

VIBRANT GANGA 

नमामि गंगे

glimpses
of
GANGA

THREATENED
AQUALIFE OF
GANGA RIVER



National Mission
for Clean Ganga



भारतीय वन्यजीव संस्थान
Wildlife Institute of India





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THREATENED
AQUALIFE OF
GANGA RIVER



Series 1
Threatened Aqualife of Ganga River

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The mighty Ganga River descends from the abode of the Gods, the Himalayas and on its way to the Bay of Bengal, every meander touches and blesses all living and non-living beings and rejuvenates each lifeform in the vast plains of northern India. The Ganga River embraces unique and diverse biota of the Indian sub-continent, and is the very essence of Indian culture and civilization.

The Ganga Riverscape encompasses three biogeographic zones: Himalaya, Gangetic plain and Coast, thus supporting distinctive floral and faunal assemblages of aquatic mammals, wetland birds, crocodilians, turtles, amphibians and fishes in its distinguishable upper, middle and lower reaches. The River passes through five states of northern India and the basin area encompasses 11 states and has one of the highest human densities in the world. The river water and other natural resource-base in its floodplains provide the basic amenities for more than 40% of India's population.

Years of continued exploitation of its resources, unsustainable practices due to high degree of dependence has threatened the integrity of the Ganga River and its aquatic fauna.

Alterations in flow continuity of the river and pollution are evident, and it is believed that these issues have resulted in a decline in the biodiversity value of the river. Earlier efforts to restore the Ganga River were largely related to corrective measures for reducing pollution, without giving due

importance to ecological values, ecosystem service provisions, biodiversity preservation, stakeholder involvement and community participation in river conservation.

In view of the above, the Ministry of Water Resources, River Development and Ganga Rejuvenation through its National Mission for Clean Ganga (NMCG) has initiated the project "Biodiversity Conservation and Ganga Rejuvenation" in collaboration with the Wildlife Institute of India (WII). This project aims to prepare a science-based aquatic species restoration plan for Ganga River by involving multiple



PREFACE

stakeholders. A comprehensive strategy to restore the biodiversity value of the Ganga River is being developed under the project. The proximate goal is to ensure that by 2020, a significant reduction of threats to the biodiversity of Ganga River, which are either currently endangered or are likely to be endangered, is achieved. For the active involvement of stakeholders, awareness on the importance of aquatic biodiversity and their role in river conservation is essential. Keeping this objective in mind, the publication series “Glimpse of Ganga” has been conceptualized as an information booklet for a glance into the key fauna of the Ganga River. This is the first from a series of publications of the same name containing information on few selected priority species. The priority species for the series were evaluated on the basis of: (i) its conservation status according to the International Union for Conservation of Nature and Natural Resources (IUCN) Red List criteria, Indian Wild Life Protection Act (IWPA) (1972) Schedules, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendices, and Convention on the Conservation of Migratory Species of Wild Animals (CMS) Appendices; (ii) the functional role or its representativeness of ecosystem it inhabits; and (iii) its sensitivity to habitat alterations.

Using the criteria listed above, 13 species has been selected for “Glimpse of Ganga - Series 1”. The thirteen species consists of two species of mammals, reptiles, amphibians, turtles and fishes and three species of birds. For each species, information on their taxonomy, conservation status, distribution, description, habitat, reproduction and major threats has been provided. All stakeholder groups from the scientific community to the local people can use this publication. For ease of use and identification of species by amateur users, visual aids in the form of photographs have been provided for each species. Distribution maps and key references have also been provided for all 13 species.

This booklet is published with the funds received from the National Mission for Clean Ganga (NMCG) under the “Biodiversity Conservation and Ganga Rejuvenation” project.



GANGETIC RIVER DOLPHIN

*Platanista gangetica
gangetica*

Vernacular name:
Susu, Hihu (Hindi),
Shushuk (Bengali)

Taxonomy:

- Class:
Mammalia
- Order:
Certiodactyla
- Family:
Platanistidae
- Genus:
Platanista
- Species:
*P. gangetica
gangetica*

