

**Studies on the Crustacea of the Turks and Caicos Islands, British West Indies. IV. *Heteromysis (Heteromysis) spottei*, a new species (Peracarida: Mysidacea: Mysidae) from Pine Cay**

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**Abstract.**—During a survey of the marine Crustacea in the vicinity of Pine Cay, Turks and Caicos Islands, an undescribed mysid, *Heteromysis spottei*, new species, was collected at depths ranging from 1 to 18 m. The new species belongs to the subgenus *Heteromysis* Băcescu and can be distinguished from the five other members of that subgenus known from the western Atlantic by the setation of the telson. In *Heteromysis spottei* the telson has spine-setae along the entire length of the lateral margins, spinules along the entire margins of the cleft, and a pair of spine-setae on each apical lobe, the outer being nearly three times longer than the inner. A key and diagnostic table to the species of the subgenus *Heteromysis* from the Northwest Atlantic is presented.

Excluding the commensal palaemonid shrimps, which have been addressed in a separate series of publications (Heard & Spotte 1991, Heard et al. 1993, Spotte et al. 1994, Spotte & Bubucis 1996, Heard & Spotte 1997), this is the fourth contribution in a series on the crustacean fauna of the Turks and Caicos Islands. The first three reports dealt with marine isopods (Kensley & Heard 1991, Schotte & Heard 1991, Schotte et al. 1991).

This report presents the description of a new species of mysid belonging to the genus *Heteromysis* Smith, 1873. The new species, which is referred to the subgenus *Heteromysis (Heteromysis)* Smith 1873 sensu Băcescu, 1968, was collected in water depths ranging from 1 to 18 m in the vicinity of Pine Cay.

The type material was deposited in the National Museum of Natural History (USNM), Smithsonian Institution, and the Gulf Coast Research Laboratory (GCRL). We follow the setal classification of Watling (1989) in which a seta is defined as an articulated cuticular outgrowth of the integu-

ment. The term “spine-seta” as used here refers to any seta with spine-like characteristics; a spine is defined as a non-articulated extension of the cuticle.

*Heteromysis (Heteromysis) spottei*, new species

Figs. 1–2

**Material examined** (all material from Turks and Caicos).—Holotype: adult ♀ (Length [L] 3.1 mm), USNM 282719, fringing reef off Pine Cay, live bottom/sand, depth 18 m, J. A. McLelland (coll.), suction device, 12 Nov 1989. Paratypes: adult ♂ (L3.5mm), USNM 282720; adult ♂, damaged, GCRL 1346, same collection data as holotype.—1 adult ♂, 2 ♀♀, (all damaged) Pine Cay, shallow inner reef, sand-coral rubble substratum with associated sponges and cnidarians, depth 4 m, 1 mm mesh dredge net, R. Heard, J. McLelland, P. Bubucis, & S. Spotte (colls.), 5 Nov 1988.—1 ♂ (damaged), Pine Cay (Rock-a-Wash Cay), depth 1 m, *Neogoniolithon* & sponge washings, R. Heard (coll.),



30 Oct 1988.—2♂♂, 1 ♀ (all damaged), same data as holotype.

*Diagnosis.*—Article 3 of antennular peduncle without distomedial flagellated spine-seta; thoracic endopod 3 with 3 flagellated spine-setae on medial margin of merus, medial margin of carpo-propodus without flagellated spine-setae; pleopods uniramous, reduced to simple setose plates with no modified spine-setae in either sex; endopod of uropod armed with 1 small spine-seta near statocyst; lateral margins of telson armed along entire length with 10–12 spine-setae per margin (including apical spine-setae), posterior-most lateral spine-seta 1.6–1.7 times length of preceding spine-seta, extending beyond posterior end of telson; outer apical spine-seta nearly 3 times longer than inner; cleft completely armed with 18–20 spinules.

*Description.*—General body form (Fig. 1A): moderately robust; carapace with anterior margin produced into pointed triangular rostrum; posterior dorsal margin emarginate, partly exposing thoracic segment 8; anterolateral lobes rounded.

Antennule peduncle (Fig. 1B): article 1 slightly shorter than article 3, with 3 plumose and 2 simple spine-setae on distolateral process, dorsomedial longitudinal ridge with 4 strong simple distal spine-setae; article 2 compressed with 2 distomedial spine-setae, 1 simple and 3 plumose spine-setae near middle of distal margin; article 3 with simple spine-seta on medial margin, 3 simple distomedial spine-setae, 3 plumose spine-setae near distolateral margin, 1 simple spine-seta on dorsolateral surface, lacking flagellated spine-seta, males with small moderately setose lobe on ventral surface.

