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Robin M. Overstreet

Gulf Coast Research Laboratory, robin.overstreet@usm.edu

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TWO NEW SPECIES OF DIGenea FROM THE SPOT, *LEIOSTOMUS XANTHURUS* LACÉPÈDE, FROM THE GULF OF MEXICO*

Robin M. Overstreet

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564

ABSTRACT: Two new species of Digenea are described from the euryhaline fish, *Leiostomus xanthurus*, from near Ocean Springs, Mississippi. The first, *Apocreadium manteri*, is most like *A. uroproctoferum* Sogandares-Bernal, 1959, from which it differs by having multispined scales and larger eggs and not possessing a uroproct. The second, *Lecithaster leiostomi*, is most like *L. gibbosus* (Rudolphi, 1802) from which it differs primarily by having a more elongated seminal vesicle and stockier vitelline lobes. *Lecithaster musteli* Srivastava, 1966, is considered a synonym of *L. confusus* Odhner, 1905.

The following trematodes were collected between October 1969 and April 1970 from the spot, *Leiostomus xanthurus* Lacépède (Sciaenidae-drum family), a common fish in the Gulf of Mexico and adjacent waters. They were fixed in hot AFA solution under slight pressure and stained with Van Cleave's hematoxylin. Figures were drawn with the aid of a camera lucida and measurements are given in microns.

I acknowledge the assistance of Mr. Ronnie Palmer who helped collect the hosts and parasites.

Apocreadium manteri sp. n. (Figs. 1, 2)

Description (based on 9 mature specimens)

Body 2,306 to 4,801 long by 608 to 1,590 wide, usually widest near level of posterior testis. Tegument with blade or trough-shaped scales, each with 1 to 6 embedded spines; scales more dense on forebody, sparse on dorsal portion of hindbody. Eyespot pigment dispersed and sparse. Oral sucker subterminal, without lateral fleshy lobes adjacent to mouth, 233 to 416 long by 219 to 374 wide. Acetabulum 282 to 559 long by 284 to 533 wide. Sucker width ratio 1:1.3 to 1.5. Forebody 20 to 28% of body length. Prepharynx usually shorter than pharynx. Pharynx 114 to 186 long by 91 to 206 wide. Esophagus either longer or shorter than pharynx depending on its state of contraction, surrounded by numerous glandular cells. Intestinal bifurcation roughly halfway between pharynx and acetabulum; ceca terminating 155 to 356 from posterior end of body.

Testes tandem, contiguous or nearly so, usually slightly irregular in shape; anterior testis 220 to 477 long by 271 to 514 wide with anterior border either slightly anterior or posterior to midbody; posterior testis larger, 281 to 608 long by 290 to

524 wide. Posttesticular space 26 to 35% of body length. Cirrus sac absent. Seminal vesicle saccate, 208 to 542 long by 81 to 215 wide, usually overlapping ovary. Pars prostatica shorter than and extending dorsal to or along either side of acetabulum. Prostatic cells few. Genital atrium tubular. Genital pore median, immediately anterior to acetabulum.

Ovary globular, dextral or occasionally median, roughly midway between anterior testis and acetabulum, 154 to 309 long by 184 to 402 wide. Seminal receptacle either larger or smaller than seminal vesicle, at or near ovarian level. Mehlis' gland between anterior testis and ovary. Laurer's canal present. Vitellaria consisting of numerous follicles, extending between level near base of acetabulum and posterior end of body, occasionally a few follicles overlapping testes. Eggs 84 to 112 long by 58 to 70 wide.

Excretory vesicle terminating anteriorly at or a short distance posterior to rear testis; pore dorsal, subterminal. Lymphatic system inconspicuous with 2 pairs of narrow longitudinal vessels extending most of body length; occasionally branching.

Type host: *Leiostomus xanthurus*.

Site: Intestine, usually anterior portion.

Locality: Bernard Bayou to Horn Island, near Ocean Springs, Mississippi.

Holotype: USNM Helm. Coll. No. 71477, paratype: No. 71478.

