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THE NATURAL IMAGE
RANGANATHITTU
THE *BHULAN'S* OF PAKISTAN
KAZIRANGA

Kaziranga

Text and photographs
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Kaziranga is the most secure home of the Indian one horned rhino and the animals with which it associates such as the tiger, leopard, elephant, wild buffalo and barasingha. It is also a safe haven for the Bengal Florican and a host of other grassland birds. Will Kaziranga and its rhinos survive? This depends on us! If we continue to bring collective pressure to bear on both State and Central Governments, the Park can be saved. If apathy is allowed to rule, its demise is a foregone conclusion. The author believes that defence of wild India must emanate from a position of knowledge. He therefore provides us with an overview of Kaziranga, a forest he has known and loved for many long years.

When I cast my gaze across the swamps, I saw rhino, buffalo and elephant... all in one sweep of the horizon. Dark clouds hung over-head and from the distance came the rumble of thunder. Rain is a blessing for wild animals, but, when we tamper with their home it can also deliver death and destruction in its wake. This is the case in Kaziranga, Assam where the Brahmaputra's flood havoc not only eats into the park by eroding its land, but hundreds of animals routinely drown each year.

For all the problems it must confront, however, Kaziranga is still a living laboratory, unique to India. A visit to the famous national park is always memorable. I have been visiting the park off and on for 15 years, yet each visit has delivered a new and interesting encounter. This is the magic of Kaziranga.

Looking back

It was way back in 1908 that this area on the floodplains of the Brahmaputra river was declared as a Reserved Forest. The dwindling rhino-population had caught the attention of the Britishers and protection was on the cards. In 1916, Kaziranga was upgraded to a game sanctuary status and in 1950, it became a full-fledged Wildlife Sanctuary. Virtually every Assamese citizen

Kaziranga is one of the most important wintering grounds for Barheaded Geese. A large number of other waterfowl throng the beels in winter. Indian rhinos (inset) are usually solitary, however, larger congregations are not uncommon. The park supports more than 1,000 rhinos, representing 60 per cent of the world population. The global lack of will to protect the rhino, places a cloud over its future.



Commentary

Unbearable policies

*The Himalayan black bear, *Selenarctos thibetanus*, continues to perform its ecological role, dispersing fruit seeds, turning soils (while searching for termites and beetle larvae) and even scavenging on the kills of more proficient hunters such as the leopard... if it gets half a chance.*

Meanwhile, bureaucrats and businessmen hatch plot after plot to wipe the bear off the face of the earth by actively promoting projects in the Himalaya involving canals, dams, mines, roads and forestry operations geared towards commerce rather than conservation. As if this were not bad enough, an expanding international market for bear gall bladders conspires to target the species for more specific attack. And the decline in bear populations is going virtually unrecorded, because no research institution in India is in a position to monitor bear populations, or the trade in organs and parts. Sporadic reports of seizures by wildlife authorities are, of course, met with clucking sympathy in the corridors of the Ministry of Environment and Forests. However, no action ensues. The tragedy is that this ministry, set up with so much hope and trust, has all too few officers oriented towards wildlife. The ones that care are usually looked upon as cranks who come in the way of development. They are usually the last to know about the destruction of wilderness areas and, all too often, they are coerced into condoning the destruction of the wilderness areas they want so much to protect. By contrast, industry-friendly officers who think little of sacrificing ecological concerns are rewarded with promotions and enhanced powers.

There is now no doubt that government policy itself mitigates against the survival of our protected area network. Unfortunately, scientific institutions (with notable exceptions) are so dependent on government largesse for their survival that they find it tough to come out openly and strongly against the stated government line. But unless they do, and unless large conservation bodies find the spine to take hard positions against government, they will lose the respect of both, government and the public that they serve.

Brijendra Sahgal



feels a sense of pride when talking of Kaziranga. In 1974 it was therefore declared as the first National Park of Assam in response to popular appeal. Sprawling over two districts, Golaghat and Nagaon, the park covers an area of 472.5sq km which includes the original notified area of 428.7sq km and the 1st addition of 43.8sq km in 1996. The northern boundary of the park is marked by the Brahmaputra river while the hills of the Karbi plateau define its southern extent.

