wildlife. Before the recommendations of this august meeting could get under way the second World War broke out.

XIV. The I.U.P.N., 1948

After the cessation of hostilities an International Union for the Preservation of Nature and Natural Resources (IUPN) was set up under the aegis of UNESCO at its meeting held at Fontainebleau in 1948. It aimed at the conservation and wise use of "the entire world biotic community or Man's natural environment which includes the earth's renewable natural resources ...". On September 20, 1951, at the inaugural address of the IUPN at Hague, Mr. Van der Goes Van Naters summed up the situation succinctly in the following words :

"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 social sciences to become more and more a chapter of human ecology."

XV. The Indian Board for Wildlife, 1952

Nearer home, Lieut. Col. R.W. Burton entered a plea for the wildlife preservation in the Journal of the Bombay Natural History Society (4). At the instance of the IUPN the Government of India appointed an ad hoc committee with the writer as its Chairman, to consider ways and means for the preservation of wildlife. It was on the recommendation of this Committee that the Indian Board for Wildlife was constituted by the Government of India. The Resolution (No. 7-110/51-R dated April 4, 1952) on the subject stressed the need for such a Board in the following terms:

"India's heritage of wildlife is fast becoming a vanishing asset and some of our notable animals (and birds) such as lion, rhinoceros, cheetah, tragopan 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 (later, Indian) Board for Wildlife."

The functions of the Board are laid down as under :

- (i) to devise ways and means of conservation and control of wildlife through coordinated 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 wildlife 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 wildlife products;

- (v) to prevent cruelty to birds and beasts caught alive with or without injury; and,
- (vi) to perform other functions as are germane to the purpose for which the Board has been constituted.

XVI. The Indian Board's Achievements

The recommendations made by the Board (including the recommendations of its Standing Committee and the two wings) and the achievements based on those recommendations can be summarised as below :

(1) National Parks and Wildlife Sanctuaries

At its first meeting, the Board had formulated a definition of a national park in India. Thereafter a model bill for national parks in India was also prepared and circulated to all State Governments for their guidance. Recently the Board has also prepared and circulated to all State Governments "A statement of National Parks Policy - Standards for National Parks in India".

As a result of the persistent recommendations made by the Board in this regard, there are now over 83 wildlife sanctuaries (including national parks) in India.

(2) Protection of Rare Species

Some colourful and interesting species of our wildlife like the hunting leopard (or the cheetah), the pink-headed duck and the Asiatic two-horned rhinoceros had been exterminated before the Indian Board for Wildlife was constituted. After its constitution the Board immediately set itself the task of saving wildlife species which were considered rare and on the verge of extinction. The Board, therefore, drew up the list of the following such species and strongly recommended that the State Governments concerned should give immediate and complete protection to them.

- (i) the Asiatic lion,
- (ii) the Snow leopard,
- (iii) the Clouded leopard,
- (iv) the Cheetah (was considered to be more or less extinct by that time)
- (v) the Great one-horned rhinoceros,
- (vi) the Indian wild ass,
- (vii) the Kashmir stag,
- (viii) the Musk deer,
- (ix) the Brow-antlered deer,
- (x) the Pigmy hog,
- (xi) the Great Indian bustard,
- (xii) the Pink-headed duck (was considered to be more or less extinct by then),
- (xiii) the White-winged wood duck.

Later, certain other animals, birds and reptiles like the wild buffalo, the dugong, the peacock and the leathery turtle, etc. were also added to the above list in the recommendations made by the Board.

(3) Control on the export of wildlife species and their products, etc.

The Board realised that commercial transactions, specially the export trade in wildlife and its products, constitute a major threat to the existence of wildlife. It was recognised that export of diminishing species or their products could easily nullify all the protective measures, which the State Governments may take for the preservation of such species. The Board, therefore, recommended a complete ban on the export of certain rare species (including their products) in order to guard against their extermination due to over-exploitation. At present the export of wildlife and its products, etc. is being regulated under the Imports and Exports (Control) Act, 1947 based on the Board's recommendations. The Board lays down lists (i) of animals and their products the export of which is to be completely banned and (ii) of those the export of which is to be restricted. These lists are reviewed frequently. A Study Group has been formed recently, in the Ministry of Food and Agriculture to go into this question of exports of wildlife and its products and to review the export policy.

