

Validation of THREATENED MAMMALS of India

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Zoological Survey of India

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PREAMBLE

The Zoological Survey of India (ZSI) on the basis of initial IUCN categories of rare animals published its first account in 1983 : Threatened Animals of India by B.K. Tikader. The book covers a species-wise account on 81 mammals, 45 birds, 15 reptiles and 3 amphibian species. Further, ZSI has also initiated status survey of endangered species, the first being published in 1994 on Golden langur, Phayre's leaf monkey and Hispid hare. With the introduction of number of amendments since 1972 in Indian Wildlife (Protection) Act and also with major revisions in IUCN Criteria in 1993, a need was felt by ZSI to bring out its first Red Data Book on Indian animals presenting a species-wise account on 77 mammals, 55 birds, 20 reptiles and 1 amphibian species falling under various schedules of Indian Wildlife (Protection) Act. First volume of "The Red Data Book on Indian Animals (Part 1): Vertebrata (Mammalia, Aves, Reptilia and Amphibia)" was published in 1994, by the Director, ZSI, Kolkata.

The recent amendments at national and international levels resulted in exhaustive list of animal species under higher conservation status. List of mammal species/subspecies alone with higher conservation status touched the figure of 144. The list included many of the less-charismatic species with highest conservation status. For example, Wroughton's free-tailed bat, Salimali's fruit bat, Dang's giant squirrel and many more. With further major sea of amendments, from time to time, in Indian Wildlife (Protection) Act, IUCN Red List based on new guidelines and in CITES regulations; it was felt absolutely necessary to revise first Red Data Book on Indian Animals published in 1994.

Therefore, an attempt has been made here to revise the Red Data Book produced earlier by ZSI as per IUCN's 2003 guidelines and update maximum information alongwith photographs and distribution maps. First step in this direction is, obviously, to focus on 144 Indian mammalian species-subspecies. The present work is the result of sustained efforts of number of scientists and naturalists. We relied heavily on the assistance and support of not only on ZSI experts but also on a number of outside associates to ensure that the level of the data presented here is of the highest quality.

I take this opportunity to express my grateful thanks to all those who have contributed towards this work.

December, 2005
Kolkata

J. R. B. Alfred
Director
Zoological Survey of India



ENDANGERED

Order PERISSODACTYLA

Family RHINOCEROTIDAE

96. *Rhinoceros unicornis* Linnaeus

Great One horned Rhinoceros

Synonyms : *Rhinoceros indicus* Cuvier, *Rhinoceros asiaticus* Blumenbach, and *Rhinoceros jamrachii* Sclater.

Common names : Great one horned Rhinoceros, Indian Rhinoceros.

Regional names : Hindi : Gainda, Gargadan, Bengali: Gondar, Assamese : Gor, Marathi : Genda.

Diagnostic characters : Rhino species belong to the mammalian order of odd toed ungulates, Perissodactyla. As name suggests Indian rhino possesses only one dermal horn on its snout. Further, it also possesses short and strong limbs. Indian species is largest in size among the asiatic species. The Indian rhino is a huge, hoofed creature with a fairly long and stout horn. The snout and skin folded into very prominent shields and studded with wartlike tubercles. The folds are present before, after shoulders, and in front of thigh. It has hairs only on tail and ears. Its horn is a mass of agglutinated or compressed hair made of keratin fibers forming a hard cemented mass. It is not at all connected with the skeleton. Even if the horn is knocked off accidentally, a new horn grows in its place. Horns are present in both the sexes. Foot has a distinct hoof and three digits. The unusual physical appearance of the animal looks like a monster of some bygone age. The colour of the body is blackish grey.

Measurements : (in m/cm) : From snout to tip of the tail : 3.9 m; height at shoulder : 1.8m; length of horn : 30-60cm.

Weight : (in Kg) : Mature male : 1650; weight of horn : 2-2.5.

Intraspecific variations : No subspecies.