Antenna (Fig. 1C): scale slightly shorter than peduncle, 3.0–3.2 times as long as maximum width, medial margin strongly convex, lateral margin straight, all margins setose, lacking distal article; antennal peduncle having 3 articles; article 1 inconspicuous; article 2 just over 1.5 times longer than article 3, short plumose spine-seta near distolateral border, 2 simple and 2 plu-

mose distomedial spine-setae; article 3 with 1 plumose and 3 simple distomedial spine-setae, 3 plumose spine-setae along lateral margin.

Eyes (Fig. 1A): large, oval, directed laterally, distal part of eye stalk wider than cornea, lacking ocular tooth; cornea large, oval.

Mandibles (Fig. 1D–F): molar, incisor, and lacina mobilis as illustrated. Palp 3-segmented; article 1 small, inconspicuous; article 2 expanded, medial margin with 5–10 simple spine-setae, lateral margin with 4–5 proximal plumose spine-setae and 1 simple distolateral spine-seta; article 3 half as long as 2, medial margin with 1 plumose spine-seta, distal part armed with 1 simple and 9–10 barbed spine-setae, 1 simple spine-seta on medial surface.

Labrum and paragnaths (Fig. 1D, G): as illustrated.

Maxillule (Fig. 1H): outer lobe with 11 stout apical and 3 subapical spine-setae; inner lobe with 3 long, distally curved, serrate spine-setae, 2 plumose and 2 simple spine-setae distally, and 1 plumose and 1 simple spine-seta on distomedial margin.

Maxilla (Fig. 1I): as illustrated; exopod with 13–15 plumose spine-setae on distolateral margin.

Thoracic endopods 1–8 (Fig. 2A–G): thoracic endopods 1 and 2 as illustrated. Thoracic endopod 3, merus approximately 1.6 length of ischium and equal in length to carpo-propodus, medial margin with 3 flagellated and 3 simple spine-setae, lateral margin with 1 distal simple spine seta; medial margin of carpo-propodus with 4–5 simple spine-setae, 2 simple and 2 stout serrate spine-setae on distomedial margin; dactyl small, with long, slightly curved claw on distal end surrounded by several simple spine-setae. Thoracic endopod 4, merus about 1.5 length of ischium; carpo-propodus about  $\frac{3}{4}$  length of merus, with 3 articles (distal 2 subequal, combined length slightly longer than proximal article); dactyl minute, papillate, lacking terminal claw. Thoracic endopod 5, ischium and merus sub-



