



On the cover

One of the rarest sights in Manas, a tiger out in the open. Can we bring the rhino back to this natural wonderland?

Photographer: Joanna Van Gruisen

Editor

Bittu Sahgal

Principal Advisor

Ranjit Barthakur

Managing Editor

Miel Sahgal

Assistant Editors

Lakshmy Raman

Jennifer Scarlott

Consulting Editor

Ashish Fernandes

Editorial

Shivani Shah

Arundhuti Mitra

Shyla Boga

Design

Umesh Bobade

Rajkumar Gopalan

Advertising

Shashi Kumar

Circulation and Subscriptions

P. Bhaskar

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Sanctuary Asia

145/146, Pragati Industrial Estate,
N.M. Joshi Marg, Lower Parel,
Mumbai 400 011.

Tel.: (91-22) 2301 6848/49

www.sanctuaryasia.com

E-mail: <mail@sanctuaryasia.com>

Call of the wild Sanctuary

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A S I A

22 Manas – Looking Back, Looking Forward

The Manas river flows from the gorges of Bhutan and waters one of India's most vital protected forests. This paradise on Earth, once best known for rhinos, has seen major upheavals that have left it tattered, but astonishingly, not completely torn. Dr. Anwaruddin Choudhury writes on the fall and tentative rise of the Manas National Park.



50 The Mating Tusker

Bivash Pandav, a Sanctuary-ABN AMRO Wildlife Service Award winner, writes movingly of the death of a tusker he had observed over time in the Chilla range in the Rajaji National Park. The relocation of *Gujjars* (herdsmen) from Chilla has ushered in rapid and remarkable habitat and wildlife recovery. The author warns, however, that the problems are far from over. Forest corridors are still threatened by all manner of people including worshippers of elephants.



54 Land of Cold Falling Water

The impressive and mystical mountain system of Anggo Ching on the Manipur-Burma border finds mention in the accounts of the kings of Manipur. Salam Rajesh treks through these thick forests that house a rich biological diversity ranging from orchids to macaques. He explored the Trui-li-li waterfall and the Achomaki lake and fell in love with this land of cold falling water.

Contributors



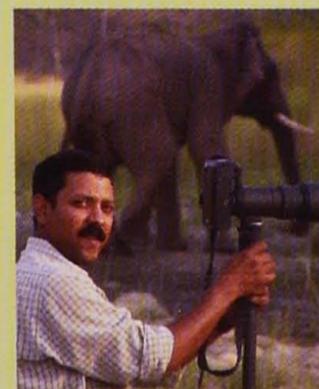
Manoj V. Nair

An IFS officer, he is a wildlife biologist by training and believes that the future of our wilds is in the hands of the younger generation. **32**



Joanna Van Gruisen

A naturalist-photographer, she has spent her life documenting and studying the wildlife of India. **42**



Bivash Pandav

A wildlife biologist and researcher, he is as concerned about elephants in Corbett and Rajaji as turtles in Bhitarkanika. **50**



Salam Rajesh

Natural history writer, researcher and photographer, he is deeply committed to the protection of Manipur's wilderness areas. **54**

Manas

Looking back, looking forward

by Dr. Anwaruddin Choudhury



JOANNA VAN GRUISEN

It was early in 1989. I was asked by the government to rush to Gossaigaon in western Assam, near its West Bengal border. An agitation by *Bodo* tribes for a separate state had resulted in attacks on vehicles and trains, road blockades and rampant destruction of government property. I was on magisterial duty with the police and para-military forces. Since the Manas National Park was located right next door, I took the opportunity to investigate its fate. Nothing could have prepared me for what I saw.

We had initial reports of forest staff leaving their posts for fear of attacks, arms being snatched from some of them and a camp even being burnt. Also stories of a rhino being poached north of Bansbari and another at Kuribeel. Deer meat is always available next to wild places, but we heard of hog deer meat being available in the *bazaars* of distant Barpeta town, with the meat of the rare and highly endangered wild water buffalo.

