

Research Note

New Records of Endohelminths of the Alligator Snapping Turtle (*Macrolemys temminckii*) from Arkansas and Louisiana, U.S.A.

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ABSTRACT: Viscera were collected from alligator snapping turtles, *Macrolemys temminckii* (Harlan), caught by commercial trappers in Arkansas and Louisiana. A total of 1,708 parasites were recovered from 44 turtles. Endohelminths identified were 4 species of nematodes (*Brevimulticaecum tenuicolle* Rudolphi, *Falcaustra chelydrae* Harwood, *Falcaustra wardi* Mackin, and *Serpinema trispinosus* Leidy) and 3 species of acanthocephalans (*Neoechinorhynchus chrysemydis* Cable and Hopp, *Neoechinorhynchus emydis* Leidy, and *Neoechinorhynchus pseudemydis* Cable and Hopp). All but *F. chelydrae* are new records for *Macrolemys temminckii*.

KEY WORDS: acanthocephalan, alligator snapping turtle, endohelminth, *Macrolemys temminckii*, nematode, parasite, Arkansas, Louisiana, U.S.A.

The alligator snapping turtle, *Macrolemys temminckii* Harlan, 1835, is a large freshwater chelydrid found along the Gulf Coastal Plains and the Mississippi River Valley, U.S.A. (Lovich, 1993). Although some endohelminths are known to be harbored by this turtle, this study documents several endohelminths not previously reported. The most recent parasite work of *M. temminckii* was conducted by McAllister et al. (1995). In their report, 2 alligator snapping turtles were found to harbor 3 different forms of hemogregarines and the nematode *Falcaustra chelydrae* Harwood, 1932. Additional parasites recovered from *M. temminckii* include the trematode *Lophotaspis interiora* Ward and Hopkins, 1931, and a new species of *Eimeria* Upton et al., 1992. Here, we provide further details on the variation of the endohelminth fauna of *M. temminckii*.

Alligator snapping turtles were caught by commercial trappers in southeastern Arkansas and Louisiana, U.S.A., in the spring and summer of 1993 and 1994. Turtles were generally caught

in hoop nets or on baited hooks. Often a number of turtles were delivered to a processor in Louisiana and held in a storage tank for several days until there was a sufficient quantity to process. Viscera were collected and frozen for later analysis. Samples were collected as part of another study on the food habits of *M. temminckii* (Elsey, unpubl.). Viscera were thawed, and stomachs and intestinal tracts were examined for endohelminths. If present, grossly visible parasites were counted and preserved in 70% ethanol for later identification. When required, nematodes were cleared using lactophenol. Temporary mounts of the specimens were made using glycerin jelly. Once identified, the nematodes were returned to 70% ethanol. The acanthocephalans were stained with Semichon's acetocarmine for 24 hours and destained with acid alcohol. Destaining was arrested using 0.1% sodium bicarbonate. Specimens were dehydrated in ethanol, cleared using methyl salicylate, and mounted in Kleermount[®]. Identifications of nematodes were made using descriptions provided by Baker (1979, 1986) and Sprent (1979). Use of ecological terms follow suggestions of Margolis et al. (1982).

Seven species of helminths were recovered from 44 alligator snapping turtles (Table 1). The parasites include 4 species of nematodes and 3 species of 1 genus of acanthocephalan. In this study, *F. chelydrae* was the only endohelminth found that has been previously documented as a parasite of this turtle. To our knowledge, this is the first record of the nematodes *Brevimulticaecum tenuicolle* Rudolphi, 1819, *Falcaustra wardi* Mackin, 1936, *Serpinema trispinosus* Leidy, 1852, and the acanthocephalans *Neoechinorhynchus chrysemydis* Cable and Hopp, 1954, *Neoechinorhynchus emydis* Leidy, 1851, and *Neoechinorhynchus pseudemydis* Cable and

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Table 1. Parasites recovered from *Macrolemys temminckii* in southeastern Arkansas and Louisiana.

Parasite	Prevalence*	Mean intensity \pm SD†	Range	Abundance \pm SD‡
Acanthocephala	9%	26.0 \pm 44.1	1–51	2.4 \pm 13.9
<i>Neoechinorhynchus chrysemydis</i> (USNPC 88658)	2%	21.0	—	0.5 \pm 3.2
<i>Neoechinorhynchus emydis</i> (USNPC 88659)	2%	51.0	—	1.2 \pm 7.7
<i>Neoechinorhynchus pseudemydis</i> (USNPC 88660)	9%	8.0 \pm 8.3	1–20	0.7 \pm 3.2
Nematoda	98%	37.3 \pm 56.4	1–319	36.5 \pm 56.0
<i>Brevimulticaecum tenuicolle</i> (USNPC 88661)	14%	5.2 \pm 9.7	1–25	1.0 \pm 4.1
<i>Falcaustra chelydrae</i> (USNPC 88663)	84%	41.4 \pm 59.5	1–319	34.8 \pm 56.6
<i>Falcaustra wardi</i> (USNPC 88662)	2%	1.0	—	0.0 \pm 0.2
<i>Serpinema trispinosus</i> (USNPC 88664)	16%	5.9 \pm 5.8	1–14	0.9 \pm 3.1

* Prevalence = number of individuals of a host species infected with a particular parasite species \div number of hosts examined.

† Abundance = total number of individuals of a particular parasite species in a sample of hosts \div total number of individuals of the host species in the sample.

‡ Mean intensity = total number of individuals of a particular parasite species in a sample of a host species \div number of infected individuals of the host species in the sample.

Hopp, 1954, from the alligator snapping turtle. Individual turtles harbored up to 4 species of parasites. Thirty-five turtles (79.5%) contained 1 species, 7 turtles (15.9%) had 2 species, and 2 (4.6%) had 4 species. A total of 1,708 parasite specimens were identified. Infected hosts held from 1 to 319 parasites.

Species of *Falcaustra* are commonly reported parasites of aquatic turtles (Conboy et al., 1993). In this study, *F. chelydrae* accounted for 89.6% (1,531) of the total parasites identified and was harbored by 84.1% (37) of the turtles studied. *Falcaustra wardi* accounted for less than 1.0% (1) of the total number of parasites and was detected in only 1 turtle (2.3%).

Serpinema trispinosus is another nematode common in aquatic turtles (Conboy et al., 1993). However, this is the first account of *M. temminckii* harboring this parasite. *Serpinema trispinosus* accounted for 2.4% (41) of the total number of parasites recovered and was found in 15.9% (7) of the turtles.

Brevimulticaecum tenuicolle has been found only in the American alligator, *Alligator mississippiensis* Daudin, 1803 (Sprent, 1979). This nematode can be differentiated from other species based on lobulated, teat-shaped ventricular appendices (Sprent, 1979). In this study 1.8% (31) of the total parasites were *B. tenuicolle*. Of the turtles studied, 13.6% (6) harbored this par-

asite. This is the first record of this species of helminth in the alligator snapping turtle.

Acanthocephalans of the genus *Neoechinorhynchus* are common endohelminths of aquatic turtles (Petrochenko, 1971). Prior to this report, none has been observed in *M. temminckii*. Species of *Neoechinorhynchus* represented 6.1% (104) of the parasites in this study (1.2% *N. chrysemydis*, 3.0% *N. emydis*, and 1.9% *N. pseudemydis*), and parasitized 9.1% (4) of the turtles.

In summary, this research added 6 new species to the helminth fauna of the alligator snapping turtle. Future natural history and endohelminth surveys of *M. temminckii* could contribute to a better overall understanding of the parasitic life cycle, parasite diversity, and host-parasite relationship.

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