Kaziranga is the largest unspoilt grassland area left in the Northeast. The tall grass and reeds, also called the elephant-grass or the wet savannah grassland, grow upto a height of over five metres during the rainy season. *Erianthus ravaneae* (Ekra), *Phragmites karka* (Khagori), *Arundo donax* (Nal), *Imperata cylindrica* (Ulu kher) and *Saccharum* sp. (Kher) are the main grass species. *Alpinia allughas* (Tora), a herb grows abundantly all over the grassland, especially in the damp areas. Overall, about 65 per cent of Kaziranga is grassland. Of the remaining, about 7-8 per cent comprises the waterbodies such as *beels* (ox-bow lakes and depressions) and channels. The rest is woodland. Small patches of mixed deciduous woodland with *Koroi*, *Ajhar*, *Simul*, *Oxy*, *Chida*, *Bogori* and *Ou-tenga* are scattered over the grassland. A fine patch of semi-evergreen forest with *Cham kothal*, *Hollock*, *Bhelu*, *Banji-ou*, *Ficus* sp., and other species exists in the Kanchanjuri area towards the south-west. Canebrakes are also common in the woodlands. *Barringtonia acutangula* (Hijal) grows in the waterlogged areas.

Indian one-horned rhinoceros

The animal that has made Kaziranga world famous and which is also its most endangered resident is the Indian one-horned rhino *Rhinoceros unicornis*. About 60 per cent of the world population of this species is concentrated here. This makes Kaziranga a critical global heritage. It is believed that in 1908, only a few dozen rhinos were left in Kaziranga. The first real census, using direct-count method from elephant-back, was carried out in 1966 when 366 animals were enumerated. Today more than a thousand rhinos are found here.

Kaziranga is one of the finest examples of the success of the conservation movement in India. On a good day, from a single watch-tower, you can see more than 30 rhinos in Dunga in Bagori Range. But all is not well, despite this success. The increase in their numbers is declining. Around 292 rhinos were added to the population between 1966 and 1972. But the population rise was only 35 between 1991 and 1993. This is because the animal is being slaughtered for the value of its horn (made up of compressed hair and other fibrous keratins). Poaching used to be kept in check and was restricted to under 10 rhinos per year in the