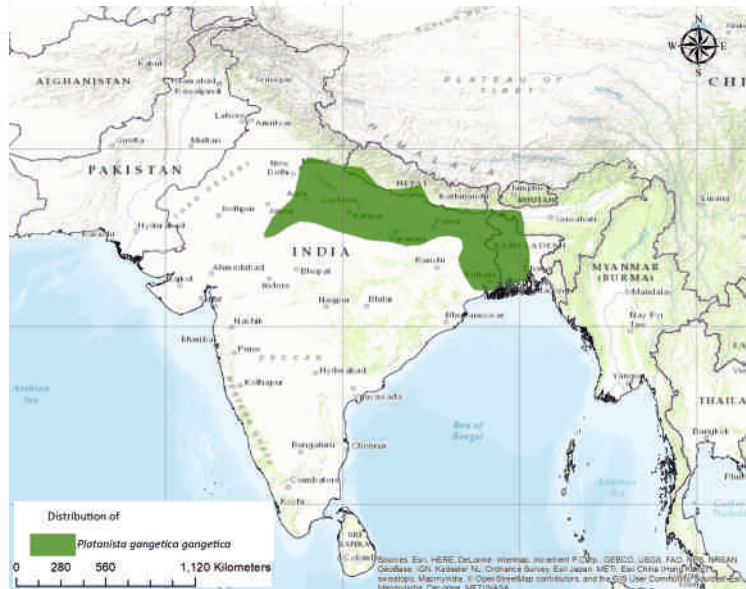
Population Trend:
Unknown

Conservation Status:

- IUCN Red List:
Endangered
- CITES:
Appendix I
- IWPA, 1972:
Schedule I

Distribution

Two subspecies (*P. gangetica gangetica* and *P. g. minor*) occur in the Indus, Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of the South Asian subcontinent, from the deltas upstream till they are blocked by rocky barriers, shallow water, fast currents, dams or barrages (low, gated diversion dams). The three river systems are not connected and, therefore, have their respective dolphin subpopulations.



Key identifying features

Males grow upto 2-2.2 m and females upto 2.4-2.6 m. A long thin snout, rounded belly, stocky mid-body and large flippers are characteristic of the Gangetic river dolphin. The species has a slit similar to a blowhole on top of its head, which acts as a nostril. The calves have chocolate brown skin at birth, while the adults have grey-brown smooth, hairless skin.

Habit & Habitat

Top predators in freshwater lotic systems. They are essentially blind and navigate by echolocation. They prey on carp and cat-fishes. Solitary or found in small groups. Mother and calf remain together. Surface every 30-120 seconds for breathing. Because of the sound it produces when breathing, the animal is popularly referred to as 'Susu'.



Reproduction

Breeding occurs year round. Birthing occurs during October to March but peaks during December and January preceding the beginning of the dry season. Gestation period is about 10 months. An adult female gives birth to one calf once every 2-3 years.

Major Threats

Habitat alterations due to the construction of barrages, dams and embankments results in population fragmentation. Water abstraction resulting in reduced flows. Unintentional killing through entanglement in fishing gear, poaching, overexploitation of prey-base mainly due to the widespread use of non-selective fishing gear, pollution from industrial waste and municipal sewage and persistent agro-chemicals.





SMOOTH- COATED OTTER

*Lutrogale
perspicillata*

Vernacular name:
Udbilav (Hindi),
Udberal (Bengali)

Taxonomy:

- Class:
Mammalia
- Order:
Carnivora
- Family:
Mustelidae
- Genus:
Lutrogale
- Species:
L. perspicillata

Population Trend:
Decreasing

Conservation Status:

- IUCN Red List:
Vulnerable
- CITES:
Appendix II
- IWPA, 1972:
Schedule II

Distribution

In India, the Smooth-coated otter is distributed in all the major rivers south of the Himalaya.



Key identifying features

The head to body length is 59-64 cm, with a tail 37-43 cm long. This species is distinguished from other species of otters by a more rounded head and a hairless nose in the shape of a distorted diamond. The tail is flattened, with shorter front legs. The fur is thick and velvety with two layers; the guard fur keeps the underfur dry under water to retain body heat. Males are larger than females.

Habit & Habitat

The species is social and frequently hunt in groups. They are mainly diurnal, and have a short lull in activity during midday. Omnivorous and eat fish, insects, earthworms, crustaceans and frogs. Fish make up 75 to 100% of the diet. Dive in groups in water, driving schools of fish together for easy capture. Prefer rocky stretches for den and resting. River stretches with bank side vegetation and marshes are preferred as they provide ample cover while travelling or foraging. Open clayey and sandy banks are largely avoided as they lack escape covers.



Reproduction

Breeding occurs between August to December. The species give birth to and raise their young in a burrow near water. A litter of up to five pups is born after a gestation period of 60 to 63 days.

Major Threats

Habitat loss/alterations due to wetland drainage and reclamation for settlements and agriculture, hydrologic alteration and encroachment. Illegal poaching, pollution from industrial waste and municipal sewage and persistent agro-chemicals. Overexploitation of prey base.