(4) Legislation and wildlife preservation laws

Under this category the Board has made a number of recommendations aimed at achieving the revision of wildlife preservation laws on sound modern lines. The recommendations made in this regard are roughly on the following lines :

- (i) The laying down of closed seasons for shooting of animals and birds, etc.
- (ii) Banning sale of game meat, etc.
- (iii) Prohibition of use of fast moving vehicles and artificial lights for shooting.
- (iv) Prohibition of shooting at salt licks and water holes.
- (v) Prohibition of indiscriminate shooting and prescribing limits to the number of each species that be shot.
- (vi) Prohibition of snaring and poisoning of wildlife.

At the instance of the Indian Board for Wildlife, a draft model wildlife Bill was prepared for the guidance of the States wishing to revise their wildlife laws. It is due to the persistent interest taken by the Board that eleven States and union territories in the country have either already revised or are in the process of revising their wildlife laws on modern and uniform lines. The remaining few States are also being requested to fall in line with the others in this regard.

(5) Wildlife education and publicity

The Board recognised that penal measures by themselves are not adequate and that the willing cooperation of the people is a sine qua non for effective preservation of wildlife. The Board has, therefore, been stressing the need for wildlife publicity and education. To this end, the observance of an annual wildlife week was initiated first in 1956. The first week of October every year is being observed as wildlife week. During this week the Central and State Governments distribute publicity material like charts, posters, pamphlets, etc. bearing on wildlife preservation, in different languages all over the country. Cinema slides and documentaries on wildlife are also exhibited both in rural and urban areas. Public meetings are held and processions, in which the necessity of preserving wildlife is brought home to the people, take place throughout the country. People participating in such meetings take the following wildlife pledge :

"I give my solemn pledge to protect our country's wildlife and its forests from unnecessary destruction."

Publicity through radio and press is also taken up during this week. This week is also celebrated in the schools, colleges and universities all over the country where lectures on wildlife are given, suitable films shown and visits to wildlife sanctuaries and national parks are arranged in order to impress upon students the necessity of wildlife preservation. The celebration of this week over the past 10 years has gone a long way in creating an awareness among the public about the necessity of preserving wildlife.

(6) Census and study of wildlife ecology

Recently, the Board has laid stress on the necessity of conducting census and undertaking ecological studies on wildlife so that wildlife management in the country could be placed on a sound footing. This programme has not, however, made much head-way mainly for want of trained personnel, in the country. It is hoped that with the starting of the proposed wildlife management courses at the Forest Research Institute and Colleges, Dehra Dun, trained staff for this work will be available.

(7) Zoo management

In the field of zoo management the Board is guided by its Zoo Wing. The Board aims at setting up more zoos and placing them on a sound footing. There are at present 22 zoos in the country.

(8) New homes for rare species

There are some rare animals and birds like the Asiatic lion, the Great one-horned rhinoceros and the Great Indian bustard which are localised in certain areas forming single units. It was recognised that in the event of the occurrence of a natural calamity or spread of epidemic, there is a possibility of the entire population of these rare species being wiped out. The Board has been making recommendations to the State Governments concerned for finding new homes for such species so that in the event of their being wiped out at one place they could survive in their adopted homes. At the instance of the Indian Board for Wildlife a new home for the Asiatic lion (which was till recently localised in Gir Forests in Gujarat State) has been found in the Chanderprabha wildlife sanctuary near Varnasi in Uttar Pradesh. The number of lions in that sanctuary has now risen to eleven from one lion and two lionesses originally introduced there in 1957. Similarly attempts are also being made to find new homes for other rare species like the rhino and the Great Indian bustard.

(9) Setting up of breeding farms for animals, birds and reptiles of commercial value.

The ban on the killing and export of certain rare mammals, birds and reptiles of commercial value was strongly resented by the trade. The Board considered this matter in detail and felt that while it could not agree to the exploitation of the natural sources of these species for commercial purposes, it would have no objection to the setting-up of breeding farms for such species, the products of which could be freely farmed for export by the trade or used for other commercial purposes. On the basis of this recommendation, the possibility of starting breeding farms for crocodiles, pythons and peacocks is under consideration, but the difficulty has been lack of expert knowledge in this field.

(10) Control on licences and use of certain categories of ammunition

Arms for protection of crops constitute one of the major factors threatening the existence of wildlife in the country. Due to the efforts of the Board, a number of restrictions have now been placed on arms licences in relation to the area of use of the arms, type of ammunition permitted to be used and to make the arms ineffective during off-crop season. These efforts continue.

