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Falcaustra wardi (Nematoda: Kathlaniidae) in the False Map Turtle (*Graptemys pseudogeographica*) (Testudines: Emydidae) from Southern Illinois

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ABSTRACT

Nematodes passed in the feces of a false map turtle, *Graptemys pseudogeographica*, from southern Illinois were identified as *Falcaustra wardi*. This constitutes a new host record for this helminth and the first report of its occurrence in a turtle of Illinois.

INTRODUCTION

Few reports are available on the helminth parasites of turtles of southern Illinois. The most comprehensive study to date was that conducted by Martin (1972) who examined 287 turtles representing six genera and seven species including *Chelydra serpentina*, *Chrysemys picta*, *Trachemys scripta*, *Sternotherus odoratus*, *Terrapene carolina*, *Terrapene ornata*, and *Trionyx* (*Apalone*) *spinifer*. More recently, Gillman (1991) reported on the helminths found in 62 turtles representing seven genera and eight species including *Apalone mutica*, *Trionyx* (*Apalone*) *spinifera*, *Chelydra serpentina*, *Chrysemys picta*, *Sternotherus odoratus*, *Terrapene carolina*, *Terrapene ornata* and *Trachemys scripta elegans*.

To our knowledge, nothing has been reported on the endoparasites of the false map turtle, *Graptemys pseudogeographica* in Illinois. Its geographic range extends from the Sabine River system of western Louisiana and eastern Texas north to the Dakotas, Minnesota, Wisconsin, Illinois, Indiana, central Ohio and northwestern West Virginia (Ernst and Barbour, 1972). The false map turtle is strictly aquatic and occurs throughout Illinois, usually in swift rivers but occasionally in large lakes. It is difficult to capture because of its wariness and its speed in swimming (Smith, 1961). Perhaps this may in part account for the paucity of information on the endoparasites of this species. The present study concerns the first report of the nematode, *Falcaustra wardi* in the false map turtle.

METHODS

A single adult male *Graptemys pseudogeographica* was collected on 26 June 1996 at Horseshoe Lake, Alexander County, southern Illinois. Nematodes were recovered as they spontaneously migrated from or were passed in the feces of the turtle a few days after it had been transferred from a container of lake water to one of charcoal-filtered tap water. Nematodes were removed with a medicine dropper, fixed in hot 70% ethanol, stored in a solution of 9 parts 70% ethanol and 1 part glycerin and cleared for study in glycerin. Voucher specimens have been deposited in the United States National Parasite Collection, No. 960626.

RESULTS AND DISCUSSION

Eight mature nematodes passed in the feces of the false map turtle captured at Horseshoe Lake were identified as *Falcaustra wardi* (Mackin, 1936) Freitas and Lent, 1941. To our knowledge, the only nematode reported from this turtle has been *Serpinema trispinosus* (Leidy, 1852) Yeh, 1960, which is widely distributed in several species of turtles in Canada (Baker, 1979), the contiguous United States (Ernst and Ernst, 1975) and Cuba (Baruö and Moravec, 1967).

According to Baker (1986), the taxonomy of the genus *Falcaustra* Lane, 1915 (=*Spironoura* Leidy, 1856) (Cosmocercoidea, Kathlaniidae, Kathlaniinae) is confused because of the large number of species and the fact that many descriptions are inadequate. *Falcaustra* contains about fifty nominal species distributed world-wide in poikilothermic vertebrates including fish, amphibians, and reptiles.

Our specimens concur with the description of *F. wardi* as given by Mackin (1936) and the redescription given by Baker (1986). Specimens of *F. wardi* in the present study are in closer agreement with the measurements reported by Mackin (1936) rather than those listed by Baker (1986) Table 1. However, considerable variation in size is not uncommon in nematodes of this genus.

Males of *F. wardi* may be distinguished from other species by the morphology of the muscle group that constitutes a modified pseudosucker. As pointed out by Baker (1986), the preanal musculature in male *F. wardi* is divided into an anterior and a posterior group. A posterior group of diagonally directed muscles is observed in all male species of *Falcaustra*. The anterior group of muscles in *F. wardi* is unique in that each muscle of the group is directed perpendicularly to the body cuticle and this group may be interpreted as a modified pseudosucker.

Mackin (1936) described *F. wardi* from *Chelydra serpentina* of Oklahoma. It has subsequently been reported from the same host in Oklahoma by Williams (1953) and from Ontario by Baker (1986). This nematode has also been reported in *Graptemys geographica* of Ohio by Rausch (1947). The report of *F. wardi* from *Graptemys pseudogeographica* in the present study constitutes a new host record and the first report of this helminth in a turtle of Illinois.

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Table 1. Dimensions of *Falcaustra wardi* from *Chelydra serpentina* in Oklahoma and southern Ontario compared to those from *Graptemys pseudogeographica* in Illinois[a]

	Makin 1936		Baker 1986		Present Study	
	Male	Female	Male	Female	Male	Female
No. of specimens	Not Given		5	7	3	5
Total length (mm)	6.8–8.4	8.0–13.7	9.4–10.3	9.9–11.3	4.7–7.3	7.2–10.1
Oesophagus length (mm)	1.21–1.65	1.51–1.88	1.53–1.58	1.74–1.81	1.1–1.4	1.1–1.4
Pharyngeal section	50–60	60–70	70–80	70–80	68–88	62–88
Corpus	930–1320	1180–1470	1240–1371	1370–1435	900–1050	800–1120
Anterior bulb	100–110	120–140	110–127	120–122	55–100	77–100
Posterior bulb	130–160	150–200	165–170	170–180	121–150	121–160
Nerve ring[b]	260–330	300–350	365–388	380–405	260–270	264–352
Excretory pore[b]	770–1170	1000–1380	1095–1260	1290–1375	750–1100	920–1290
Tail length	280–410	530–790	380–472	770–845	154–330	500–700
Vulva (mm)[b]	—	5.1–8.1	—	6.4–7.0	—	4.1–5.2
Vagina length	—	800–1080	—	1120–1205	—	660–1100
Spicule length	330–370	—	380–417	—	332–396	—
Gubernaculum length	70–80	—	67–71	—	66–80	—
Host	*Chelydra serpentina*		*Chelydra serpentina*		*Graptemys pseudogrophica*	
Locality	Oklahoma		Southern Ontario		Southern Illinois	

[a] Unless noted otherwise all measurements are in micrometers.
[b] Distance from anterior extremity.