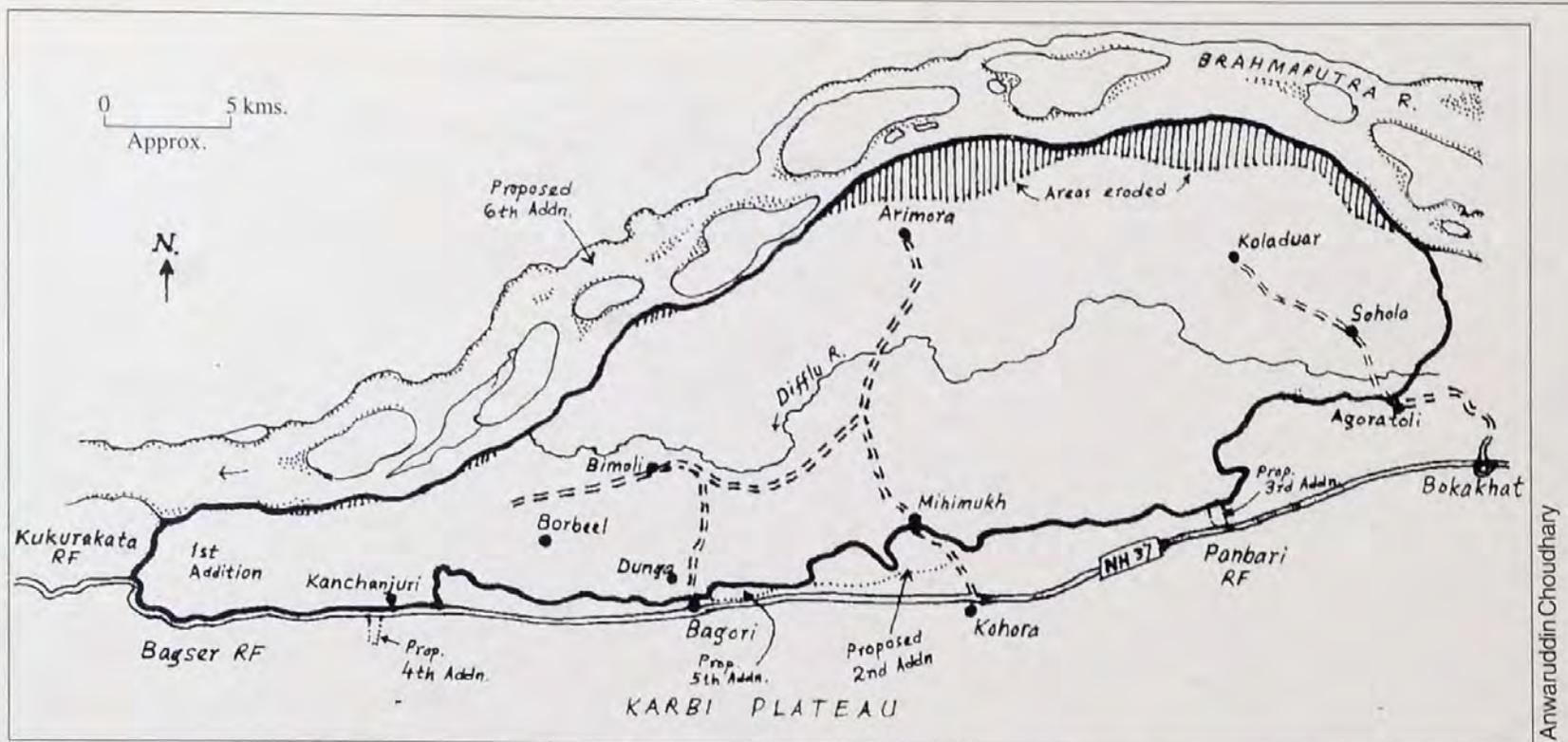
seventies. But things suddenly took a turn for the worse in the eighties when the killings went up by 300 per cent to reach a figure of 30 rhinos per year. We thought the problem was at its worst in 1986 when 45 animals perished. However, even this was exceeded in 1992 when 49 rhinos lost their lives to poachers. Altogether 600 animals have been slaughtered between 1965 and March 1997. This tragedy can be laid at the door step of the wildlife trade. A sharp rise in the price of rhino-horn and an increase in the over all demand in east and south-east Asian markets was coupled with the easy availability of fire-arms. Little wonder the rhino is so difficult to protect. Because of the large monetary involvement, poachers have begun to risk their lives and each year a few are killed in encounters with Forest personnel. Yet the pressure continues to mount. The extent of the problem can be gauged by the fact that in 1994 alone, 12 poachers were killed in defence of the rhinos.

Where elephant and buffalo roam

No animal lives in isolation and Kaziranga is home to hundreds of other wild species. Elephants seasonally descend to the plains of the park from the Karbi plateau in the beginning of winter, choosing to return when the park floods in the monsoons. However, due to large-scale habitat destruction in Karbi Anglong (slash-and-burn agriculture and logging), many pachyderms now prefer to remain in the park. This is not a good sign. The elephant population increased from 349 in 1966 to 523 in 1984. However, in 1993, a huge concentration of 1094 animals were counted during an elephant-census of Kaziranga and adjacent areas. No other single wildlife reserve has ever been known to harbour such a large population of the Asian elephant.

For the rare and endangered Asiatic wild water buffalo, Kaziranga is perhaps the most important habitat in the world. Their population increased from 471 in 1966 to 1,034 in 1993. A rinderpest epidemic in 1981 took a toll of about 150 animals but they are now stable. In fact, tigers, anthrax, rinderpest and *foot-and-mouth* disease could be said to be the main enemies of this large bovine.

There was a general belief that the genetic purity of many buffaloes in Kaziranga had been contaminated due to hybridization with domestic animals. I believe this to be a misplaced fear. To begin with villagers do not keep domestic males in fringe villages and *khutis* (cattle and buffalo camps) as these are attacked and killed by wild bulls. Even if a domestic bull does stray in, it would have no chance to compete with wild bulls for access to females. On the other hand some wild bulls, regularly come out of the park and mate with the domestic females. The gene flow is thus a one-way affair and is unlikely to affect any substantial wild



Getting to Kaziranga

The park remains closed for visitors from May to September. If the monsoon starts late, the park remains inaccessible all the way to October. However, during the closed season a large number of wild animals can be seen from the National Highway and from the Mahi Miri Watch Tower on a hillock near Haldibari. This tower remains open throughout the year and is located on the highway.