SANCTUARIES AND NATIONAL PARKS IN EASTERN INDIA

WEST BENGAL

Has eight sanctuaries covering an area of approximately 675 sq. kms. Of these, three are in the Sunderbans within easy reach of Calcutta, and the remainder are in North Bengal. The best way to visit the latter is to take a plane from Calcutta to the airfield situated closest to the sanctuary, and thence by road. Train journeys to all of them are tedious. Except for the Tourist Bungalow in the Jaldapara Sanctuary, the other North Bengal sanctuaries have ordinary Forest Rest Houses, which provide furniture and crockery, but one has to carry his own bedding and arrange for his food. So far, West Bengal has not constituted any National Park. The best time to visit the sanctuaries is from November to April, except for the Senchal Sanctuary. No special staff is sanctioned for any of the sanctuaries. Details in respect of each are given below :

I. Jaldapara Sanctuary

Constituted in 1941 for the protection of the Indian one-horned Rhinoceros. It covers an area of 93 sq. kms, in a linear strip 16-19 kms wide along the Torsa River in North Bengal. The nearest railway station is Hashimara on the North-East Frontier Railway, from where the Barodabari Bungalow is only 2 kms away. The nearest airfield is Hashimara, connected by non-scheduled flights with Calcutta. Jeeps and trained elephants are available on hire.

The Tourist Bungalow at Barodabari has three bedroom suites with a lounge and a dining room. Catering arrangements are provided. The charges for accommodation only are Rs. 8/- per day for a double room and Rs. 5/- for a single.

Today there are about 80 one-horned Rhinos in the sanctuary and, in addition, tigers, elephants, bears, samghar, swamp deer, hog deer, goyal and bison have also benefitted.

Reservation of accommodation and transport is done by the Divisional Forest Officer, Cooch Behar Division, P.O. COOCH BEHAR.

II. Mahanadi Sanctuary

Constituted in 1955 with an area of 128 sq. kms, in the Darjeeling district, near Sukna railway station on the N.F. Railway, 9 kms from Siliguri Junction. Nearest airfield is Bagdogra, 24 kms away, and connected by a regular IAC service with Calcutta. The best rest house is at Sukna. The animals that have benefitted are the tiger, elephant, bison, sambhar, cheetal, barking deer, and pigs. Reservations are made by the Divisional Forest Officer, Kurseong Division, P.O. DOW HILL, Dist. Darjeeling.

III. Senchal Sanctuary

Is the oldest sanctuary in West Bengal, created in 1940, over an area of 39 sq. kms, embracing the hills around Darjeeling. Though Ghoom railway station on the N.F. Railway adjoins the sanctuary, it is more convenient to stay at Darjeeling which has first class hotels, and is only 8 kms away. Cars can be hired at Darjeeling. The sanctuary has motorable roads on three sides, and another passes through it at certain points. The view of the snows from Darjeeling and the sunrise from Tiger Hill are world famous. The animals in it are the serow, Himalayan bear, barking deer and goral. The best time for a visit are April-May and October-November. Further information can be obtained from the Divisional Forest Officer, Kurseong Division, P.O. DOW HILL.

IV. Gorumara Sanctuary

Is a small one with an area of only 8.5 sq. kms, and was constituted in 1949 for protecting the rhinoceros. The animals found today are the rhinoceros, elephant, tiger, bison, sambhar, barking and hog deer, buffalo and pig. The most convenient railhead is Mal Junction on the N.F. Railway, and the airfield is again Bagdogra. Taxis are available at Mal Junction, which is 25 kms away from the Sanctuary. There are two rest houses at Gorumara and Chalsa. Reservations are done by the Divisional Forest Officer, JALPAIGURI.

V. Chapramari Sanctuary

Has the same area as the Gorumara sanctuary, with the same railhead, airfield and animal population. The most convenient rest house is Chapramari. Reservations are done by the Divisional Forest Officer, JALPAIGURI.

VI. Sajnakhali Island Sanctuary

Is the biggest sanctuary in West Bengal with an area of 360 sq. kms, was constituted in 1960 and is located in the Sunderbans. The most convenient route is to take the train from the Sealdah station of Calcutta for Canning, and from there proceed by country boat or steam launch. The primary attraction here is birds, and the important ones are : cattle egret, paddy bird, little cormorant, black-necked stork, snake bird, white ibis, green bittern, pelican, etc.