

## AN OVERVIEW OF THE REPTILES IN THE ESTUARIES OF INDIA, WITH BRIEF NOTES ON THEIR HABITS AND DISTRIBUTION

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### SUMMARY

Reptiles found in estuaries, mangrove forests and/or swamps, tidal rivers, and creeks of India are diversified though not great in numbers. Information on the estuarine reptiles of India is, with few exceptions, scanty. This paper, which deals with species of estuarine reptiles, is both an overview and an introduction to these animals, of which much remains to be learnt. Brief notes on the habits and distribution of the species discussed has been provided.

### INTRODUCTION

Reptiles are far less sensitive to the salinity of water than the amphibians. In addition to the distinctly marine reptiles like the sea turtles and sea snakes, there are a considerable number of turtles, lizards, and snakes and a single species of crocodile that live in the estuaries. However, information concerning the herpetology of estuaries is wanting, probably because the herpetologists, like most reptiles, are active on land. The only publications dealing with the estuarine reptiles are those of Annanadale (1907, 1917, 1921) and the recent study in India is concerned only with the giant and endangered reptiles like the Saltwater Crocodile, Water Monitor, and the King Cobra. The present paper, which introduces the estuarine reptiles of India, is primarily intended to stimulate further studies on the subject.

### SPECIES ACCOUNTS

#### CROCODILES

##### Family Crocodylidae

**Saltwater Crocodile**, *Crocodylus porosus* Schneider, 1801. – This crocodile inhabits the mouths of muddy rivers and canals near the sea and is often found far out at sea. It ascends the rivers, but is not known to penetrate beyond the tidal limits. It spends considerable time on land amidst thick mangroves. The juveniles eat mainly Crustacea, insects, and small fish, while the adults take an increasing proportion of large vertebrates. It is not surprising that this large and ferocious reptile turns an occasional man killer and most of the attacks on humans in India are attributed to this crocodile. But it seems that it is only the adult, which is pressed by hunger and is in a changed mood, that attacks the huge beasts and men. The female lays from 50 to 60 eggs and builds a nest mound for them. The female keeps a constant vigil over the nest until the hatchlings emerge. She responds even to the calling of the young and carries them to water.

This crocodile, which was abundant wherever its preferred habitat, i.e. the estuarine mangroves flourished, is now severely depleted, being restricted to a few pockets in the Sundarbans (West Bengal, Bhitarkanika (Orissa), and Andaman and Nicobar Islands).

#### TURTLES

##### Family Emydidae

**River Terrapin**, *Batagur baska* (Gray), 1830. – This turtle inhabits the estuaries, deep slow-flowing rivers and canals. It is a thoroughly aquatic species, feeding mainly on vegetable matter comprising the stems, leaves, and the fruits of plants on the banks. It is a shy creature. The female lays about 60 eggs in three batches in the sand banks near the tidal estuaries.

This edible turtle formerly ranged extensively in the Ganges system, but is now severely depleted

and has almost become scarce. It has been recently reported from a few islands in the Sundarbans (West Bengal), which are probably the turtle's unspoilt breeding grounds in India.

## LIZARDS

### Family Varanidae

**Water Monitor**, *Varanus salvator* (Laurenti), 1768. – The most aquatic of monitors, the Water Monitor is at home in fresh as well as saline water. It frequents the coastal estuaries in search of Crustacea and molluscs. It is often found far out at sea. It climbs trees readily. The female lays from 25 to 30 eggs at a time and deposits them in holes on the river banks or in tree-holes or termite nests near the water.

In India, the Water Monitor is found in the mangroves of Assam, Orissa, West Bengal, and in the Andaman and Nicobar Islands.

## SNAKES

### Family Achrochordidae

**Asiatic File Snake**, *Chersydrus* (= *Achrochordus*) *granulatus* (Schneider), 1799. – This is an obese, sluggish, inoffensive fish-eating snake, which is found in salty and brackish waters of the river mouths and coasts. Although it lacks the usual serpentine grace, the file snake is a swift and graceful swimmer, but is helpless on land. It is a live bearer, the female producing from 6 to 8 young at a time.

Found from India to New Guinea, this snake is incredibly numerous in the Chilka Lake, Orissa. Murthy (1974) says that the paucity of the records of the occurrence of this species, apart from the Lake Chilka, is probably because the few occasional specimens which are caught in fishing nets escape the notice of herpetologists.

