

## Short Communication

### Discovery of a hitherto unknown breeding population of the Asian leaf turtle *Cyclemys aff. atripons* in Phnom Kulen National Park, northwestern Cambodia

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During herpetological baseline surveys in July 2009 by the Angkor Centre for Conservation of Biodiversity (ACCB), in collaboration with the Ministry of Environment and the Zoological Research Museum Alexander Koenig, a single Asian leaf turtle, *Cyclemys aff. atripons*, was discovered in the Kbal Spean River in the western part of Phnom Kulen National Park (PKNP), Siem Reap Province, northwestern Cambodia. To confirm the presence of *Cyclemys* turtles and to provide preliminary information on their population status, a rapid turtle survey was carried out by Frontier-Cambodia and ACCB in collaboration with the Ministry of Environment in March 2010.

Turtle trapping was carried out over ten nights on the Kbal Spean River (c. 200–230 m above sea level) in semi-evergreen forest. In March, at the end of the dry season, the riverbed was partially exposed, allowing slowly flowing water to tenuously connect a series of narrow and mostly shallow pools (Fig. 1). Eight 90 cm x 55 cm x 25 cm mesh traps were baited alternately with chicken or *prahoc* (fermented fish paste) and spaced 50–140 m apart (with two exceptions of 20 m and 350 m apart) in pools in the riverbed. Traps were moved upstream after two to four nights in each location, providing

26 trap locations (17 in rocky-bottomed pools, nine in pools with sandy or muddy substrates) along 2.7 km of the Kbal Spean River.

Five turtles were captured during this survey (Figs 2 and 3). All captures were made in reaches of the river with rocky bottoms and up to 1 m deep sinkholes, which may provide favourable refuges for the turtles during the dry season months. Traps positioned further upstream in locations



**Fig. 1** Turtle trap in Kbal Spean River, Phnom Kulen National Park, March 2010 (© Nikki Hulse).



**Fig. 2** Juvenile *Cyclemys* aff. *atripons* captured in Kbal Spean River, March 2010 (© Nikki Hulse).



**Fig. 3** Plastron of juvenile *Cyclemys* aff. *atripons* captured in Kbal Spean River (© Nikki Hulse).

with sandy or muddy substrates yielded no captures. Fewer trap nights at these locations may have affected capture rates, however, plus here the pools were mostly larger and much deeper than on rocky substrate, making captures less likely. Furthermore, there was more evidence of logging and fishing, which may also have affected turtle presence. Three of the turtles captured were juveniles (carapace length 69-119 mm). Thus, there is a previously unknown breeding population present on the Kbal Spean River. The three juveniles were captured using *prahoc* bait, while one adult was captured using chicken bait and one adult was discovered opportunistically, trapped in a dry sinkhole in the riverbed.

Recent DNA sequencing work has clarified some historical confusion over the taxonomy within the genus *Cyclemys*, recognising seven genetically distinct lineages as individual species (Fritz *et al.*, 2008). We putatively identified all of the turtles captured during our survey as *C. aff. atripons*. According to Stuart & Fritz (2008), however, *C. atripons* and *C. pulchristriata* (which so far has only been found in the Mondulki region in eastern Cambodia, East of the Mekong River) are morphologically indistinguishable, so genetic sampling of the PKNP population would be necessary to definitively assign a species name.

In Cambodia, *C. atripons* was previously thought to be restricted to the Cardamom Mountains in the Southwest of the country (Emmett, 2009). Based on a closer proximity to this species' known range, the turtles found during our survey likely represent *C. atripons* rather than *C. pulchristriata*. If this is true, then the newly discovered population at PKNP represents a range extension of *circa* 150 km to the East.

The plastron of adult turtles found during this survey was patterned with dense, dark brown radiating lines over a yellow background (Fig. 3), however, similar to the typical plastral pattern for *C. oldhamii* reported by Fritz *et al.* (2008). *Cyclemys oldhamii* has been recorded in Cambodia in Virachey National Park in the Northeast (Conservation International, 2007) and in the Prey Long forest in the North, West of the Mekong River (Som & Kheng, 2007). The Prey Long *C. oldhamii* population is a comparable distance (*circa* 150 km) to Phnom Kulen as the *C. atripons* population of the Cardamom Mountains.

Given that the Kulen Mountain range is located in the mostly flat lowland landscape of north-western Cambodia and is geographically isolated from other sites of known *Cyclemys* distribution,

however, a genetically distinct, new species of *Cyclemys* cannot yet be ruled out.

Further studies on the taxonomy, distribution, abundance and ecology of the *Cyclemys* turtles of PKNP are planned.

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