ON Proteocephalus testudo (MAGATH 1924) (CESTODA: PROTEOCEPHALIDAE) FROM Trionyx spinifer (CHELONIA) IN LOUISIANA

Author: ACHOLONU, ALEXANDER D.

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The literature on the tapeworms of turtles is very scanty. Apparently this kind of parasite is rare in them. To date only two species have been described in the United States, namely, *Tetrabothrium trionychinum* Lönnberg 1894 and *Ophiotaenia testudo* Magath, 1924. Hughes et al. (1941, Am. Midland Nat. 25: 454-468) transferred both species to the genus *Proteocephalus.* However, they provided no evidence to justify the taxonomic redesignations. This may be the reason why Yamaguti (1959, Systema Helminthum Vol. II, Interscience Publishers, Inc., New York) dubiously listed *Proteocephalus trionychinum* and retained *Ophiotaenia testudo* of Magath. McKnight (1959, Dissert. Abstr. 20 (3): 1106; Ph.D. Dissert., Univ. of Oklahoma 1958: 1-47) reported *P. trionychinum* from *Trionyx ferox emoryi* (Agassiz) and *T. spinifer* LeSueur, and *P. testudo* from *Pseudemys scripta elegans* (Wied) and *Graptemys pseudogeographica* (Gray). On the basis of his study, he supported the changes made by Hughes et al. *(op. cit.)* and redescribed *P. trionychinum* since its description by Lönnberg (1894, Centralbl. Bakteriol. 15: 801-803) was considered inadequate or too general to make it feasible to separate this form from other species of the same genus — an opinion also expressed by Magath (1924, J. Parasit. 2: 44-49). He also recovered *Cylindrotaenia americana* Jewell, 1916, a parasite of amphibians from *T. spinifer* and *T. ferox emoryi.* Besides these, there have been few but scattered reports on the recovery of immature turtle cestodes in the United States and those identified only to genus (See Table 1).

TABLE 1. *Record of cestodes reported from turtles in the U.S.A.*

SPECIES	AUTHOR	HOST	LOCALITY
1. *Proteocephalus trionychinum* (Lönnberg, 1894)	Lönnberg, 1894	*Trionyx ferox*	Florida
	McKnight, 1959	*T. ferox emoryi*	Oklahoma
		T. spinifer	Oklahoma
2. *P. testudo* (Magath, 1924)	Magath, 1924	*T. spinifer (Amyda spinifera)*	Minnesota
	McKnight, 1959	*Pseudemys scripta elegans*	Oklahoma
		Graptemys pseudo-geographica	Oklahoma
	Acholonu, 1970	*T. spinifer*	Louisiana
3. *Cylindrotaenia americana* Jewell, 1916	McKnight, 1959	*T. spinifer*	Oklahoma
		T. ferox emoryi	Oklahoma
4. *Proteocephalus sp.*	Harwood, 1932	*Terrapene carolina triunguis*	Texas
5. *Taenia* sp.	Stiles and Hassall, 1894	*Trionyx sp.*	?
6. Immature cyclophyllidian cestode	Bennett and Sharp, 1938	*Terrapene carolina triunguis*	Louisiana
7. Immature Cestode	Rausch, 1947	*Chrysemys bellii*	Ohio
8. Proteocephalan plerocercoid	Acholonu, 1970	*Pseudemys scripta elegans*	Louisiana

Results and Discussion

180 turtles encompassing 12 species collected from southeastern Louisiana were autopsied between the springs of 1965 and 1969. Only one species, *Trionyx spinifer* was infected with *Proteocephalus testudo* (Magath, 1924)*. Of 18 of these spiny soft-shell turtles collected from False River, New Roads, nine (50%) were infected with worms ranging from one to 35. In addition, one *Pseudemys scripta elegans* harbored a proteocephalan plerocercoid with five suckers.

McKnight's redescription of *P. trionychinum* has helped to bring out the distinguishing features between this species and *P. testudo*. Some of the major ones are:

1) The strobila of *P. trionychinum* is shorter (20-23 cm) but with longer and wider mature and gravid proglottids (3.0x2 mm.) than *P. testudo* (30-50 cm; 2.1 x 1.6 mm.).
2) Its scolex is subglobose, flattened anteriorly and not set off sharply from the rest of the worm while that of *P. testudo* is small, globose and set off sharply from the rest of the worm.
3) While its neck is very short and wide, that of *P. testudo* is rather long and comparatively narrow.
4) The diameter of its cirrus pouch is smaller than that of *P. testudo*.
5) The testes are 100-120 in *P. trionychinum* but 125-200 in *P. testudo*.

As pointed out by McKnight *(op. cit.)*, Magath's specimens are believed lost and are unavailable for reexamination or study. My specimens, like those collected by McKnight, had their testes arranged in a continuous median field which is typical of the genus *Proteocephalus*. Magath (1924) stated that the testes in his specimens were arranged "in two broad lateral fields extending to the free median zone". His figure of a mature proglottid also reflects this, and shows that the testes were not in two clear-cut or indisputable lateral bands as is the case with some *Ophiotaenia* species like *O. saphena* Osler, 1931. It is possible that Hughes et al. gave consideration to these facts and thus thought it apropos to transfer Magath's species to the genus *Proteocephalus*.

This is the first report on the incidence of *P. testudo* and the plerocercoid in Louisiana.

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* The turtle species examined and found negative were: *Chelydra serpentina serpentina* (13) *Chrysemys picta dorsalis* (1) *Deirochelys reticularia* (1) *Graptemys kohni* (1) *Kinosternon subrubrum hippocrepis* (9) *Pseudemys scripta elegans* (100) *P. floridana hoyi* (14) *Sternotherus odoratus* (6) *Terrapene carolina carolina* (10) *T. c. triunguis* (6) and *Trionyx muticus* (1).

ALEXANDER D. ACHOLONU
Department of Biology
Inter American University of Puerto Rico
San Germán, Puerto Rico 00753

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