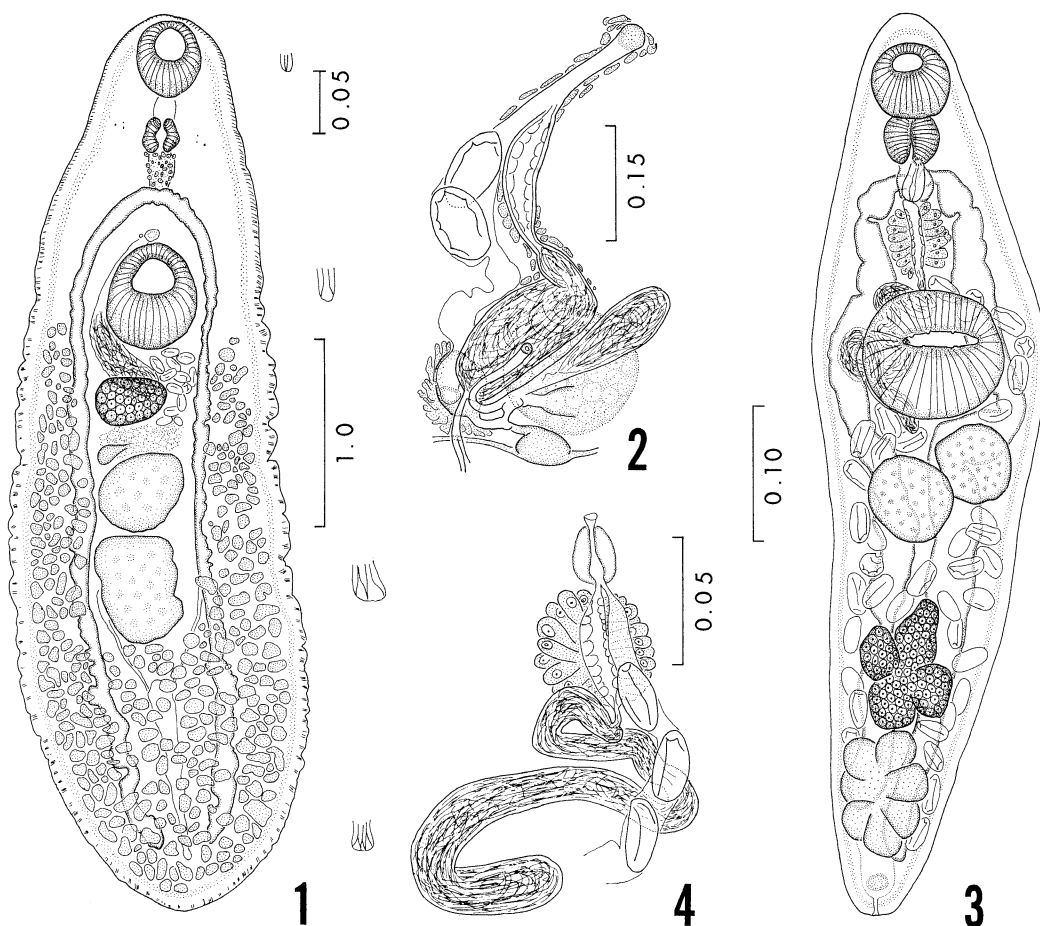
This species is named in honor of Dr. Harold W. Manter.

DISCUSSION

This species apparently differs from the other eight species of *Apocreadium*, except *A. foliatum* (Siddiqi and Cable, 1960) Overstreet, 1969, by having multispined scales. I reexamined specimens of *A. foliatum* and found the undescribed multispined scales present. Some specimens of both species, however, have the majority of the scales containing a single spine. *Apocreadium manteri* differs from *A. foliatum* by having a shorter posttesticular space, a greater sucker width ratio, and more anteriorly extending vitelline follicles. In relation to these

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FIGURES 1-4. 1. *Apocreadium manteri*, holotype, ventral view. Enlarged scales shown on right. 2. *Apocreadium manteri*, terminal genitalia, ovary, and adjacent organs, dorsal view. 3. *Lecithaster leiostomi*, holotype, ventral view. 4. *Lecithaster leiostomi*, terminal genitalia, ventral view. Scale values are millimeters.

and other features, it is most similar to *A. uroproctoferum* Sogandares-Bernal, 1959, from which it can be separated by having eggs 84 to 112 by 58 to 70 rather than 64 to 80 by 40 to 45 and not possessing a uroproct.

The lymphatic system, especially in the hind-body, is difficult or impossible to see in some individuals of several species of *Apocreadium*. Even though it is the only character used to distinguish *Apocreadium* from *Homalometron*, both *A. synagris* Yamaguti, 1953, and *A. caballeroi* Bravo-Hollis, 1954, were described without the system being evident. Fischthal and Kuntz (1965) have since reported its presence in the former species. On the other hand, if *H. caballeroi* Lamothe, 1965, is shown to have a lymphatic system, that species could be con-

sidered a synonym of *A. balistis* Manter, 1947.

Dactylotrema squamatum Bravo-Hollis and Manter, 1957, also has similar scales on the tegument. The presence of multispined scales on *A. manteri* and *A. foliatum* is additional morphological evidence for placing *Apocreadium* into the Homalometroninae, in which *Dactylotrema* is a member, as suggested by Manter (1947), but not followed by all recent workers. I follow the leprocreadiid classification of Howell (1966).

***Lecithaster leiostomi* sp. n.**

(Figs. 3, 4)

Description (based on 20 mature specimens)

Body fusiform, 389 to 923 long by 138 to 253 wide; widest at or posterior to acetabular level. Tegument smooth. Oral sucker subterminal, 49 to

81 long by 54 to 88 wide. Acetabulum 81 to 140 long by 88 to 154 wide. Sucker width ratio 1:1.6 to 1.8. Forebody 121 to 270 long or 26 to 39% of body length. Prepharynx absent. Pharynx 33 to 54 long by 37 to 60 wide. Esophagus approximately as long as pharynx but usually distorted, without chitinous "wall." Intestinal bifurcation roughly halfway between oral sucker and acetabulum. Ceca dorsal; terminating near posterior end of body, usually beyond vitellarium.