To get to Kaziranga from Guwahati you must follow the NH 37 which touches Burhapahar, Bagori, Kohora (all Range headquarters) and Bokakhat (park headquarters). Regular buses leave from Guwahati. The park can be reached from Jorhat and Tezpur as well and both are linked by air to Calcutta. The distance from Guwahati to Kohora and Bokakhat is 217 km and 235 km respectively.

Elephant rides are available for visitors at Mihimukh near Kohora. There is a good network of motorable road criss-crossing the park. A cruise on the Brahmaputra river is also exciting. Government accommodation is available at Kohora, Bagori and Bokakhat. There are also privately-owned hotels. Walking is not advisable within the park. However, walking along the NH 37 from Kanchanjuri and Burhapahar and Amguri is also rewarding as one could come across Hoolock gibbons, capped langurs and even the Giant Hornbill. The entry fees, including that of camera and vehicle are reasonable. The best time to visit is between November and April, though on account of tall grass, the best visibility is between February and April when the grass is burned.

population. There were past instances of some domestic buffaloes going feral in the fringe areas but these had little chance of long-term survival against a large tiger population. My observations elsewhere (Lakhimpur, Laokhowa Sanctuary) also showed that wild herds kept to themselves without mixing with domestic buffaloes. In recent years we have hardly heard of any domestic buffaloes being allowed to go feral by their owners as the animals are simply too valuable.

The big cats

With 72 Tigers counted in 1994 (up from 20 in 1966), Kaziranga is also a crucial habitat for this majestic big cat. By March, 1997, their numbers had increased to 80. At a time when the tiger crisis threatens to wipe out the species, we can clearly see that Kaziranga presents us with signs of hope. This is attributable to the large prey base and perhaps even a diversion of the poachers'

attention towards the rhino! One way or the other, the key to the survival of the tiger in Kaziranga is protection.

The leopard or panther occurs only in the southwestern fringe, that is in the Kanchanjuri area and also in Panbari, Kukurakata and the Bagser Reserved Forests (outside the park but adjacent to it). Tigers are more powerful than leopards and the smaller felines invariably get pushed to marginal or peripheral areas. This does not mean they do not occupy the same forest areas, just that when push comes to shove, the tiger will dominate. There are lesser cats about. The jungle cat, leopard cat and fishing cat, for instance. Very little is known about these felids, but the principle of 'protect the forest and the forest will look after all its wards' is clearly sensible. A small population of sloth bear frequents the grassland and woodland parts of the park. Among other carnivores we have the jackal, hog-badger, common otter, smooth Indian otter, large



Elephants busy feeding in a beel in the Kohora Range. Kaziranga has a large migratory population of elephants that moves between the Park and Karbi Anglong. With the downlisting of elephants by CITES these animals are threatened.

fowl include Spottedbilled Pelicans, the Blacknecked, Greater Adjutant, Woollynecked and Lesser Adjutant Storks. I also had the good fortune to spot the Great Whitebellied Heron on more than one occasion. One of the largest pelecarnies of the Spottedbilled exists in the Koladuar area of the Agoratoli Range. The number of nests varies between 150 and 250. The Blacknecked Stork also breeds here while the Greater Adjutant does so only occasionally. There is a large heronry of the Openbill Stork in Gotonga area of Bagori Range.

Kaziranga has a sizeable breeding population of the Pallas's and Greyheaded Fish Eagles. The Blackcrested Baza, Changeable Hawkeagle, Greater Spotted Eagle, King Vulture and the Osprey are other noteworthy species. An early morning drive in Kaziranga always ensures sighting of large numbers of Swamp Partridge or Francolins, Red Junglefowl and Kaleej pheasants. Kaziranga has one of the largest concentrations of the globally endangered Swamp Partridge, locally called *Koira* or *Hoicoli*. These delightful and noisy terrestrial birds are normally seen in pairs or small coveys. A small number of Peacock-pheasants may still survive in Kanchanjuri area, though they are still fairly common in Bagser and adjacent forests. For the Bengal Florican, the rarest bustard in the world, the grasslands of the *chapories* to the north are probably its most vital stronghold. They are also found in the grasslands of the first addition and near Mihimukh. Two species of Hornbills, the Giant or the Great Pied and the Indian Pied are fairly common. The former frequent the

Agoratoli Range and Kanchanjuri within the park and Panbari, Kukurakata and the Bagser reserved forests just outside. In Bagser, the Wreathed Hornbill can also be seen, provided lady luck favours you.