BLACK- BELLIED TERN

Sterna acuticauda

Vernacular name:
Kali tohri (Hindi),
Kalopet Panpaira (Bengali)

Taxonomy:

- Class:
Aves
- Order:
Charadriiformes
- Family:
Laridae
- Genus:
Sterna
- Species:
S. acuticauda

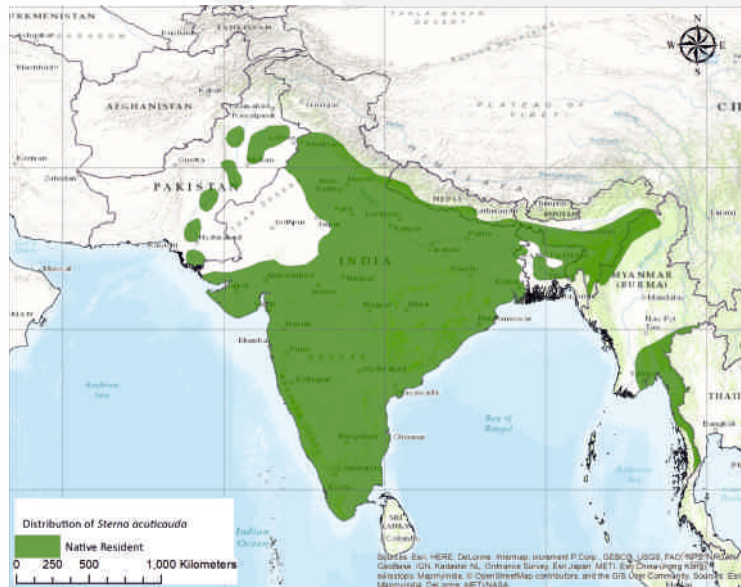
Population Trend:
Decreasing

Conservation Status:

- IUCN Red List:
Endangered
- CITES:
Not listed
- CMS:
Not listed
- IWPA, 1972:
Schedule IV

Distribution

A resident species found in major rivers systems of India. Distributed in middle and lower stretches of the Ganga River.



Key identifying features

Individuals can be 32-35 cm long. Adults have an orange bill, black cap and nape, dark grey breast and blackish belly and vent. Breeding birds show a whitish belly and lack tail streamers.

Habit & Habitat

It skims over the surface of water and ground to pick up insects and plunges at an angle into the water to feed on crustaceans, tadpoles and fish. Occurs in sandy banks and mid-river sandy islands of lowland rivers and marshes. It is a colonial island nester.



Reproduction

Breeding occurs during February to April. Nests in large congregations in river islands. A single clutch of 2-3 eggs are laid on sandy beaches of mid-river islands and sandy shorelines of large rivers.

Major Threats

Alteration of breeding habitats including river bank and river islands, agriculture, sudden release of water from dams, water pollution, nest predation by cats, dogs and corvids.





INDIAN SKIMMER

Rynchops albicollis

Vernacular name:
Panchhira (Hindi),
Gang chasha (Bengali)

Taxonomy:

- Class:
Aves
- Order:
Charadriiformes
- Family:
Laridae
- Genus:
Rynchops
- Species:
R. albicollis

Key identifying features

The size of an adult bird varies from 40-43 cm. Unique bill with much longer lower mandible, deep orange in colour with yellow tip is characteristic. Plumage is black and white with black upper body, white underpart and bright red legs.

Habit & Habitat

Skims over the water surface and feeds on surface-dwelling fish, small crustaceans and insect larvae. Preferred habitats are sandy mid-river islands, sandy banks of large rivers and lakes, swamps and coastal wetlands such as estuaries.



Reproduction

The breeding season is February to May. It is a colonial island nester. A single clutch of 3-4 eggs are laid on sandy beaches of mid-river islands and sandy shorelines of large rivers.

Major Threats

Alteration and degradation of habitats in rivers and lakes through the construction of dams. Overfishing, sand mining, agriculture, grazing and pollution from agricultural and industrial chemicals. Nest destruction by unpredicted water release from dams, egg predation by corvids and stray dogs.





INDIAN SARUS CRANE

Antigone antigone

Vernacular name:
Saras (Hindi)

Taxonomy:

- Class:
Aves
- Order:
Gruiformes
- Family:
Gruidae
- Genus:
Antigone
- Species:
A. antigone

Key identifying features

The Sarus Crane stands tall at 152-156 cm with a wingspan of 240 cm. It is the tallest Indian crane with naked red head and upper neck. Plumage is grey with greenish bill, and red legs. Reddish legs that are bright during breeding and pale during non-breeding season. Sexes are alike, female slightly smaller than male.

Habit & Habitat

These birds are omnivores and feed on aquatic plants, sedges, invertebrates and small vertebrates. They occur in large rivers, natural wetlands, small seasonal marshes, floodplains, fallow and cultivated lands and paddy fields.



Reproduction

Breeding occurs during June to September. The bird nests mostly in agriculture land and dry grassland. Nests are built with reeds and grasses that can reach roughly upto 2 m above the water surface. They lay a single clutch of 2-3 eggs. The chicks hatch after 28-31 days.

