

SHORT COMMUNICATION

HELMINTHS IN LOCAL RIVER TERRAPINS (*BATAGUR AFFINIS*) IN THE WILDLIFE CONSERVATION CENTRE, PERAK

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ABSTRACT. The local river terrapins (*Batagur affinis*) are an important aspect of the river ecosystem. The Turtle Conservation Centre in Bota Kanan noted morbidity and mortality in its terrapin population and some were sent for full laboratory investigation to diagnose cause of death. The faecal samples were subjected to faecal floatation technique whereby ascarid eggs were observed indicating that the turtles had helminth infection. Ascarid eggs had thick walls and measured at 140.6 µm to 149.7 µm in diameter. Apart from this, post-mortem examination of intestinal contents also showed presence of nematodes identified as *Oesophagostomum* sp. Treatment and control have to be instituted to prevent further morbidity and losses.

METHOD AND RESULTS

Turtles in the genus *Batagur* are large hardshelled river turtles and are all highly sought for human consumption, mainly due to their size. *Batagur baska* (Gray, 1830) is one of the world's most critically endangered terrapins. The populations from the Malay Peninsular and Sumatra were traditionally treated as the same species, but turned out to represent another distinct species *B. affinis*

(Cantor, 1847). Both *B. affinis* and *B. baska* are large terrapin species, reaching a maximum shell length of approximately 60 cm (Moll, 1980; Ernst *et al.*, 2000).

Their habitat is more or less confined to brackish water, living in estuaries, mangrove belts and inshore beds of marine vegetation (Kalyar *et al.*, 2007). However, the number of *Batagur affinis* and *B. baska* has declined dramatically throughout their host habitat ranges as a result of overharvesting of adults and eggs coupled with habitat degradation (Das, 1997; Moll, 1997; Kalyar *et al.*, 2007; Platt *et al.*, 2008).

There are some major threats to the survival of *B. affinis* in the rivers such as traditional fishing methods in the river using hooks and lines, large hooks suspended from tree branches, drift nets, long lines, cast nets, fish traps and prawn traps. Other threats identified from the interviews with the fishermen included agricultural practices near rivers, sand-mining and large-scale shrimp farming. Sand mining has an immediate effect as it destroys the nesting habitat for many of the large river turtles that are obligated to nest on high sandy beaches (Brian, Colin and Andrew, 2011).

More than 85% of all diseases encountered in turtles are the result of



Figure 1. *Batagur baska* (river terrapin)



Figure 2. Egg of *Batagur affinis*.

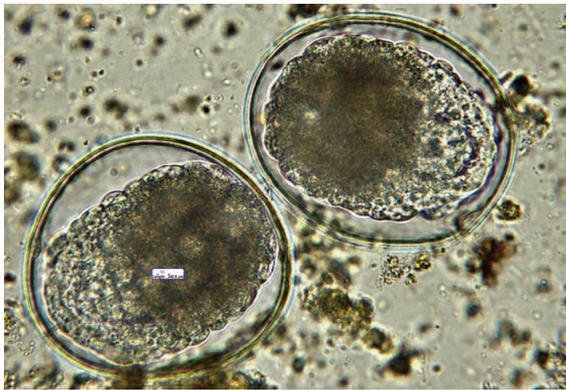


Figure 3. Fertile Ascarid egg revealed under the micrograph by and 40x magnifications

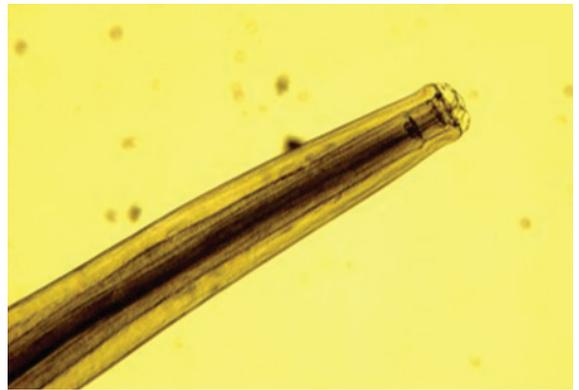


Figure 4. Adult worm of *Oesophagostomum* spp.



Figure 5. Posterior end of *Oesophagostomum* spp.

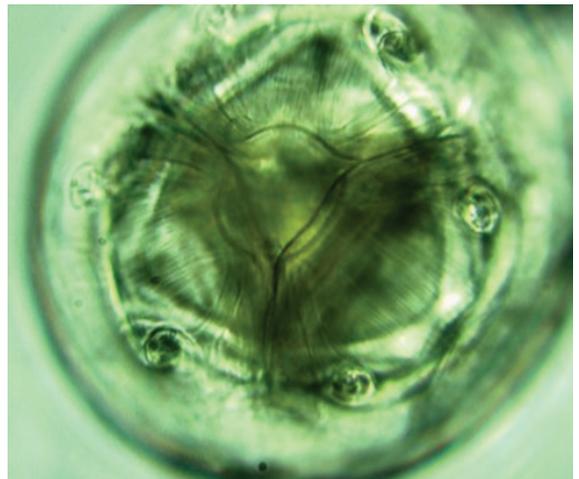


Figure 6. Higher magnification (40x) of the anterior end of the mouth part of the *Oesophagostomum* spp.

either poor husbandry or poor dietary management. Dirty water in the pond or incorrect temperature control are signs normally seen showing neglect. Diseases can result from an incorrect diet and can be the major cause of early death (Highfield, 2002).

Other reasons for the reduction of the terrapin population are attacks by predators such as sea eagles, otters, monitor lizard and big fish, and environmental factors like uncontrolled river water level, water pollution and depletion of food resources.

A case of severe mortality was reported in the river terrapin population in the local Wildlife Conservation Centre. Faecal samples were sent for diagnosis and simple floatation tests were conducted in the Parasitology Laboratory of the Veterinary Research Institute, Ipoh. This method detects nematode eggs in the faeces. The procedure is carried out by emulsifying the faecal sample with saturated salt solution. The mixture is then mixed and filtered into test tubes. A coverslip is placed gently onto the meniscus at the mouth of the tube. The tube was allowed to stand for 15 minutes until the eggs float to top and stick on to the cover slip, after which the coverslip is placed onto a microscope slide and observed under 40× and 10× magnification. It was observed that there were ascarid eggs in the faeces of *Batagur affinis* thus showing that the terrapin was positively infected with the helminth causing Ascariasis.

Figure 3 reveals a fertilised egg of the round worm *Ascaris* sp. at 40× magnification. Fertilised eggs are rounded, have a thick shell, while unfertilised eggs are elongated and larger, thinner shelled, covered by a more visible mammillated layer, which is

sometimes covered by protuberances. The specific morphology of the fertile egg is that it is bile stained, have a thick external layer, unembryonated and measures 150 µm to 160 µm in diameter under 40× magnification. At this stage, eggs are passed in the stool (complete development of the larva requires 18 days under favorable conditions).

DISCUSSION

On post-mortem, there were some helminths found in the intestines of the *Batagur affinis*. The helminth was identified as the *Oesophagostomum* spp. based on its morphology (Soulsby, 1982). These worms are considered as “nodular worm” because they cause the appearance of the characteristic nodules in the large intestine of their host (Junquera, 2007). According to Greiner and Schumacher (2000), the most common ascarid species present in reptile is the ascarid nematode, *Angusticaecum* sp.

Diagnosis of these helminth infections from the faeces and intestinal contents of *Batagur* may help in controlling infection by enabling the farmer or caretakers to administer suitable medications, control measures and management corrective actions so that mortality and morbidity can be reduced.

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