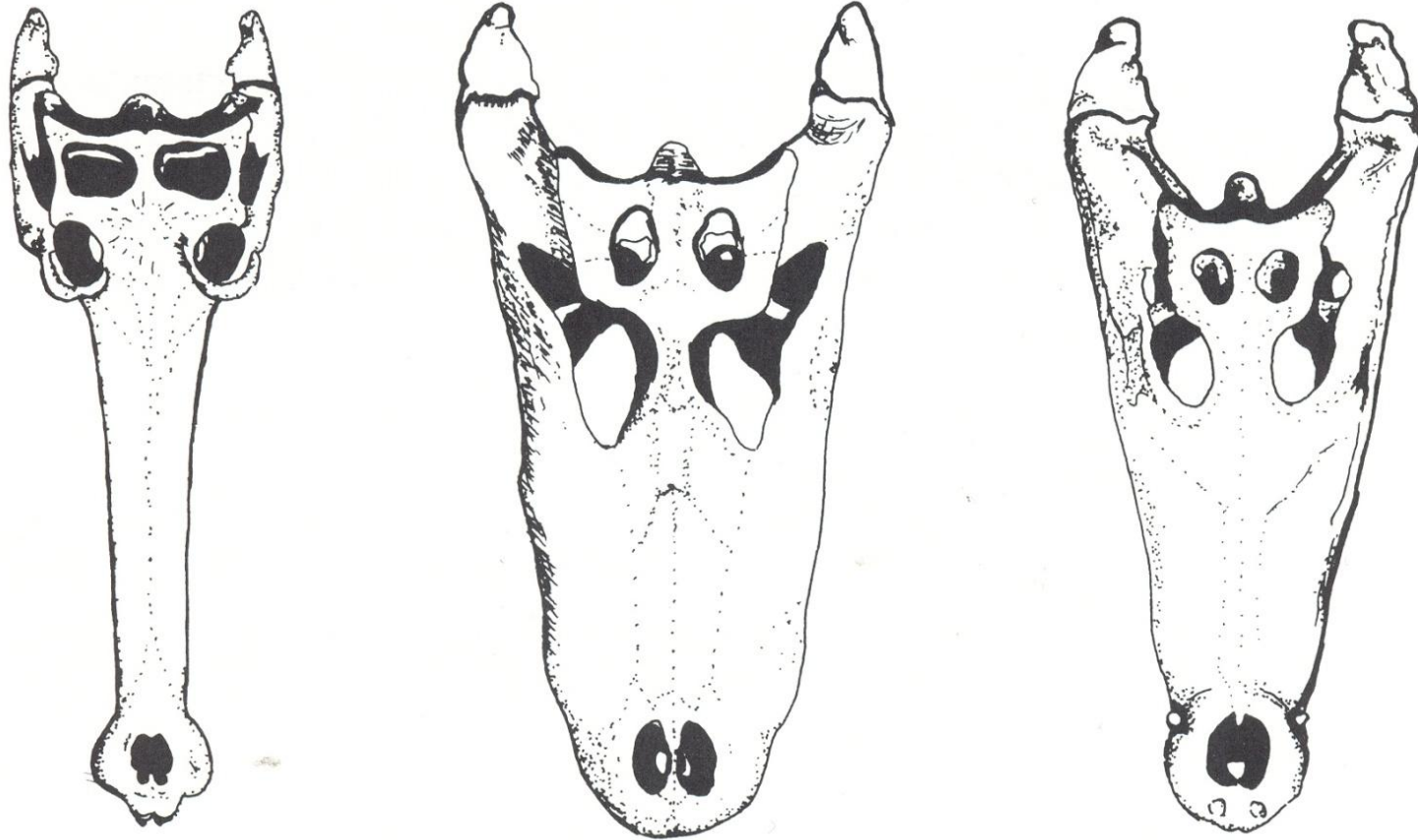


Biology, ecology and conservation of crocodiles



Crocodylian skull shapes. *Left: Gharial. Center: Alligator. Right: Crocodile.*