When I landed up in Manas, I found the Forest Department virtually absent from Manas. Every animal that lived in the forests we had carefully protected for years, from rhinos and swamp deer to elephants and

Bengal Floricans had become easy targets for anyone with a gun or trap.

The World Heritage Site was being held to ransom!

My first task was to bring the crisis into global focus and I did so by writing a front page lead article titled 'SOS Manas' in *The Sentinel*, on May 7, 1989. The issue certainly caught the attention of the media worldwide, but this hardly helped Manas, which continued to deteriorate. In 1992, it was down-listed as a 'World Heritage Site in Danger' by UNESCO.

The Manas National Park is located in Baksa (Bansbari and Bhuyanpara ranges) and Chirang (Panbari range) districts of Assam. It covers the Himalayan foothills and *bhabar-terai* zones, with tall elephant grass and moist deciduous forest as the dominant habitats. The Field Director's Office is at Barpeta Road (140 km. from Guwahati). There are government accommodations at Barpeta Road, Bansbari and Mathanguri (Motharguri) and private lodges at Barpeta Road and Koklabari (Kamardwisa). Tents are sometimes available on the river bank near Bansbari. The best time to visit is between November and April.

LOOKING BACK

A hundred years ago, in 1905, the British recommended protection for Manas along with Kaziranga and Laokhowa, which were declared as game reserves. In 1907, Manas was further notified as a reserve forest, a full year before Kaziranga. In 1915, a British officer wrote that the proposed road to Bhutan through Bhuyanpara and North Kamrup should not be allowed as it would affect a wildlife rich habitat. In 1928, Manas was upgraded as North Kamrup Game Sanctuary and in 1950 it became a full-fledged wildlife sanctuary. By now, its fame had travelled the world and in 1985 UNESCO listed Manas as a World Heritage Site for its rich biodiversity and outstanding scenic beauty. Even as trouble was brewing internally, in 1989, Manas was named a biosphere reserve and in 1990, a core area of 500 sq. km. was designated a national park.

The seeds of discontent, of course, had been sown in 1972 when 888 ha. of prime wildlife habitat at Koklabari was turned into an agricultural seed production farm. The next mistake was not to relocate the lone 'forest

village' at Agrang from the core area in the 1970s and early 1980s, when there was enough government land available for re-settlement and the villagers were more than willing to move to a better site with land ownership. Predictably, the villagers began encroaching land in the vital core zone. On top of all this, there was no management of the buffer zone of some 2,300 sq. km. though it had been included under the umbrella of Project Tiger in 1973.