Proposed additions

There is not one protected area in India that is truly free of pressures. We must constantly, therefore, attempt to strengthen protection and reduce pressures. With this objective in mind, and to cater to increased populations of most of the major species (and to provide safe corridors for the movement of animals, especially elephants) seven additions have been proposed between the Karbi Plateau and the National Park. Of these, only one the first has actually materialised so far. This addition covers excellent grasslands towards the west and was proposed through a preliminary gazette notification in 1984 and ultimately handed over in 1996. The second, third, fourth and fifth additions cover 6.5 sq. kms., 0.7 sq. kms., 0.9 sq. kms. and 1.15 sq. kms. respectively and were proposed in 1984-85. The sixth addition is the largest with 401.5 sq. kms. of riverine habitats along the Brahmaputra river in the Sonitpur district included. This addition was proposed in 1985. All these additions are yet to materialise on account of pending court cases.

A further addition was proposed way back in 1975 covering 33 sq. kms. of the Karbi Anglong district. An amount of Rs 4.71 lakhs was also paid to the District Council (Karbi Anglong is an autonomous district

Indian civet and even the exquisite crab-eating mongoose. In January 1988, I was fortunate enough to see a ratel or honey badger near Bimoli camp in the Bagori Range. I later discovered that this was the only record of the species in Assam and that it was presumed to occur only up to Bengal. There are a few past records of the dhole or wild dog straying into the park from the Karbi Anglong area but no such cases have been reported in recent years and I have certainly seen none.

Other wildlife

Thirty years ago, some 200 swamp deer or barasingha existed in Kaziranga. Fortunately, they were protected and their numbers consequently increased. Once plentiful all over the Brahmaputra and Barak valleys, the barasingha suffered greatly due to hunting and habitat destruction. Because of its penchant for inhabiting open country where *beels* were available, it became an easy target for the hunters. Kaziranga now has the only viable population of this endangered deer in north-eastern India with about 450 individuals holding on to survival in its protected environs. That this number represents a decline from a high of 756 in the year 1984 is cause for worry and the species is clearly in urgent need of protection.

The hog deer, sambar and barking deer or muntjak are the other deer species found in the park. The hog deer numbers hovered around 10,000 in 1984 but they suffered terribly during the floods of 1988 when thousands were washed away or killed outside the park. Only about 2,000 were estimated in 1993. Both sambar and muntjak prefer woodlands and sightings are rare. The only time I saw a sambar, it was grazing in broad daylight near Kanchanjuri and seemed completely indifferent to me!

Like the hog deer, the wild boar population also slumped from about a high of over 4,000 to a just few hundred soon after the 1988 floods. A small and isolated population of the gaur or Indian bison occurs in Kaziranga, mostly in Arimora-Methunmari area. Earlier these animals used to migrate between Karbi Anglong and the park but now the movement has ceased due to the corridor being cut off. Fortunately, elephants still manage to use this corridor, but such trends sound the death knell for the long-term survival of Kaziranga and land management should seek to repair and restore such connections as a means to protect the park.

The rhesus macaque is without doubt the most abundant primate to be found in Kaziranga, followed by the capped langur. The Hoolock gibbon and the slow loris are also present, but they are confined to the Kanchanjuri area alone. However, just outside the park, they are fairly secure in the semi-evergreen forests of Panbari, Kukurakata and the Bagser reserved forests. The rare

Assamese macaque may be found in small numbers in Kanchanjuri. Field biology is a complicated and difficult discipline. Many scientists, for instance, have mistakenly recorded the very common rhesus macaques as being the Assamese species! Their published and unpublished notes on Kaziranga thus create a lot of confusion and serve to mislead visitors and even some officials.

A fairly large number of mammals have been able to survive in Kaziranga. This includes the flying fox, Chinese pangolin, Malayan giant squirrel, common giant flying squirrel, Chinese porcupine and the Gangetic dolphin. Although the dolphin is an animal of flowing water, some individuals prefer to remain in the stagnant Mihibeel and this has generated considerable curiosity among ecologists.