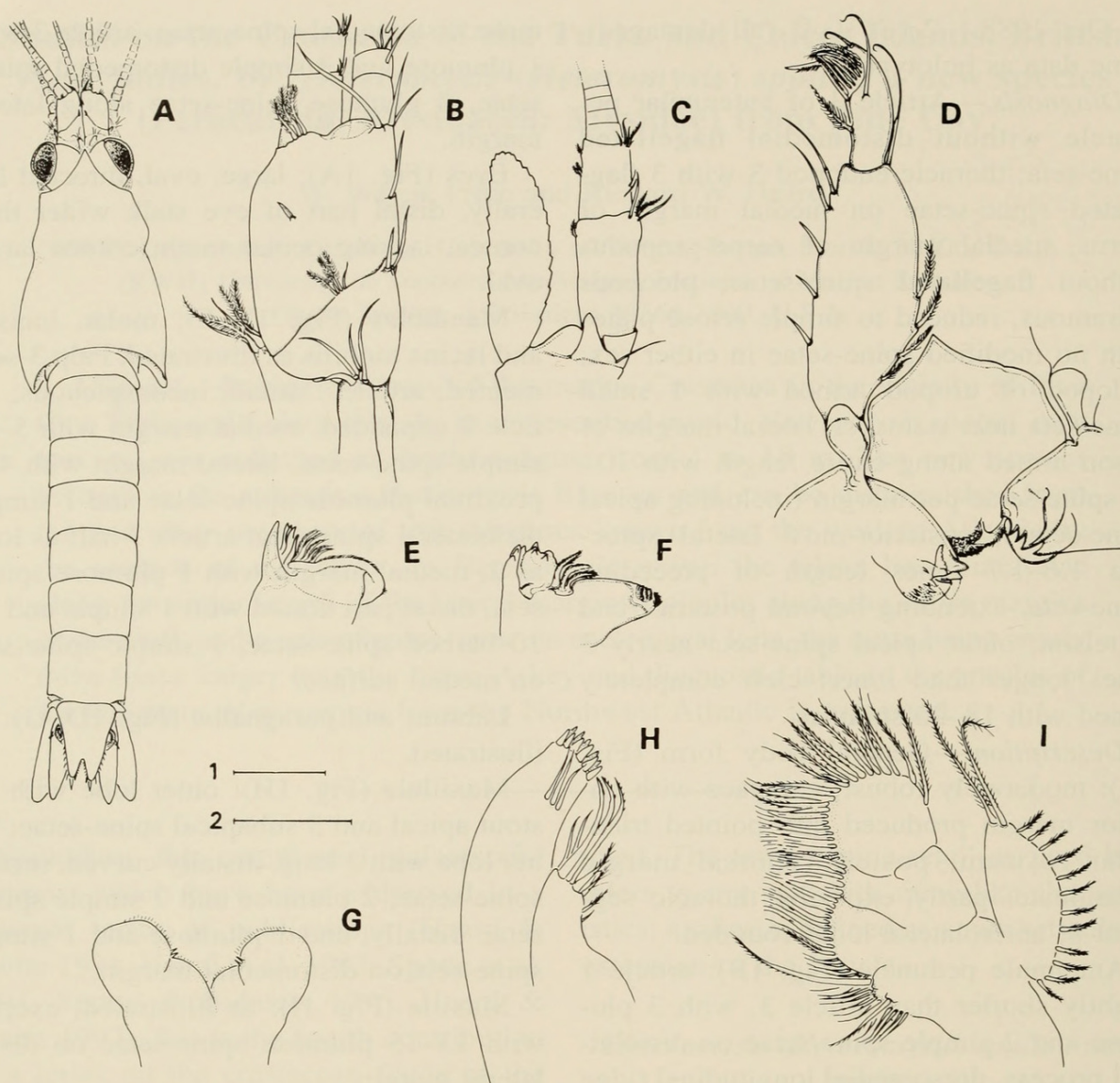


Fig. 1. *Heteromysis spottei*, new species. A, adult ♀, dorsal view; B, antennular peduncle; C, antennal peduncle and scale; D, labrium & right mandibular palp; E, F, right mandible, inner and upper aspects, respectively; G, paragnaths; H, maxillule; I, maxilla. Scale 1, A = 0.5 mm; C = 0.2 mm; B, D–F, I = 0.1 mm; A = 0.05 mm; Scale 2, G = 0.1 mm.

equal in length; carpo-propodus with 4 articles, distal 3 subequal in length, each half as long as proximal article, ultimate article with 6–7 simple spine-setae (2 sickle-shaped with strong articulated bases); dactyl small, papillate with long distal, slender claw. Thoracic endopod 6, carpo-propodus, ischium and merus subequal in length; carpo-propodus with 5 articles, distal 4 subequal in length, each about  $\frac{2}{3}$  as long as proximal article; dactyl small, papillate with distal serrate slender claw. Thoracic endopod limb 7, ischium slightly longer than

merus, merus slightly longer than carpo-propodus; carpo-propodus with 3 articles, proximal distinctly longer than each of distal articles; dactyl small, papillate with distal serrate slender claw. Thoracic endopod 8 (1 damaged limb available for study), long, attenuated, at least  $\frac{1}{3}$  longer than other thoracic endopods; carpo-propodus with at least 5 articles.

Thoracic exopods: exopod 1 with 8 articles; exopods 2–8 with 9 articles.

Thoracic sternal processes: median spiniform processes on sterna 3–7 in males.



