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Herpetology 2024: Which Turtle?



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This is the second part of a series of articles describing herpetological species and field excursions possible for those planning on attending the World Congress of Herpetology in Kuching, Sarawak, Borneo in 2024. Here, we describe options for turtle biologists.

Participants can take the opportunity of timing of the 10th World Congress of Herpetology, to be held in the month of August, to visit the turtle islands of the Talang Satang National Park, located off the coast of Sarawak. Rough seas necessitate the closure of the Park to the general public from

October, and accordingly, trips to the turtle nesting beaches may be planned prior to or right after our Congress. These islands were made famous by Tom Harnett Harrison (1911–1976), British polymath, former Curator of the Sarawak Museum, and an early sea turtle conservationist.

Pulau Satang, situated off the northwest coast of Sarawak, an important nesting beach of sea turtles on Borneo.



The Satang group comprises four islands and islets, the largest, Satang Besar, around 7 km off Telaga Air, a coastal village in western Sarawak. These islands have a colourful past, being a pirate hideout in the 17th century, as they lay in wait to ambush vessels travelling onwards to the Santubong Peninsula, then a thriving centre of trade. Two species arrive on Satang Besar to lay eggs, the Green Turtle, *Chelonia mydas* and the Hawksbill Turtle, *Eretmochelys imbricata*. Other sea turtles are more rarely encountered on the shores and on offshore islands of Borneo, including the Olive Ridley, *Lepidochelys olivacea* and the Leatherback Sea Turtle, *Dermochelys coriacea*. However, only in Satang can encounters with nesting turtles be assured, for those planning a few days in the rustic cabins on the beach. Snorkellers, please pack your gear, as the sea bed slopes to a depth of about 12 metres, offering views of corals and associated marine life. A volunteer activity (the 'Sarawak Sea Turtle Volunteer Programme'), an initiative is run by the Sarawak Forestry Corporation, to help the resident field staff patrol the beach to locate turtle arrivals, monitor nesting activities, as well as tagging and measuring turtles.

Vast areas of western Borneo (and other parts of the island) are under a special type of habitat, called

peat swamps. Here, in the near-featureless habitat are tanin-rich, shallow waters, with relatively short trees, where movement is impeded by soft, sticky soil. Swamps often intergrade with mangroves, and sometimes feed into rivers, also distinctly black on account of the peat content. Such acidic swamps show a reduced but specialized fauna, including its own insect life, frogs and turtles. Typical in such habitats are the Asian Softshell Turtle, *Amyda cartilaginea*, a large (85 cm carapace length) species.



A hatchery for turtles at Pulau Satang's southern coast, run by the Sarawak Forestry Corporation.



*Amyda cartilaginea**Chitra indica*

Two images of *Dogania subplana*. On left, a hatchling with *Betta ocellata*; to the right, close-up of head of an adult.



The Asian Softshell Turtle's life history has been subject to a few studies, which discovered an opportunistic diet comprising both plants and animal matter, including fish and macroinvertebrates. The large size also attracts attention from hunters, and the turtle is highly valued for food by the locals, and prior to the enactment of legislation which conferred the status of 'Totally Protected' in Sarawak, and prior to the passing and enforcement of the law, the species was on the menu of many roadside eateries. The once extensive Serian blackwaters, an hour's drive from Kuching, and Loagan Bunut National Park, a few hours of bumpy ride from the northern city of Miri, are known sites for the turtle, although casual sightings are a rarity, the species encountered only via trapping (an activity only possible with a research

permit). A second species of the family, the Southeast Asian Narrow-headed Softshell Turtle, *Chitra chitra* (115 cm carapace length), has only been recorded from Central Kalimantan, but given its extensive range- from Thailand to Java- may be more widespread than currently known. More abundant is another member of the family of soft-shelled turtles, the Trionychidae, the Malayan Softshell Turtle, *Dogania subplana*, a small softshell turtle (31 cm carapace length). It inhabits rocky streams of mostly the interiors, and also, some of the Parks, not far from city centres (such as Santubong National Park and Lambir Hills National Park). Studies suggest a diet that concentrates on snails, and field observations indicate that it may catch prey both in ambush as well as actively creeping up to them in the shallows by night.

*Pelochelys cantorii**Batagur borneoensis**Cuora amboinensis**Cyclemys enigmatica*

Pelochelys cantorii, the Asian Giant Softshell Turtle is a giant (60–100 cm carapace length) species from isolated localities in the interiors of Borneo is the last softshell to be discussed. The records of this turtle are from central and south-eastern Kalimantan in Indonesia, foothills of the Kinabalu mountain in Sabah State, with a recent record from the interiors of Sarawak, in the remote Upper Baleh region. Elsewhere, the species is also known to be coastal, hence its likely occurrence in such habitats of Borneo. The odd shape of its snout, as well as observations of its behaviour in captivity, suggest a diet of fish and other aquatic life, obtained through ambush foraging.

