

NOMINATION TO THE WORLD HERITAGE LIST

Convention concerning the Protection of the World Cultural and Natural Heritage

Name: MANAS WILDLIFE SANCTUARY

Identification No: 338

Date received by WH Secretariat: 18.4.84

Contracting State Party having submitted the nomination of the property in accordance with the Convention: INDIA

Summary prepared by IUCN (March 1985) based on the original nomination submitted by India. This original and all documents presented in support of this nomination will be available for consultation at the meetings of the Bureau and the Committee.

1. LOCATION: State of Assam in the north-east of India along the Manas River on the border with Bhutan. Bengalian rainforest Biogeographical Province.

2. JURIDICAL DATA:

The site consists of a wildlife sanctuary of 39,100 ha. The area was originally declared a reserve forest as early as 1907 and received sanctuary status in 1928. In 1973 it was given added protection when it was designated also as a Tiger Reserve in 1973 under Project Tiger. The overall legislative authority is contained in the Wildlife Protection Act of 1972 which is administered by the Assam Forest Department. The Manas Sanctuary is considered as the core zone of the Manas Tiger Reserve which also includes a buffer zone of 283,700 ha surrounding the Sanctuary. It is contiguous with the Manas Wildlife Sanctuary in Bhutan (44,300 ha).

3. IDENTIFICATION:

An area of low-lying (100-250m altitude) flat land in the foothills of the eastern Himalayas. The land slopes gently to the south with a number of rivers draining the terrain from north to south. The main rivers are the Manas, Mora-manas, Jongrong, Gyati, Chorhuli, Garuchara and Rabang. They carry an enormous amount of silt and rock debris from the Himalayan-Siwalik foothills, resulting from the heavy rainfall, the fragile nature of the rock and the steep gradients of the catchments. This leads to the formation of alluvial terraces, deep layers of deposited rock and detritus overlain with sand and soil of varying depth, shifting river channels and swamps. The Manas area can be divided into four principal geological and geomorphological habitats:

- a) Bhabar savannah with porous soils derived from sandstone, limestone and shale,
- b) the Terai tract, derived from deep alluvium washed down from the Himalayas,
- c) marshlands, and
- d) riverine tracts.

The climate is warm and humid with a mean annual rainfall of 400cm, falling mainly during the rainy season (June-October). The mean summer temperature is 37°C and the mean winter temperature is 11°C.

Vegetation can be broadly divided into three types: (a) Tropical semi-evergreen forests in the northern part of reserve; (b) Tropical moist and dry deciduous forests (the most common type); (c) extensive patches of alluvial grasslands in western part of the sanctuary. There is also a considerable aquatic flora. The Botanical Survey of India has so far identified 285 species of Dicotyledons and 98 species of Monocotyledons. These fall into the following lifeforms, 89 tree species, 49 shrubs, 37 undershrubs, 172 herbs and 36 climbers. Fifteen species of orchids are known so far, 3 terrestrial and 12 epiphytic; 43 species of grasses belonging to 29 genera and 18 species of fern (including one aquatic) belonging to 14 genera have also been collected.

The Manas Sanctuary also provides habitat for 21 of India's most threatened species of mammals. In total there are 55 mammal species present, 36 reptile species, 3 amphibians and 350 species of birds. Noteworthy among these include the elephant, tiger, greater one-horned rhino, clouded leopard, sloth bear, wild buffalo, pigmy hog, hispid hare, golden langur, Bengal florican and gharial. The wild buffalo population is the only pure strain of this species still found within India.

#### 4. STATE OF PRESERVATION/CONSERVATION:

The Sanctuary is strictly managed to keep unwanted and unnatural intrusions to a minimum. Under Project Tiger, the management infrastructure of the Manas was improved with provision of ranger stations, administration roads, and a radio system. Frequent patrols, particularly along the south boundary have reduced the incidence of poaching to a low level. A tourist accommodation facility is available at Mothanguri but travel by foreigners to Assam is currently discouraged. The management plan prepared for the period 1973-78 has now been revised and updated. There is an informal understanding with the Bhutanese authorities to cooperate in the management of the adjoining reserves. Local people benefit from the Sanctuary through provision of inoculation of livestock against diseases transmitted by wildlife, but this is offset by crop damage caused largely by elephant, pigs, and deer. 2000 ha were excised from the Sanctuary in 1971 for a seed farm which has subtracted forest and grassland habitat.

The surrounding buffer zone is managed on a multiple use basis, allowing selective forestry, plantations, grazing, and firewood collection. Some 55,000 people live in 144 forest villages in this zone. Unfortunately, most of the wildlife values in the buffer area have been lost due to dry season burning and over-hunting and over-cutting of the forests in a non-sustainable fashion, and the multiple-use philosophy has proved to have almost exclusive emphasis on resource extraction.

