



# THE RHINO FOUNDATION

FOR NATURE IN NE INDIA

*Newsletter* Vol. 2, No.1 • June, 1998

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## *An addition to India's wildlife*



**Pere David's macaque** *Macaca thibetana*, an important addition to the faunal wealth of the Indian subcontinent. Discovered in West Kameng district, Arunachal Pradesh in November, 1997. This record has extended its range by c. 1000 km. In this photo a male macaque is seen busy feeding. Note its stubby tail and prominent buffy side-whiskers (also see p.7).

**Photo:** Anwaruddin Choudhury

**Cover:** Indian rhinoceros *Rhinoceros unicornis* mother and calf in Kaziranga National Park.

**Photo:** Anwaruddin Choudhury

## THE RHINO FOUNDATION

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### Publications of The Foundation:

- Survey of wildlife in Bherjan, Borajan & Podumoni RFs with a proposal for a wildlife sanctuary, 18pp,maps.
- Survey of White-winged wood duck and the Bengal florican in Tinsukia district & adjacent areas. 82pp,maps.
- Dhansiri Tiger Reserve. Revised proposal. 30pp,maps.
- Newsletter Vol. 1, No.1, October, 1996.

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# The Rhino Foundation in the Field - 2

Dr Anwaruddin Choudhury

Honorary Chief Executive

**T**he Rhino Foundation for nature in North-East India (RFNEI) which was established in 1994 as a non-governmental organisation to help preserve the Indian one-horned rhinoceros *Rhinoceros unicornis* and other endangered wildlife and their habitat in north-eastern India continued its activities in the field. The projects undertaken in 1995-96 were described in the preceding Newsletter (Vol.1 No. 1, October, 1996). In 1996-97 and 1997-98 the following projects were undertaken.

## 1. Requirement of field staff:

Equipping the field Forest staff engaged in anti-poaching works continued to get top most priority in the projects of the foundation. It is this group of people who actually patrols the remote and inhospitable terrain of the national parks and wildlife sanctuaries. They have to be on alert round the clock against the better equipped poachers who persecutes the Indian one-horned rhinoceros for its horn. The field staff includes the Foresters I and II, Forest Guards, Game Watchers, Mahout and Boatmen. There are also a large number of temporary staff under muster roll. It is because of the dedication, sincerity, commitment and hard work of these staff that the

endangered species such as the Indian rhinoceros still survives in areas like Kaziranga National Park, Pabitora and Orang Wildlife Sanctuaries. It may be mentioned here that a fund crunch at the Government level had forced these staff to go without raincoat in monsoon, without warm clothing in winter and also without patrolling boots for quite some time. They even did not have drinking water filters which often forced them to drink unhygienic water. All these had definitely hampered smooth patrolling and in fact had direct impact on the conservation of endangered species, especially the Rhinoceros and also Tiger, Elephant, etc. The RFNEI started supporting the field staff in 1994 and continued such support till 1996-97 through different projects.

An assistance from **The US Fish & Wildlife Service** under its *Rhinoceros & Tiger Conservation Fund* (project No. 96/FGE/1) has enabled the RFNEI to continue its effort to provide some basic amenities to the field Forest staff engaged in anti-poaching works. Table 1 lists items which were donated in 1997-98:



Aneisha Sharma

*Fred Bagley of US Fish & WL Service handing over boots in a Forest camp in Kaziranga. Mrs A. Wright, Chairperson of RFNEI and B.S. Bonal, Director of the park are also seen.*

**Table 1. Items and their quantities donated to different PAs**

Name of the PA	RC	WJ	HB (pairs)	HS
Kaziranga NP	550	550	550	250
Manas NP	300	300	300	90
Pabitara WS	100	100	100	60
Orang WS	100	100	100	60
Burhachapori WS	90	90	90	30
Laokhowa WS	60	60	60	30
	<b>1200</b>	<b>1200</b>	<b>1200</b>	<b>520</b>

PA= Protected Area; NP= National Park; WS= Wildlife Sanctuary; RC= Raincoat; WJ= Warm Jersey; HB= Hunting boot; HS= Haversack.

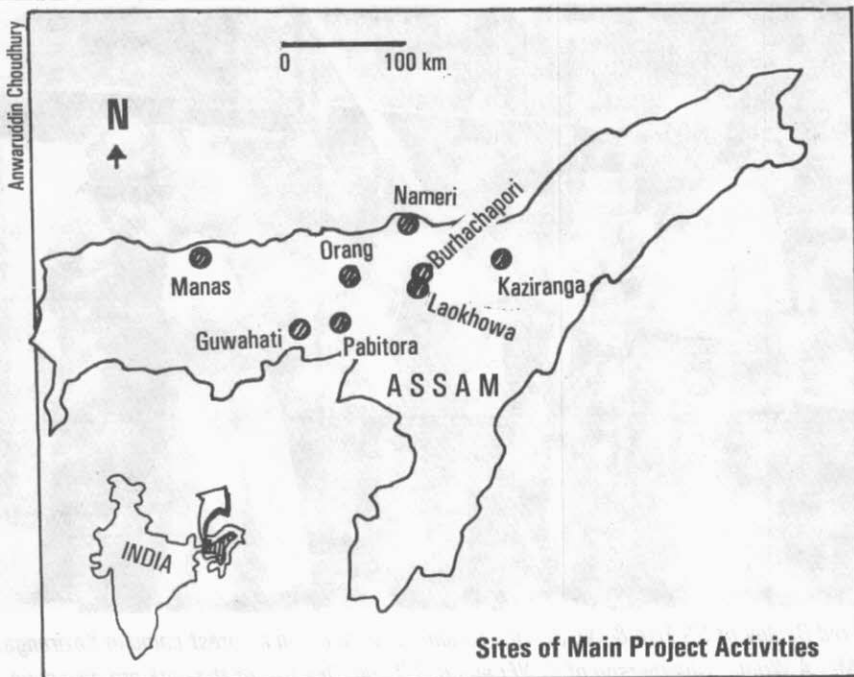
Some portable (aluminium) drinking water-filters were also donated by the foundation for the Forest Camps from its own fund. The areawise break-up is: Kaziranga National Park- 70, Orang

Sanctuary- 24, Laokhowa Sanctuary- 5 and Dibru-Saikhowa Sanctuary- 5. In Kaziranga, the same were handed over during the Wildlife Week in October, 1996. With this, the total number of such filters donated to different protected areas comes to 200. The RFNEI has also provided some torch-light batteries for night patrolling in Pabitara.

Mr Fazle Haque, a patrolling staff of Orang (Rajiv Gandhi) Sanctuary, who was injured in an encounter with the poachers while on duty, was provided with medical treatment at Guwahati.

## 2. Eco-development :

**2.1 Veterinary Camps:** In the first one and half year, the foundation organised as many as 13 such camps in the fringe areas of different parks and sanctuaries (Vol.1 No. 1, October, 1996). However, subsequently, only one such camp could be organised, in Laokhowa on



15th and 16th March, 1997 in collaboration with The Early Birds, a Guwahati-based NGO. About 550 cattle, five buffaloes, and six sheep were inoculated against various diseases.

For the patrolling elephants of Pabitora Sanctuary, 5kg of *mashamber* (mixed with fodder for medicinal purpose) had been provided in 1996-97.

### **2.2 Motivation & Awareness Camps:**

Although no camps could be organised in the line of 1995-96 (Vol.1 No. 1, October, 1996), the foundation in collaboration with The Explorers, an active NGO of Guwahati organised a procession of school students and the a meeting at the local press club on the occasion of the World Environment Day (5 June, 1996).

From 24 to 29 June, 1996, People's Group of Nagaland, an NGO based at Kohima had organised a week-long Wildlife Festival of Nagaland. The Chief Executive (CE) was one of the resource persons and alongwith three other

invitees, was declared as state guest by the Government of Nagaland.

In addition, the honorary CE also delivered talks on wildlife conservation in the following:

1. Department of Geography, Gauhati University, Guwahati. 30 May, 1996.
2. Rabindra Bhawan (key-note address in the official function on the World Environment Day). Guwahati. 5 June, 1996.
3. Assam Administrative Staff College, Guwahati. 11 June, 1996.
4. AVARD-NE's Kebang meeting. Jorhat. 15 June, 1996.
5. Workshop on Wildlife, in "Wildlife Festival of Nagaland", Kohima. 25 June, 1996.
6. Annual general conference of All Assam Forest Employee's Association (key note address), Makum. 8 September, 1996.
7. Pensioner's Bhawan (organised by All Assam Pensioner's Association), Guwahati. 28 September, 1996.
8. Workshop on "Strategies for Conservation & Development of Manas National Park with participation from NGOs". Bansbari. 12-14 November, 1996.
9. Workshop on Tiger and Elephant-census (organised by the Forest Department, Government of Assam), Assam Forest College, Jalukbari. 6 February, 1997.
10. Meeting organised by DFO, Wildlife, Mangaldoi and Green Society, Sipajhar, April, 1997.