The Gharial is on the verge of extinction in the Kaziranga area, with only an occasional sighting or two being recorded. Two species of monitor lizards, the Bengal *Varanus bengalensis* and the water *V. salvator*, are common. A few exceptionally large specimens of water monitors can be seen in Kaziranga and I was fortunate to observe one such specimen basking in the afternoon sun in the Bagori Range area. It was at least three metres long with a robust body, which gave it the look of the giant Komodo dragon! Snakes such as the rock python, keelbacks, king cobra, common cobra, kraits (banded, common and black), vine snake, water snake, rat snake and cat snake are common. We have counted 11 species of turtles in Kaziranga thus far. These include the Malayan box *Cuora amboinensis*, spotted pond *Geoclemys hamiltonii*, brown roofed *Kachuga smithii*, Indian roofed *K. tecta*, tent *K. tentoria*, tricarinate *Melanochelys tricarinata*, crowned river *Hardella thurjii*, peacock softshell *Aspideretes hurum*, Gangetic softshell *A. gangeticus*, narrow-headed softshell *Chitra indica* and flapshell *Lissemys punctata*.

Birds

With more than 400 species, Kaziranga is a birdwatchers' delight. Winter is particularly special for the park as a large number of migratory waterfowl now throng the *beels* and many altitudinal migrants choose to descend from the hills. Some *beels* that are particularly rich in waterfowl are Sohola and Koladuar in the Agoratoli Range; Mihi, Kathpora, Dafflong, Borbeel (Arimora) and Bhaisamari in Kohora Range and Dunga, Bimoli, Borbeel, Dafflong and Roumari in the Bagori Range. Among the migratory waterfowl, are Rosy Pelicans, Black Storks, Lesser Whitefronted Geese (two records only), Greylag and Barheaded Geese (one of the major haunts of this species), Ruddy and Common Shelduck, Spotbills and Mallards, Gadwall and Wigeon, Red-crested and Ferruginous Pochards, and innumerable smaller waders. Resident and locally migratory water-

The Rhino Foundation for Nature in NE India



Established in 1994 with support from nine leading tea companies, the objective of the Foundation is to help preserve the Indian one-horned rhino and other endangered wildlife in Northeast in collaboration with the Forest departments and local NGOs. So far the organisation has provided the following assistance to Kaziranga: *hunting boots* – 540 pairs in 1995; *raincoats* – 250 in 1995 and 250 in 1997 (all these were for patrolling staff); *drinking water-filters* for the camps – 120 in 1995-96; *elephant-chain* – 100 kg; *torch batteries* – 887. In addition, 250 *backpacks* for the patrolling parties and 550 *warm jerseys* to the field staff will be provided during next winter along with 550 pairs of hunting boots; with an assistance from the U.S Fish & Wildlife Service. *Walkie-talkies* and *battery chargers* were also repaired in 1995 and 1996. Three *veterinary camps* were organised in the fringe villages for free inoculation of domestic animals, especially cattle and buffalo in 1995 and 1996 in collaboration with local NGOs (The Assam Boreli Anglers' Association and Refinery Trekkers' Guild). The objectives of such camps were: (1) to create an immune belt so that the wild herbivores such as buffaloes and rhinos remain safe from disease; (2) to motivate the fringe villagers for their support to the park and (3) treatment of the departmental elephants. A *motivation camp* was also organised in collaboration with Nature's Beckon in 1996. Two low-cost *posters* on some endangered mammals and birds were also published and distributed free among villagers, schools, etc., to promote the need for conservation. Similar activities have also been undertaken in other protected areas.

Mrs Anne Wright is the Chairperson while the author is the Hon. Chief Executive of this Foundation. *For more information, please write to:* The Rhino Foundation for Nature in NE India, c/o The Assam Co. Ltd., G. Bordoloi Path, Bamunimaidam, Guwahati 781 021 (Assam). Tel. 0361-550257. Fax: 361-550902.

under the Schedule VI of the Constitution of India) but subsequently they refused to hand over the land and instead returned the money.

While the third and fourth additions are important movement routes of wild elephants, the second addition covers the main tourism zone near Mihimukh where the popular elephant-rides takes place. Except for the Karbi Anglong addition, all the others are expected to materialise in the near future. In the case of the Karbi Anglong area, the District Council is considering a proposal to declare an entirely new sanctuary.

