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*TAPHROMYSIS BOWMANI*, N. SP.,  
A NEW BRACKISH WATER  
MYSID FROM FLORIDA

MIHAI BACESCU

"Grigore Antipa" Museum of Natural History, Bucharest, Rumania

ABSTRACT

*Taphromysis bowmani*, n. sp., is described and figured. Comparisons are made with *T. louisianae* Banner as well as with species of other genera. A key to the two species of *Taphromysis* is provided along with notes on distribution and ecology.

INTRODUCTION

Through the kindness of Thomas E. Bowman, Division of Marine Invertebrates, Smithsonian Institution, I recently received for study two small lots of mysids, collected by Lowell P. and Shirley Thomas, Marine Laboratory, University of Miami. These two lots contained a second species of *Taphromysis* Banner which I take pleasure in dedicating to the carcinologist who sent it to me.

*Taphromysis* BANNER, 1953

Banner placed his new genus in the tribe Mysini Hansen and the *Mysis*-group of Zimmer (1915). Aside from *Hemimysis*, it is the only genus in the tribe in which the male pleopod 3 has but a single ramus, the 1-segmented endopodite, articulating with a normally developed propodus (Fig. 2, 2). The presence of a strong denticle on the body of the mandible is another good generic character. Type species, by monotypy and original designation, *T. louisianae* Banner, from a freshwater roadside ditch in southern Louisiana.

*Taphromysis bowmani*, NEW SPECIES

Figures 1-2

*Material studied*.—22 specimens, comprising 16 females (5 ovigerous, 5 preadult, 6 juvenile) and 6 males (4 adult, 2 juvenile), collected at Matheson's Hammock wading beach about 5 miles south of the Marine Laboratory, Biscayne Bay, Dade County, Miami, Florida, March 30 and May 22, 1960.

*Description*.—Body thickset, especially the abdomen; adult male immediately recognizable by the exceptional thickness of the propodus