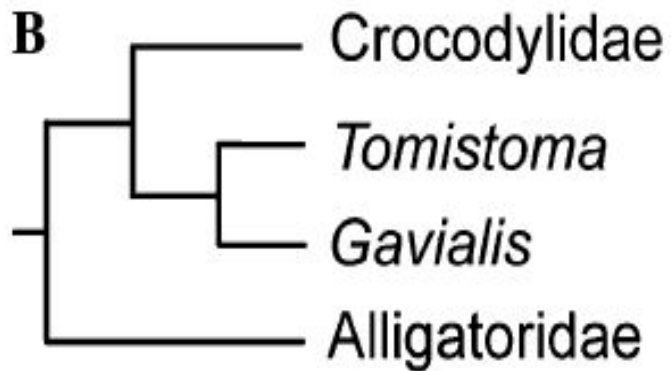
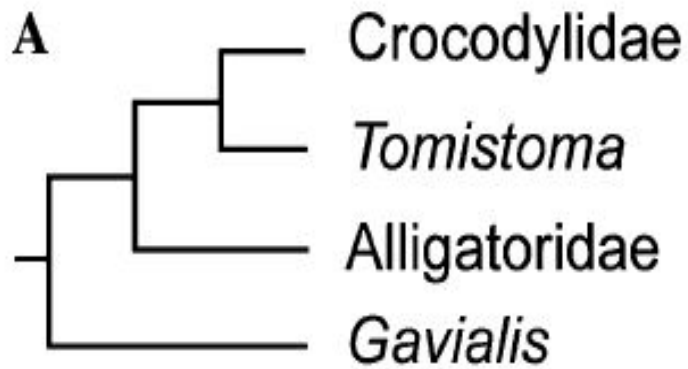
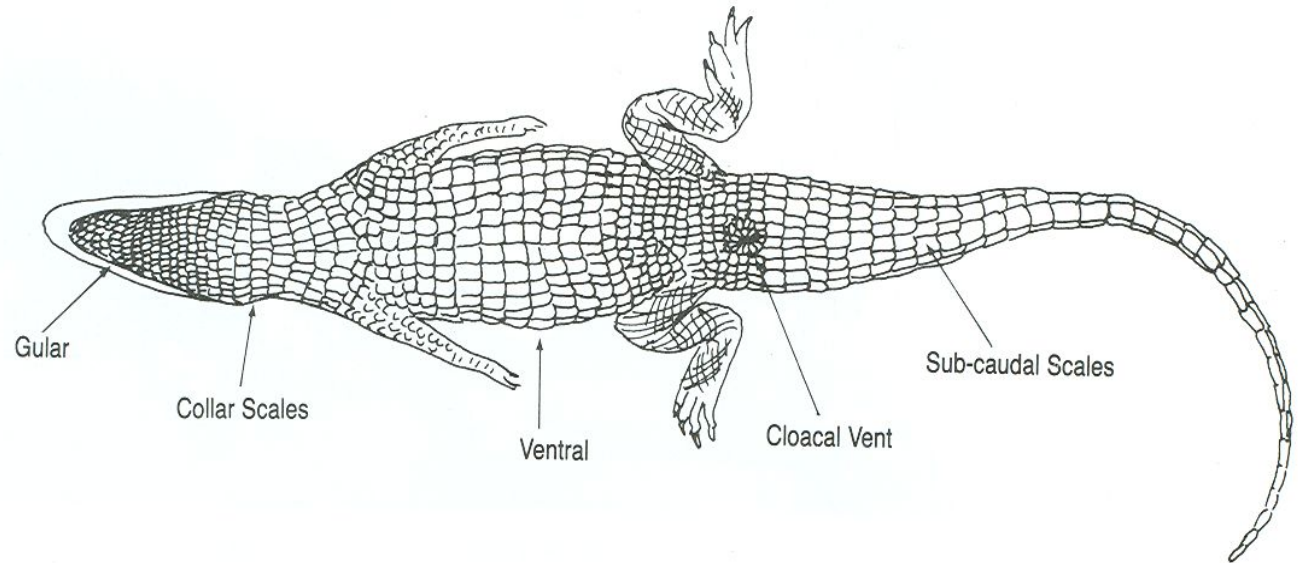
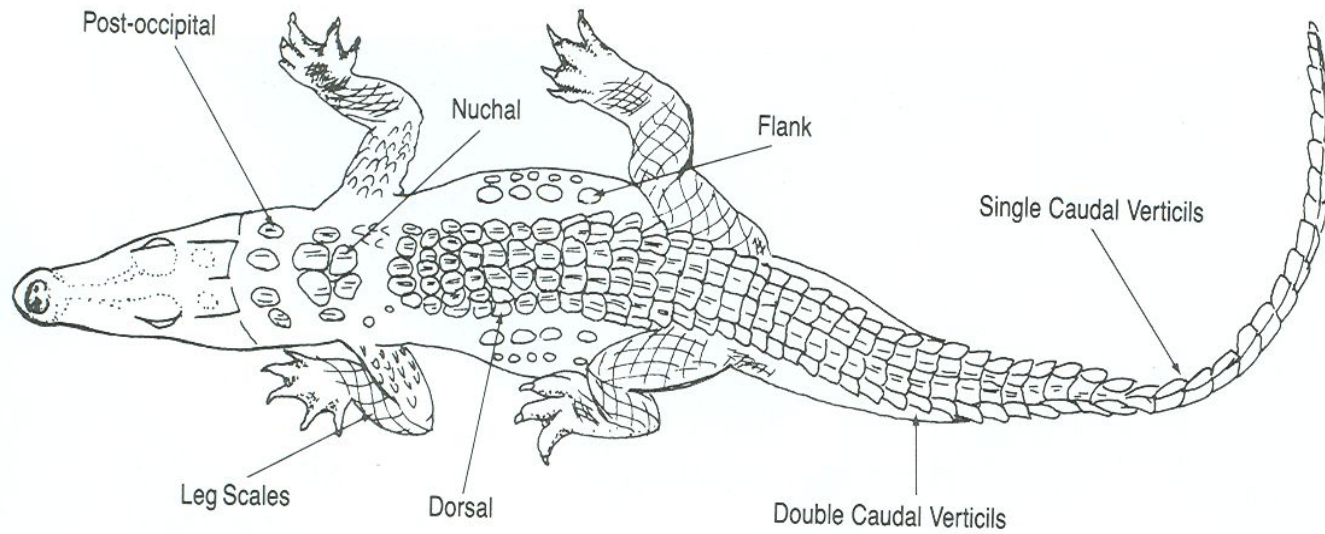