11. Seminar on "Integrated approach to forest conservation" (Organised by Forest Department, Aaranyak Nature Club and Nature's Friend), Assam Forest College (NE Forest Rangers' College), Jalukbari, Guwahati. 6 July, 1997.

12. Workshop on "Jhum cultivation in NE India" (Organised by the Development Commissioner for Hill Areas, Assam on behalf of the Government of India, Ministry of Agriculture), Hotel Belle Vue. Guwahati. 25 September, 1997.

13. Workshop on "Wildlife trade" (Organised by Nature's Beckon, ASTEC & TRAFFIC - India. Planetorium. Guwahati. 23 March, 1998.

14. National Workshop on "biodiversity" (Organised by WWF-India). New Delhi 28-30 April, 1998.

15. Regional Workshop on "Management of Wildlife with special focus on tiger and rhinoceros conservation" (Organised by The Green's Movement with financial support from US Fish & Wildlife Service). Regional Science Centre. Guwahati. 10 May, 1998.

16. Workshop on "Green cover protection and Pollution prevention" (NE India Geographical Society & sponsored by Ministry of Environment & Forests, Govt. of India). Deptt. of Geography, Gauhati University. Guwahati. 10 May, 1998.

On 9-10 September, 1996 the CE had meetings with IOC (Assam Oil Division), Digboi and the Manager, Phillobari Tea Estate on wildlife conservation in their respective areas.

### 3. Repairing of boats & guns:

#### 3.1 Repairing of motorboat :

A motorboat of Pabitora Wildlife Sanctuary was repaired by the RFNEI in 1996 which helped greatly in the anti-poaching patrolling during the monsoon floods of 1996 and 1997.

**3.2 Repairing of guns:** Four .315 rifles and eight SBBL guns of Western Assam Wildlife Division, Tezpur were repaired in 1996-97. With these, a new Forest Camp was established on the north bank of the Brahmaputra River opposite Kaziranga National Park which has resulted in better surveillance in that

sensitive area from where poachers regularly used to cross over.

**3.3 Repairing of country-boats:** Five country boats of Pabitora Sanctuary were repaired before the monsoon of 1996 (65kg hard pitch and 75 litres of coaltar were provided). In May-June, 1998, some boats (exact number is not known as the final report from the field is awaited) were repaired in Kaziranga thanks to the Tiger Conservation Cell of WWF-India who provided the required fund.



Kuloyoti Lahkar



Top. Mr Nagen Sharma, Forest Minister of Assam (facing camera) on a visit to Pabitora. The hon. CE of The Rhino Foundation is also seen (third from left); Bottom. The hon. CE distributing raincoats in a Forest camp of Kaziranga National Park.

#### 4. Others activities:

**4.1 Visit of US Consul general:** Mrs C. S. Sim, Consul General of the United States, based at Calcutta visited Guwahati and met the hon. CE. She was keen to know more about RFNEI and the wildlife conservation in Assam and other areas of the north-east.

**4.2 Tiger census:** The honorary CE had also participated in the census operation in Laokhowa Sanctuary on 15th and 16th March, 1997. At least eight big cats were found to be present in the sanctuary.

**4.3 Expert Committee:** A high level expert committee headed by Mr R. Rajamani, IAS (retd), former Secretary to the Government of India, Ministry of Environment & Forests visited Guwahati on 21 February, 1997 and held discussion with the Government officials, industrialists and a few select NGOs including the RFNEI. The committee was formed after the landmark judgement of the Supreme Court of India which banned felling of trees.

**4.4 CE joins Government:** The CE has joined back Government of Assam as Deputy Secretary in the Department of Cooperation in November, 1996. Subsequently, he also joined as the Project Coordinator of Integrated Jhumiya Development Programme (IJDP) in the Office of the Development Commissioner for Hill Areas. However, he is continuing as the honorary CE as per the decision of the Board.

**4.5 Others:** On 8 January, 1997 a team from Doordarshan, New Delhi (metro channel) interviewed the hon. CE on the

environment scenario of northeastern India.

#### Acknowledgements :

The US Fish & Wildlife Service, its Branch Chief Mr David Fergusson and biologist Fred Bagley for granting the project No. 96/FGE/1 which enabled donations of some basic field equipments. The support and assistance of the following are also gratefully acknowledged: Nagen Sharma, Forest Minister of Assam; Ms E. Chowdhary, Development Commissioner for Hill Areas, Assam; H. Sonowal, Commissioner & Secretary, Forest department, Assam; R.N. Hazarika, PCCF (now retired); P.Lahon, Chief Conservator of Forests (Wildlife, now PCCF), Assam; S.Abbasi, Deputy Commissioner of Nagaon; B. S.Bonal, Director of Kaziranga; R.Agarwalla, Field Director of Manas; D.Hara-prasad (Conservator); C.R.Bhobora, R.K.Das, D.Zaman, R.Bhattacharjee, S.Islam, Dr R.D.S. Tanwar (all DFOs); Bhupen Talukdar, Pankaj Sharma, Faridulla Ali, Dharanidhar Boro, Narayan Sharma, Late Ibrahim Ali Khan, A.K.Brahma, Pallab Deka, D.Chakravarty, Nityananda Ozha (all Range Officers) and other staff of the Forest department posted in different protected areas.

In Meghalaya, among the officials, we are grateful to S.B.Singh, CCF (wildlife, now retired); T.Deb Roy, DFO (now in Jowai) and P.Dunai, Range Officer (wildlife), Nongpoh. In Arunachal Pradesh, we thank L.K.Palit, DFO (wildlife), Seijosa and the staff and their family members based at Ramalingam.

For their continued support, we thank Ranjit Barthakur of WANT, Soumyadeep Datta and Mridu Phukan of Nature's Beckon, Tariq Aziz of the tiger-cell of WWF-India, Kulojyoti Lahkar of WWF-India NE Regional Office, Moloy Baruah of Early Birds and Refinery Trekker's Guild, Simanta Goswami of Green Guard, Dr Atul Borgohain, S.Agarwalla, Nitu Phukan and Tridib Phukan of Assam Boreli Angler's Association, Lutfur Rahman and others of Assam Co. Ltd., Ms Aneisha Sharma of Green's Movement, Neelam Bora of Aaranyak Nature Club, Dr R. K. Ranjan Singh of MASS (Imphal), K. Sohe, Y. Lotha and Thomas Kent (Rengma) of People's Group (Nagaland), Natwar Thakkar of Nagaland Gandhi Ashram and Lady Slynn of Hadeley.

Lastly, the staff of RFNEI based at Guwahati and Calcutta whose untiring efforts made everything smooth.



# Briefly

(Compiled by Anwaruddin Choudhury)

## Père David's macaque discovered in India

**P**ère David's macaque *Macaca thibetana* A. Milne-Edwards, 1870 is a large monkey inhabiting the hilly and mountainous terrain of east-central China. It is also known as the Chinese stump-tailed macaque and Tibetan macaque.

During a field survey in West Kameng district of Arunachal Pradesh in north-eastern India in November, 1997 Dr Anwaruddin Choudhury came across a band (>20) of this macaque and could take two photographs (see second cover). This is not only a significant addition to the faunal wealth of the country but has also extended the range of this macaque by about 1000 km. The elevation of the place was about 2500m asl. The habitat where these macaques were observed was of temperate broadleaf forest.



## Sumatran rhinoceros rediscovered in India

**T**he historic distribution of the Sumatran rhinoceros *Dicerorhinus sumatrensis* stretched from the foothills of the eastern Himalaya in Bhutan and north-eastern India to Indonesia. The species was believed to have become extinct from the Indian sub-continent in the early part of this century.

