

## Current Conservation Status of Turtles in Cambodia

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I've been based in Cambodia since 2003 and have a team of six dedicated and incredibly skilled Cambodian turtle conservation biologists who are supporting conservation of all Cambodian turtle species in their stronghold sites – basically, we have identified four sites that hold all known Cambodian turtle species. The team assesses their status at these sites and nationally via nesting counts, radio-tracking, annual trapping and timed searches, market surveys, and interviews.

I provide brief assessments of abundance for all known Cambodian species. We have few figures to confirm these trends, but they are based on a great deal of ground-work.

***Batagur baska***: Rapidly decreasing and only known from one locality in southwest Cambodia, where the numbers of nests have dropped from approximately 10 in 2000 to none recorded in 2008. Very few are now recorded in the wild (1-2/yr, usually juveniles or subadults, perhaps releases from the head-starting program supported by Wildlife Conservation Society (WCS), Turtle Conservation Fund (TCF), and Turtle Survival Alliance (TSA). Nest protection schemes were set up, but the last remaining known habitats are being destroyed due to forest loss along river banks and subsequent flooding and erosion of nesting beaches, as well as accidental drownings or captures of adult turtles by fishermen.

***Pelochelys cantorii***: Slow decrease – the numbers of nests on the Mekong River, the only known nesting site for this species in Cambodia – remain fairly high and constant at >10/yr for the last two years (the actual figure is likely to be higher as much of the river is virtually uninhabited by people). This species is occasionally caught, either purposefully or accidentally, and is locally consumed, although villagers state that they prefer *Amyda cartilaginea* (which is also fairly abundant in this area). *Pelochelys cantorii* is rarely sold from Cambodia into the international trade due to an apparently low nutritional and medicinal value. Egg collection is a potentially high threat but nest protection schemes are in place and have started to mitigate this threat. This population was only found in 2006 so we only have 2 years of nesting data. The adult turtles appear to inhabit deep pools in the Mekong mainstem, some of which are over 40 m deep (the deepest is over 70 m), so these large pools provide ideal refuge for these turtles during the dry season. There are plans to build a hydroelectric dam on the Mekong River in Laos near the Cambodia border, approximately 120 km upstream of the nesting sites, so it will be important to look at the impacts of the subsequent changes in flow regime on this species.

***Heosemys annandalii***: Decreasing primarily due to over-collection of adults for food. Fortunately, a fairly se-



Local community with *Pelochelys cantorii*, Cambodian Mekong River. Photo by Sun Yoeung.



*Heosemys annandalii*, Cambodia. Photo by Sitha Som.

cure population still remains around the Tonle Sap Lake (the largest lake in SE Asia) and their behavioural adaptation to seasonal changes in water levels seems to help protect them from over-collection: they bury up to 1 m or more in the muddy seasonally flooded inundation zone and remain dormant throughout the dry season. This seasonal inundation zone covers about 5,000 sq km, so this area is sufficiently large to ensure that many adults are not collected. During the wet season, they emerge and their eggs hatch, after which time their range expands along with the lake to include seasonal wet grasslands and seasonally inundated forests and scrubland, as well as open water where vast rafts of water hyacinths and other water plants form. These habitats cover about 10,000 sq km so this turtle population has a vast area of suitable habitat and a fairly robust population seems to remain at this site. Conservation International (CI) and WCS work in partnership with the Fisheries Administration at several freshwater sanctuaries on the lake and find large numbers of juvenile and adult *H. annandalii* during monitoring surveys. Adults are rarely seen as they are not easily caught in fishing nets or fish traps due to their size, though they have been recorded during turtle trapping surveys. Hatchlings and subadults to approximately 3 yrs of age are caught in fish traps. They are either released due to their small size, or kept in fish ponds by local villagers until they are large enough to sell. Conservation efforts in several areas now focus on providing villagers with incentives to release these accidentally captured turtles. Elsewhere in Cambodia, such as in slow-moving rivers and smaller ponds, there remain small relict populations. However, many are being cleared out due to conversion of the wetlands to rice paddies. They still occur in breeding populations in the coastal zone, again in seasonally flooded forests. It is likely that the species will eventually become mostly restricted to a small number of relatively large populations in Cambodia if current trends continue.

***Platysternon megacephalum*:** Probably very slowly decreasing or stable, as the only threats to this species in Cambodia are from very occasional collection for food or sale. However, this species has almost never been re-

corded in national trade. It is only known from Virachey National Park where we recorded it in 2006 for the first time. Even the rangers did not know it occurred there and we kept the news of its discovery and locality quiet. There are virtually no threats at this time as the turtle populations are so remote – at least 5 days walk from the last road. There is no-one living within the National Park and no footpaths or roads go into the mountains where this species occurs. The proximity of this park to Vietnam and potential gold-mining interests in this area do suggest potential for future problems, although the ruggedness of their habitat, combined with the difficulty finding them, will surely protect them for the most part.

***Manouria impressa*:** Stable or slowly decreasing. This tortoise only occurs in Virachey National Park and the Cardamom Mountains. It is fairly secure due to the remoteness of their preferred montane forest habitat, but very small numbers do appear in trade (1-3/yr) and this species is occasionally collected by local villagers dur-



*Manouria impressa*, Cardamom Mountains, Cambodia. Photo by David Emmett.

ing NTFP collection. Although they are rarely seen in national trade, shells are occasionally seen in village rubbish dumps. Radio-tracking of this species in the Central Cardamom Mountains indicated very few threats to this species – none were collected by people although one was eaten by a python. This is the only turtle species in Cambodia that is currently protected under the Forestry Law on Protected Species – it is listed as Rare and can only be collected with a license from the Wildlife Protection Office. None have been issued.