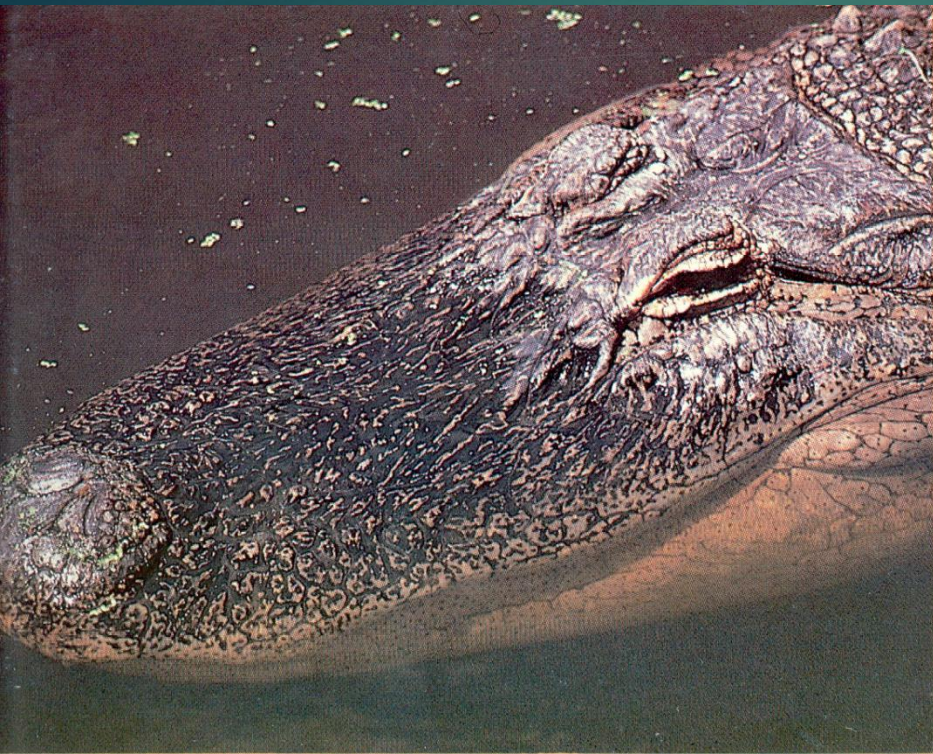
Fig. 1. Schematic view of crocodylian relationships based on (a) morphological and (b) molecular data.

Crocodiles are closer to Birds than other Reptiles



Location of crocodilian scale types (modified after King and Brazaitis 1971).