A flood of problems

Since the bulk of Kaziranga is in the floodplains of the Brahmaputra river, monsoon floods are an annual phenomenon. From May-June to September-October, these areas reel under the assault of flood waters when thousands of smaller animals die. In the past the animals were able to move to safer ground southwards, between the floodplains and the Karbi plateau. Gradually, this rolling country came under tea plantations and settlements thus forcing the animals to opt for the high plateau. Here logging and *jhum* cultivation conspired to destroy much of the habitat, the most damage being done in the last five years.

I am sorry to report that, far from improving, the situation is worsening. The chasm between the park and the Karbi plateau is 'widening' due to an increase in the human population, expansion of tea plantation and a rise in vehicular traffic along National Highway 37. During the floods, the sight of injured and dead animals, crushed by speeding vehicles is as common

as it is gruesome. The death toll includes rhinos, hog deer, wild pig and leopards.

With its limited resources, the Forest Department tries to do all it can by building earthen platforms inside the park (180 m. long, 9 m. wide and 3 m. high). These form a retreat for a large number of animals in the floods. After the devastating floods of 1988, the worst in Kaziranga's recent history, some more highlands ranging from 25 to 1650 m. in length (mostly along the roads), have been added.

But considering the number of animals affected even this step is inadequate. Between 1980 and 1995, as many as 92 rhinos (41 calves) died. In 1988, within a span of a few days, 48 rhinos perished. Hog deer and wild pig are the worst sufferers with thousands having lost their lives in the same year. When the animals are forced to leave the protected confines of the Park on account of the floods, a regular posse of humans comprising local villagers and tea estate labourers chases and kills them. This largescale decline in the prey base jeopardises the ecological balance and the predation pressure on rhino-calves may well increase when tigers turn their attention on them.

The two animals which seem to have learned to deal with the flood quite well are the wild buffalo and swamp deer. One 'side benefit' of the otherwise destructive floods is the fact that the *beels* are almost instantly cleared of aquatic weeds such as the exotic water hyacinth.

Troubled fringe

Kaziranga is surrounded by 23 villages and at least four

How to save Kaziranga

- Creation of more highlands, especially in the southern and western fringes.
- Early implementation of the remaining proposed additions (2nd to 6th).
- Inclusion of Panbari, Bagser and Kukurakata RFs within the park.
- Check on erosion by the Brahmaputra river, especially in Agoratoli Range.
- Stabilisation of human population in the fringe including the tea gardens.
- Early creation of a wildlife sanctuary/national park inside Karbi Anglong by the District Council.
- Regular inoculation of domestic stock of the fringe to prevent possibility of epidemic among wild herbivores.
- Training and exercising of Forest staff on regular basis and strengthening of the intelligence network.
- Higher financial incentives including rewards for the field staff.
- A chunk (may be a third) of the revenue earned from the tourists should go to the fringe villagers for community development.
- Strengthening of crop-protection squads and timely and adequate payment of compensation to the villagers for loss of crops and animals.
- Regulation of vehicular traffic along NH37 during late night hours, especially during the floods.
- Close monitoring of effluent treatment of Numaligarh refinery. Fringe villagers including tea plantations should be discouraged to use non-biodegradable pesticides.
- Besides Government, NGOs should also be ready to provide legal aid to the staff in matters of court cases arising out of encounters with poachers.

tea gardens with a population of over 20,000 towards the south, east and south-west. The riverine stretch towards north has a large number of *khutis* and temporary fishing camps on the *chaporis* or *chars*. Problems on account of wild elephants, rhinos, hog deer and wild pigs in the form of crop raiding and by tigers in the form of cattle-lifting are not uncommon. Since Kaziranga does not have a protective buffer zone, man and animal must live cheek by jowl on the park boundary.

While a majority of the villagers still do have enough love for and pride in Kaziranga, a handful have turned to poaching, or at least provide poachers with shelter and information in exchange for money. Perhaps the worst off are the poor communities who neither get adequate compensation, nor any benefit from Park fees and tourism.