***Indotestudo elongata*:** Decreasing due to over-collection for food or trade. This species is common in trade and can be seen frequently in some wildlife markets and restaurants. Very large tracts of suitable forest (>800,000 ha of contiguous forest) remain in the Dry Forests of Mondulhiri province east of the Mekong River, so the Cambodian populations of this species are still probably globally important, but in many places the adults are now becoming hard to find and it is likely to go locally extinct in many parts of Cambodia in the near future. It is clas-



*Indotestudo elongata*, Cardamom Mountains. Photo by Annette Olsson.

sified as Common under the Forestry Law on Protected Species, meaning it can be collected for local consumption but not for trade.

***Cuora amboinensis***: Slowly decreasing due to over-collection for food and conversion of wetland habitats to rice paddies. This species is widespread but is nowhere common. It is frequently seen in trade, either live or as plastrons, and is locally consumed – it is prized for its meat. Most sizeable wetlands in Cambodia still harbour



*Cuora amboinensis*, Cardamom Mountains. Photo by Sitha Som.

populations of this species and it has been recorded in breeding populations in the seasonally flooded forests and wetlands of the coastal zone.

***Malayemys subtrijuga***: Slowly decreasing due to over-collection for food and loss of habitat. Fortunately it still occurs in large numbers in the Tonle Sap Lake, seemingly for the same behavioural reasons as *H. annandalii*. However, many are caught in fish traps due to their small size, but surprisingly often they are released again because small *M. subtrijuga* have a low value. Apparently, the villagers cannot keep them alive for long enough to rear them to adults for the food market; they typically die within a short time of being kept in captivity, so people

just let them go. They are also released due to Buddhist beliefs – juveniles are sometimes sold beside rivers and lakes for people to release back into the wild. They are found in fairly large numbers in several freshwater sanctuaries in the Tonle Sap Lake.

***Heosemys grandis***: Decreasing. This species is in danger of disappearing without anyone noticing, as there has been a mistaken belief that they are fairly common. In fact, wild adults are now few and far between, having been massively over-collected for food in the last few years. Our surveys have found them to be widespread, but decreasing everywhere. They are locally consumed and their plastrons are sold for medicinal purposes, though at a relatively low price. They are fairly easy to catch, especially the large adults that can be easily seen and subsequently caught by hand as they move through shallow wetlands, their preferred habitat.

***Amyda cartilaginea***: Slowly decreasing due to over-collection that is probably balanced out by their elusive nature and fairly prolific egg production. Most rivers and large wetlands still contain this species. They are frequently collected for local and national consumption – wild *A. cartilaginea* can be bought in Chinese restaurants in Phnom Penh for US\$40-\$50/kg (160,000–200,000 Cambodian Riel), while farmed Chinese softshell turtles sell for \$30-\$38/kg (120,000–152,000 Cambodian Riel) in the same restaurants. They often turn up in trade but many adults still remain in the wild. They are targeted for collection by using long lines of large hooks hung across the surface and baited with fish, which the turtles snag and tangle themselves upon as they come up to the surface. These hooks are removed by some Protected Area staff, effectively protecting this species as it is very difficult to capture using other methods.



*Amyda cartilaginea*, Cambodia. Photo by David Emmett.

***Siebenrockiella crassicollis***: Very difficult to assess because this species is secretive. It has been recorded in very few locations, though it seems to be widespread throughout Cambodia. It has been most frequently re-



*Siebenrockiella crassicollis*, Cardamom Mountains. Photo by David Emmett.

corded in the seasonally flooded forests of the coastal zone, as well as in lowland swamps in the Cardamom Mountains and in the swamp forests of the Central Cambodian lowlands (also called Prey Long). The populations in the coastal zone are known to be breeding – trapping reveals juvenile, subadult and adult turtles – but it is not possible to say if it is common due to its cryptic nature and small size. These attributes probably help protect this turtle from over-collection, although it is fairly highly valued for medicinal purposes.

***Cyclemys atripons*:** Probably stable. This species is restricted to the Cardamom Mountains and has been recorded in swamplands and streams at 1,400 m all the way down to sea level. It is fairly common and is found in most rivers and wetlands throughout southwest Cambodia – it has even been recorded in ponds within villages. It apparently has a poor taste and virtually no medicinal value, so it is not specifically sought for food or trade. Trapping along any stream, river, pond or seasonal wetland is very likely to turn up these turtles. They are almost never seen in national or international trade. This is prob-



*Cyclemys atripons*, Cambodia. Photo by David Emmett.

ably the most abundant *Cyclemys* species in Cambodia, because it has a larger range than the others (see below) and its range habitat consist of over 15,000 sq km of contiguous forest with few people.

***Cyclemys oldhamii*:** Probably stable for the same reasons as *C. atripons*. They have only been recorded in Prey Long (central Cambodian swamp forests) and Virachey National Park. They were the most frequently encountered turtle species in both sites.

***Cyclemys pulchristriata*:** Probably stable for the same reasons as *C. atripons*. They have only been recorded east of the Mekong River in the Mondulhiri region of Cambodia, where they appear still to be fairly common.

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