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TWO NEW ARGULIDS (CRUSTACEA: BRANCHIURA)  
FROM THE EASTERN UNITED STATES

BY ROGER F. CRESSEY

*Smithsonian Institution, Washington, D.C. 20560*

During the course of work designed primarily to produce a key to the argulids of the United States two collections were sent to me which contained two new species of the genus *Argulus*. These new species are described below.

***Argulus meehani* new species**

Figures 1-7

*Argulus* n. sp.—Kolipinski, 1969, pp. 39-49.

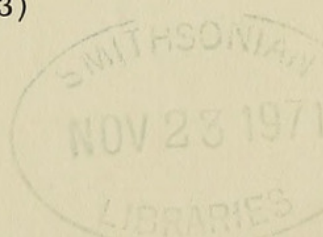
*Material studied:* Holotype female (USNM 137492), allotype (USNM 137493), and 90 paratypes (USNM 137494), collected by M. C. Kolipinski from the Florida gar *Lepisosteus platyrhinchus* De Kay at Royal Palm Pond, Everglades National Park, Florida.

*Female:* Body form of the typical argulid type. Total body length greater than width at a ratio of 8:5. Carapace slightly longer than wide at a ratio of 6:5. Total length and greatest width of one ovigerous specimen was 6.3 mm  $\times$  4.1 mm.

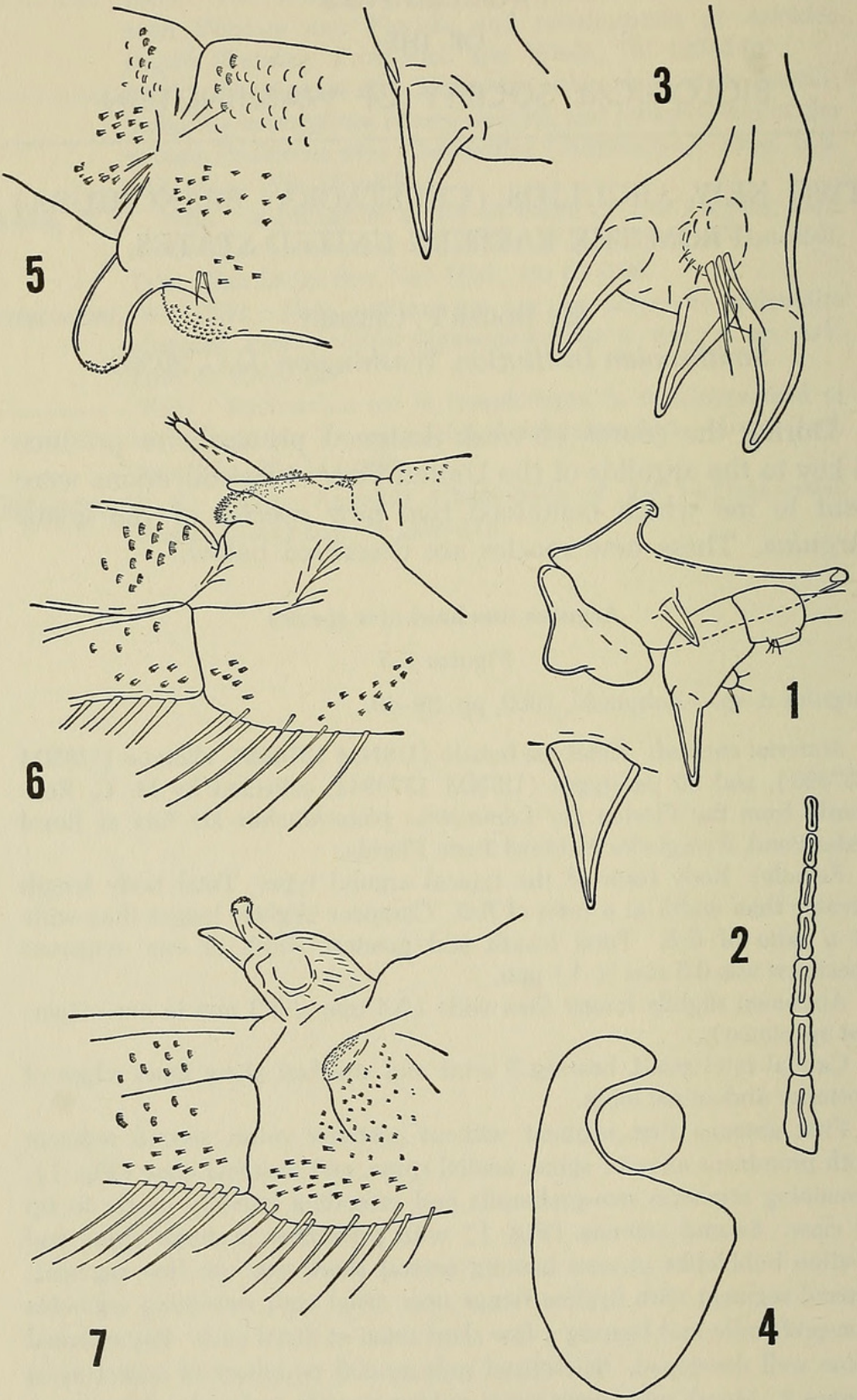
Abdomen slightly longer than wide (3.4 mm  $\times$  3.3 mm in one ovigerous specimen).