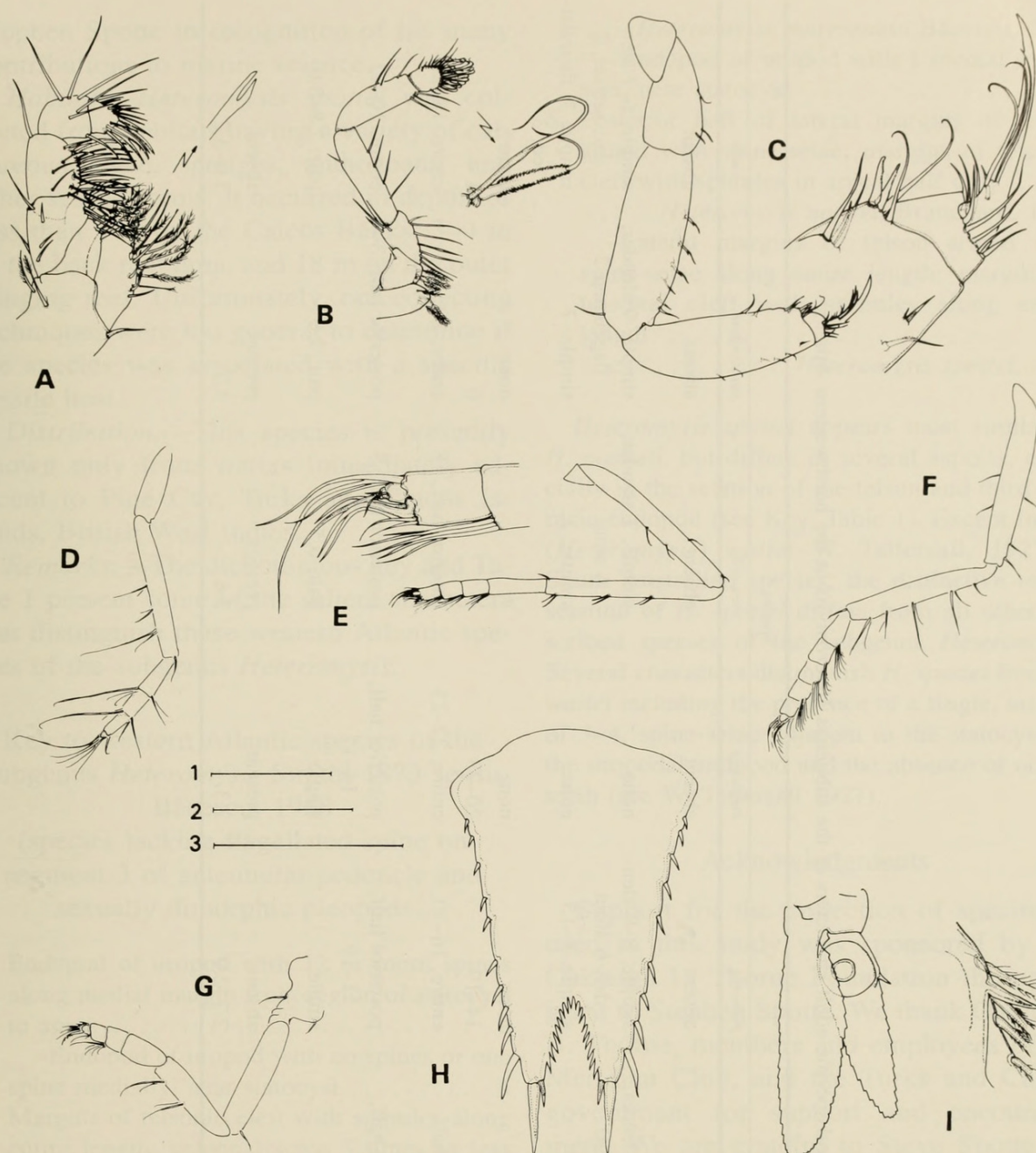


Fig. 2. *Heteromysis spottei*, new species. A–G endopods of thoracic limbs 1–7; H, telson; I, uropod. Scale 1, H = 0.1 mm; Scale 2, A = 0.1 mm, B–G = 0.2 mm; Scale 3, I = 0.2 mm.

Pleopods: without sexual dimorphism; reduced to uniramous plates with no modified spine-setae, similar in form.

Uropods (Fig. 2I): exopod about 1.2 times longer than endopod, lateral margin straight, medial margin slightly convex, all margins setose; endopod linguiform with 1 spine-seta on medial margin in region of statocyst, all margins setose.

Telson (Fig. 2H): 0.8 times length of exopod of uropod, 1.4–1.5 times as long as

maximum width, lateral margins slightly concave, armed along entire length with 10–12 spine-setae per margin (apical spine-setae included), increasing in length posteriorly, most postero-lateral spine-seta 1.6–1.7 times length of preceding spine-seta, extending beyond posterior lobes of telson; outer apical spine-seta 2.8–3.0 times longer than inner; cleft, depth 0.25 length of telson, completely armed with 18–20 small spines.