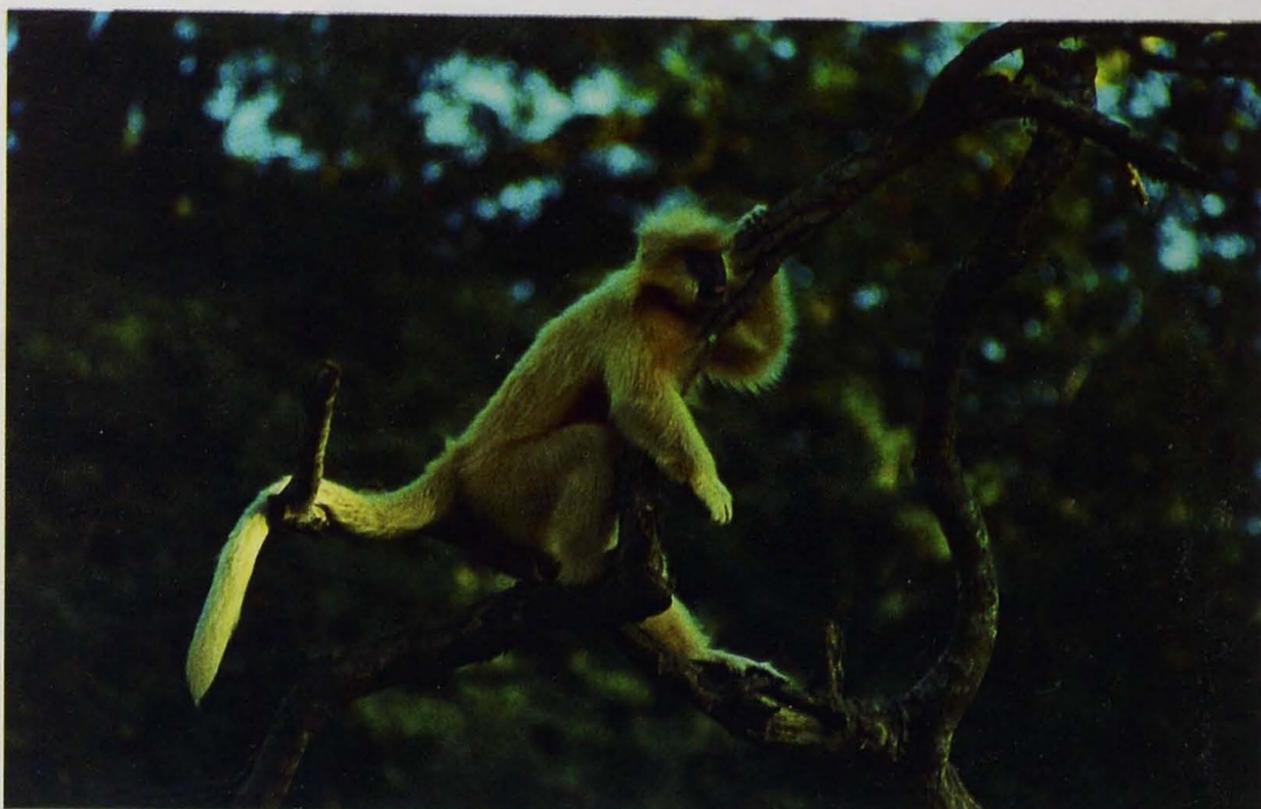
The buffer was left totally to its own devices, unlike Kanha, Corbett or the Sundarbans. As a result, the encroachment racket became entrenched in the 1970s. Meanwhile, a national and global audience was lulled into believing that a huge tiger habitat was being protected, while in truth a mere sixth of the reserve actually was even being patrolled!

Nature retreats when assaulted. What we see today is just one-third of the original buffer! If someone had planned the death of Manas, they could hardly have done a better job. The last and gravest of all mistakes was the abandoning of anti-poaching camps, rather than strengthening them in the post-1989 period. Even today, despite the improved scenario, out of around 30 protection camps, only six or seven have been restarted. In my view, therefore, there is a lot to do on the Manas front.

A DEPLETED TIGERLAND

Tiger sightings in Manas were never easy. Although *Panthera tigris* survived the onslaught on Manas to some extent, the flagship species is nowhere near as abundant as it was pre-1990. In 1972, Manas had an estimated 31 tigers, which rose to 69 in 1979 and 123 in 1984. Even if we discount the methods of estimation, the trends were fairly clear. Protection was working.

In 1989, the population was estimated to have dropped to 92 and in 1993 to 81. Subsequent figures were put at: 94 in 1995, 89 in 1997 and 65 in 2000. None of these last four estimates were anything but guesswork on paper because only a handful of sites were ever visited by the census teams. How could they? At least three different heavily armed extremist groups were in control of this tiger haven. But the poaching went largely unreported. Who was there to report anything? The unsupported and ill-equipped field personnel had abandoned their posts.



The rare golden langur, a species endemic to a small area of western Assam and Bhutan is seen only west of the Manas river, which has acted as a zoo-geographic barrier for the species. Images of elephant herds (facing page) in the river characterise wild Manas.

So is Manas a viable tiger habitat today? Miraculously, yes. It is very unlikely that there are more than 22 tigers alive in the core and perhaps another 18-25 in the buffer. But these were the densities we began working with in the 1970s and despite the traumas and the habitat loss, with political will and foresight, we can and must entrench our positions and fight for the tiger and its co-inhabitants.