The first evidence of occasional presence of stray rhinos came to light when in 1967 one was killed near Cox's Bazar in Bangladesh. After that there was no report from anywhere in the subcontinent till more evidences were found in Assam, Manipur and Nagaland. The recorded areas are Punikhal of Sonai Reserved Forest, Cachar district, Assam (sighted by locals in 1967), Anko Range in Ukhrul district, Manipur (sighted by locals in early 1990s and one killed in 1970s), and Saramati in Tuensang district, Nagaland (sighted by locals in 1967-68 and 1994). Moreover, many of the local tribals in those areas are familiar with 'two-horned hairy' rhinos.

These records suggest that the Sumatran rhinoceros, a critically endangered species may still straggle within Indian limits, especially near the Indo-Myanmarese border area in Manipur and Nagaland (source: Choudhury, A.U. 1997. The status of the Sumatran rhinoceros in north - eastern India. *Oryx*, 31: 151-152).

## New Wildlife Sanctuaries in Assam

**H**ollongapar Reserved Forest of Jorhat district was declared as a wildlife sanctuary as per the provisions of The Indian Wild Life (Protection) Act. The sanctuary has been named as 'Gibbon Sanctuary'. It covers an area of 19.6 km<sup>2</sup> of tropical semi-evergreen forest.

Among the main species of mammals are the Elephant *Elephas maximus*, and a rich diversity of primates which includes the Slow loris *Nycticebus coucang*, Assamese macaque *Macaca assamensis*, Pig-tailed macaque *M. nemestrina*, Stump-tailed macaque *M. arctoides*, Rhesus macaque *M. mulatta*, Capped langur *Presbytis pileatus*, and Hoolock gibbon *Hylobates hoolock*. Also rich in birds which includes the White-winged wood duck *Cairina scutulata*.

In Karbi Anglong district, the local Autonomous Council has declared an area of 452 km<sup>2</sup> as **Marat Longri Wildlife Sanctuary** (on 6 June, 1997). It comprises the reserved forests of Disama and Kaki, and the District Council reserved forests of Inglonggiri and Miyungdisa.

The Elephant, Tiger *Panthera tigris*, Leopard *P. pardus*, Gaur *Bos gaurus*, Serow *Capricornis sumatraensis*, Dhole *Cuon alpinus* and a rich diversity of primates are found which includes the Slow loris, Assamese macaque, Pig-tailed macaque, Rhesus macaque, Capped langur, and Hoolock gibbon. Among birds the White-winged wood duck (occasional), Darter *Anhinga melanogaster* and the Great pied hornbill *Buceros bicornis* are noteworthy.

## Addition to Kaziranga National Park

**T**he first addition to Kaziranga National Park which was proposed through a notification way back in 1984 ultimately materialised in 1997. An area of 43.79 km<sup>2</sup> was added vide notification No. FRS-253/90/198 dtd. 28 May, 1997. With this, the area of the national park has increased to 472.5 km<sup>2</sup>. This area is now controlled by Burhapahar Range. The habitat of this addition is mostly grassland with scattered *beels* and channels. The Indian rhinoceros *Rhinoceros unicornis*, Swamp deer *Cervus duvauceli*, Wild buffalo *Bubalus arnee*, Tiger *Panthera tigris*, and Elephant *Elephas maximus* (mostly seasonal) are some of the major species of this area.

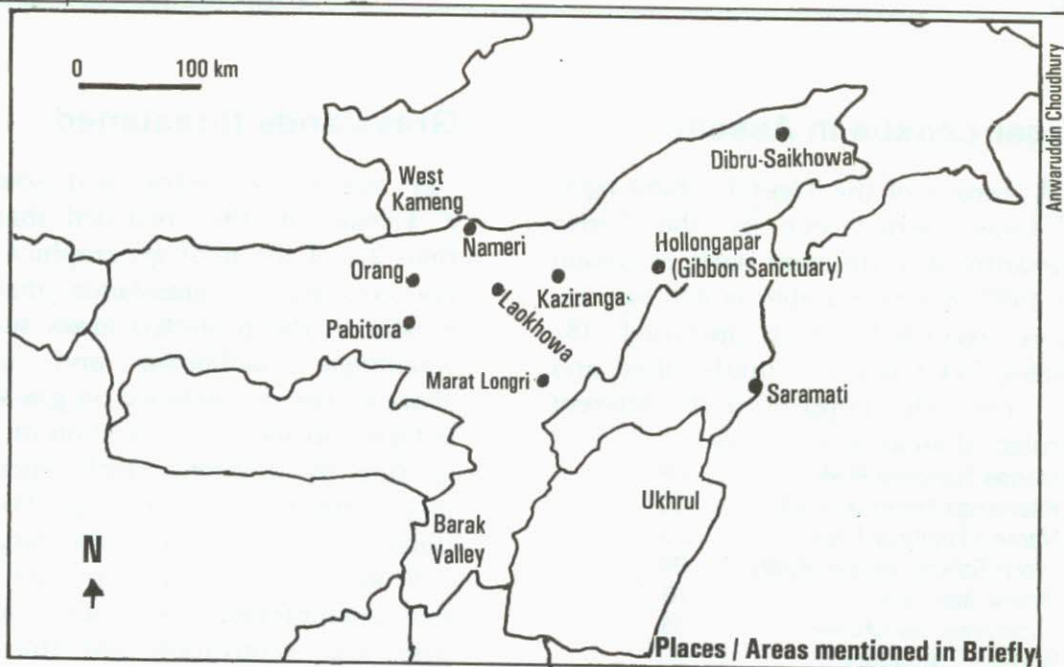
## National Park status for Nameri

**T**he Nameri Wildlife Sanctuary, Sonitpur district, Assam which was notified as a protected area on 18 September, 1985 with an area of 137 km<sup>2</sup> was provisionally declared as a national park on 27 February, 1997 covering an area of 212 km<sup>2</sup> (also see the article on Nameri by R.K. Das in this issue).



White-winged wood ducks

Briefly



Anwaruddin Choudhury

## Biosphere Reserve in Dibru-Saikhowa

The Dibru-Saikhowa Wildlife Sanctuary, spread over Tinsukia and Dibrugarh districts in eastern Assam has been designated as a biosphere reserve (BR) vide Govt. of India's letter No.J-22016/17/94-BR dated 28 July, 1997. The total area of the BR is 765 km<sup>2</sup> of which the existing sanctuary area, i.e., 340 km<sup>2</sup> will form the core area, the rest will be the buffer zone.

Dibru-Saikhowa Sanctuary is known for its populations of Wild buffalo *Bubalus arnee*, Tiger *Panthera tigris*, and Elephant *Elephas maximus*, White-winged wood duck *Cairina scutulata*, Bengal florican *Houbaropsis bengalensis*, Jerdon's bushchat *Saxicola jerdoni* and Black-throated parrotbill *Paradox-ornis flavirostris*. There are also records of rare reptiles such as Assam roofed turtle *Kachuga sylhetensis* and Narrow-headed softshell turtle *Chitra indica* (first record of the north-eastern India).

## Final notifications for Orang and Pabitora

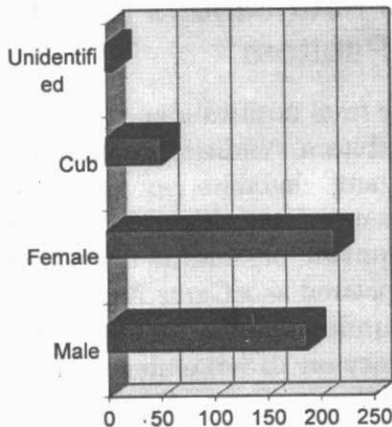
The final notifications for Orang and Pabitora Wildlife Sanctuaries, both important habitats of the Indian rhinoceros, have been issued by the Government of Assam. Orang, which was declared as a Game Reserve in 1915 was notified (preliminary) as a wildlife sanctuary on 20 September, 1985. It was renamed as Rajiv Gandhi Wildlife Sanctuary in 1992. The final notification was issued on 17 March, 1998 vide No. FRW. 28/90/116 as Orang Wildlife Sanctuary with 78.81 km<sup>2</sup> of area.

Pabitora was declared as a wildlife sanctuary (preliminary) in 1987. The final notification was issued on 17 March, 1998 vide No. FRS. 19/87/152 with 38.81 km<sup>2</sup> of area. Although the area at the time of preliminary notification was also 38.81 km<sup>2</sup>, the actual area where enforcement was there covered only about 16.0 km<sup>2</sup>.

## Tiger census in Assam

A census of the Tiger *Panthera tigris* was carried out by the Forest department in different parts of Assam in 1997. A total number of 458 big cats were recorded which included 187 males, 214 females, 6 unidentified and 51 cubs. The population in different protected areas is as follows.