Kaziranga is a popular tourist resort with more than 50,000 visitors per year, mostly domestic. Although too much tourism is clearly harmful, the money generated could really help in garnering support for the park if some of it was made over to local communities. The root of man-animal conflict here is economic and this could be one way out. Failure to solve the problem will only benefit those who have a vested interest in widening the people-wildlife chasm. Currently the gate money goes towards Government revenues, while villagers must suffer losses and restrictions on fishing, grazing and wood collection.

A railway was proposed along the southern boundary of the park in mid-1980s. The survey and mapping for the project were completed but opposition from environmentalists, led the alignment to be modified so

as to allow three 30 m. wide corridors under the line to enable animals, particularly elephants to continue their seasonal migration. Fortunately, continued opposition resulted in this project being dropped altogether, but there is every possibility that it may be reopened. In today's deteriorated circumstances this would amount to a death knell for the park.

In the northern fringe, erosion by the Brahmaputra river has already destroyed a portion of the park including some of the finest wildlife habitats. Although the exact area lost to erosion is not known, it is believed to be at least 50 sq. kms. (*see map on page 45).

One after another, problems keep surfacing in the fringe, mostly in the shape of development projects. Although the threat from the railway could be averted the oil refinery coming up at Numaligarh could not be stopped. The actual site is not close to the park, however, its location on the Dhansiri river poses a serious threat to the park which is on the downstream of the confluence of the Dhansiri and the Brahmaputra.

Any accident in the refinery or wilful discharge of effluent will seriously wound Kaziranga, especially during the floods when the waters can carry pollutants into its very heart. Although the refinery authorities have promised to install modern treatment plants and ensure that no effluent reaches Dhansiri, our experience elsewhere shows that such assurances cannot be trusted. In any event, accidents cannot be ruled out.



Erosion by the Brahmaputra river has already eaten up at least 50sq. kms. of prime wildlife habitat. Although new chapories are formed in the process, these are no substitute for the habitats that are lost!

‘Continuous war’

With poachers in constant pursuit of the rhinoceros, the anti-poaching staff of Kaziranga are forced to stay on the alert round the clock. A virtual war is in continuous progress between the Forest staff and poachers. There is no doubt that the anti-poaching infrastructure is stronger in rhino areas such as Kaziranga, Pabitora, Jaldapara and Gorumara when compared to other protected areas, but even this is inadequate when you consider the way in which the poachers are equipped.

Kaziranga has about 115 (fluctuates between 110 and 120) anti-poaching camps scattered throughout the Park. This includes two floating camps on the Brahmaputra river. There are 110 country-boats, 13 motor-boats, 39 departmental elephants, 20 motor vehicles and six motor-cycles to help the anti-poaching network. Some 900 personnel, which include 200 Forest Guards, Game Watchers, Home Guards and a Forest Protection Force patrol the park. They are equipped with 179 rifles of .315 bore, 33 SBBLs, 27 DBBLs, six revolvers, nine fixed mobile wireless sets and about a hundred walkie-talkies. There are nine permanent wireless stations in the park. Unfortunately, the money required to service this infrastructure is inadequate. Boats and machines, therefore, often remain out of commission. When you see Home Guards and the Forest Protection Force toting old .303 bore rifles and compare them with the carbines and

SLRs in the hands of poachers, the unequal battle becomes clear. The shortage of money (priority?) has also taken a toll of some domestic elephants used by the department. Six animals died of illnesses in 1994-95.

Ray of hope

Kaziranga is divided into four ranges, Kohora (Central), Bagori (Western), Agoratoli (Eastern) and Burhapahar. Each of these ranges is in the charge of a very dedicated team of officers and guards. This World Heritage Site has been proposed as a Biosphere Reserve and the very fact that it is still alive is tribute to the dedication of the men who have served here at great risk to their person and their lives. That too in the face of an acute resource crunch which often left them without pay for extended periods of time. Things have improved since the new government took over, when N. Sharma, the Forest Minister, joined efforts with several NGOs to boost the morale of the field staff and equip them with basic requirements. Incidents of poaching have come down to a great extent. In 1992 and 1993 a total of 49 and 40 rhinos were poached. This figure came down to 14 in 1994, 25 in 1995 and 26 in 1996. In the first three months of 1997, only one rhino fell to poachers. Kaziranga is an area with great potential. It is also an exception in a sea of disappointments and should serve as an inspiration for all other protected areas across India. But its situation is fluid and even the slightest laxity on our side could ruin decades of success. ○