Distribution : One Horned Rhinoceros has been once known to be common and wide spread in occurrence throughout Indo-Gangetic plains along the base of Himalayan ranges and its neighbouring



Source : A.K. Mukherjee (1982) & A. Choudhury (1997)

countries but by the end of 17th century it had completely disappeared from much its range except in the northern parts of West Bengal and Assam in India. Sometimes it sporadically wanders in the part of Arunachal Pradesh bordering Assam state. Total population recorded is around 1676 of which Kaziranga National Park has 1552; Orang National Park : 46 and Pabitora National Wildlife Sanctuary : 78. The last one has a highest density of population of 4/km².

Endemism : Non-Endemic species.

Altitude : Upto 200 m.

Area of occupancy : 501-2000 sq. kms.

Extent of occurrence : 2001-5000 sq. kms.

Locations : No. of locations : 10; Type : Fragmented.

Habit, habitat and ecology : Indian One Horned Rhino prefers swamps, grassland, and Savannas to live. It is also found in wooded jungles up ravines and low hills. As a rule the animal leads a solitary life, but several individuals may occupy the same area. The density of rhino was reported to be 2.78-3.13 per sq. km in Kaziranga, Assam (Choudhury, 1985). Some scattered parties may be seen grazing in close proximity. The calf keeps close to the cow while grazing or fleeing. Wallowing in the marshy mud-hole is a must everyday. It is a good swimmer also. It prefers to move through tall elephant grass and feeds on them. Grazing starts during the late part of the day and is continued throughout the night. Its vision is poor and is a slow breeder. It gives birth to one calf at a time in around October. In spite of its heavy appearance it is quite agile and can run fast for a short distance. All rhinos of a particular area defecate at a fixed place; as a result the dung heap goes on enlarging in a circle.



Rhinoceros unicornis Linnaeus

Habitat structure : One Horned Rhino prefers swampy areas with tall elephant grasses to live in. Habitat structure has decreased @ of >20 % in last 50 years. Its area of range of distribution is decreasing at a faster rate.

Population : *Global population* : 1250 in India (CAMP, 1998); 1676 (Tiger Paper, March, 2004) *No. of mature individuals in all the populations* : less than 1500.

Captive population : 35 in 12 Indian zoo and 66 in 27 zoo abroad (CAMP, Report, 1998). Rhino can breed in captivity.

Life span : (Wild) : 70 yrs; (Captivity) : Not known.

Population trend : Declining.

Sighting records : *Type of sighting* : Direct and Indirect; *Field notes* : Sighting records reported based on recent field studies by Mukherjee, 1982, Choudhury in Assam (1984-97) and West Bengal (1995-96).

Threats : Floods, habitat loss, habitat fragmentation, human interference, grazing, hunting, trade, insurgency/terrorism/war, corridor loss, low breeding rate, poisoning, electrocution, transmission of foot and mouth disease from domestic cattles; *Effect of threats on population (Perceived or inferred)* : Declining.

Trade : Local, domestic, commercial and international; *Parts in trade* : Live animals, hair, horn, tail, meat, body parts, hooves, urine and blood; *Effect of trade on population (Perceived or inferred)* : Declining.

Conservation status : *CITES APPENDIX* : I; *Indian Wildlife (Protection) Act (1972) (As amended upto 2002)* : Schedule-I; Part-I; *Indian Red Data Book (IUCN, 1994)* : Endangered; *IUCN (1998) (Proposed)* : Endangered (National) and Data Deficient (Global); *IUCN (2002) (Proposed)* : Endangered (Global) based on Version 2.3 1994 (IUCN, 2003).

Taxon related studies recommended : Survey and monitoring, limiting factor research and habitat management.

REFERENCES

- Agrawal, V.C.; Das, P.K.; Chakraborty, S.; Ghose, R.K.; Mondal, A.K.; Chakraborty, T.K.; Poddar, A.K.; Lal, J.P.; Bhattacharyya, T.P. and Ghosh, M.K. 1992. Mammalia. In : *Fauna of West Bengal, State Fauna Series, 3 (Part-I)* : 1-170. Publisher : Director, Zool. Surv. India, Kolkata.
- Anonymous. 1994. *The Red Data Book on Indian Animals (Part-1) Vertebrates* : 1-534. Publisher : Director, Zool. Surv. India, Calcutta.
- Arati Bairagee. 2004. A study on the population status and conservation approach for *Rhinoceros unicornis* in Pabitora Wildlife Sanctuary, Assam, India. *Tiger Paper*, Vol. 31 No. 1 (Jan-March, 2004) : 11-14