### Family Colubridae

**Mangrove Snake**, *Boiga dendrophila* (Boie), 1827. – This is a cat snake, which has been appropriately named as it is strictly arboreal, rarely descending to the ground. Its other name, 'Black and Gold Tree Snake', is also an apt description of its colouration. Although it is a rear-fanged snake with an aggressive disposition, the cat snake is not considered dangerous to man. It preys upon birds and bats.

The mangrove snake, which represents the Malaysian element in the herpetofauna of India, is found only in the Nicobar Islands.

**Schneider's Smooth Water Snake**, *Enhydryis enhydryis* Schneider, 1799. – This is a mud-living snake, preferring the sluggish water of the lakes, estuaries, and the coasts. It feeds principally on fish and is harmless. The female brings forth from 6 to 18 young at a time.

It is common on the east coast of India.

**Dog-Faced Water Snake**, *Cerberus rhynchops* (Schneider), 1799. – This is a common estuarine snake of India, with an unusually prominent lower jaw, like that of a bulldog's. It feeds voraciously on fish. It is generally a mild tempered and lethargic snake, although it hisses loudly and bites viciously, if provoked. It gives birth to from 6 to 30 young at a time.

The Dog-Faced Water Snake is abundant on the east and west coasts and in the estuaries, tidal rivers and creeks of India. Smith (1943) considers such a common snake as "rare on the coasts of India". Whitaker (1969) and Murthy (1970) however, have established its widespread occurrence.

**Glossy Marsh Snake**, *Gerardia prevastiana* eydoux and Gervais, 1832. – This is a thoroughly aquatic snake, frequenting the tidal rivers and estuaries. It is often found along the coasts. It is rather lethargic on land and is not inclined to bite unless provoked.

**White-bellied Water Snake**, *Fordonia leucobalia* Schlegel, 1837. – This is a rare species, found on the coasts of the Nicobar Islands. It is said to swim far out at sea and live on crabs. Very little is known of its life-history.

**Yellow-banded Mangrove Snake, *Cantoria violacea* Girard, 1857.** – This is another rare species, confined to the coasts of the Andaman Islands.

#### Family Elapidae

**King Cobra, *Ophiophagus hannah* (Cantor), 1836.** – The King Cobra, which is feared for its amazing length (6m) for a venomous snake and deadly venom as well, is usually partial to the dense jungles, assured of a heavy rainfall and thick forest floor. It is diurnal, feeding mainly on snakes, sometimes including its own kind. It is probably the only snake in the world to construct an elaborate two-chambered nest of leaves and twigs, the lower for depositing the clutch of about 20 eggs and the upper one for the brooding female. Despite several authentic reports and tall tales about the snake's unprovoked attacks on humans and beasts alike, recent studies indicate that the King Cobra is a timid snake and makes off without delay when encountered in the wild.

The King Cobra, which was hitherto considered a snake in the rain forests in the Western Ghats, South India and Himalayas (Assam and West Bengal), has since been reported from the mangrove swamps in the Sunderbans, Orissa, and the Andamans.

#### Family Hydrophiidae

**Beaked Sea Snake, *Enhydrina schistosa* (Daudin), 1803.** – This is one of the most widely distributed and abundant sea snakes, which is easily recognised by its snout which is hooked and looks like the beak of a bird. It is considered as the most dangerous of sea snakes as its venom has proved to be much more powerful than that of the cobra.

This sea snake is generally found in shallow waters with a muddy bottom. It is also frequently noticed in coastal streams to about the limits of tidal flow. It enters the tidal creeks during the monsoon. Murthy (1977) recorded this snake in good numbers from the estuaries of Ennore, Adyar, and Kovelong, near Madras.

**Eccentric Sea Snake, *Hydrophis obscurus* Daudin, 1803.** – This sea snake is rather eccentric in appearance: the head is very small and the much elongated body is slender anteriorly and much compressed posteriorly.

Recorded from Madras to the Sunderbans on the east coast. It is common at the mouths of the Hoogli River, and in the Chilka Lake, Orissa. Annandale's (1915) contention that this species is more an inhabitant of the brackish water than the sea seems to be valid because the snake can be expected with each haul of fishing nets operated in the Chilka Lake.

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