When people think of poaching, the first thing that comes to mind are images of skins and bones of tiger, or ivory and rhino horn. Equally deadly is the loss of the carnivore prey base – the many deer, wild boar and buffalo that were steadily sold for meat in the *bazaars* of Assam. Biologists know that this has always been a key reason for diminishing tiger population across India. And when their food is taken away, tigers will stray into neighbouring villages in search of cattle. Which means, many end up being poisoned or shot. Take just the case of hog deer in Manas.

A large, wild buffalo cow with bullet injury. Hundreds of wild buffaloes, recognised as globally endangered, have been slaughtered since 1989 for meat.



Some placed their numbers at 8,000 plus in the 1980s. If there are anything above a few 100 today, I would be very surprised. As for the swamp deer, I believe they have died a silent and unsung death. The *Bodo* agitation took its toll on these specialist deer, which are probably on the verge of extinction in Manas. Wild pig, another major prey species, has also suffered and the animal continues to be poached, even as songs are sung about protecting Manas as a future heritage.

My purpose in being forthright is not to criticise, but to identify truths so that correctives can be put in place. I believe that we in Assam have the will and the technical know how to restore this paradise, but this will not happen unless we roll up our sleeves and start the job in right earnest.

MEGA HERBIVORES

While everybody was busy focussing on the tigers of Manas, the endangered Indian one-horned rhinoceros made an unheralded exit from the Park. From an estimated population of around 95 to 100 animals in 1989, numbers dwindled to less than 10 in post-1993! At one stage, it was believed to have been completely extirpated but the sighting of six animals last year indicates a few survivors. Elephants suffered in a similar fashion, but females were usually not shot by poachers whose prime targets were tuskers. The terrain was also such that even determined poachers could not reach some of the herds. Elephant numbers probably range anywhere between 300 and 600. They continue to be poached today, the latest being in mid-January 2006.



A tiger at a waterhole in the Kanha Tiger Reserve:

As the tragic news of tigers being wiped out from Sariska and other tiger reserves comes in, it is vital that the nation rallies behind our wildlife field staff. Hopefully, every single tiger reserve will redouble patrolling and equip its staff with the resources they need to fight highly-organised wildlife criminals. Tigers need inviolate wildernesses, which in turn ensure us pure water. The intricate connection between healthy tiger forests and the water security of India is simple and clear. Protecting the tiger's home is possibly the most crucial development task ahead of us in modern India.

Photo: Urvi Piramal.

Location: Kanha Tiger Reserve, Madhya Pradesh

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And what of the fate of the rare wild water buffalo? From an estimated 1,000 plus in the mid-1980s, the numbers have plummeted to under 250! For some reason (probably because they could leave the vulnerable grasslands and take to the hills) gaur and sambar have managed to do quite well in the northern parts of Manas, where less wildlife blood was spilled. A herd of 70 gaur was observed by me and Pradyut Bordoloi, Assam's Minister for Environment and Forests, in April 2003.

BHUTAN MANAS

The existence of the 1,023 sq. km. Royal Manas National Park across the border in Bhutan was a godsend for Manas. I trekked up to Panbang in Bhutan in November 2004 and followed this with many more visits, including one to its highest parts in the Black Mountain region in April 2005. I wanted to assess the security situation across the border and figure out strategies for protection since wildlife regularly moves between the two reserves. I am happy to report to *Sanctuary* readers that the habitat and status of wildlife in Bhutan Manas is relatively better off, largely because poaching is less intense and we have less biotic pressures on the habitat there.

UNCERTAIN FUTURE

About 15 sq. km. of the Panbari range has been encroached since 1989. Efforts by the late Ranger Ibrahim Ali Khan to clear encroachments resulted in him being targeted and killed by extremists in the late 1990s. Of the three ranges, Bansbari is relatively better off because tourists and officials would keep visiting and criminals work best in isolation. Another pocket that has showed some improvement is Koklabari, where the local students' body and a group of villagers have started eco-tourism activities. This has checked poaching to some extent. The Bhuyanpara range, all but abandoned since the early 1990s, is also showing signs of resurrection after 2003. The awareness campaigns undertaken at Rupahi and other places are taking effect and must be supported and stepped up.