Major Threats

Loss and degradation of wetlands, as a result of drainage and conversion to agriculture land. Ingestion of pesticides, illegal hunting of adults and poaching of eggs and chicks.





GHARIAL

Gavialis gangeticus

Vernacular name:
Gharial (Hindi),
Ghorial (Bengali)

Taxonomy:

- Class:
Reptilia
- Order:
Crocodylia
- Family:
Gavialidae
- Genus:
Gavialis
- Species:
G. gangeticus

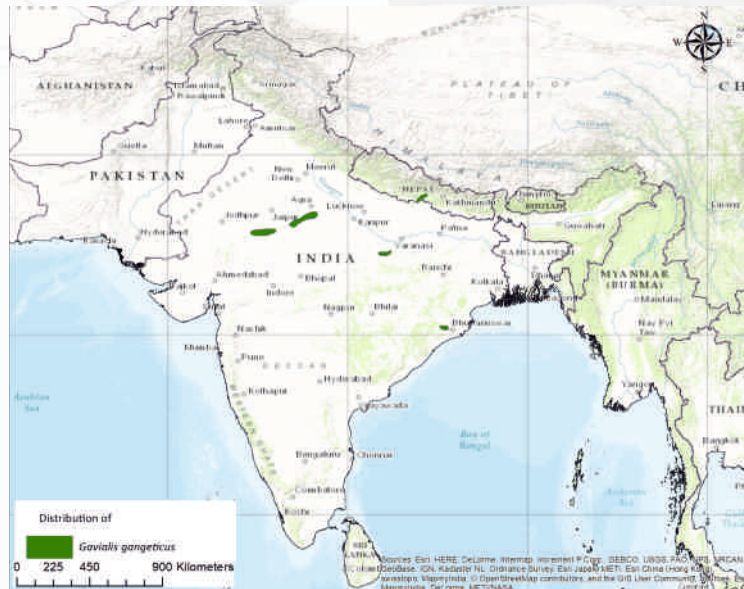
Population Trend:
Decreasing

Conservation Status:

- IUCN Red List:
Critically Endangered
- CITES:
Appendix I
- IWPA, 1972:
Schedule I

Distribution

A residential bird of northern and central India. Found in upper and middle stretches of the Ganga River.



Key identifying features

Mature gharials grow upto 3.5-4.5 m. It is the only Crocodylian species which shows sexual dimorphism as males have a bulbous appendage '*ghara*' at the tip of the thin long snout characteristic to the species. The species has unique interdigitated teeth, epidermal scales, bony-plates on dorsal side, short weak legs and highly webbed hind feet. It never moves far from the water.

Habit & Habitat

The adults are exclusively fish eaters and actively swims to catch fish. The young preys primarily on small invertebrates such as insects, larvae and small frogs. They form breeding groups and reside exclusively in river habitats with deep, clear, fast-flowing waters and steep, sandy banks. Adult gharials prefer deep sections of rivers formed at sharp river-bends and river confluences and use steep sandy banks for basking and breeding.



Reproduction

Gharial breeds during March to June. It is a colonial nester and hole-nesting species. Nests are dug in steep, fine-sandy banks with nearby deep-water section of river. A single clutch of 40-80 eggs is laid in a year. Eggs hatch after 60-70 days.

Major Threats

Habitat alterations through the construction of dams and barrages, sand mining. Accidental drowning in nylon gill fishing nets. Depletion of prey base, sudden release of dam water and harvesting of eggs and poaching for the use of its body parts in medicines.





MUGGER

Crocodylus palustris

Vernacular name:
Mugger (Hindi),
Kumir (Bengali)

Taxonomy:

- Class:
Reptilia
- Order:
Crocodylia
- Family:
Crocodylidae
- Genus:
Crocodylus
- Species:
C. palustris

Population Trend:
Stable

Conservation Status:

- IUCN Red List:
Vulnerable
- CITES:
Appendix I
- IWPA, 1972:
Schedule I

Distribution

India and Sri Lanka retain the major populations of the species. In India, significant populations occur in middle stretches of Ganga River (Bihar and Jharkand) and Chambal River (Rajasthan and Madhya Pradesh).



Key identifying features

Mature muggers can grow upto 4.5 m. It has a broad snout, heavily armored dorsal part with enlarged scutes around the neck. The adults are dark grey or brown while the juveniles generally have a light tan colouring with some black cross-banding on the body and tail.

Habit & Habitat

The species is solitary, opportunistic predator and use all available resources as food. They prefer fish, amphibians, reptiles, snakes and sometimes turtles, birds and even mammals like monkeys. The young generally feed on crustaceans, insects and small fish. They are generally found in lakes, rivers and marshes. They also thrive in man-made reservoirs and irrigation canals.



