

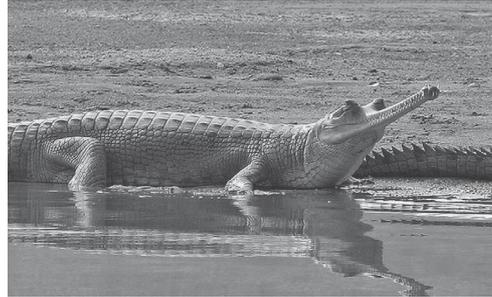


Save the Gharials

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Gharial also known as 'Gavial' and the 'Fish-eating crocodile' is a species of reptile found in freshwater. It is one of the oldest creatures on this planet and is native of Indian sub-continent. Gharials once inhabited all the major river systems of the Indian sub-continent, from the Irrawady River (Myanmar) in the east to the Indus River in the west. Their distribution is now limited to only 2% of their former range. The name Gharial is derived from the resemblance of the nasal boss to an earthen pot known as *Ghara*. The scientific name of Gharial is *Gavialis gangeticus* and belongs to Gavialiadae family. It is the only survivor of the family. The extremely fragmented distribution, deteriorating status and intense pressure from human activities makes Gharial one of the highly threatened animal species on the planet. It has been listed as "Critically Endangered" species in the Red List of Threatened Species of the International Union for Conservation of Nature and Natural Resources (IUCN). Critically endangered species are those species which are facing immediate threat of extinction.

Gharial is revered as the vehicle of *Ganga* (River Deity) and *Varuna* (God of winds). Traditionally the animal has been identified with water, the source of all existence and fertility. It is the insignia of *Kamadeva* God representing love and lust and Kama's flag (*Dhwaja*) is known as *Karkadhvaja* i.e. Gharial depicted on the flag.



Distribution Range of Gharial

Gharials once lived in all major river systems of the Indian subcontinent, spanning the rivers of its northern part from the Indus River in Pakistan across the Gangetic flood plain to the Irrawady River in Myanmar. However, today they are extinct in the Indus River, in the Brahmaputra of Bhutan and Bangladesh, and in the Irrawady River of Myanmar. Their distribution is now limited to only 2% of their former range. In India, small populations are present in the rivers of National Chambal Sanctuary, Katarniaghat Wildlife Sanctuary, Sone River Sanctuary and the rainforest biome of Mahanadi in Satkosia Gorge Sanctuary, Odisha.

In Nepal, small populations are present in tributaries of Ganges, such as the Narayani-Rapti river systems in Chitwan National Park and the Karnali-Babai river system in Bardia National Park.

Physical Features of Gharial

The Gharials are characterized by their extremely long, thin jaws, regarded as an adaptation to a predominantly fish diet. Gharial is dark or light olive above with

dark cross-bands and speckling on the head, body and tail. Dorsal surfaces become dark, almost grey-black at about 20 years of age. Ventrals are yellowish white.

The neck is elongated and thick. The fingers are extremely short and thickly emarginated with a web. Males develop hollow bulbous nasal protuberance at sexual maturity.

The size of mature Gharials ranges between 3.5 to 4.5 m. The maximum reported size is 6.25 m. Young Gharials can reach a length of 1 m in 18 months. The average body weight varies between 159-250 kg. Males attain a total length of 3 to 5 m whereas females are smaller and reach a body length up to 2.7 to 3.75 m.

The elongated narrow snout of Gharials is lined by 110 sharp inter-digitated teeth and becomes proportionally shorter and thicker as the age of animal advances. There are 27 to 29 upper and about 25 lower teeth on each side.

Habitat, Ecology and Behaviour of Gharial

Gharials are survivors from great reptilian age and are ecologically important organisms. They are recognized as keystone species in their environment. Keystone species are those species which maintain structure and organization of the community.

Gharials are generally residents of flowing rivers with deep pools that have high sand banks and good fish stocks.

The Gharial is poorly equipped for locomotion on land, and adults cannot lift their bodies clear of the ground. It usually leaves the water only to bask and nest both of which usually occur on sand banks.

The elongated narrow snout reduces resistance to water when snagging fish and the very sharp inter-digitated teeth are well adapted for capturing fish. Young Gharials feed insects, tadpoles, small fish and frogs while adults feed on fish and small crustaceans. They do not chew their prey but swallow in whole.

Males attain sexual maturity at around 13 years of age. They advertise for mates by making hissing and buzzing noises as they patrol their territories and may have a harem of females within a territory which they aggressively defend from other males. Females communicate their readiness to mate by raising their snouts upwards. Courtship involves head and snout rubbing and mounting by both males and females.

Mating occurs in cold season (December and January). In India Gharials nest in March and April. The female lays 20-95 eggs in 50-60 cm deep hole. The hole is dug with the hind feet in a riverside sand or silt bank 1.5 m from the waterline. The eggs are large in size with average weight of 160 gm. After 71-93 days of incubation, young Gharials hatch in the month of July just before the monsoon. Temperature is supposed to play a crucial role in determining the gender.

Threats to the survival of Gharial

The Gharial, endemic to Indian sub-continent was once abundant and common with an estimated population of 5,000 to 10,000 in 1940. Since 1999 a sharp decline in Gharial population has been reported throughout its entire range. In 1997, 436 breeding adult Gharials were reported and by 2006 their numbers dropped to 182 indicating a reduction of 58% over the last



10 years. The total wild population of Gharial in the world is now estimated to be less than 200 individuals making it a “Critically Endangered” species.

The main threats to the survival of Gharials include habitat loss, hunting, fishing, and river water pollution, egg collection for consumption, killing for indigenous medicines and killing by fishermen.

The loss of habitat due to construction of dams, barrages, irrigation canals, siltation, sand-mining, riparian agriculture etc. are the main cause behind drastic decline in population of Gharials. The increase in intensity of fishing and use of gillnets which kills adults and sub-adults is another threat prevalent throughout most of the Gharial habitat even in protected areas. Hunting for skins and trophies is also a threat to Gharials. The eggs of Gharial are occasionally collected by local people for medicinal purposes and this have also been a threat to them. Furthermore, Gharials are killed for their aphrodisiac properties associated with the snout. The river water pollution is also a threat to the survival of Gharials. In December 2007, several Gharials were found dead in Chambal River. *Post mortem* of them revealed high levels of heavy metals like lead and cadmium in their stomach to have caused their deaths.

Gharials are also snared in fishing nets and killed by the fishermen.

Conservation of Gharial

Gharial is listed on Appendix I in the Convention on International Trade in Endangered Species (CITES). In India, it is protected under the Wildlife (Protection) Act 1972.

Gharials are bred in captivity in the National Chambal Sanctuary in Uttar Pradesh, India and in the *Gharial Breeding Centre* at Chitwan National Park in Nepal. They are generally grown for 2-3 years and average about 1 meter in length when released.

The Gharial Conservation Alliance (GCA) was established in 2007 which comprises of key Gharial scientists, experts and stakeholders primarily in Gharial range states. It is coordinating research and conservation activities on remaining population and habitats. In India, the following actions are needed for the conservation of Gharials.

1. To check the habitat loss.
2. To put complete ban on fishing in the habitats inhabited by them.
3. To ensure the availability of sufficient foods in the habitats.
4. To check the river water pollution.
5. To strictly enforce the Indian Wildlife (Protection) Act.
6. To restore the degraded habitats.

Conclusion

It can be concluded that ecologically important Gharials are highly threatened species of reptiles almost standing on verge of extinction. Therefore it is the need of the hour to conserve Gharials for the maintenance of ecological balance and biological diversity.

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