Manas National Park	89
Kaziranga National Park	80
Nameri National Park	29
Dibru-Saikhowa Sanctuary	29
Orang Sanctuary	16
Laokhowa Sanctuary	08
Bornadi Sanctuary	03



*Tiger population in Assam*

## Tiger killed near Laokhowa Sanctuary

A tiger was speared to death by the villagers on 16 June, 1998 near Gorajan, outside the Laokhowa Wildlife Sanctuary, Nagaon district of central Assam. It measured 9'4" and the skin had been recovered by the Forest department staff (Source: Simanta Goswami, Green Guard Nature Club, Nagaon).

## Grasslands threatened

A survey in central and southern Assam in 1997 revealed that less than 2% of the total geographical area are covered by grasslands that too mostly in the protected areas such as Kaziranga, Laokhowa and Burhachapori. The dependency on grasslands is high and includes collection of grass, grazing by domestic stock, encroachment, fishing and felling. Poverty, illiteracy (literacy is only 28%, range: 0 - 61% in the fringe villages), high birth rate, unemployment and lack of awareness and motivation are the main reasons for such high dependence and illegal activities.

Other problems faced by the grasslands are plantation of trees, and late burning (harmful for breeding of the Swamp partridge *Francolinus gularis* and Bengal florican *Houbaropsis bengalensis*). The study further showed that there are no grasslands of any significance left in Barak Valley and the hill districts of Assam.



Anwaruddin Choudhury

*Swamp partridge Francolinus gularis - a threatened grassland bird*

This project was sponsored as a part of the Biodiversity Conservation Prioritisation Project (BCPP) of the WWF-India. The BCCP is funded by the Biodiversity Support Program (BSP). The BSP is a USAID-funded consortium of the World Wildlife Fund, The Nature Conservancy and the World Resources Institute. Dr Anwaruddin Choudhury was the Principal Investigator while Dr Anil Kr Goswami was the Coordinator (source: Choudhury, A.U. 1997. Survey of grasslands in some parts of central & southern Assam: to assess their bio-diversity & socio-economic problem. Final Report. WWF-India NE Regional Office. 99pp, maps, plates).

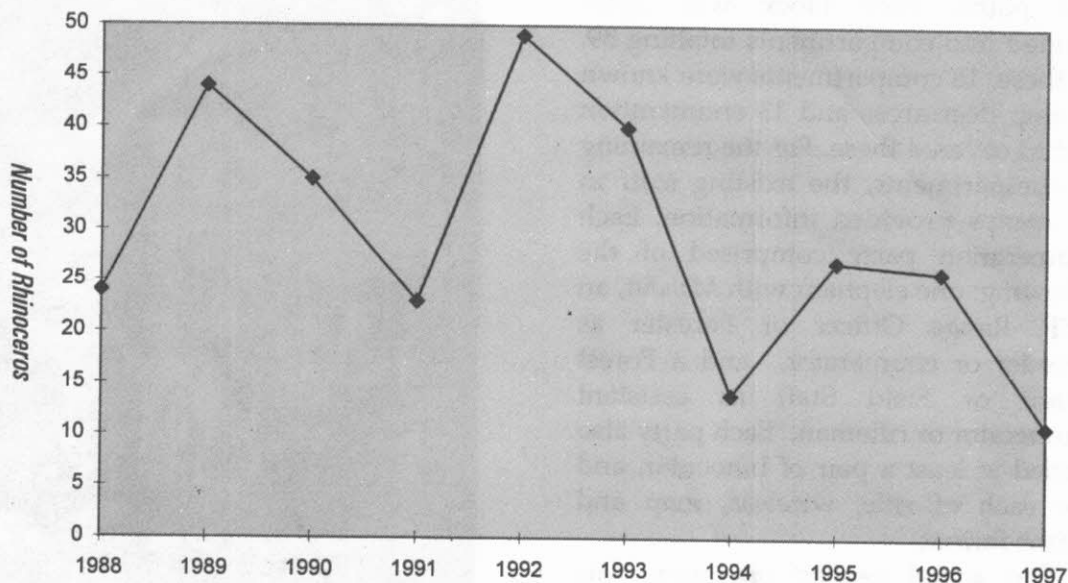
### Wild water buffalo in Barak Valley

The survey of grasslands in central and southern Assam in 1997 under BCPP revealed that the wild buffalo *Bubalus arnee* was present in the Barak

Valley districts of Cachar, Hailakandi and Karimganj till about 1950s. Three preserved horns were examined which included one majestic specimen (sweep across forehead: 3.17 metres). The first information of these rare specimens were provided by A. Majid Choudhury of Hasiura and A. Munim Mazumder of Hailakandi (source: Choudhury, A.U. 1997. Survey of grasslands in some parts of central & southern Assam: to assess their bio-diversity & socio-economic problem. Final Report. WWF-India NE Regional Office. 99pp, maps, plates).

### Poaching of the rhinoceros in Kaziranga on the decline

The poaching of Indian one-horned rhinoceros *Rhinoceros unicornis* has come down to a great extent in recent years thanks to the sincere and dedicated efforts of the Forest staff and support from various NGOs. The chart below shows the position since 1988.



*Poaching of Rhinoceros in Kaziranga*

# Swamp deer census in Kaziranga

*B.S. Bonal*

Director, Kaziranga National Park,  
Bokakhat- 785612, Assam

To know the population dynamics of the endangered Swamp deer *Cervus duvauceli*, a census was carried out in Kaziranga National Park of Assam on 26 March, 1998. This was the first ever such census as all the earlier estimates were in fact the number of deer sighted during census carried out for the Indian one-horned rhinoceros *Rhinoceros unicornis*.

## Methods

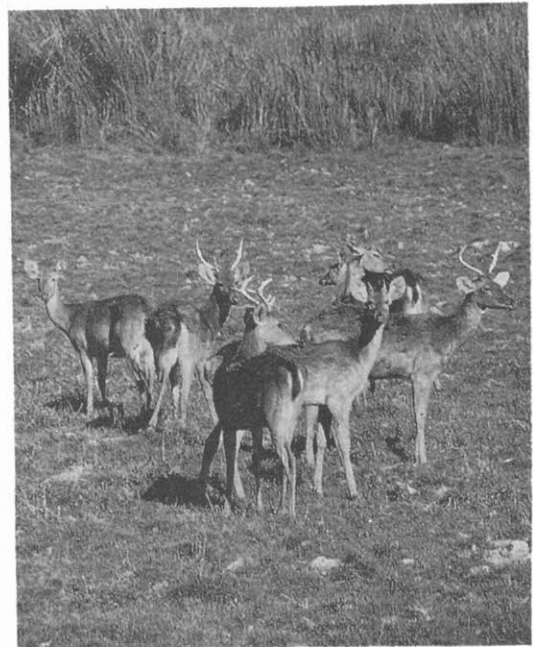
The method adopted was 'direct visual count' from elephant-back carried out on a single day followed by a sample count on the next day to compare the efficacy of the counting carried out on the first day. The entire national park was divided into eight blocks on the basis of natural and other conspicuous boundaries such as river, road, nullah and paths. Each block was again divided into compartments totalling 39. Of these, 18 compartments were known Swamp deer areas and 13 enumeration parties covered these. For the remaining 21 compartments, the existing staff in the camps provided information. Each enumeration party comprised of the following: one elephant with *Mahout*, an ACF, Range Officer or Forester as recorder or enumerator, and a Forest Guard or Field Staff as assistant enumerator or rifleman. Each party also carried at least a pair of binocular, and one each of rifle, wireless, map and census format.

The actual census operation was carried out simultaneously in all the compartments from 6 am to 12 noon and again from 2 pm to 5.30 pm.

## Results

A total number of 526 deer were estimated which included 126 stags, 360 hinds and 40 fawns. The sex ratio is 1:2.9 and that of female and fawn, 1:0.1.

The largest herd was sighted in Kathpara area in Kaziranga (Kohora) Range which consisted of 61 animals (21 stags, 32 hinds and 8 fawns). Rangewise, Kaziranga (Kohora) tops the list with 279 deer followed by Eastern and Western with 133 and 114 respectively. There was no deer in the newly added areas in Burhapahar Range. The block-wise population of the Swamp deer and the estimates since 1966 are listed in Table 1. It appears that the population has increased from 213 in 1966 to 526 in 1998, however, the highest was 756 in 1984.