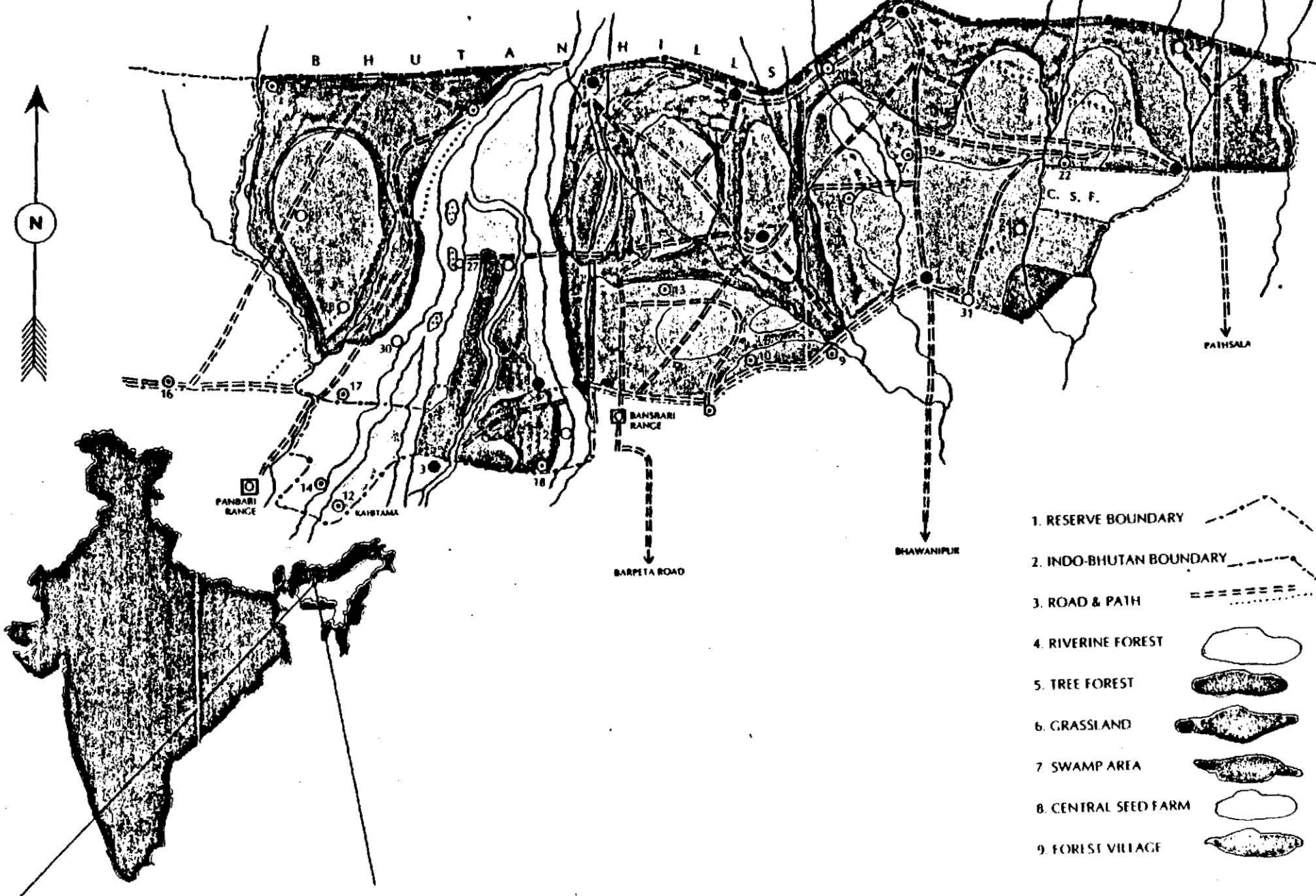
#### 5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST:

The Manas Wildlife Sanctuary as presented by the Government of India, provides the following justification for designation as a World Heritage property:

- a) Cultural property -- not applicable
- b) Natural property
  - (iv) Habitats of rare and endangered species. The Sanctuary provides the last viable wild habitat for two endangered species (pigmy hog, and hispid hare) as well as another 19 of India's threatened species.

# MANAS TIGER RESERVE (Core Area)

Scale 1" = 4 miles



1. RESERVE BOUNDARY

2. INDO-BHUTAN BOUNDARY

3. ROAD & PATH

4. RIVERINE FOREST

5. TREE FOREST

6. GRASSLAND

7. SWAMP AREA

8. CENTRAL SEED FARM

9. FOREST VILLAGE

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1. DOCUMENTATION:

- (i) Nomination form
- (ii) IUCN Data Sheets
- (iii) Consultations: John MacKinnon, Ian Grimwood, William Oliver, Peter Jackson, Claude Martin, India Government Officials
- (iv) Field visit, 14-16 February 1985
- (v) Literature Consulted: Chief Conservator of Forests, 1973 Management Plan for Manas Tiger Reserve, Assam.  
H.S. Panwar, 1982. What to do when you've succeeded - Project Tiger 10 years later. World Parks Congress, IUCN.  
Peter Jackson, 1981. Conservation in Bhutan, IUCN.  
W.L.R. Oliver, 1980. The biology and conservation of the pigmy hog and the hispid hare. Jersey Wildlife Preservation Trust.