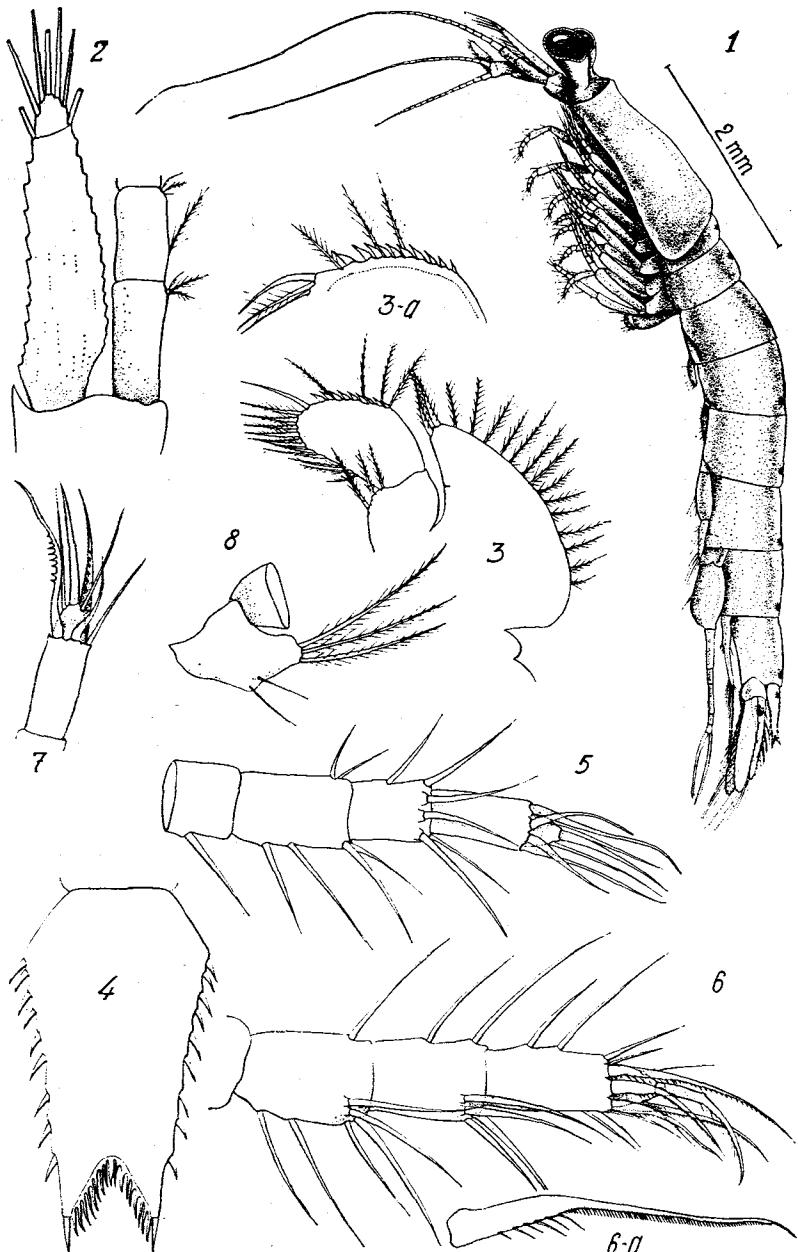


FIGURE 1. *Taphromysis bowmani*, new species. 1, Male holotype, lateral. 2, Antenna 2 of holotype. 3, Palp and exopodite of maxilla 2. 3a, distal article of palp of maxilla 2, female, showing marginal dentation. 4, Telson. 5, Pereopod 1, male. 6, pereopod 1, female. 6a, paradactylous seta of pereopod 1, female. 7, distal end of pereopod 5, female. 8, anterior oostegite.

of pleopod 4 (Fig. 1, 1). Anterior margin of carapace rounded, without lateral spines (*T. louisianae* has 2); all somites smooth.

Eyes, relation between antennae 1 and 2, also labrum resembling those of *T. louisianae*. Process masculinus of antenna 1 slightly different, relatively broader (Fig. 2, 6). Scale of antenna 2 of the type occurring in *Hemimysis lamornae* or *Antromysis anophelinae* Tattersall (1951), with setae along both margins; apical article well developed,  $1/9$  the length of the scale, bearing 5 setae (apical article  $1/20$  the length of the scale in *T. louisianae*). Flagella of antennae 1 and 2 much shorter than in *T. louisianae*, not reaching pleonite 5 (male) or scarcely reaching beyond carapace (female).

Body of mandible (Fig. 2, 7) with denticle typical for genus, palp short, molar process well-developed. Mandibular denticle, lateral in position, lies posterior to external denticle of propodus of antenna 2, the 2 denticles being easily seen in lateral view without dissection.

Distal article of palp of maxilla 2 more or less elongate, armed with 8-10 denticles, much as in *Diamysis* (Bacescu, 1940), the denticles twice as long as those of *T. louisianae*, being  $1/6$ - $1/8$  the maximum width of the articles (scarcely  $1/16$  in *T. louisianae*).

Pereopods slightly more robust in female, structure more or less uniform in both sexes. Exopodites long, 8-segmented; tarsi all 4-segmented, becoming very little longer in posterior pereopods (Fig. 1, 5-6). Seta at apex of dactyl smooth, paradactylous setae (at apex of penultimate article, surrounding dactyl) longer, those of pereopods 4 and 5 strongly dentate (Fig. 1, 6). First article (proximal) of tarsus subequal to third, longer than second article (in *T. louisianae* first article is longer than two following articles combined).

Penis lobes of male (Fig. 2, 8) very prominent, with bicorn posterior apophysis and several elastic setae with enlarged tips around the orifice.

Female with 3 pairs of oostegites; anterior pair very small,  $1/6$  the size of the second and about  $1/12$  the size of the third pair, with only 3 plumose setae (Fig. 1, 8). Marsupium of ovigerous females with 7-10 eggs.