*Etymology.*—This species is named for



Table 1.—Common and specific adult characters of the subgenus *Heteromysis* in the northwestern Atlantic.

Character	Species				
	<i>elegans</i>	<i>formosa</i>	<i>mexicana</i>	<i>nouveli</i>	<i>mureseanui</i> <i>spotteti</i>
Flagellated spine-seta on antennular peduncle	absent	absent	absent	absent	absent
Spine-setae on medial margin of carpo-propodus of thoracic endopod 3	simple, slender, about 10	simple, 8–9 slender, 6 stout	none	simple, 7 slender, 6 stout	simple, 9 slender; flagellated 2
Spine-setae on medial margin of merus of thoracic endopod 3	simple, 7	simple, 8–13	none	simple, 2	simple, 7
Modified male pleopods	none	none	none	?	simple, 3; flagellated, 3
No. spine-setae on uropodal endopod	15–25	14–19	20–23	1	none
Spinules in telson cleft	anterior half, 10–15	entire, 16–30	entire, 22–23	anterior half, 18	1
Lateral spine-setae on telson (apical spine setae included)	posterior half, 7–10	posterior half, 11–19	posterior half, 14–17	posterior half, 8	entire, 18–20
Apical telson spine-setae per lobe; outer:inner length	single	single	single	pair, 0.5	pair, 2.8–3.0
Distal article on antennal scale	present	absent	present	present	absent
Length:width ratio of antennal scale	3.8–4.0	2.7–2.9	2.3	2.6	3.0–3.2



Stephen Spotte in recognition of his many contributions to marine science.

*Habitat.*—*Heteromysis spottei* was collected from habitats having a variety of calcareous algae, sponges, anthozoans, and other sessile forms. It occurred in depths of less than 1 m on the Caicos Banks, 3–4 m in the back reef area, and 18 m on the outer fringing reef. Unfortunately, our collecting techniques were too general to determine if the species was associated with a specific sessile host.

*Distribution.*—This species is presently known only from waters immediately adjacent to Pine Cay, Turks and Caicos Islands, British West Indies.

*Remarks.*—The dichotomous key and Table 1 present some of the salient characters that distinguish these western Atlantic species of the subgenus *Heteromysis*.

Key to western Atlantic species of the subgenus *Heteromysis* Smith, 1873 sensu Băcescu, 1968  
(species lacking flagellated spine on segment 3 of antennular peduncle and sexually dimorphic pleopods).

- 1. Endopod of uropod with 12 or more spines along medial margin from region of statocyst to apex ..... 2  
    –Endopod of uropod with no spines or one spine medially, near statocyst ..... 4
- 2. Margins of telsonic cleft with spinules along entire length; antennal scale 3 times or less as long as maximum width ..... 3  
    –Margins of telsonic cleft with spinules only in apical part; antennal scale at least 3.5 times as long as maximum width .....  
    ..... *Heteromysis elegans* Brattegard, 1974
- 3. Carpo-propodus of third thoracic endopod with 3 pairs of stout spine-setae on distomedial margin .....  
    ..... *Heteromysis formosa* S. I. Smith, 1873  
    –Carpo-propodus of third thoracic endopod with no stout spine-setae on medial margin .....  
    ..... *Heteromysis mexicana* Escobar-Briones & Soto, 1990
- 4. Endopod of uropod with no spine-setae medially, near statocyst .....

- ..... *Heteromysis mureseanui* Băcescu, 1986  
    –Endopod of uropod with 1 medial spine-seta, near statocyst ..... 5
- 5. Posterior half of lateral margins of telson armed with spine-setae; margins of telsonal cleft with spinules in apical half only .....  
    ..... *Heteromysis nouveli* Brattegard, 1969  
    –Lateral margins of telson armed with spine-setae along entire length; margins of telsonal cleft with spinules along entire length .....  
    ..... *Heteromysis spottei*, n.sp.

*Heteromysis spottei* appears most similar to *H. nouveli*, but differs in several aspects, especially in the setation of the telson and third thoracic endopod (see Key, Table 1). Except for *H. (Heteromysis) waitei* W. Tattersall, 1927, a South Australian species, the distinctive telson setation of *H. spottei* differs from all other described species of the subgenus *Heteromysis*. Several characters distinguish *H. spottei* from *H. waitei* including the presence of a single, instead of 3–4, spine-setae adjacent to the statocyst on the uropodal endopod and the absence of ocular teeth (see W. Tattersall 1927).

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