Reproduction

It breeds during March to June. It is a hole nesting species, where holes are dug in sandy or clayey banks with deep-water section of river or wetland nearby. A single clutch of 25-30 eggs are laid in a year. Eggs hatch after 55-75 days.

Major Threats

Habitat destruction due to hydrologic alterations, agricultural and industrial expansion. Entanglement and drowning in fishing nets, increasing incidences of conflict with humans due to encroachment into the species' natural habitats and poaching.





NORTHERN RIVER TERRAPIN

Batagur baska

Vernacular name:
Pora katha (Bengali)

Taxonomy:

- Class:
Reptilia
- Order:
Testudines
- Family:
Geoemydidae
- Genus:
Batagur
- Species:
B. baska

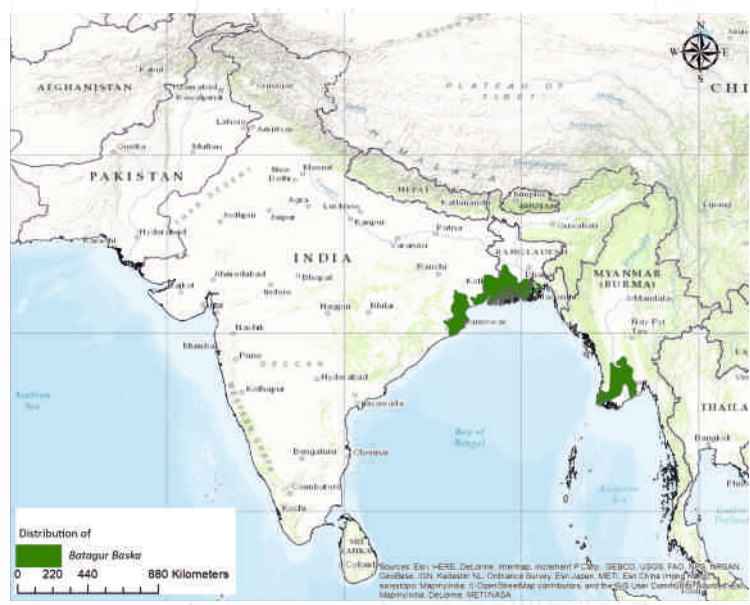
Population Trend:
Unknown

Conservation Status:

- IUCN Red List:
Critically Endangered
- CITES:
Appendix I
- IWPA, 1972:
Schedule I

Distribution

The Northern River terrapin is found in the Sundarbans in India and Bangladesh. It is also reported from Malaysia (peninsular), Indonesia (Sumatra) and Cambodia. It is regionally extinct in Myanmar, Singapore, Thailand and Vietnam.



Key identifying features

The species grows upto 59 cm. It has a deep, massive, heavily buttressed shell, large powerful limbs and broad fully webbed feet. It has a pointed and up turned nose tip. Four claws on the forelimb. Head is covered with undivided skin. Usually brown or grey in color, however during the breeding season head of males turn black and body develops a pink hue.

Habit & Habitat

The species nests in sandy river banks and shoreline in the estuarine and coastal region.



Reproduction

Mates during the cold weather (December-March) and lay eggs in summer (April-June). Clutch size is upto 50 eggs which hatch after 47 to 100 days varying with ambient temperature.

Major Threats

Major threats include illegal hunting and harvesting of eggs, loss of habitat including nesting beaches, mangrove forests and loss of food sources, incidental drowning by getting trapped in fishing nets and traps, destructive fishing practices, water pollution and climate change.





RED- CROWNED ROOFED TURTLE

Batagur kachuga

Vernacular name:
Dhor (Hindi)

Taxonomy:

- Class:
Reptilia
- Order:
Testudines
- Family:
Geoemydidae
- Genus:
Batagur
- Species:
B. kachuga

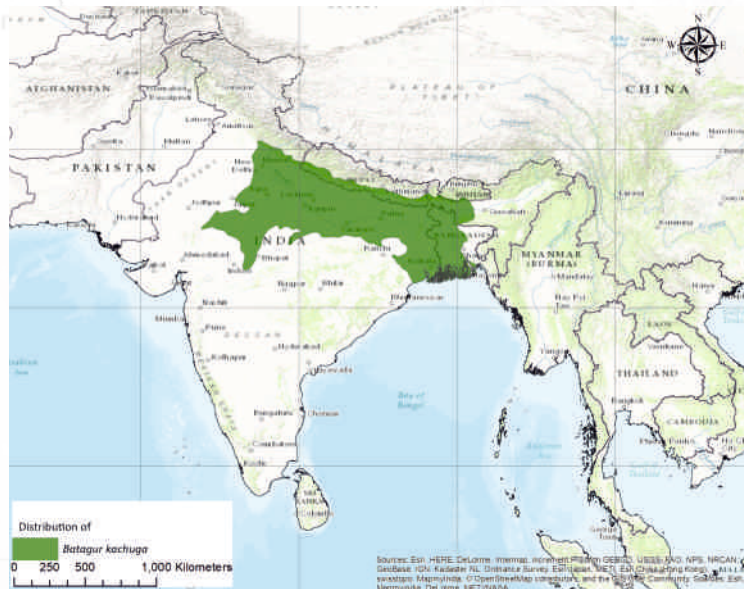
Population Trend:
Unknown

Conservation Status:

