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Testudines Crocodylia Rhynchocephalia

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NEW GUINEA PLATELESS TURTLE OR PITTED SHELL TURTLE

(FLY RIVER OR PIG-NOSED TURTLE),

CARETTOCHELYS INSCULPTA RAMSAY 1886

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NEW GUINEA PLATELESS TURTLE
or PITTED SHELL TURTLE
(FLY RIVER or PIG-NOSED TURTLE)

INSUFFICIENTLY
KNOWN

Carettochelys insculpta Ramsay 1886

Order TESTUDINES

Family CARETTOCHELYIDAE

SUMMARY A moderate size aquatic species inhabiting rivers, grassy swamps and lagoons, in the southern lowlands of New Guinea, and recently discovered in the Northern Territory of Australia. No precise populations estimates available, may be locally moderately common. Omnivorous. Females emerge from the upper reaches of rivers in large numbers at night to lay eggs (clutch 15-34) in sand or mudbanks exposed in the dry season, also nests on the coast in places. Turtles and eggs are traditionally harvested. Stereotyped nesting habits render the species liable to over-exploitation. Biology and population status require investigation, with a view to long-term management and conservation. A highly distinctive species, the only living species of a widespread family known from Tertiary fossils.

DISTRIBUTION Present in rivers and lagoons in the southern lowlands of New Guinea, notably the rivers draining into the Gulf of Papua, including the entire Fly River basin at least as far north as Kiunga, and also the smaller rivers of the Western Province (Papua New Guinea) draining into the Torres Straits. Extends eastward to the Vaillala River, draining into the eastern Gulf (8), and westward to Danau Yamur (Lake Jamur) in western Irian Jaya (1). Distribution in Irian Jaya is poorly known. The species has recently been discovered in several rivers in the Northern Territory of Australia, including the Daly, Victoria and Alligator river systems (although breeding has not yet been confirmed) (1).

POPULATION Population status is poorly known and requires investigation. No precise estimates available. The species was long considered one of the rarest turtles in the world, but this was at least partly due to lack of data. Large numbers are said to breed in the upper reaches of the Fly River and other rivers, including the Strickland, draining into the Gulf of Papua, while large numbers of part grown animals are found in the mangroves of the Fly Delta (4). Reported to be moderately common in certain rivers, such as the middle Fly and the Aramia (4), and in Lake Jamur in Irian Jaya (1). However, in the Kikori River District (Gulf Province, P.N.G.) local inhabitants report that the population has been severely depleted over the last 20 years (8), and the smaller populations in Western Province appear to be declining (7). Also reported rare in Irian Jaya, with a sparse and limited distribution area (10).

HABITAT AND ECOLOGY A moderately large aquatic freshwater or estuarine turtle, generally to c 46 cm carapace length and over 15 kg weight (4), one female from P.N.G. reached 56.3 cm length and 22.5 kg (8). Occurs in rivers (including estuarine stretches), grassy lagoons, swamps, lakes and water-holes. In the Kikori River District adult specimens are typically found at the mouths of rivers in the Delta areas. The vegetation in these areas mainly consists of Sonneratia, Pandanus and Nipa species. Sub adults are normally found further inland where they are frequently caught in small creeks by prawn fishermen (8).

The species is omnivorous but predominantly vegetarian. In the Gulf Province of

P.N.G. the major portion of the diet consists of the fruit of mangrove *Sonneratia* species, supplemented with various other plant and animal material (9). In Australia the main constituent appears to be fruits of *Pandanus*, also animals such as molluscs, water beetles and other insects (9).

Information regarding mating habits is very scanty. The Kiwai people of the Fly River maintain that this turtle mates on the mud banks on the riverside. The nesting season in Australia has not been identified but in the Gulf Province, P.N.G., normally takes place during the dry season, in mid-October to mid-February (8). During this period females migrate up the rivers to lay their eggs on large sand-banks. Nesting also takes place at the mouths of rivers (8), on sandy shores of islands in the Fly River delta (9), and on coastal beaches in the Western Province of P.N.G. (7). The females normally come ashore at night or early morning and excavate a nest cavity that averages 27 cm in depth, with a mean temperature of 31°C (8). No reliable information is available with regard to nesting behaviour. Locals in the Kikori district report that the females come ashore and excavate a nest with their fore-limbs, and then turn around to lay their eggs. When completed they close the nest cavity with their hind limbs (8). Clutch size ranges from 15-34. Eggs are typically round and hard-shelled, mean size is 43 mm, mean weight 33 g (8). Although the reproductive potential per female per season is not as yet clear, evidence suggests that at least 2 clutches are produced per season (8). Hatchlings emerge between 114-118 days after laying (data from artificially incubated eggs), and have a mean carapace length of 53 mm with a mean weight of 27 g (8).