Pleopods of female and first 2 pairs of male reduced to 1-segmented ramus (Fig. 2, 1). Pleopod 3 of male with strongly developed basal segment, finely serrate medially, nearly unarmed, followed by a single branch, the endopodite (Fig. 2, 2), very similar to that of *Hemimysis lamornae*, but with much shorter pseudobranchial process. Male

pleopod 4 strongly developed, sometimes extending beyond the ends of the uropods. Protopodus 2-segmented (Fig. 2, 3), exceptionally thick, width only slightly greater than vertical diameter, in lateral view vertical diameter nearly half that of corresponding pleonite. In males not yet having all secondary sex characters (setae on process masculinus, etc.) in which pleopod 4 does not extend beyond level of statocyst, protopodus is of flattened form usually found in mysids. Endopodite short, 1-segmented, not longer than proximal article of exopodite, with weak pseudobranchial process (Fig. 2, 4). Exopodite distinctly 6-segmented, more or less of *Mysis* type (Zimmer, 1915, Fig. 5) ending in pincer. Penultimate article bearing long spine only very slightly curved toward terminal article. Medial margin of terminal article undulate, minutely doubly serrate in distal part; distal half of subterminal seta with more than 20 rows of 3-7 fine spinules, ending in 2 strong points, the outer one shorter.

Banner's description of the subterminal and terminal setae of the male pleopod 4 of *T. louisianae* is not complete in all details. Dr. Bowman has examined one of Banner's paratypes and reports that the subterminal seta has an undulate medial margin, and the lateral margin bears distally two rows of minute serrations. The margins of the terminal seta bear minute spines distally, forming more or less complete diagonal rows; the apex ends acutely, more so than in Banner's drawing (1953, Fig. 2, i), in contrast to the divided tip in *T. bowmani*.

The endopodite of pleopod 4 is 2-segmented, as shown by Banner; the suture is indistinct and difficult to make out. The pseudobranchial process (Banner's "exite") is nearly twice as long as wide, and bears 7 setae, 3 of which are terminal, 3 lateral, and 1 medial.

Male pleopod 5 (Fig. 2, 5) composed of 1-segmented plate as long as terminal pleonite, bearing very long terminal setae which reach beyond distal end of telson. Near the middle a tuft of setae is borne on the inner margin and a single seta on the outer margin; the insertions of these setae at times may suggest a false articulation.

Banner shows pleopod 5 of *T. louisianae* as distinctly 2-segmented, with setae limited to distal part of second article. Pleopod 5 of a paratype examined by Dr. Bowman differs markedly from Banner's description. In addition to the distal setae, it bears on the inner margin a tuft of setae at the point where the pleopod narrows and 4 single setae distal to the tuft; on the outer margin just proximal to the level of the tuft are 2 single setae. Although a faint diagonal line in the