Alligatorinae lineage



side view



Mississippi, or American, alligator
(*Alligator mississippiensis*)



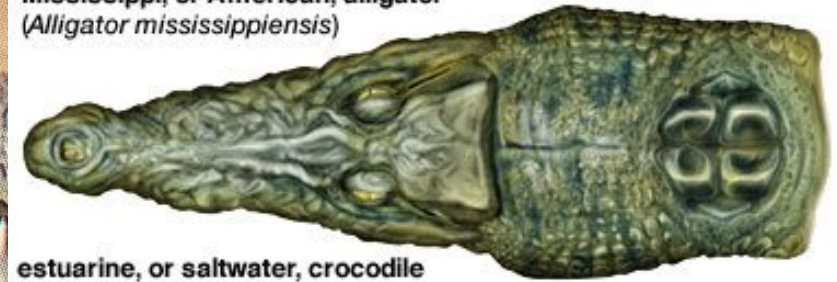
estuarine, or saltwater, crocodile
(*Crocodilus porosus*)

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top view



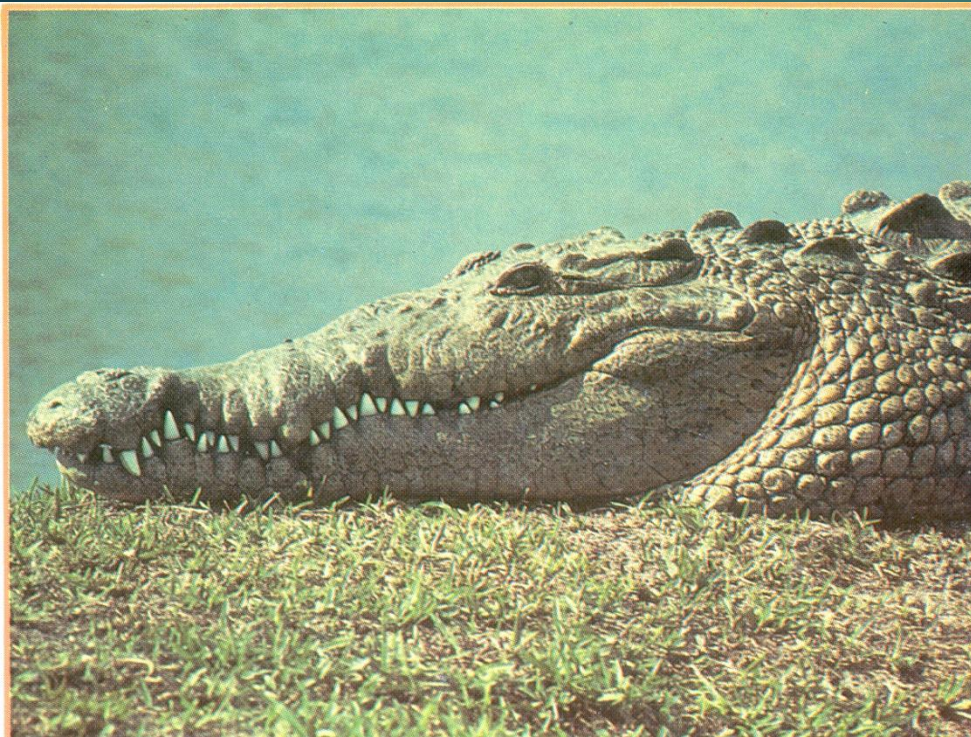
Mississippi, or American, alligator
(*Alligator mississippiensis*)