Anwaruddin Choudhury

*Swamp deer Cervus duvauceli in Kaziranga.*

The main reasons for the decline since 1984 can be attributed to the following:

a) *Flood*: Many are washed away, drowned or run over by speeding vehicles on the highway while fleeing towards the hills of the south. In 1988 alone more than 50% of the Swamp deer died. Some also died in 1990, 1991 and 1992 floods.

b) *Tiger predation*: The number of big cats has increased from 29 in 1972 to 80 in 1997. It is presumed that predation has also contributed significantly towards the decline.

c) *Degradation of habitat*: Siltation of wetlands and invasion of trees and weeds in some of the favoured habitats of the deer have also affected the species.

d) *Late burning*: In recent years the annual burning of grassland extends till April due to the vagaries of weather. It is possible that some newly born fawns may get burnt. The neo-natal deaths of fawns up to one year of age due to fire and also drowning may be as high as 42-45%.

The Swamp deer population of Kaziranga exhibit distinct seasonal local movement from one area to another. Usually, such movement begins with

the onset of monsoon when the low lying areas are inundated. To ascertain this pattern, an exercise was conducted on 26 June, 1997 and it was observed that the deer from Donga area travelled 12-15 km through Thungru, Bokabeel and Salmora, and mingled with the resident population of Mihimukh area. During winter, the Swamp deer usually move within a range of 5-6 km<sup>2</sup>.

#### Conservation strategies

There is no poaching of the Swamp deer in Kaziranga. No death of any deer due to disease has been recorded in the park in recent years.

Since Kaziranga has almost the entire population of the Swamp deer in its eastern range of distribution, it needs special conservation attention. This population is also often regarded as a separate subspecies, *Cervus duvauceli ranjitsinhi*. The following conservation strategies are recommended:

- Expeditious action for the proposed additions to the park.
- De-siltation of wetlands.
- Natural succession of *beels* into grasslands and woodlands be prevented.
- Creation of more artificial highlands for shelter during the floods.
- Detailed studies on the population dynamics and intra-specific behaviour. □

Table 1. Blockwise Population of the Swamp Deer in Kaziranga National Park since 1966

Sl.No.	Name of the Block	Area (Sq km)	1966	1972	1978	1984	1991	1993	1998
1	Bagori	74.3	72	123	145	210	242	144	114
2	Haldhibari	48	25	54	76	80	84	1	3
3	Kaziranga	44.8	16	72	69	44	65	73	127
4	Panbari	44.55	19	111	129	62	59	5	6
5	Tamulipathar	58.35	30	9	85	95	25	52	45
6	Boralimora	31.1	11	29	10	29	0	81	88
7	Charighoria	55.5	19	52	92	108	47	40	94
8	Bhawani	72.9	21	66	91	128	113	31	49
		<b>429.5</b>	<b>213</b>	<b>516</b>	<b>697</b>	<b>756</b>	<b>625</b>	<b>427</b>	<b>526</b>

# Saving the Pigmy Hog from extinction

*Goutam Narayan*

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The Pigmy hog *Sus salvanius* is the rarest and the smallest wild suid in the world, and is currently found in some small isolated pockets in Assam. Never a common animal, it was suspected to be extinct by the 1960s (Gee, 1964). However, in the early 1970s, some were reported from a few places in the sub-Himalayan belt of central and lower Assam, from Kochugaon in the west to Gohpur in the east (Oliver, 1980, 1993). Subsequently, several efforts to locate them in north Bengal, Nepal and elsewhere in their suspected range were unsuccessful. At present, only one viable population of the Pigmy hog survives in Manas Tiger Reserve, in the entire world.

The Pigmy hog measures just about 65 cm in length and 25 cm in height at shoulder. The adult males weigh around 8-9 kg and the females a bit smaller. The newborn babies weigh only 150-200 g and can comfortably fit in a shirt pocket! A vestigial tail (less than 3 cm in adults) and possession of only three pairs of mammae (teats) are other characteristics distinguishing Pigmy hog from the Wild boar *Sus scrofa* which despite being 10 to 20 times larger often gets confused with the species. Diminutive size and marked streamlining of the body enable the Pigmy hog to move rapidly through extremely dense vegetation in the tall grassland habitats to which they are restricted. Locally, it is called *Takuri borah* or *Nal gahori* in Assamese and *Oma takuri* in Bodo language.

The main threats to the survival of Pigmy hogs are loss and degradation of habitat due to human settlements, encroachment through agriculture, flood control schemes, and improper management. Some management practices such as planting of trees in the

grasslands, indiscriminate use of fire to create openings and to promote fresh growth of grass have done extensive damage to the habitat the authorities intended to protect.

The Pigmy hog is one of the most useful indicators of current wildlife management practices as it has disappeared from the grasslands which still support many other species. It is, therefore, important to understand why it is disappearing faster than other less sensitive species and take remedial actions if we wish to preserve the original habitats in their pristine state and with optimal diversity. This will eventually benefit all other grassland species. Being the smallest suid in the world, the Pigmy hog is also a potentially valuable genetic resource. It is essential to formulate a properly structured action plan to save the species from extinction. This includes conservation (captive) breeding with



William Oliver

A Pigmy hoglet at the centre at Basistha



aim to reintroduce them within their original range. It may be necessary to carry out field research, follow the recommendations of such studies, reintroduce viable number of Pigmy hogs for their long term survival, followed up by monitoring.

### **Pigmy Hog Conservation Programme**

The Pigmy Hog Conservation Programme (PHCP) is a broad based research and conservation programme which aims to fulfil at least some of the above mentioned requirements. This is being conducted under the aegis of a formal International Conservation Management and Research Agreement (ICMRA) among IUCN/SSC Pigs and Peccaries Specialist Group, Jersey Wildlife Preservation Trust (JWPT), the Forest Department of the Government of Assam and the Ministry of Environment & Forests, Government of India. The implementation of this agreement, the first of its kind in India, is being undertaken by PHCP, with funding assistance provided by the European Union (EEC) and JWPT. It must be mentioned that the only aim of this programme is conservation of the Pigmy hog and other endangered species of tall grasslands through field research, captive breeding and reintroduction after adequate restoration of former habitats. The project has absolutely no commercial interest as suspected by certain corners.

### **Conservation Breeding**

One of the main objectives of this programme is to establish a well structured conservation breeding project for Pigmy hogs as an insurance against possible early extinction in the wild and as a source for reintroduction projects. In 1996, six wild hogs were

brought from Manas National Park to a custom-built research and breeding centre at Basistha near Guwahati. Eleven Pigmy hogs were caught during a total of 57 drives conducted on six days between 13 and 20 March, 1996. Of these, 2 males (1 adult and 1 subadult) and 4 females (3 adults and 1 subadult) were retained as potential founders and transported to the breeding centre in custom-built crates on the day of capture. The remaining 5 hogs were released at the site of capture after fitting 3 males and 1 female with radio harness for radio-telemetry studies.

### **Increase in captive population**

The six hogs settled down well in Basistha and 3 adult females, which were pregnant from wild, produced healthy litters about six weeks after capture between 30 April and 3 May, 1996. All but one of the 13 young (7 males and 6 females) were reared, the single casualty being an undersize male crushed by his mother at four weeks.

Following the birth of six more litters in 1997, the population in captivity shot up to 44. However, a mixed bacterial (*Salmonella*) and fungal infection among hogs took the toll of 6 adults while three youngs died of unrelated causes in November, 1997. Another litter born in April, 1997 was wiped out due to a fungal infection, probably triggered off by a hoglet crushed to death by its mother soon after birth. In May, 1998 when the region was reeling under unprecedented heat wave, acute pulmonary infection took the toll of three more captive hogs.

In the 1998 breeding season, three sows had farrowed by June adding 12 hogs to the population. One of the females had again given birth to seven

young ones which happens to be the largest known litter size for the species. However, two of the hoglets died due to severe diarrhoea while two others (runts) were hand-reared for about two weeks as they were abandoned by the sow.

Currently 43 hogs (23 males and 20 females) are present at Basistha, and since two more females are expected to give birth soon, the captive population is expected to cross the half-century mark this year. That will represent about 850% increase in the captive population after three breeding seasons - a massive increase by any standard. This unanticipated and rapid increase in the captive population had created accommodation problems, but extension enclosures and a quarantine facility have been constructed with funds provided by the Assam Valley Wildlife Society.