- IUCN Red List
Critically Endangered
- CITES:
Appendix II
- IWPA, 1972:
Schedule I

Distribution

The Red-crowned roofed turtle is native to India, Bangladesh and Nepal. The species is distributed in the Ganga River and in the Brahmaputra basin. The National Chambal Sanctuary harbors substantial breeding population of the species.



Key identifying features

Grows upto 49-56 cm. Digits are fully webbed, claws feeble, five anteriorly and four posteriorly. Forelimbs and hindlimbs of lower leg have narrow, not imbricate, transverse scutes. Tails are shorter than the head. The central keel on the back is prominent on the 2nd and 3rd vertebral shields. Shells are olive or brown above and yellow below. In breeding males, the pale brown neck has seven red or reddish brown lines and bright red on top of the head. The lateral portion of the head is blue. Throat has a pair of oblong red to yellow spots. Females are larger than males.

Habit & Habitat

The individuals of the species inhabit deep flowing rivers with terrestrial nesting sites.



Reproduction

The species breeds during March to April. It lays a clutch of 11 to 18 oblong eggs in holes dug in sandy shorelines of large rivers. Hatchlings emerge during June before the onset of monsoon.

Major Threats

Habitat loss and fragmentation due to hydrologic alterations from upstream dams and reservoirs, sand mining and river bank agriculture. Drowning in fishing nets, illegal hunting and poaching of eggs, water pollution and climate change are major threats.





JERDON'S BULL FROG

Hoplobatrachus crassus

Vernacular name:
Mendhak (Hindi),
Sona bang (Bengali)

Taxonomy:

- Class:
Amphibia
- Order:
Anura
- Family:
Dicoglossidae
- Genus:
Hoplobatrachus
- Species:
H. crassus

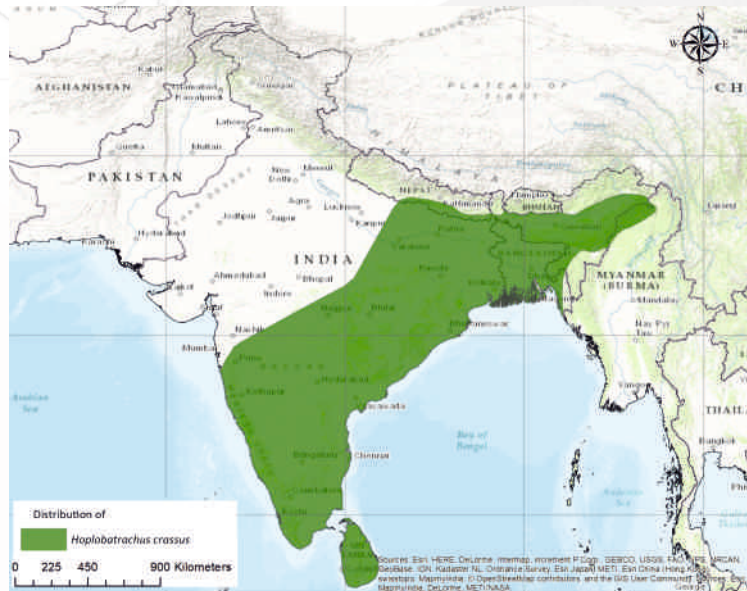
Population Trend:
Decreasing

Conservation Status:

- IUCN Red List
Least Concern
- CITES:
Not listed
- IWPA, 1972:
Not listed

Distribution

The species is widely distributed in the eastern and the western regions of India including Andhra Pradesh, Assam, Bihar, Jharkhand, Kerala, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.



Key identifying features

It is a large sized frog, which can grow upto 121 mm. The body is brown, with darker spots on the dorsal side. Irregular glandular folds are present on the back.

Habit & Habitat

It is a terrestrial species of seasonally flooded dry grasslands, open plains and arid areas. Adults are often found in burrows, and are known to aestivate during dry periods. It occurs in cultivated areas and around human settlements.



Reproduction

Breeding starts with the onset of rains. Breeding, and presumably larval development takes place in many different types of waterbodies.