But poaching is still a serious concern. Since the late 1990s, the main course of the Manas river has shifted and as a result the Beki river, which used to be fordable in winter has become inaccessible to protectors. This makes the area between these two rivers vulnerable to felling and poaching. Tuskers and tigers are not safe anywhere except along the Bansbari-Mathanguri road. Otters are regularly snared



JOANNA VAN GRUISEN

A ground orchid reminds us of the beauty that lies hidden behind every blade of grass, every bush, every tree and stone in Manas.

for their skins (probably land up in Tibet) while hog deer and wild pigs still end up hanging in the meat markets. It's a nightmare.

Notices have been issued to the *gaon burhas* (village headmen) and the lessees of the markets. A special raid that I personally organised through the local police, in the company of the Central Reserve Police Force in December 2004 resulted in the recovery of a fresh hog deer skin, pieces of buffalo horn and 13 snares mainly used for deer, but strong enough to trap tigers. Another raid by the 24 Punjab Regiment resulted in the arrest of two hardcore poachers in March 2005. These constant raids at the instance of the district administration have deterred the poachers of Kahibari and Bamonkhal to some extent. Many have really abandoned their trade and some are now actually helping the Rangers of Bansbari and Bhuyanpara to patrol the area.

There are other issues of concern. Bhutanese vehicle traffic along the Bansbari-Mathanguri road is a hugely disturbing factor. But we are told this will reduce when the road on the Bhutan side is completed by around 2008 (how this will affect the wildlife in that region is anyone's guess). A highway has been proposed through the eastern part of the core area near Kamardwisa, linking Bhutan. And new cement factories have been suggested at Nganglam. These developments should worry everyone who has the best interests of Manas at heart.

The have asked the PWD (NH) Division to divert the last stretch of the highway outside the Park boundary, but the impact of such developments is not difficult to imagine. That's not all. A rail link to Nganglam has also been approved. I have already requested the railway authorities to divert it through the Daodhara Reserve Forest to avoid the core area of Manas. Hopefully, the railway authorities will cooperate and grant Manas a reprieve. But should we really be in a position where we should be begging for Manas' survival?

After 1989, taking advantage of the breakdown of law and order, poachers and illegal timber operators virtually ruled Manas. Their complete exit is still a distant dream. The warning example of Laokhowa in 1983 was not heeded; here most of the rhinos perished after poachers and illegal timber operators took over.

OPERATION RECOVERY

1996 saw the first attempt to revive Manas, when the late Nagen Sharma, then Forest Minister of Assam camped in Manas for a few days. The situation seemed to



JYOTI PRASAD DAS

CAMERA TRAPS INSTALLED IN MANAS NATIONAL PARK

Camera traps to establish the presence and ranging behaviour of wildlife were installed in the Manas National Park on November 15, 2005. As of now, five camera traps are collecting images at pre-selected points inside the National Park and a total of 16 such 'traps' will be eventually installed. The cameras have been designed by the Indian Institute of Science's Centre for

Electronic Design and Technology. The camera contains a motion sensor that triggers its shutter when it discerns a movement in front of it. The project was formally launched by Dr. Anwaruddin Choudhury, Deputy Commissioner, Baksa and will be managed by Aaranyak, an NGO.

For more information contact: Director, Manas National Park, P.O. Barpeta Road, District Barpeta - 781315, Assam. Tel: 03666-261413. Fax: 232253 / 260253 E-mail: abhijitabha@hotmail.com or Dr. Bibhab Talukdar, Samanwoy Path (Survey), P.O. Beltola, Guwahati - 781028, Assam. Tel.: 0361-2266087 / 2228418. E-mail: bibhab1@sanchamet.in

Source: Prabal Kr. Das, 'Camera traps installed in Manas Park', The Assam Tribune, December 22, 2005 and Jyoti Prasad Das.

improve and tourists began to visit the Park again. 1998-99 saw events take a downward trend again. In 2003-04, however, things started to look up when Pradyut Bordoloi took over as the Forest Minister. I had the opportunity to work as the Joint Secretary in the Environment and Forest department at that time. Some hard decisions were taken that resulted in 'relative' overall improvement. The notification of the Chirang-Ripu Elephant Reserve was also issued in 2003, which covered Manas.