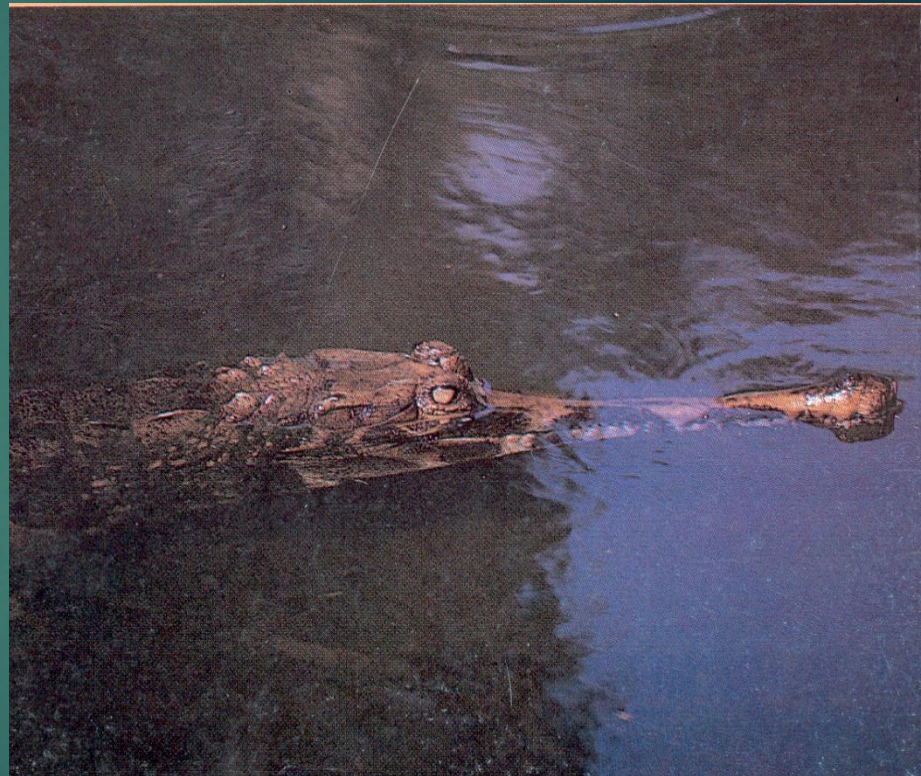
estuarine, or saltwater, crocodile
(*Crocodilus porosus*)

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Crocodylinae lineage



Gavialinae lineage



World Distribution

Mostly tropical (20 sps) few sub tropical (2 sps)

Asia	7
Australia	2
Africa	3
South America	5
North America	2
Central America	3

Metabolism

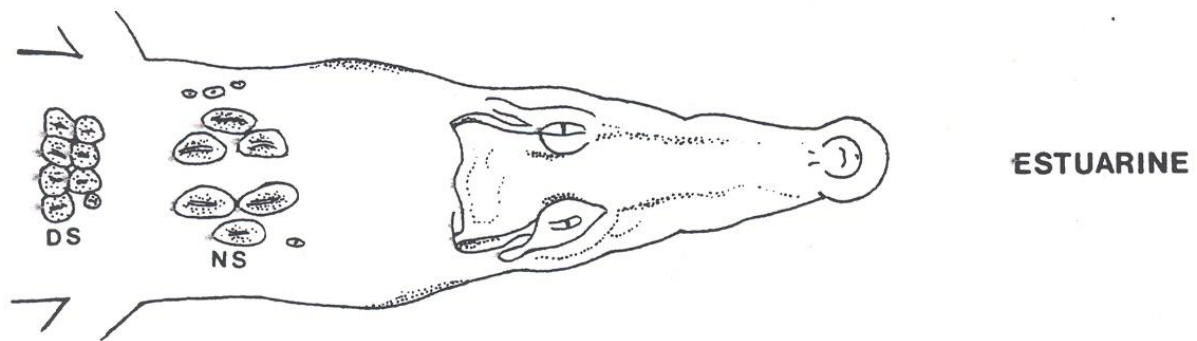
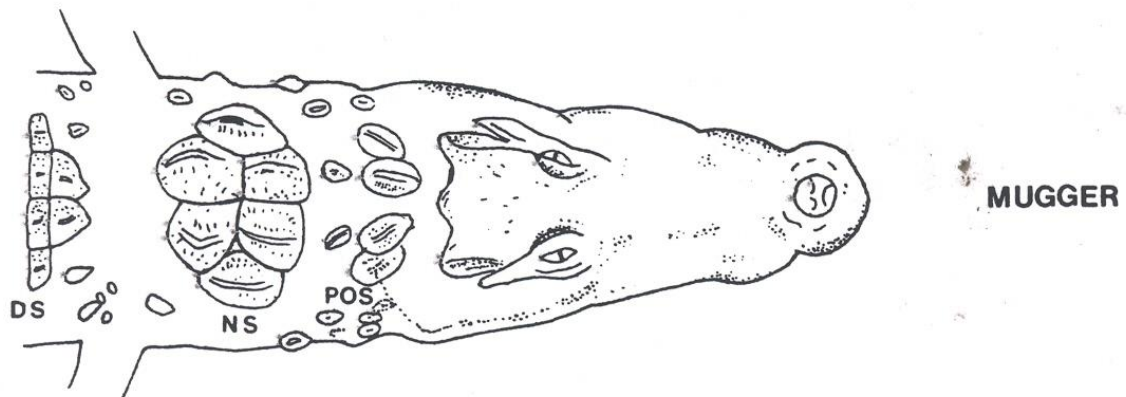
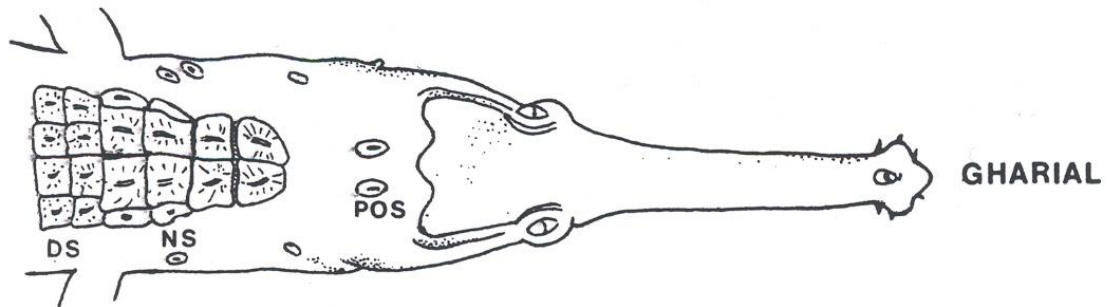
- Ectothermic
- Body temperature ranges between (25-35⁰C)
26-37⁰C, 2.2⁰C higher in adult
- Metabolic rate approximately 60 times lower than humans
- Slower heart rate (24-45 at 28⁰C, 15-16 at 18⁰C)