Adults probably have few natural predators other than man, their large resilient carapace protecting them from predators such as the salt-water crocodile (*Crocodilus porosus*) and the fresh-water crocodile (*C. novaeguineae*). However, sub adults may be preyed upon by the above crocodile species and also by sharks. Most mortality occurs at juvenile and egg stages, the major predators other than man being the monitor lizards *Varanus indicus*, *V. salvator*, (8) and *V. prasinus* (5).

THREATS TO SURVIVAL Continuing traditional hunting of turtles and harvesting of eggs in southern New Guinea constitutes the primary threat to the species. Both are sold from time to time in markets at Maimuru and Kikori, for example, in Papua New Guinea (3). In the Kikori River District, over 5,000 eggs have been sold in Kikori Market between October 1980 and February 1981, and at least 30 adults. Although the latter figure may appear low, especially when compared with the former, this is because most adults caught are eaten in the village rather than taken to the market (8). Methods of capture vary. In the nesting season in the Kikori area, villagers lie in wait for gravid females as they come ashore to lay their eggs. As many as 11 specimens have been observed being caught in this manner by one man in one hour. Out of the breeding season, villagers use a hook and line, baited with a crab or deshelled fresh-water mussel, to catch the turtle. In Western Province natives dig pit-traps on the sand banks during the breeding season (8). Out of season the Bagna people of the Fly River hunt for Pitted-Shell Turtles in the grass swamps. Once a specimen has been located, by pushing a canoe paddle into the mud at the bottom of the swamp, the hunter dives into the water in order to capture it (8). Egg collection is carried out either by lying in wait at night and then capturing the turtle and its eggs, or by following the turtle tracks the next day and discovering the nest, or by systematically prodding the sand bank with a stick or spear. One of the main factors leading to the decline of this species in the Kikori River District is the increase in river traffic. This is due firstly to the advent of outboard motors, and secondly, to the fact that formerly many clans lived in the relatively safe hinterland but now that clan warfare has ceased people have moved to more convenient positions along the river bank (8).

Although at present habitat destruction is not a threat to the survival of the species, future plans for the development of the Gulf Province include intensive deforestation and a hydroelectric scheme (8).

CONSERVATION MEASURES TAKEN None at present. The presence of the species in certain Wildlife Management Areas in P.N.G. may protect it from non-native hunting pressures (7).

CONSERVATION MEASURES PROPOSED Distribution, population status and extent of utilization are very poorly known in Irian Jaya, these data are required. Further information on biology and distribution is also required in Papua New Guinea and Australia. The IUCN/SSC Freshwater Chelonian Specialist Group plans a high priority project on ecology, reproduction, and economic potential of long-term management/conservation of Carettochelys.

CAPTIVE BREEDING No information. Few specimens in captivity (7).

REMARKS The stereotyped mass nesting habits render Carettochelys (like Batagur, most Podocnemis, and most sea turtles) extremely susceptible to excessive predation, particularly by humans. Basic field information is necessary before populations, and pressures on them, can be assessed. The potential exists for utilizing C. insculpta and under sustainable yield management to provide a valuable protein source for local inhabitants.

C. insculpta is the only extant species of a once widespread family known from early Tertiary fossils in southern Asia, Europe and North America. The species is highly distinctive morphologically and of great zoological interest. The lack of carapace scutes is a resemblance to the soft-shelled turtles (Trionychidae), whereas aquatic locomotion by simultaneous movements of the forelimbs, modified into enlarged pectoral flippers, is a resemblance to sea turtles. Carettochelys and a soft-shell Pelochelys are the only cryptodiran turtles (other than sea turtles) to reach Australasia, otherwise inhabited by pleurodires (sidenecked turtles).

This account is based on a draft very kindly provided by M.R. Rose with additional data from F. Parker and A. Rhodin.

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