Testes ovoid, smooth, symmetrical or diagonal, separated or contiguous, partially or entirely post-acetabular; left testis 51 to 98 long by 49 to 102 wide; right testis 51 to 107 by 47 to 105. Seminal vesicle narrow, usually more than 3 times longer than acetabulum, sinuous, dorsal or lateral to acetabulum. Pars prostatica lined with vesicular cells, surrounded by large conspicuous prostatic cells; complex approximately same size as pharynx. Sinus sac muscular; containing hermaphroditic duct; duct uniform in width or locally constricted. Genital pore median or submedian, at or near pharyngeal level.

Ovary 51 to 170 long by 58 to 114 wide, its center $\frac{1}{4}$ to $\frac{1}{3}$ body length from posterior end, near or contiguous with testes and vitellarium, deeply 4-lobed; lobes rounded or irregular in shape, generally as long as wide. Vitellarium rosette-shaped, with 7 lobes slightly longer than wide, approximately same size as ovary. Postvitelline space 4 to 13% of body length. Seminal receptacle ovoid, dorsal or occasionally lateral to ovary, approximately size of ovarian lobe. Uterus usually extending posteriorly to about middle of, occasionally beyond, vitellarium; with short metraterm joining posterior of sinus sac. Eggs 26 to 36 long by 14 to 21 wide, up to 25 wide in living specimens.

Excretory vesicle bifurcating near acetabular level; arms seldom reaching near pharyngeal level, not united; pore terminal.

Type host: *Leiostomus xanthurus*.

Site: Usually intestine, occasionally rectum or pyloric ceca.

Locality: Bernard Bayou to Horn Island, near Ocean Springs, Mississippi.

Holotype: USNM Helm. Coll. No. 71479; paratype: No. 71480.

This species is named after the type host.

DISCUSSION

Lecithaster leiostomi differs from *L. extralobus* H. Srivastava, 1935, a species which has an elongated seminal vesicle, by having four rather than five ovarian lobes and seven rather than eight vitelline lobes. In *L. testilobatus* Manter, 1969, the vesicle is an elongated sac but the testes each have four lobes. *Lecithaster leiostomi* is most similar to *L. gibbosus* (Ru-

dolphi, 1802) Lühe, 1901, and *L. tauricus* Pigulevskii, 1938, from which it can be most easily distinguished by having an elongated rather than spherical or pyriform-shaped seminal vesicle. The eggs in *L. leiostomi* are larger than in *L. tauricus* and the smallest overlap the largest ones from *L. gibbosus*. Variation occurs in the vitelline lobes of *L. gibbosus*, but they are typically slender rather than stocky as in the present species. I doubt that the specimens discussed by Manter (1931) are *L. gibbosus*.

The genus *Lecithaster* was reviewed and emended by L. P. Srivastava (1966) to include a species with a genital atrium, constricted hermaphroditic duct, and cirrus. I interpret the region of the terminal ducts in *L. musteli* Srivastava, 1966, to be basically the same as in other species in the genus, with what is called the hermaphroditic pouch as the sinus sac and the cirrus as the sperm or ejaculatory duct. In any event, the cirrus, a questionable organ in the true sense in hemiurids, is a terminal protrusible organ. I consider *L. musteli* a synonym of *L. confusus* Odhner, 1905. The only consistent difference between descriptions of the two species is the larger size of eggs in *L. musteli* (18 to 21 by 12 to 15 compared with 15 to 17 by 7 to 9), and I do not consider that difference great enough to justify *L. musteli* as a separate species.

LITERATURE CITED

- FISCHTHAL, J. H., AND R. E. KUNTZ. 1965. Digenetic trematodes of fishes from North Borneo (Malaysia). *Proc. Helm. Soc. Wash.* **32**: 63-71.
- HOWELL, M. 1966. A new genus in the family Lepocreadiidae (Trematoda: Digenea) with notes on the status of some taxa within the family. *Tr. Roy. Soc. N. Z., Zool.* **8**: 23-29.
- MANTER, H. W. 1931. Some digenetic trematodes of marine fishes of Beaufort, North Carolina. *Parasitology* **23**: 396-411.
- . 1947. The digenetic trematodes of marine fishes of Tortugas, Florida. *Am. Midl. Nat.* **38**: 257-416.
- SRIVASTAVA, L. P. 1966. The morphology of *Lecithaster musteli* sp. nov. (Digenea: Hemiuridae) from the intestine of *Onos mustelus* (L.) and a review of the genus *Lecithaster* Lühe, 1901. *Parasitology* **56**: 543-554.