Diet and Nutrition

- carnivorous – mostly nocturnal hunters
- often scavenge on dead and decaying animals
- grasp prey with sharp teeth and thrash to dismember
- major prey mammals, birds, fish, invertebrates such as crab
- normal intake 3-5% of the total body weight
- rate of digestion depends on atmospheric temp.
- gastroliths present

Reproduction

- Oviparous
- Mound nests or hole nests
- 25-60 eggs
- 60-75 days incubation period
- Parental care by females and males
- All have TSD



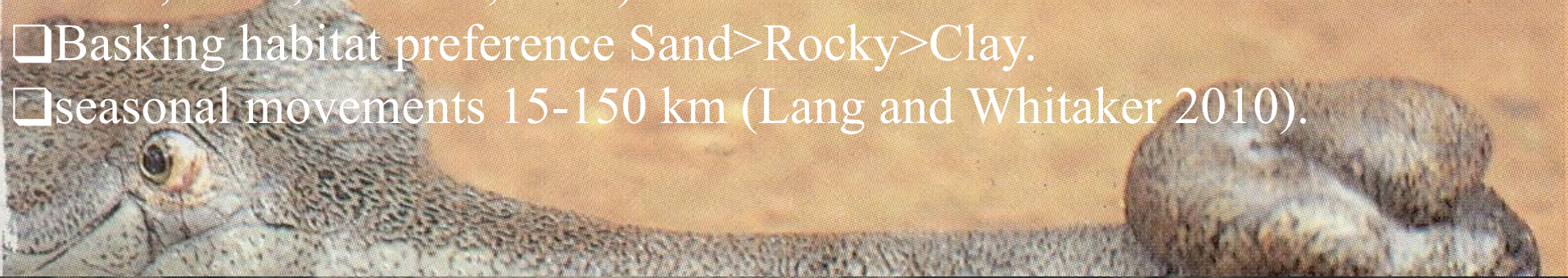






Ecology:

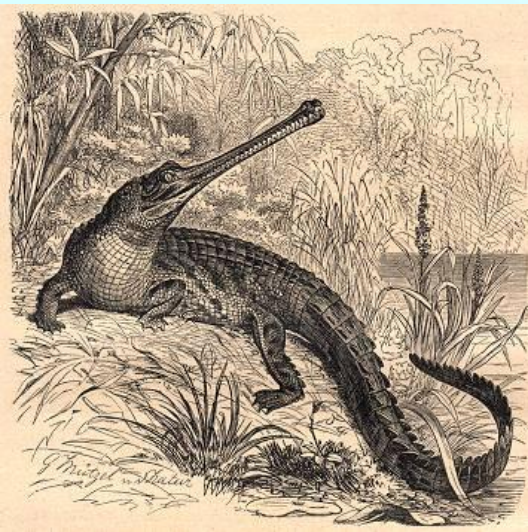
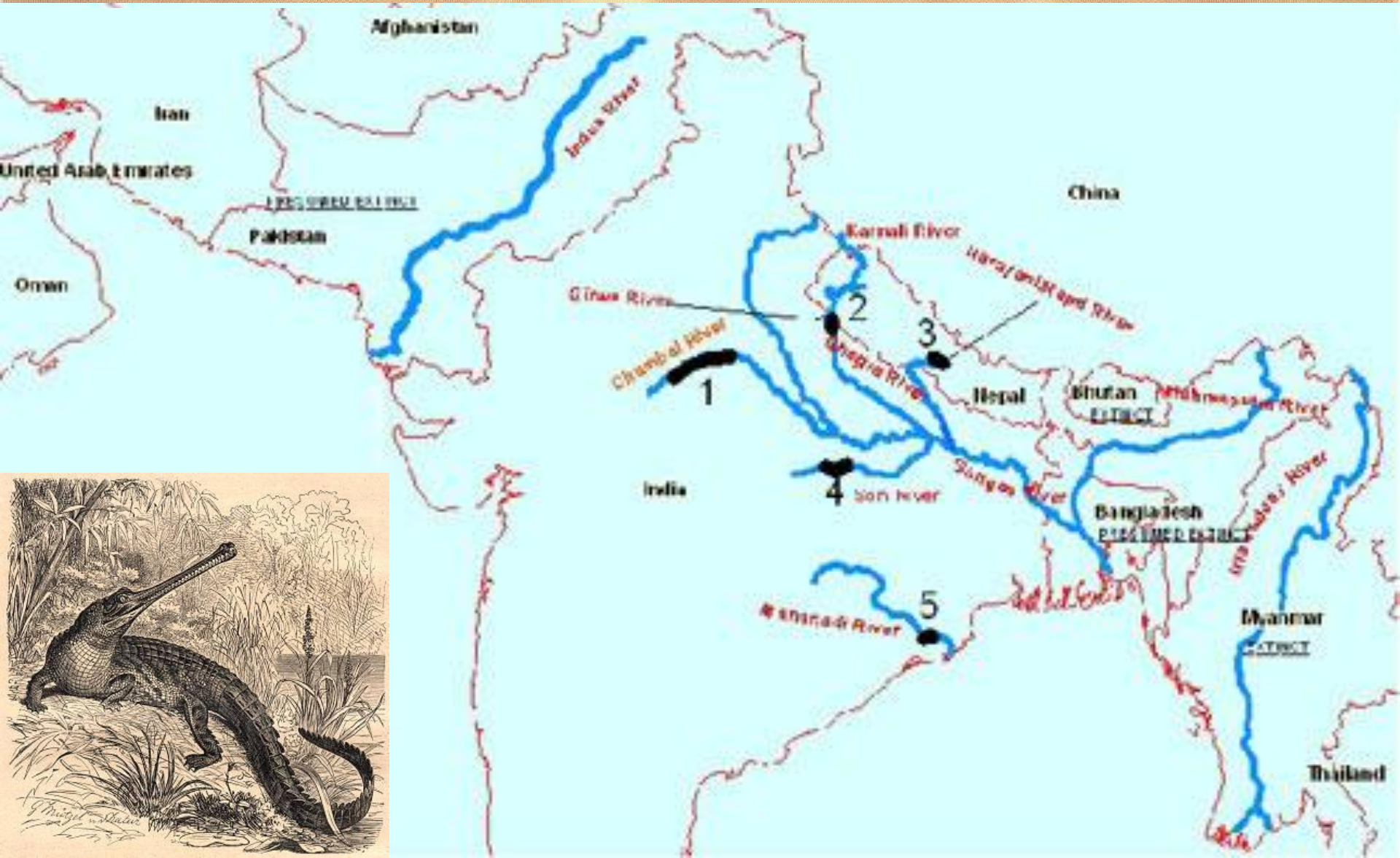
- ❑ Distribution sympatric to *Platanista gangeticus* and *Nilssonia gangeticus* (Annandale 1912)
- ❑ Adult and subadult Gharials prefer deep water > 4 m (Whitaker and Basu, 1983; Hussain, 2009)
- ❑ Basking habitat preference Sand > Rocky > Clay.
- ❑ seasonal movements 15-150 km (Lang and Whitaker 2010).



Photographed at Katarniaghat Wildlife Sanctuary, UP

Range Historical : India, Nepal, Pakistan, Bhutan, Bangladesh, Myanmar

Current : India, Nepal



Sexual Dimorphism

Only crocodylian that is **sexually dimorphic**..