- Choudhury, Anwaruddin. 1985. Distribution of Indian One-Horned Rhinoceros. *Tiger Paper*, **XII**(2) : 25-30.
- Choudhury, Anwaruddin. 1989. Pabitora–Assam's Rhino Reserve. *The Indian Magazine*, **9** : 46-54
- Choudhury, Anwaruddin. 1996. The Greater One-Horned Rhino outside Protected Areas in Assam, India. *Pachyderm*, **22** : 7-9
- Choudhury, Anwaruddin. 1997. Indian One-Horned Rhinoceros, *Rhinoceros unicornis* Linnaeus 1758, in Arunchal Pradesh. *J. Bombay nat. Hist. Soc., Bombay*, **94**(1) : 152-153.
- Molur, S.; Nameer, P.O. and Walker, S. 1998. *Report of the Workshop “Conservation Assessment and Management plan for Mammals of India.” (BCPP-Endangered Species Project)* : 1-176. Publisher : ZooOutreach Organistaion, Conservation Breeding Specialist Group India, Coimbatore, India.
- Mukherjee, A.K. 1982. *Endangered Animals of India* : 1-122. Publisher : Director, *Zool. Surv. of India*, Calcutta.
- Prater, S.H. 1980. *The Book of Indian Animals* : 1-323. Publisher : Bombay Natural History Society, Mumbai.
- Tikader, B.K. 1983. *Threatened Animals of India* : 1-307. Publisher : Director, *Zool. Surv. India*, Calcutta.
- Vigne, Lucy and Martin, Esmond Bradley. 1991. Assam's rhinos face new poaching threats. *Oryx*, **25**(4) : 215-221.

Evaluated by : M.S. Pradhan



ENDANGERED

Order PERISSODACTYLA

Family RHINOCEROTIDAE

97. *Dicerorhinus sumatrensis* (Fischer)
Asian Two Horned or Sumatran Rhinoceros

Synonyms : *Didermoceros sumatrensis* (Fischer), *Rhinoceros lasiotis* Bunckland.

Common names : Asian Two Horned or Sumatran Rhinoceros.

Regional names : Assamese : Garh.

Diagnostic characters : The Asian Two Horned or Sumatran Rhinoceros possesses two horns on its snout. Front horn above the nostril is about 80 cm high, while the second horn above the eye is shorter than the first one. Female also possesses horns. It has single pair of lower frontal teeth. The skin folds are weak. The body is covered with bristles visible throughout life. The base coat colour is earthy brown. Ears small and pointed edged with thick hairs. Tail covered with long hairs. Skin granular.

Measurements : (in cm) : Head and body length : 250 cm; width : 215 cm; height at shoulder : 135 cm; front horn length : 80cm.

Weight : Not available.

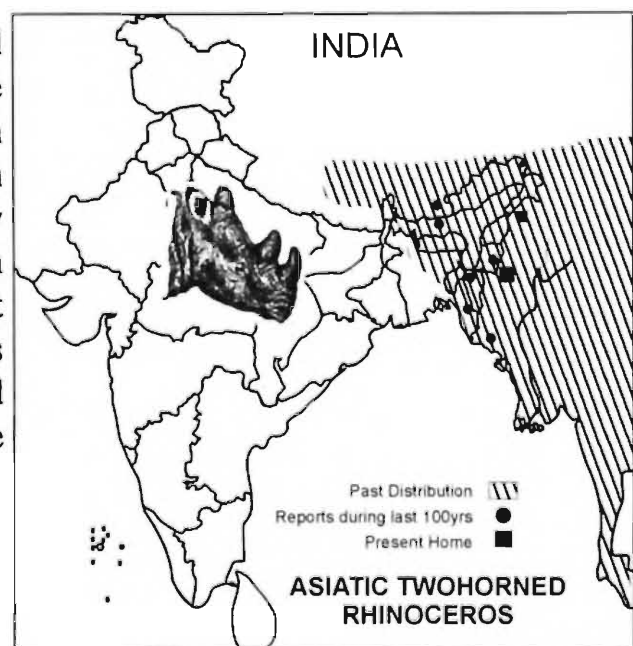
Intraspecific variations : None in the region.