Caudal rami small, bearing 5 setae and attached along inner edges of posterior abdominal lobes.

First antenna first segment without posterior spine, second segment with prominent anterior spine, medial spine, and terminal claw (Fig. 1); remaining segments non-prehensile and extending laterally nearly to tip of claw. Second antenna (Fig. 1) with prominent posterior spine and hyaline bubblelike process bearing several short setae on first segment; second segment with hyaline flange near distal end; remaining segments non-prehensile and bearing a few short setae at distal ends. Postantennal spine well developed. Sclerotized rods around periphery of sucker as in Figure 2. Mouth tube about twice as long as wide and without ornamentation at base. Second maxilla basal plate as in Figure 3; remaining









segments of second maxilla with unidentate, bidentate, or tridentate spinules on ventral surface.

Respiratory areas (Fig. 4) with neck of larger nearly surrounding smaller within its inner margin.

Legs 1 and 2 with fringed scales on surface of first 2 segments; scales mixed with unidentate spinules on third segment; unidentate spinules only on ventral flagellum. Legs 3 and 4 with only fringed scales on surface of segments. All legs bearing plumose setae on flagella. Natatory lobe with fringed scales in addition to long setae; lobe slightly more than 3 times as long as wide, shoelike in appearance, distal portion extending to lateral margins of abdomen.

**Male:** Body form and appendages as in the female except for modifications on basal portions of legs 2, 3, and 4 as shown in Figures 5, 6, and 7.

**Color:** In preserved specimens no pigmentation was present.

**Discussion:** This species may be separated from all other species of *Argulus* except *A. lepidostei* and *A. nobilis* by the shape of the respiratory areas. It can be separated from *A. lepidostei* by the presence of scales on the basal plate of the second maxilla of *lepidostei*. It can be separated from *nobilis* since the sclerotized rods in the suckers of *nobilis* contain more than 10 elements whereas in *meehani* there are less than 10. The new species can be further separated from the above 2 species by the presence of the hyaline areas on the second antenna of *A. meehani*.

An excellent account of the effects of this parasite on its host was published by Kolipinski in 1969.

### ***Argulus chesapeakeensis* new species**

Figures 8–14

*Argulus laticauda*.—Dutcher and Schwartz, 1962, pp. 213–215.

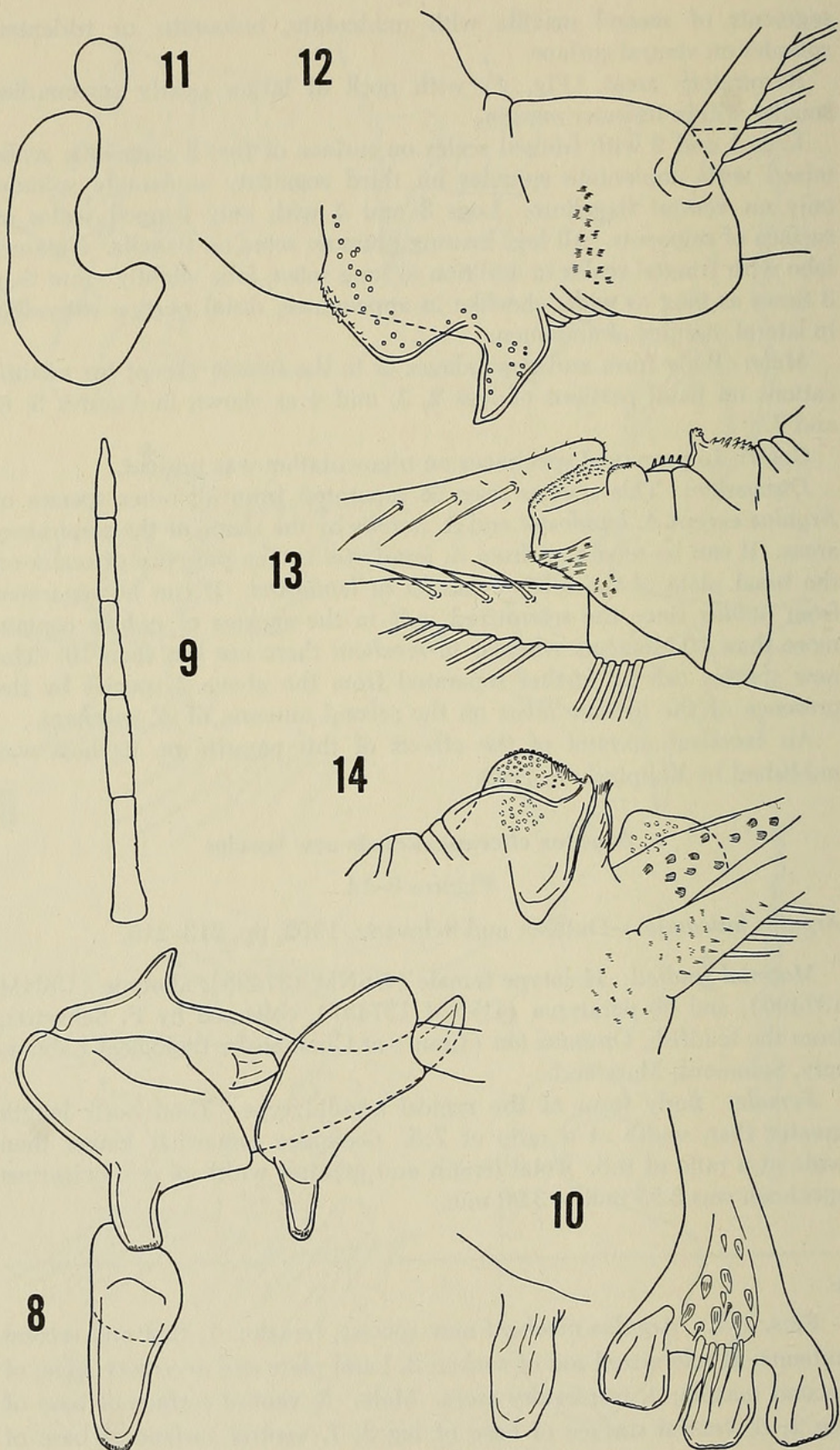
**Material studied:** Holotype female (USNM 137495), allotype (USNM 137496), and 89 paratypes (USNM 137497), collected by F. Schwartz, from the toadfish, *Opsanus tau* (Linn.) at Chesapeake Biological Laboratory, Solomons, Maryland.