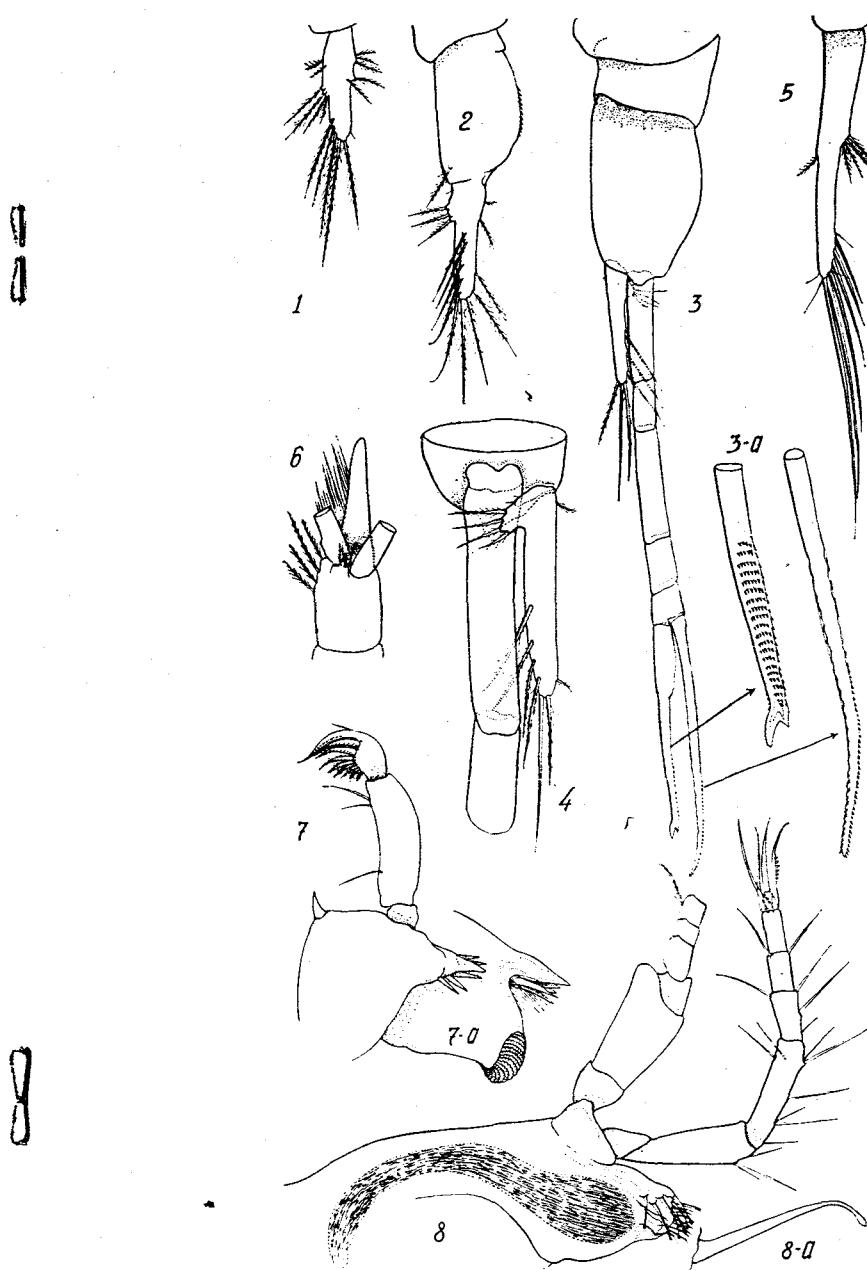


FIGURE 2. *Taphromysis bowmani*, new species, male. 1, pleopod 2. 2, pleopod 3. 3, pleopod 4. 3a, distal half of pincer of pleopod 4. 4, endopodite and first article of exopodite of pleopod 4, seen from above. 5, pleopod 5. 6, distal article of peduncle of antenna 1, with process masculinus. 7, mandible and its palp. 7a, distal part of mandible, in profile. 8, Penis and pereopod 5. 8a, One of the setae surrounding male orifice.

cuticle can be made out just distal to the tuft, it can scarcely be considered a complete suture, and pleopod 5 is, therefore, as in *T. bowmani*, 1-segmented.

Telson (Fig. 1, 4) half as long as exopodite of uropod and scarcely as long as pleonite on which it is inserted, closely resembling that of *Paramysis kroyeri* (Bacescu, 1940, Fig. 53, 93E: 636). Margins nearly straight, armed with about 8 (male) to 10 (female) equal spines; sinus subtriangular with 15 (male) to 20 (female) pointed lamina. The telson of *T. louisianae* resembles rather that of *Diamysis* (Bacescu, 1940, Fig. 20), having a broader sinus and nearly twice as many laminae.

Uropods like those of *T. louisianae*; endopodite with single spine medial and distal to statocyst. Although Banner states that the endopodite of *T. louisianae* has no spines near the statocyst, examination of a male paratype by Dr. Bowman showed that it also bears single spine near the statocyst.