#### Field surveys and future plans

In addition to the concluded first phase of radio-tracking studies in Manas, a survey of known and suspected sites of Pigmy hog distribution has been carried out. Grassland ecology studies are being planned in collaboration with Universities of East Anglia and Guwahati, and the Bombay Natural History Society to provide grassland management guidelines for conservation of the grassland habitats.

Surveys to locate possible reintroduction sites have begun as the rapidly increasing captive population will necessitate an early transfer of some of these hogs back to where they belonged. Trial release of a few captive bred individuals in Manas has been planned to learn and experiment about the release procedure on a larger scale

for reintroducing some hogs to areas from where they have totally disappeared.

A second breeding centre is also being planned in collaboration with the Assam Valley Wildlife Society, which will be located close to one of the reintroduction sites.

It is necessary to carry out DNA studies to determine relatedness among the wild caught and the wild sired individuals to maximise genetic heterozygosity in the captive population for its long term survival. Introduction of a few more wild animals into the captive population may also be required for the same reason.

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*Pigmy hog captive breeding centre, Basistha*

# Conservation in Nameri National Park

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The Nameri National Park (27°0' N, 92°40'-93°0'E) is located at the foot of the Eastern Himalaya in Sonitpur district. The area is in the *bhabar* zone. The habitat is mostly tropical evergreen, semi-evergreen, and moist deciduous forest with cane and bamboo. Narrow strips of grassland occur along the rivers. The park covers an area of 212 km<sup>2</sup> and is bounded by the Jia-Bhoreli River in the west and south, and Bor-Dikorai River in the east. The Pakhui Sanctuary of Arunachal Pradesh is contiguous towards north.

The park area formed part of Naduar Reserved Forest which was constituted way back on 17 October, 1878. On 18 September, 1985 the Nameri Block with an area of 137 km<sup>2</sup> was declared as a sanctuary (later on expanded to 212 km<sup>2</sup>) and on 27 February, 1997 Nameri was provisionally declared as a national park.

## Wildlife

The presence of the endangered White-winged wood duck *Cairina scutulata* was confirmed in Nameri in 1995. It is estimated that more than 30 ducks are there. More than 250 species of birds have been identified in the area which includes Hornbills (4 spp), Great white-bellied heron *Ardea insignis*, Long-billed ringed plover *Charadrius placidus*, King or Black vulture *Sarcogyps calvus*, Goosander *Mergus merganser*, and Ibisbill *Ibidorhyncha struthersii*.

Among mammals there are the Tiger *Panthera tigris*, Leopard (including Black panthers) *P. pardus*, Elephant *Elephas*

*maximus*, Gaur *Bos gaurus*, Sambar *Cervus unicolor*, Muntjak *Muntiacus muntjac*, Hog deer *Axis porcinus*, Wild boar *Sus scrofa*, Dhole *Cuon alpinus*, and Hispid hare *Caprolagus hispidus*. There are reports of the Himalayan black bear *Ursus thibetanus* and Sloth bear *U. ursinus*. The rare Assam roofed turtle *Kachuga sylhetensis* was recorded in 1992.

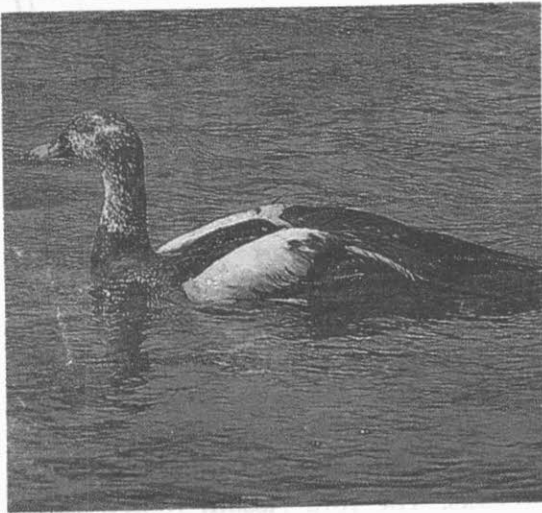
Nameri is also a paradise for the entomologists. One Charan Kumar of Chandigarh University had identified 52 species of butterflies in just two hours. The Atlas moth with wing span of 10 inches have also been recorded. The Jia-Bhoreli River is known for angling since the British period and Mahseer fish (*Tor* spp.) up to 28 kg have been recorded. Estimated population of some major mammals of the park are listed in Table 1.

## Infrastructure and administration

The Nameri National Park is under the Western Assam Wildlife Division with headquarters at Tezpur, about 40 km away from Potasali Range Office. At the Range HQ, there are four buildings,

Table 1. Estimate of some notable wild animals in Nameri National Park

Species	Number counted / estimated
Tiger	21 in 1993-94 29 in 1996-97
Leopard	2 sighted during tiger census of 1993-94.
Elephant	202 in 1993 225 in 1997
Gaur	400 - 500 (approx.)



*White-winged wood duck Cairina scutulata in Nameri*

three Forester - type quarters and a barrack. The number of anti-poaching camps in the park is 11. There are 10 firearms (six .315 rifles and four shotguns), four wireless sets (three mobile handsets and one fixed station), two light vehicles, one van, 12 country boats and 14 trained elephants. The number of permanent staff is 32 while there are also 19 casual (temporary) staff to assist managing the park. For the trained elephants, there are 29 *mahouts* and *ghasis* ( grass cutters ), mostly temporary. The total length of road network inside the park is 50km □

## Ecobiology of Adjutant storks in the Brahmaputra Valley, Assam

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**S**outh and south-east Asia have the richest stork diversity in the world with eight resident and three migratory species. Of these, six species including the adjutants occur in Assam. The adjutants are the Greater *Leptoptilos dubius* and the Lesser *L. javanicus*. A study was undertaken in the Brahmaputra Valley of Assam during 1989-94 to assess the distribution, ecology and biology of these storks.

Both the adjutants were found to be distributed all over the Brahmaputra Valley, however, nesting records were from a few select districts. The nesting of both the species were recorded in BARPETA, Nalbari, Kamrup, Darrang, Nagaon, Golaghat and Sibsagar. The Lesser also breeds in five other districts,

viz., Dhubri, Sonitpur, Morigaon, Jorhat and Tinsukia.

The Greater adjutant was found to use 11 different types of feeding habitats against eight of the Lesser. Paddyfield seems to be the main feeding habitat of *javanicus* which in case of *dubius* is the garbage centres. For nest building, *javanicus* used 11 different species of trees dominated by the Silk cotton or *Simul Bombax ceiba* (54.8%) and *Kadam Anthocephalus cadamba* (33.1%).

The Greater adjutant on the other hand used 13 species of trees, however, the dominant species remains the same, i.e., *Bombax ceiba* (34.5%) and *Anthocephalus cadamba* (33.8%). The Lesser adjutant was found to spend 247-273 days in the activities directly related to reproduction and remains associated



*Greater Adjutant stork* *Leptoptilos dubius*

with the nesting colony. The availability of food and water were found to be the pre-requisite for the nesting site selection. The Greater adjutant on the other hand spend less number of days

near nesting sites, i.e., between 99 and 173 days.

Lesser adjutants lay eggs in July and August with an average clutch size of 2.62. The average hatching success was 88% and that of nesting 54.3%. The Greater adjutant lays egg between mid-October and early January and the clutch size was 2.61. The size of the eggs are also slightly larger than the former.

The young birds are offered live food items (vertebrates) up to the middle stage of the nesting period. Subsequently, flesh of dead animals from garbage centres were given.

The main conservation problems faced by the adjutant storks include draining of wetlands, destruction of the low-land forest, and loss of potential feeding habitats. □

[Large-scale nesting of *javanicus* have been recorded in Lakhimpur district. There are also nesting records from Dibrugarh, Dhemaji and Hailakandi districts; *dubius* also breeds in Morigaon district- Editor]

## Common diseases of wild animals

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**A**lmost all the wild animals suffer from different diseases which are infectious and contagious in nature. Most of the diseases either get infected from the domestic animals of the fringe areas (as exposure is more in case of these animals) and some time wild animals also act as carrier.

The best way to control the spread of such diseases is to form an immune belt around the protected areas by inoculating the domestic animals. However, the parasitic diseases has to be cured naturally through their own

system of immunity although treatment can also be useful.

The following are some of the common diseases found in both wild and domestic animals.