Males are **larger than females** and only mature males have a **bulbous growth (Ghara)** at the end of their snouts, absent in Females.



Male



Female

BASKING AND GAPING...



NESTING BEGINGS.....



NESTING....

Females dig **trial nest hole**, ~50 cm deep hole on sand bank.

Lay **40 to 80 eggs**, Guard their nests against egg predators like jackals, monitor lizards.

Gharials lay the **largest eggs** of any crocodile, weigh



Gharial Matter...

- Age at maturity: 10 yrs (females), 13 years (males)
- Body Weight (Average): 159 - 181 kg.
- Nesting: March and April, on riverine sand.
- 40-80 eggs per clutch, hatch in 70 days

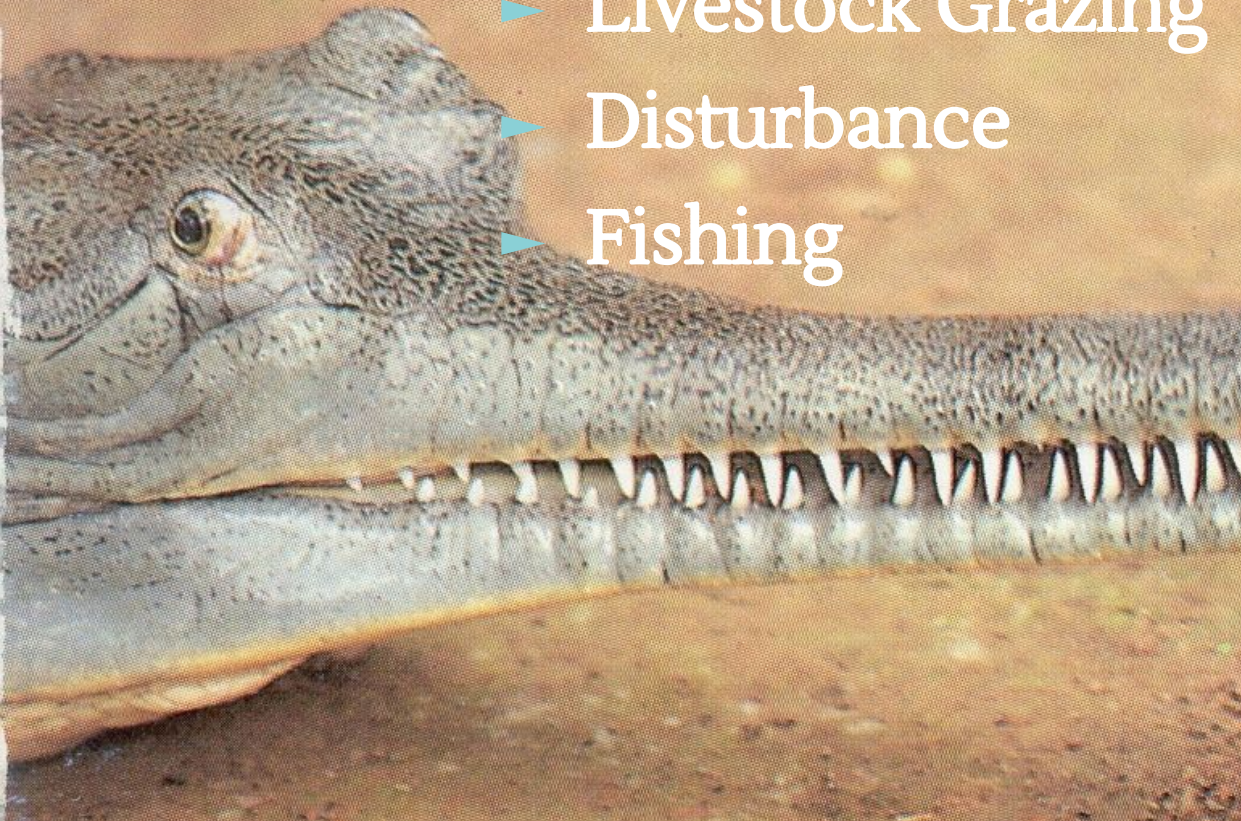






Threats

- ▶ Agriculture
- ▶ Sand-Mining
- ▶ Livestock Grazing
- ▶ Disturbance
- ▶ Fishing



Gharial mortality:



Human Crocodile Conflict