**Female:** Body form of the typical argulid type. Total body length greater than width at a ratio of 7:5. Carapace somewhat longer than wide at a ratio of 6:5. Total length and greatest width of one ovigerous specimen was 5.55 mm  $\times$  3.90 mm.

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FIGS. 1–7. *Argulus meehani* new species, female: 1, first and second antenna; 2, sclerotized rod of sucker; 3, basal plate and accessory spine of second maxilla; 4, respiratory areas. Male: 5, ventral surface of base of leg 2; 6, ventral surface of base of leg 3; 7, ventral surface of base of leg 4.







Abdomen wider than long (1.1 mm  $\times$  0.9 mm in one ovigerous specimen), widest across middle.

Caudal rami small, bearing 5 setae, and attached along inner edges of posterior abdominal lobes.

First antenna (Fig. 8) first segment with well-developed posterior spine, second segment with moderately developed anterior spine, well-developed median spine, and terminal claw; remaining segments non-prehensile, extending nearly to tip of claw, each with short setae. Second antenna 4-segmented; first segment with prominent posterior spine; remaining non-prehensile segments with several setae. Postantennal spine well-developed. Sclerotized rods around periphery of sucker as in Figure 9. Mouth tube only slightly longer than wide and without ornamentation at base. Basal plate of second maxilla as in Figure 10, remaining segments with numerous multidentate spinules on surface.

Respiratory areas as in Figure 11.

Legs 1-4 with unidentate spinules on surface of segments in addition to plumose setae. Natatory lobe with ventral surface covered with pyriform scales in addition to plumose setae. Area between natatory lobes with patch of prominent pyriform scales.

*Male*: As in female except for modified areas at bases of legs 2-4 as in figures 12-14.

*Color*: Pigmentation present in a tranverse band across mid-area of carapace and on dorsal surface of thoracic segments.

*Discussion*: This species may be separated from all others except *A. flavescens* and *A. laticauda* on the basis of the shape of the respiratory areas. In *A. laticauda* the 3 spines on the basal plate of the second maxilla are cuspidate and the antennal spines are spatulate. In *A. flavescens* the posterior spine on the first segment of the first antenna is digitate and the 3 spines on the basal plate of the second maxilla are longer than wide.

An excellent account of the host-parasite relationship was published by Dutcher and Schwartz in 1962.

For comparison with other species see Meehan, 1940.

#### LITERATURE CITED

- DUTCHER, B. W. AND F. J. SCHWARTZ. 1962. A preferential parasitic copepod-oyster Toadfish association. Chesapeake Sci. 3 (3): 213-215.
- KOLIPINSKI, M. C. 1969. Gar infested by *Argulus* in the Everglades. Quart. Jour. Fla. Acad. Sci. 32 (1): 39-49.

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FIGS. 8-14. *Argulus chesapeakensis* new species, female: 8, first and second antenna; 9, sclerotized rod of sucker; 10, basal plate and accessory spine of second maxilla; 11, respiratory areas. Male: 12, ventral surface of base of leg 2; 13, ventral surface of base of leg 3; 14, ventral surface of base of leg 4.



- MEEHAN, O. L. 1940. A review of the parasitic crustacea of the genus *Argulus* in the collections of the United States National Museum. Proc. U.S. Nat. Mus. 88 (3087): 459-522.



Cressey, Roger F. 1971. "Two new argulids (Crustacea: Branchiura) from the eastern United States." *Proceedings of the Biological Society of Washington* 84, 253–258.

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