In December 2003, a new politico-administrative set up came into existence in the form of the Bodoland Territorial Council under the 6th Schedule of the Constitution of India covering the entire northwestern Assam, which included the Manas National Park as well as its buffer. Although they may not be able to make any territorial changes, the Council has a major stake in the management and has shown keen interest in protecting the Park.

What Manas needs now is the immediate strengthening of protection measures including the revival of all pre-1989 anti-poaching camps and increased patrolling in the Panbari range and in the stretch between the Beki and Manas rivers under the Bansbari range. Both these rivers need to be monitored regularly as they are used by poachers as entry and exit routes. The reintroduction of game fishing at certain stretches near the periphery could help increase vigilance in the area. The existing encroachment in Panbari should be cleared.



An immature Bengal Florican female, arguably the rarest bustard in the world. Manas once had the largest documented population of this endangered bird in India. Sightings are still assured in Koklabari, but their status needs to be reconfirmed.

The Agrang forest village should be relocated on government land. The buffer zone may be redefined for practical reasons and, most crucially, brought under the control of Project Tiger authorities. The new western limit could be the Samthaibari-Hatisar road, while the eastern border could be up to the Pagladiya river. The core area should be

extended west up to the Kanamakra river. A sustainable eco-tourism package benefitting locals can be taken up.

The ongoing farming by the Agriculture Department in Koklabari inside the core area is an outright violation of the *Wild Life (Protection) Act, 1972*, the *Forest Conservation Act, 1980* and rulings of the

MANAS THROUGH THE YEARS

19th century: Hunting preserve of the Raja of Gauripur and the Cooch Behar Royal family.

1905: Accorded the position of a Proposed Reserve Forest by the British.

1907: Notified as Reserve Forest (RF).

October 1, 1928: Upgraded to North Kamrup Game Sanctuary covering an area of 360 sq. km. The Manas Sanctuary is contiguous with the Royal Manas National Park (65,800 ha.) in Bhutan. Hunting ceased.

1950: Notified as a wildlife sanctuary.

1951 and 1955: Sanctuary extended to 391.02 sq. km. by including the entire North Kamrup RF and the Manas RF.

1963-1964: Massive stone extraction during the construction of National Highway.

1963-1965: Grazing by livestock phased out.

1964: Very little logging permitted since

1950 but the last timber operation ceased this year.

1964: Pygmy hog rediscovered in Manas.

1972: An area of 888 ha. from the sanctuary allocated for an agricultural seed production farm.

April 1973: Declared as one of India's first nine tiger reserves.

December 1985: Designated a World Heritage site.

1989: Elevated to a Biosphere Reserve under the UNESCO's Man and Biosphere (MAB) Programme.

February 1989: Manas occupied by members of the Bodo Students Union campaigning for autonomy. Armed attacks lead to most of the sanctuary being abandoned by forest department staff. Poachers and timber smugglers take advantage and large number of animals killed. Manas out of bounds for tourists.

1990: The Kahitama RF, Koklabari RF and Panbari RF added to the sanctuary. Notified as National Park.

1992: Listed as World Heritage Site in Danger because of heavy poaching and civil unrest.

1996: A few visitors return to Manas. Signs of hope return.

2001: The Manas National Park declared as core zone of the Buxa-Manas Elephant Reserve with buffer zones to the east and west (2,837 sq. km.).

2003: Agreement signed between the Bodo people and the Government of India resulting in the formation of the Bodoland Territorial Council.

2005: Manas is politically stable. The Bodo Territorial Council and Manas Maozigendri Eco-tourism Society (MMES) are working to bring Manas back to its former glory.

A RICH BIODIVERSITY

Manas is a stronghold for two small and lesser-known mammals, the pygmy hog and hispid hare. Because of their size and preferred dense grass habitat, they were probably not exposed to large-scale poaching. Manas is the only viable habitat for the critically endangered pygmy hog in the world and a captive breeding programme started near Guwahati in 1997 has been highly successful and many hogs are now awaiting release back to the wild.