*Length*.—Largest male, 8.17 mm; largest ovigerous female, 9 mm.

*Types*.—Deposited in the United States National Museum: Holotype male, USNM 106240, and 6 paratypes. Deposited in the "Grigore Antipa" Museum of Natural History, Bucharest, Rumania: Allotype female, No. 39, and 7 paratypes (2 ovigerous females, 3 preadult females, 1 adult male, and 1 juvenile male), No. 40.

*Discussion*.—The two species of *Taphromysis* may be distinguished by the following key:

- 1 (2) Margins of telson slightly concave (owing to divergence of terminal lobes), armed with 10-12 spines; sinus with more than 35 lamina. Propodus of male pleopod 4 not swollen, more or less flattened, in lateral view about 4.5 times as long as vertical diameter; subterminal seta of exopodite reaching beyond terminal seta by about 1/3 its length; terminal seta with acute apex. First article (proximal) of tarsus of pereopods as long as 2 following articles combined. Anterior margin of carapace with a pair of lateral spines.

*T. louisianae* Banner, 1953

- 2 (1) Margins of telson nearly straight, armed with 8-10 spines; sinus with 15-22 laminae. Propodus of male pleopod 4 swollen, nearly cylindrical, vertical diameter only slightly less than width, length about 3 times vertical diameter; subterminal seta of exopodite reaching only slightly beyond terminal seta; terminal seta bifid at tip. First article of tarsus of pereopods subequal to third. Anterior margin of carapace without lateral spines. .... *T. bowmani*, n. sp.

*Distribution*.—Upon being informed that the mysid collected by Mr. Thomas represented a new species of *Taphromysis*, Dr. Bowman examined 6 specimens of *Taphromysis* in the U. S. National Museum collected in the Wakulla River, Wakulla County, Florida, by Marvin Wass in April, 1953. These specimens agree in all details with the Biscayne Bay material and are undoubtedly *T. bowmani*. According to Wass, they were collected from fresh water. Dr. Bowman also examined 3 specimens of *Taphromysis* collected in Bayou Southerland, on the west coast of Florida near Tarpon Springs, Hillsboro County, collected by Keith D. Woodburn in June, 1958. These specimens, also unquestionably *T. bowmani*, were taken in company with the shrimp, *Palaemonetes intermedius* Holthuis, a species characteristic of marine and brackish water, but not found in fresh water.

Evidently *T. bowmani* occurs along the entire west coast of Florida and at least as far north as Biscayne Bay on the east coast.

*T. louisianae* has been reported only from the type locality, a roadside ditch at Gueydan, Vermilion Parish, Louisiana. The U. S. National Museum has recently received specimens from Dr. Alfred E. Smalley, Tulane University, collected from a ditch along a marsh near Grand Lake, Calcasieu Parish, Louisiana, about 35 miles west of the type locality.

*Ecology*.—Information concerning the ecology of *T. bowmani* has been kindly provided by Mr. Lowell P. Thomas. The mysid was collected in shallow (1-6 inches) tide pools left on the broad sand flats of the beach at low tide. The beach, bordered by a mangrove swamp, is of fine quartz sand, with sparse patches of *Thalassia* and *Diplanthera* growing on it. The density of the *Taphromysis* population was about 10 individuals per square foot (about 90 per square meter). The salinity was not taken when the specimens were captured, but when placed in fresh water in the laboratory the mysids showed no signs of discomfort and survived all day. *Taphromysis* has remained in the Matheson's Hammock locality through January, 1961 (the date of submission of this manuscript). Four salinity readings, one each month beginning in October, reveals salinity range from 13.3 to 26.0‰. Judging from its distribution, *T. bowmani* is characteristic of brackish water, but may also occur in fresh water.

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524 *Bulletin of Marine Science of the Gulf and Caribbean* [11(4)]

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