2. COMPARISON WITH OTHER AREAS

Within the Bengalian Rainforest Biogeographical Province, there are 16 other protected areas. The largest one is the Manas Tiger Reserve which surrounds the Manas Sanctuary and as mentioned in the nomination summary, the Tiger Reserve no longer functions as an effective natural system and is not therefore included in the Manas nomination. Many of the other reserves in this province are very small and serve as regionally important natural areas. The Sundarbans are also included in this province but are very different in terms of vegetation (mangrove) and faunal species. The most comparable site is the Buxa Tiger Reserve which is located adjacent to the Manas Tiger Reserve in the State of West Bengal. This reserve has been much more affected by man, has a lower number of species, and does not have a functional linkage with Manas.

Outside of the immediate biogeographical province the Manas can be compared to the Royal Chitwan National Park of Nepal (inscribed on the World Heritage List, 1984). Chitwan is dominated by stands of sal forest of the Terai zone and has a lower habitat and species diversity than Manas. Notable mammals occurring in Manas, but not in Chitwan, include clouded leopard, golden cat, golden langur, Assam macaque, swamp deer, Asiatic buffalo, pigmy hog and hispid hare. Manas still contains species that have recently become extinct in Chitwan including swamp deer, buffalo, and (to all intents and purposes) wild elephant. Manas is located more at the interface of the Indian and Indo-China faunal associations and reflects the distinctive natural importance of the Assam/East Himalaya foothills region.

3. INTEGRITY

Manas is managed to a high standard with a staff that includes a professional park manager and trained field staff. Boundaries are well-marked and patrols are undertaken regularly. Increased resources since Project Tiger was launched in 1973, have resulted in a significant improvement in the status of wildlife populations and the state of the habitat. A revised management plan has just been completed by the warden in charge. Manas Sanctuary is effectively buffered on the north by the rest of the Manas Wildlife Reserve of Bhutan and on the east and west less effectively by the Manas Tiger Reserve. Along the southern boundary agriculture and settlement abut the reserve and some conflicts with local residents exist. Poaching, however, has largely been brought under control through a very rigorous patrolling schedule.

One major threat to the Manas exists and has been described in IUCN's project on "Threatened Protected Areas of the World". The threat is in the form of construction of two dams in the adjoining Manas Wildlife Sanctuary in Bhutan. In addition to flooding a large area, road and canal construction, along with changes in downstream hydrology, would radically alter the intrinsic natural values of Manas. The dams are only one element of proposed water development schemes in the foothills of the Himalayas, now under study by the India Ministry of Irrigation.

#### 4. ADDITIONAL COMMENTS

There are three initiatives that taken together would considerably improve the viability of the Manas nomination.

- a) The adjacent Manas Wildlife Sanctuary of Bhutan (44,300 ha) would provide an additional dimension to the site by adding habitat variety and encouraging more cooperation in management of wildlife that migrates between both reserves. When Bhutan becomes a State Party to the Convention the addition of the area on their side of the border is highly recommended;
- b) Legislation for protected areas in India provides that national parks have a higher level of protection than wildlife sanctuary. In view of the importance of the Manas Sanctuary, the upgrading to national park status would also be highly recommended;
- c) An extension of the reserve along the northwest boundary to the Sankosh River has previously been considered by the State Government of Assam. This additional area would complement the boundaries of the adjacent Bhutan reserve and is also to be encouraged.

#### 5. EVALUATION

Manas Wildlife Sanctuary meets three criteria for World Heritage Natural Properties. The Manas River is an outstanding example of geological processes and biological evolution with its huge depositional load and shifting river channels (criteria ii). The reserve also contains superlative natural features of exceptional natural beauty in terms of its scenic attractions of forested hills, alluvial grasslands and tropical semi-evergreen forests (criteria iii). In addition, the Manas provides critical and viable habitat for more rare and endangered species than any of the Indian sub-continent's protected areas (criteria iv). It is the only or best remaining natural area where sizeable populations of several species can continue to survive (e.g. pigmy hog, hispid hare).

The current management of the park is of a high standard and the Government of India has clearly demonstrated their commitment to conservation through support of Project Tiger.

#### 6. RECOMMENDATIONS

Manas Wildlife Sanctuary should be added to the World Heritage List. The Committee should note and support efforts to extend the Sanctuary's northwest boundary and to upgrade the area to national park status. The Committee should also express its concern on the possible construction of a hydro-electric dam in the adjacent Bhutan Manas Wildlife Reserve and express its interest in the possibility of a trans-frontier World Heritage Site with Bhutan.