Major Threats

Loss of available habitat through the localized clearance of forests and wetlands are major threats. It is also threatened by changes in waterway management.





TYTLER'S POND FROG

Hylarana tytleri

Vernacular name:
Mendhak (Hindi)

Taxonomy:

- Class:
Amphibia
- Order:
Anura
- Family:
Ranidae
- Genus:
Hylarana
- Species:
H. tytleri

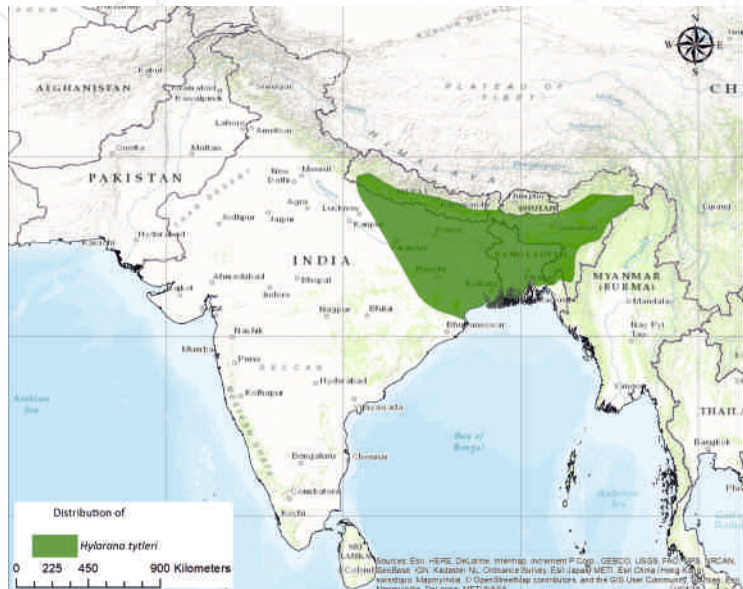
Population Trend:
Stable

Conservation Status:

- IUCN Red List
Least Concern
- CITES:
Not listed
- IWPA, 1972:
Not listed

Distribution

This species ranges through much of the lower Gangetic Plain and eastern India, southern Nepal and throughout Bangladesh.

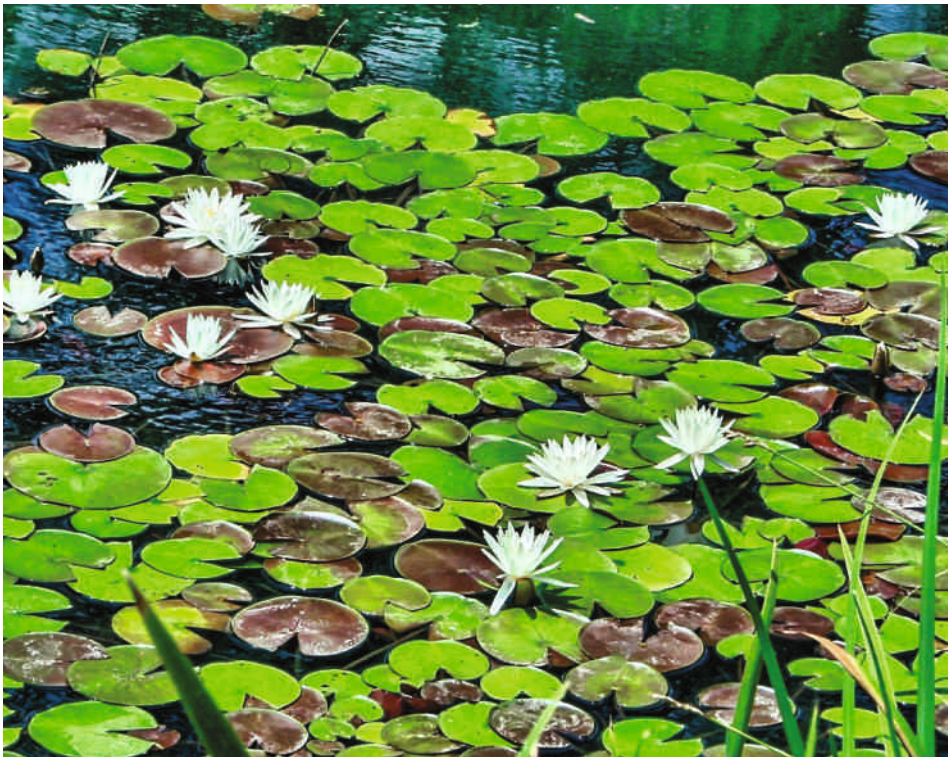


Key identifying features

It is a small frog, with moderately elongated head. It has a distinctive dorsal yellow-green stripe and dark brown parallel streaks. The underpart is whitish.