Another large component of the turtle fauna of Borneo are the so-called 'hard-shelled' turtles, on Borneo, members of the family Geoemydidae. Perhaps the most famous amongst them is the Painted Terrapin, *Batagur borneoensis*, a 60 cm species. A widespread species from Sundaland, on Borneo, it is chiefly coastal and riverine, especially at river mouths, and was subject to a headstarting programme till the start of the century at the Samunsam Wildlife Sanctuary, which is the best place to see the species. The Trans-Borneo Highway, now under construction, and expected to be ready by the time delegates arrive for the Congress in 2024, is expected to cut the four-hour journey time from Kuching to this Sanctuary by perhaps a half. Breeding males of the terrapin are striking, with a vermillion streak on the blue heads.

The commonest of the local hardshelled turtles is the Malayan Box Turtle, *Cuora amboinensis*, which can be encountered throughout, and associated with all types of stagnant waterbodies and areas of agricultural land, while seemingly avoiding the

hills and heavily forested areas. A small species, 25 cm in carapace length, it is not collected for consumption, rather, taken from the wild to be kept as pets. The hinged plastron, remarkable amongst the local Bornean turtles, will remind some delegates of their own box turtles. Indeed, long-houses- the communal dwellings of the village folks of Borneo- are the best places to see a variety of turtles, these including the newly-recognised Bornean Leaf Turtle, *Cyclemys enigmatica*, of 25 cm carapace length, from western and central Sarawak, the lowlands of Sabah and south-western Kalimantan, sometimes even the Spiny Hill Turtle, *Heosemys spinosa*, 23 cm carapace length, which is widespread in the island, and the Malayan Flat-shelled Turtle, *Notochelys platynota*, of 36 cm carapace length, which is more rare in western Bor-

neo, and commonly encountered in the lowlands of central-western and northern Borneo. The Spiny Hill Turtle is the subject of a research project, based at Kubah National Park, by Universiti Malaysia Sarawak grad student, Siti Nor Baizurah. The study discovered extensive movement shown by males, compared to the more 'stay-at-home' females. It congregates at sites where mushrooms bloom, staying at such sites for days under concealed sites such as fallen logs and buttresses.

Two species of hardshelled turtles occupy blackwater habitats, that have been described earlier. The Malayan Giant Turtle, *Orlitia borneensis*, reaches 80 cm in carapace length, and inhabits blackwater rivers and other slow-moving waters as well as deep lakes, and known from such habitats to the west of Kuching, and elsewhere on



Heosemys spinosa



Notochelys platynota



Orlitia borneensis



Siebenrockiella crassicollis

Borneo, including the large blackwater lake of Danau Sentaram in Kalimantan, Indonesia. Also in such habitats is the Black Hard-shelled Turtle, *Siebenrockiella crassicollis*, a fair-sized turtle, reaching 20 cm in carapace length. Both are carnivorous, although other details of their biology remain unstudied.

The final species to be described is the Asian Giant Tortoise, *Manouria emys*, the largest of the land species of the family Testudines, reaching 60 cm in carapace length. An inhabitant of hill dipterocarp forests, a severely threatened habitats, it is found only in the interiors of the island, and in Sarawak, in the Baleh and Ulu Kapit regions, a long distance from human settlements and activities. Due to past hunting, often with dogs, the species has become rare, perhaps localised and in urgent need for focussed conservation action. Exceptional amongst the order is its parental care- comprising nest-building and nest defence.

Two exotic species are more frequently encountered on Borneo than its local turtle species- the Chinese Softshell Turtle, *Pelodiscus sinensis* and the Red-eared Slider, *Trachemys scripta elegans*. The former proliferates in the ditches, sewers and swamps around urban city centres, such as in Kuching, that are possibly escapees from

early attempts to farm them, and are occasionally offered on sale for food. The latter species are to be seen basking in more permanent bodies of water, such as reservoirs.

The turtles of Borneo thus includes several sea turtles, nesting on its offshore islands and more rarely, visiting the beaches of the main island itself, besides those specific to habitats, ranging from blackwater swamps, to lowland and hill dipterocarp for-

ests. Most of the larger species are in demand as exotic meat, while the others are collected as pets by inhabitants of longhouses. Few turtles have been subject of detailed investigation locally, now a possibility with

the application of emerging technologies. Radio-telemetry and sonar devices are now being used for field studies of aquatic reptiles and these and other techniques, have the potential to answer interesting research questions on turtles of Borneo in the future.

The next instalment, in the next issue of the Newsletter in December 2021, will focus on crocodilians, where we shall provide information on Sar-

awak's crocodilians, and the best places to see them during your visit here. We look forward to seeing all of you in the magical state of Sarawak. Till then, stay safe and watch this space for further updates.



Manouria emys



Siti Nor Baizurah tracking *Heosemys spinosa*, as part of her graduate research.