**Foot-and-mouth.** An acute febrile highly contagious disease of cloven-footed animals, e.g., most of the domestic species, elephant, wild buffalo, deer and gaur. *Symptoms:* rise of body temperature (104-106°F). Apathy to food and water. Reduction in milk yield. Visicle appears in oral mucosa, interdigital space, and udder. Profuse salivation

and lameness are also seen. The lesion may appear in the junction of the hoof.

*Treatment:* Antiseptic mouth wash with potassium permanganate.

**Rinderpest.** Acute or sub acute febrile highly contagious disease of even-toed ungulates, viz., domestic animals, elephant, wild buffalo, deer and gaur.

*Symptoms:* appearance of mucosal lesion following high temperature. Muzzle dry; nasal and lacrymal discharge, followed by erosion and necrosis of mucous membrane of oral cavity, soothing diarrhoea. *Treatment:* Vaccination.

**Anthrax.** Acute bacterial disease affecting almost all animals (except birds). *Symptoms:* high temperature (104-108°F). The animals refuse to eat and bloat, muscular tremor, dyspnoea, oozing of blood from natural orifice. *Treatment:* antibiotics and vaccination.

**Rabies.** Acute viral disease of warm blooded animals like the tiger, leopard, fox, jackal, dhole, etc. *Symptoms:* abnormal behaviour, nervous disturbances, impairment of consciousness, ascending paralysis and death. The disease is propagated by bite from animal and animal to man. *Treatment:* post-bite vaccination. Pre-bite vaccination can control the disease.

**Haemorrhagic Septicemia.** Acute bacterial disease, affects most of the domestic animals, wild buffalo and gaur. *Symptoms:* high temperature with concurrent shivering followed by profuse salivation, lachrymation, and nasal discharge, conjunctivitis, mucous membrane assume deep red colour, diarrhoea and dysentery. *Treatment:* sulpha drugs, antibiotics and vaccination.

**Black Quarter.** Acute infectious disease of cattle, sheep, goat, wild buffalo, and gaur. *Symptoms:* high temperature, focal

gangrenous and emphysematous myositis. This gives to crepitation and sero haemorrhagic swelling in the heavy muscle and high mortality.

*Treatment:* antibiotic course and vaccination.

**Tetanus.** Infectious disease; affects domestic animals, wild buffalo, gaur and some other animals. *Symptoms:* restricted movement, muscular stiffness, fall in milk yield, lock jaw, hyper sensitivity. Prolapse of third eyelid. *Treatment:* penicillin, muscle relaxant, and anti-toxin.

**Fascioliasis.** Chronic parasitic disease of animals like elephant, buffalo, gaur and most of the domestic animals. *Symptoms:* anorexia, depression, anaemia, and death. In prolonged cases constipation followed by diarrhoea, anorexia, pot-belly, bottle jaw, emaciation and death. *Treatment:* anthelmintic, liver tonic, and vitamins.

**Paramphistomiasis.** Parasitic disease of domestic animals, wild buffalo, gaur and elephant. *Symptoms:* anorexia, profuse foetid diarrhoea, polydipsia and sub-mandibular oedema. *Treatment:* anthelmintic, anti-diarrhoeal, liver tonic, and vitamins.

**Nematode infestation.** A parasitic disease of many wild animals. *Symptoms:* anorexia, intestinal obstruction, bile duct obstruction, pot belly, pica, malabsorption, anaemia, bronchopneumonia, sticky faces. *Treatment:* piperazine, and albendazole.

**Cobboldia.** Also a parasitic disease affecting mainly the stomach of elephants. The larval stage of this parasite causes extensive damage to the animal which becomes very weak and debilitated exposing the animal to other diseases. □

## A Visit to Assam

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In May this year, I accompanied Fred Bagley of the U.S. Fish & Wildlife Service to view our joint projects which are being sponsored by the Rhino and Tiger Conservation Fund. It was Fred's first visit to Assam, and he seemed pleased with the work.

On arrival at Kaziranga we were greeted by our hosts, the Director, Mr. B.S. Bonal and the D.F.O., Mr. P.Das. We were taken to some of the remote camps in Bagori and Kohora Ranges. We were very glad to see that most of the equipments donated by the project was in use. The guards smilingly expressed their gratitude on receiving jerseys, kept in readiness for the cold weather, while we saw our raincoats hanging in every camp.

I was impressed by the effect of assistance given by non-governmental organisations. The guards seemed happier with better communications and basic equipment. However, day and night these brave men face the same grim problems in the battle against poachers, and confrontation over encroachment and cattle grazing. Soon the drastic floods will begin, affecting the Park as the monsoons drive the Brahmaputra river into spate.

We continued our journey to Nameri, home of tiger, elephants and the White-winged wood duck. We were kindly looked after by the Forest department at the Eco-camp of the Bhoreli Angler's Association. Nameri's charm is unique for it is dense tropical forest bordering rising hills and the Pakhui Sanctuary of

Arunachal Pradesh. There are no roads, and the park is bordered by the Boreli river in the west. Here the Park staff are totally cut off, and lead a lonely and tough life, relying on country boats and a few elephants. Most of the patrolling is done on foot. Nameri is lucky to have one of the most dedicated and enthusiastic Divisional Forest Officer in Mr. R.K. Das, and Range Officer Mr. Pankaj Sharma, who admitted that life was a little easier..... "Thank goodness no rhino!"

We drove on to Orang, an important home of the rhino. Here we found the situation very different. Orang does not have the infrastructure to attract visitors, and therefore fights a lone battle without recognition, and is greatly lacking in funds. This, however, has not stopped Mr. C. R. Bhobora, D.F.O., and Range Officer Pallav Deka, who inspire their small band of guards with continual back-up visits.

In Orang, we found roads unkept, a vital camp knocked down by elephants, and no funds to maintain or rebuild. The old original radio network frequently breaks down. Many camps are without arms or communications, and the only way of informing the Range Officer and getting help is to run, often barefoot down the paths through high elephant grass, to the next camp.

In spite of these problems, forest guards continue their work. They have to be the bravest of men. We met a guard whose arm hangs uselessly by his side due to an injury when a gang of

poachers attacked his camp and stole his gun. Despite this, he is still there carrying out patrol work.

It was pleasing that raincoats and hunting boots were found in every camp, donated by Rhino Foundation, courtesy of the U.S. Fish & Wildlife Service. The guards smilingly welcomed us with tea. Now that the donation for Wireless Sets has been received, each Camp will soon have a handset, and the two motorcycles donated by the Flora and Fauna International of England are also on order.

In any Tourist Office throughout the world, visitors are invited to come and

see the famous rhino of Assam. Few people realise that these rare animals, the pride of Assam, are only kept alive by a small group of Forest guards - who are inspired and lead by an equally brave group of DFO and Range Officer - probably the finest in the country. They face huge problems with slashed budgets from the State and Central Governments, and insufficient funds to cover even their own salaries. Nothing is left for such basic requirements as drinking water filters, shoes, warm clothes, raincoats and uniforms. We salute the brave work of the Forest Department of Assam, and we pledge to continue our support. □

*A Forest camp in Orang*



Anwaruddin Choudhury

## Mid-winter waterfowl count in Loktak Lake, Manipur

*Anwaruddin Choudhury*

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**L**oktak (24°27'-42' N, 93°50'-55' E), in Manipur is the largest freshwater lake in eastern India. The lake covers an area of about 290 km<sup>2</sup> of which only about a fifth is

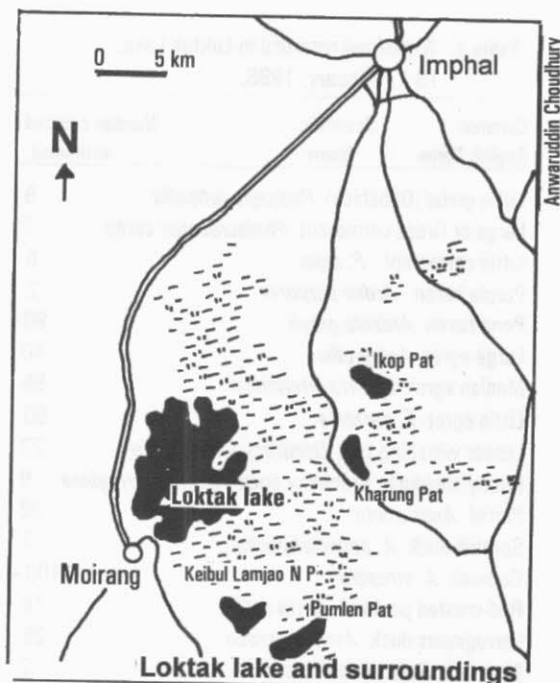
open water, the rest is covered by *phumdi* (floating mats of dense vegetation). In fact, *phumdi* is a characteristic feature of the lake and even supports dwelling houses of the fishermen. There



are 14 small hillocks in the southern part of the lake. Towards east and south-east, three smaller lakes, Ikop Pat, Kharung Pat and Pumlen Pat, completes the wetland ecosystem of the Manipur Valley.