Habit & Habitat

It is a lowland species found upto 300 m asl. This species is associated with a variety of aquatic habitats such as pools, lakes and marshes. It may be found in bank side vegetation, and within scrubland and tropical forest habitats and in artificially flooded agricultural areas such as paddy fields.



Reproduction

The species is a pre-monsoon breeder, with breeding restricted to the months of April and May. The species generally breeds in the stagnant waterbodies.

Major Threats

It is generally threatened by agro-chemical pollution, poaching and habitat destruction. Due to its small size, the species is prone to predation.





GOLDEN MAHSEER.

Tor putitora

Vernacular name:
Mahaseer (Hindi),
Mahaseer (Bengali)

Taxonomy:

- Class:
Actinopterygii
- Order:
Cypriniformes
- Family:
Cyprinidae
- Genus:
Tor
- Species:
T. putitora

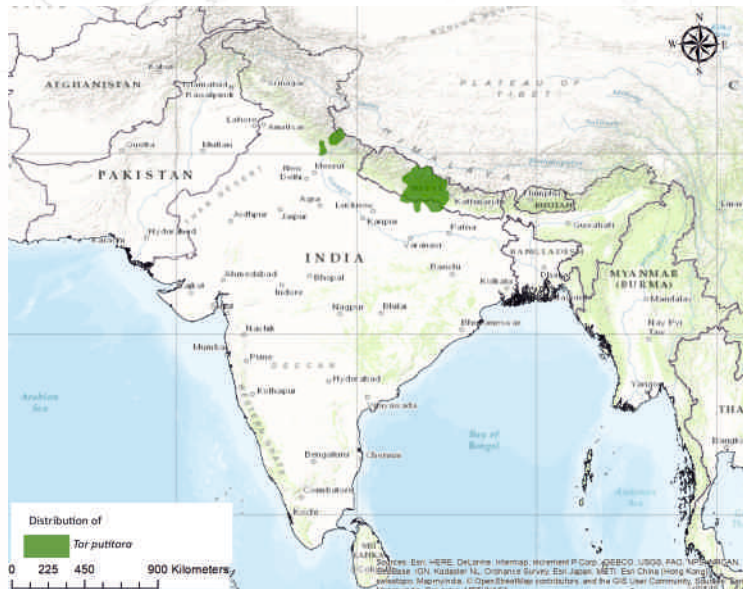
Population Trend:
Decreasing

Conservation Status:

- IUCN Red List
Endangered
- CITES:
Not listed
- IWPA, 1972:
Not listed

Distribution

The species has been reported from the Himalayan region and elsewhere in south Asia and southeast Asia, ranging from Afghanistan, Pakistan, India (Darjeeling to Kashmir), Nepal, Bangladesh, Bhutan, Sri Lanka, Myanmar, western Iran to eastern Thailand.



Key identifying features

The species can reach upto 270 cm. The body is elongated, and compressed. Mouth is small with the upper jaw slightly longer than the lower jaw. Lips are thick and fleshy, barbells two pairs, caudal fin deeply forked. Scales golden with dark base.

Habit & Habitat

The species inhabits the montane and submontane streams and rivers of the Himalayan region. It inhabits rapid streams with rocky bottom, riverine pools and lakes. The fish is a column feeder, found in pH ranges 7.4-7.9 and in subtropical condition 13°C-30°C. It is omnivorous in nature during their adult stage and feed on periphytic algae and diatoms in juvenile stage.



Reproduction

The fish generally breeds during floods and spawns over rocky, gravel substrates, often in ephemeral headwaters. Sexual productivity is low (6,000–10,000 eggs per kg).

Major Threats

Urbanization, illegal encroachment, overfishing and chemical and physical alterations of their natural habitats have resulted in loss of feeding and breeding habitats throughout their range.





WALLAGO

Wallago attu

Vernacular name:
Bholi (Hindi),
Boaal (Bengali)

Taxonomy:

- Class:
Actinopterygii
- Order:
Siluriformes
- Family:
Siluridae
- Genus:
Wallago
- Species:
W. attu

Key identifying features

The species can reach upto 1 m. Body is elongated and strongly compressed. The head of the species is broad with depressed snout. Mouth is deeply cleft, its corner reaching far behind eyes, barbels two pairs. Teeth in jaws set in wide bands and vomerine teeth in two small patches.

Habit & Habitat

This catfish inhabits large rivers, lakes and ponds. It is among the largest, most voracious and predatory of the local catfish, which thrives well in rivers and lakes, especially with grassy margin. It is an ambush hunter and stays at the bottom of water in search of food.



Reproduction

The species spawns once a year and breeds during May to August.

Major Threats

Overexploitation for human consumption has resulted in population decline.



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