Distribution : Manipur and Nagaland in India. The former distribution of the species was wide extending from eastern India (Assam) to Indonesia through Myanmar. However, the species is now struggling for survival in few pockets in the subcontinent due to persistent threats. Sumatran rhino's presence has been reported in Manipur and Nagaland along India-Myanmar border on some occasions during last 40 years.

Endemism : Non-Endemic species.

Altitude : Less than 2000 m.

Area of occupancy : 101-500 sq. kms.



Source : A.K. Mukherjee (1982) & A. Choudhury (1996)

Extent of occurrence : 501-2000 sq. kms.

Locations : *No. of locations* : Two in Indian regions; *Type* : Isolated.

Habit, habitat and ecology : The Sumatran rhino prefers to live in well-wooded wet tropical green forests on a hilly tract. It can go upto the elevation of almost 2000 m in summer, while it can descend down to the lower marshy and grassy areas in monsoon and winter seasons. It always prefers shade and water. It is basically a browser and includes in its diet variety of vegetations. It lives singly or in pair. It is a shy and timid animal. Little is known about its breeding season and habits. However, it is known that a calf is born at a time and it lives with the mother for fairly long time.

Habitat structure : The Sumatran rhino prefers to live in grassy and marshy areas within thickly forested inaccessible hilly tracts. The Forest type is mostly wet tropical forest. There is a change in the habitat structure. It has decreased to the extent of almost >50% during last 50 years.

Population : *Global population* : 100+ (Mukherjee, 1982); *No. of mature individuals in all the populations* : Not known.

Captive population : None in India. males : 6 + females : 12 = Total : 18 in 7 zoo abroad (CAMP, 1998).

Life span : (Wild) : Not known; (Captivity) : Not known.

Population trend : Declined to the extent of >50% in last 50 years.

Sighting records : *Type of sighting* : Direct and Indirect; *Field notes* : Direct/indirect sighting records in 1996 reported in Manipur and Nagaland by Choudhury (1997).



Dicerorhinus sumatrensis (Fischer)

Threats : Habitat fragmentation, agriculture and farming, human interference, loss of habitat, trade, hunting, insurgency, corridor loss etc.; *Effect of threats on population (Perceived or inferred)* : Declining.

Trade : Local and domestic; *Parts in trade* : Horn; *Effect of trade on population (Perceived or inferred)* : Declining.

Conservation status : CITES APPENDIX : Not Listed; *Indian Wildlife (Protection) Act (1972) (As amended upto 2002)* : Schedule : Not Listed; Part; *Indian Red Data Book (IUCN, 1994)* : Not Listed; *IUCN (1998) (Proposed)* : Critically Endangered (National) and Data Deficient (Global); *IUCN (2002) (Proposed)* : Critically Endangered (Global) based on Version 2.3 1994 (IUCN, 2003).

Taxon related studies recommended : Ex-situ survey, monitoring, conservation strategy studies etc.

Remarks : The species was thought to be extinct in India until 1996. Choudhury (1997) established its presence in Manipur and Nagaland. These few and isolated populations must be given the strictest protection by declaring these areas as national parks. Further, the species should be brought under Schedule-I, Part-I of Indian Wildlife Protection Act to offer complete protection to the species in India.

REFERENCES

- Choudhury, Anwaruddin. 1997. The Status of the Sumatran Rhinoceros in north-eastern India. *Oryx* 31(2) : 151-152.
- Molur, S.; Nameer, P.O. and Walker, S. 1998. *Report of the Workshop "Conservation Assessment and Management plan for Mammals of India."* (BCPP-Endangered Species Project) : 1-176. Publisher : ZooOutreach Organistaion, Conservation Breeding Specialist Group India, Coimbatore, India.
- Mukherjee, A.K. 1982. *Endangered Animals of India* : 1-122. Publisher : Director, Zool. Surv. of India, Calcutta.
- Prater, S.H. 1980. *The Book of Indian Animals* : 1-323. Publisher : Bombay Natural History Society, Mumbai.

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