In 2003-04, a Himalayan black bear cub and a clouded leopard cub were rescued from the Koklabari area. One more clouded leopard cub was rescued from the western fringes in 2005 and at least three bears, including a cub, were killed in October-November 2005 here. The sloth bear has not been seen for many years. The golden and capped langurs, and the rhesus and Assamese macaques were largely unaffected during the turmoil. There is a lone record of a slow loris on the Bhutan border, observed by H.P. Phukan. The golden langur is found in areas west of the Manas river, while the capped langur is found east of the Beki. The serow, larger of the goat-antelopes, comes down to the edge of the hills in winter. Manas has five species of deer including the chital.

Leopard, leopard cat, Temminck's golden cat, fishing cat and jungle cat have been seen here. One marbled cat skin from the western buffer was recorded in the late 1990s. The dhole occurs widely but appears only after long gaps. The Bengal fox has not been reported for many years. The jackal has become rare as its meat is considered a delicacy by some people. The Chinese pangolin and Chinese or crestless Himalayan porcupine are not uncommon though they are often wrongly reported as Indian pangolin and Indian porcupine. The Gangetic dolphin is occasional in the southern fringe during the monsoon.

There are records of a rare turtle, the Khasi Hills terrapin or Assam roofed turtle. The gharial, which was present in both Manas and Beki rivers till around 1960s, is nearing extinction.

Manas has the third highest number of threatened birds among all the Important Bird Areas in India, after the Kaziranga and Dibru-Saikhowa National Parks. Sighting of the endangered Bengal Florican is assured in Koklabari. Three species of hornbills are seen in good numbers – the Great Pied, Wreathed and Oriental Pied. The Rufous-necked is occasional, mainly in winter while the Grey Hornbill is rarely seen as Manas is its easternmost limit. The endangered Greater Adjutant is also occasional in the southern fringe while the Lesser Adjutant is regularly seen in Koklabari. Among other threatened birds, there are records of Pallas' Fish Eagle, Greater Spotted Eagle, Marsh Spotted Babbler, Black-breasted Parrotbill, Hodgson's Bushchat, Bristled Grass Warbler and the Yellow Weaver or Finn's Baya.

Supreme Court of India, and must be stopped immediately. Rhinos and swamp deer may be reintroduced in the 888 ha. 'farm' area, which already has a good population of Bengal Floricans and some wild buffalo. Ironically, the State Farms Corporation of India Ltd., handed the seed farm over to the Agriculture department in 2004 and not the Environment and Forest department or the Project Tiger authorities from whom the land was actually taken! The Agriculture department has also leased out 3,000 *bighas* (one *bigha* = 7.5 hectares) to local cultivators and the department itself will directly cultivate 1,000 *bighas* – all inside the core area of the Park! Since an immediate attempt to take drastic steps could become counter productive by agonising fringe villagers, I wrote to the Council that the departmental attempt to directly cultivate 1,000 *bighas* for seed production needs to be stalled immediately.

As a conservation area, Manas has completed a century. The situation has improved as compared to the 1990s, but a lot of effort is still required to bring back the area's past glories. The late E.P. Gee wrote in *The Wild Life of India* (Collins, London, 1964), "the area on both sides of the Manas river forms one of the best sanctuaries of India, where both plentiful wildlife and magnificent scenery are found together – a rare occurrence anywhere in the world." An outstanding World Heritage Site like Manas needs hard decisions, actions and constant monitoring if it is to regain its lost glory. If this is not done, it will be a national shame. 🐅



The rhino was all but extirpated from Manas, but recent reports indicate the presence of a small, remnant population under 10 individuals. The shifting of the main course of the Manas river has resulted in the Beki river becoming inaccessible to protectors. The area between these two rivers is vulnerable to felling and poaching. Tuskers and tigers are not safe anywhere with the possible exception of the Bansbari-Mathanguri road.

