

Estuarine crocodile (*Crocodylus porosus*)

Order Crocodylia, Family Crocodylidae

There are 25 extant species of crocodilians, which include crocodiles, alligators and gharials. In Singapore, only the estuarine or saltwater crocodile is present.

Description: The largest living reptile in the world, reaching lengths of up to 9 m, but typically reaching smaller sizes. Crocodiles can be differentiated from alligators by their snouts. Crocodiles have more pointed snouts while alligators have rounded snouts. They have elongated jaws, short legs, webbed feet and a long laterally flattened muscular tail, that is lined with ridges. Their eyes and nostrils are located at the top of their head, allowing the animal to breathe and see above the water while the rest of their body remains submerged. Camouflage and cryptic colouration makes them difficult to spot.

Distribution: Found in freshwater and brackish environments, this species has a wide distribution in the oceanic islands of the Southeast Pacific. Can be found in Australia, Bangladesh, Brunei, India, Indonesia, Malaysia, Myanmar, Palau, Papua New Guinea, the Philippines, Singapore, Solomon Islands, Sri Lanka, Timor Leste and Vanuatu. It currently has a stable worldwide population.

They can travel long distances at sea, having good navigation skills. They may also make use of surface water currents to move more efficiently during their long distance travels.

In Singapore, they were abundant in the past. They are still present in Singapore, although their habitats have been reduced to small areas of remaining mangroves. They can mainly be found in Sungei Buloh Wetland Reserve, but some individuals have been spotted at Pasir Ris, Pulau Ubin and Changi.

Ecological role/diet: This species is considered an apex predator and are possibly keystone species. They are mainly nocturnal hunters. They feed mostly on fish. They may also consume mammals, birds and carrion. A study has shown that smaller individuals were generalist feeders, whereas larger ones specialised in specific prey in their food web.

Behaviour: Being ectotherms, they rely on external heat to regulate their body temperature. They typically bask in the sun on land. They are able to move quickly over short distances on land and in water. As ambush predators, they lie in wait for their prey to approach before rushing to attack suddenly. They can perform death rolls and drown their prey. They can become aggressive when provoked on land or in water.

Females will lay their eggs in an elevated mound constructed from mostly mud. A clutch contains between 40 to 60 eggs. Females are fiercely protective of their eggs and young, remaining close by.

Conservation/threats: Least Concern on the IUCN Red List.

In 1996, it was considered regionally extinct in Singapore by the IUCN Red List (Crocodile Specialist Group). The Singapore Red Data Book 3 lists the estuarine crocodile as Critically Endangered (CR).

Threats to the estuarine crocodile include being hunted for meat and for their skin to make leather. They have the most commercially valuable hide of any crocodilian and was intensively hunted for their skin historically. This pressure on wild populations has been reduced with the presence of crocodile farms. Additionally, they may be persecuted by humans as pests, especially with human wildlife conflicts. Climate change and habitat destruction may affect their populations and reduce their nesting habitats.

Studies done to better understand this species, conservation and protection of their habitats can help with the conservation of the estuarine crocodile. The Crocodile Specialist Group works to conserve crocodilian species. They are involved in conducting surveys, research projects and conservation projects. They have also formed the Living with Crocodilians Working Group, with the aim to tackle human-crocodile conflicts and foster coexistence with crocodiles.

Crocodiles used to be hunted in Singapore. They were captured for pets, killed for taxidermied trophies, culled due to danger posed. There have been cases of crocodile attacks, but they were uncommon, with a total of 41 official incidents between 1842 to 1989. Incentives may have been given by the government for crocodile specimens. Crocodile farming also occurred in Singapore, to make use of them commercially.

Initially, the largest full specimen of the crocodile in the museum was 4.72 m long. It was shot by George Paddison Owen in 1887 on the Serangoon riverbank. It was subsequently donated to the Raffles Museum.

Kaiser, a captive crocodile from the Singapore Zoo, died in 2007. He was over 5 m long and weighed over 500 kg. He was raised in captivity and died when he was around 40 years of age. He was subsequently preserved by the Singapore Zoo, where he was stuffed with cloth. This caused him to weigh over 1000 kg. In 2017, Kaiser was donated to the museum. In 2018, the museum staff removed the cloth and replaced it with light-weight foam. Now Kaiser weighs around 120kg. The skin was colour-matched to living specimens for more accurate representation.