Loktak was a well known hunting ground for the British Governors and civil servants and waterfowls in hundreds and thousands were shot. But things have changed now. Misuse by an ever growing population including overfishing, pollution from Imphal city, overhunting and live catching of birds have jeopardised the ecological balance. Loktak is also a Ramsar Site being listed in 1990 as a wetland of international significance.

In January, 1996 I made a trip to Manipur to carry out the mid-winter waterfowl count in the wetlands of Loktak. The actual census was carried out on 16 and 17 January, 1996 in collaboration with MASS (Manipur Association for Science and Society) and some other local NGOs. Only about a third of the lake could be covered in two days. Considering the size of the wetland the results were rather disappointing. About 2000 waterfowls were counted of which Gadwall, alone accounting for more than half (1100). Other species included Great cormorant, Ruddy shelduck, Pintail, Spot-bill, Red-crested pochard, Ferruginous duck and Coot. An Osprey was also seen hovering overhead (scientific names in Table 1). Although I could not visit Loktak in 1997 and 1998, the MASS alongwith other NGOs continued to carry out the count. In 1998 the census was carried out on 11 January and about 5000 waterfowls were counted. The Coot accounted for most (3245) followed by Gadwall (700). Sighting of 360



360 Ferruginous duck and a lone Pelican *Pelecanus* sp., were significant.

J.C.Higgins, a British civil servant and a keen shooter who had documented records of his time gives an idea of what Loktak was in those days (first few decades of this century). Among the rare records were the White-fronted goose *Anser albifrons*, Bronze-capped or Falcated teal *Anas falcata*, Baer's pochard *Aythya baeri*, Scaup duck *A. marila*, Golden-eye duck *Bucephala clangula* and Common shelduck *Tadorna tadorna*. It was in Loktak (recorded as a *beel* 9 miles south of Imphal) that a male Pink-headed duck *Rhodonessa caryophyllacea*, now extinct from the world, was shot by Higgins in 1932.

Between 1910 and 1931, as many as 56,846 ducks were shot by the members of Manipur Club. These excludes large numbers shot or captured by the locals. The Burmese sarus *Grus antigone sharpii* which used to be a breeding resident in the marshes of Loktak is almost extinct locally with no authentic recent record.

Table 1. Waterfowl recorded in Loktak Lake, 16-17 January, 1996.

Common English Name	Scientific Name	Number counted / estimated
Little grebe (Dabchick)	<i>Podiceps ruficollis</i>	9
Large or Great cormorant	<i>Phalacrocorax carbo</i>	2
Little cormorant	<i>P. niger</i>	6
Purple heron	<i>Ardea purpurea</i>	2
Pond heron	<i>Ardeola grayii</i>	90+
Large egret	<i>Ardea alba</i>	40
Median egret	<i>Egretta intermedia</i>	55
Little egret	<i>E. garzetta</i>	50
Lesser whistling teal	<i>Dendrocygna javanica</i>	23
Ruddy shelduck, Brahminy duck	<i>Tadorna ferruginea</i>	9
Pintail	<i>Anas acuta</i>	22
Spotbill duck	<i>A. poecilorhyncha</i>	3
Gadwall	<i>A. strepera</i>	1100+
Red-crested pochard	<i>Netta rufina</i>	18
Ferruginous duck	<i>Aythya nyroca</i>	25
Moorhen	<i>Gallinula chloropus</i>	2
Coot	<i>Fulica atra</i>	c.150
Unidentified cormorant	<i>Phalacrocorax</i> Sp.	1
Unidentified egrets	<i>Ardea/ Egretta/ Bubulcus</i> Sp.	300+
Unidentified large herons	<i>Ardea</i> Sp.	2
Unidentified ducks		200+
Unidentified lapwing	<i>Vanellus</i> Sp.	2+
<b>Total waterfowls = 1975.</b>		

During my visit, I received some reports of a few stragglers but the same could not be verified.

A part of the Loktak ecosystem forms the Keibul Lamjao National Park, about 40 km<sup>2</sup> but is the only home of the *Sangai*, as the Meiteis call the brow-antlered deer *Cervus eldi eldi*, among the rarest (race) in the world.

It is time now to give a serious thought to repair the damages already done to this important ecosystem including decaying of *phumdi* due to construction of a hydro-electric project. All types of hunting including trapping of live birds should be banned. Local NGOs should also take up awareness campaign on a vigorous scale in the fringe areas of Loktak as well as Keibul Lamjao.

### Acknowledgements

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Table 2. Other birds recorded during waterfowl census, 16-17 January, 1996.

Common English Name	Scientific Name	Number counted / estimated
Pariah kite	<i>Milvus migrans</i>	Many
Osprey	<i>Pandion haliaetus</i>	1
Pied harrier	<i>Circus melanoleucos</i>	2
Marsh harrier	<i>C. aeruginosus</i>	1
Spotted dove	<i>Streptopelia chinensis</i>	Many
Common kingfisher,	<i>Alcedo atthis</i>	Many
Small blue kingfisher		
White-breasted kingfisher	<i>Halcyon smyrnensis</i>	2
Common swallow	<i>Hirundo rustica</i>	Abundant
Black-headed shrike	<i>Lanius schach</i>	Many
Brown shrike	<i>L. cristatus</i>	Many
Black drongo	<i>Dicrurus adsimilis</i>	Many
Ashy swallow-shrike	<i>Artamus fuscus</i>	1
Pied myna	<i>Sturnus contra</i>	Many
Common myna	<i>Acridotheres tristis</i>	Many in villages
Orange-billed jungle myna,	<i>A. javanicus</i>	Many
White-vented myna		
Red-whiskered bulbul	<i>Pycnonotus jocosus</i>	2
Red-vented bulbul	<i>P. cafer</i>	Many
Red-breasted flycatcher	<i>Muscicapa parva</i>	1
Maggie-robin	<i>Copsychus saularis</i>	1
Stone chat, Collared bushchat	<i>Saxicola torquata</i>	Many
Pied bushchat	<i>S. caprata</i>	2
Yellow-headed wagtail	<i>Motacilla citreola</i>	Abundant
Pied wagtail	<i>M. alba</i>	Many
White-eye	<i>Zosterops palpebrosa</i>	Many
Tree sparrow	<i>Passer montanus</i>	Many in villages
Black-headed munia	<i>Lonchura malacca</i>	Many in villages
Unidentified harrier	<i>Circus</i> Spp.	2
Unidentified falcon (probably	<i>Falco</i> Sp	1
Peregrine	<i>Falco peregrinus</i> )	
Unidentified quail		2
Unidentified swift		Many
Unidentified babbler		1
Unidentified warbler		Many
Unidentified pipit	<i>Anthus</i> Spp.	Abundant
Unidentified weaverbird	<i>Ploceus</i> Sp.	Abundant



**Pitcher plant** *Nepenthes khasiana* is endemic to Meghalaya. This interesting insect-digesting herb is vanishing alarmingly due to destruction of natural habitats. This photograph is from Jaintia Hills of Meghalaya.

**Photo:** Anwaruddin Choudhury

**Cover:** Indian rhinoceros *Rhinoceros unicornis* mother and calf in Kaziranga National Park.

**Photo:** Anwaruddin Choudhury



Photo: Anwaruddin Choudhury

## ***Join hands with NGOs & Forest deptt. to fight the poachers***

- Poaching of rhino for its horn is controlled by powerful syndicates of traders (*read criminals*) while the poverty-stricken poachers are mostly unwitting participants.
- Rhino horn does not have any aphrodisiac or medicinal value.
- Between 1980 and 1997 more than 500 rhinos were poached in Kaziranga National Park alone.
- Only about 1700 - 1800 Indian one-horned rhinos are left in the world of which more than 60% are concentrated in Kaziranga National Park alone.
- Political unrests have taken their toll of the Indian rhinos in Laokhowa sanctuary (1982-83) and Manas National Park (1992-93) virtually eliminating the species from those areas.

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