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Doxomysis acanthina, a new leptomysinid (Crustacea: Mysidacea) from the northern Great Barrier Reef, Australia, with extensions to the known distributions of *D. australiensis* W. M. Tattersall, 1940 and *D. spinata* Murano, 1990, and a key to the genus *Doxomysis*

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Abstract.—*Doxomysis acanthina* is described from the lagoon at Lizard Island, northern Great Barrier Reef, Queensland, Australia. The spines on the palp of its maxillary endopod are distinctive in having 2 types of secondary spinule, long and slender and small and thorn-like. *D. spinata*, previously found only in the Northern Territory, is provisionally identified from Lizard Island, and the known range of *D. australiensis* is extended into northern Queensland waters. The telson of all three species exhibit sexual dimorphism. A key to the genus *Doxomysis* is given.

Nine species belonging to the genus *Doxomysis*, tribe Leptomysini, have been taken in the Australian region. W. M. Tattersall (1936) recorded *D. littoralis* Tattersall, 1922 from the vicinity of Low Isles, Great Barrier Reef. Some of the specimens were faintly spinulose and Pillai (1973) tentatively referred these to *D. longiura* Pillai, 1963. *D. australiensis* was described under the name of *Afromysis australiensis* from Broken Bay, New South Wales by Tattersall (1940). It was recorded from Morton Bay, southern Queensland by Bacescu & Udrescu (1982), who also described *D. proxima* from the same area. Panampunnayil (1986) described *D. johnsoni* from Western Australia in the coastal waters of the extreme southwest and Murano (1990) described *D. brucei* and *D. spinata* from Port Essington, Northern Territory. Pillai (1973) recorded the occurrence of 9 specimens of *D. quadrispinosa* in the North Australian Basin. They were taken individually on 4 different cruises and were found mostly to the east of Christmas Island or off the North West Cape of Western Australia.

Three species of *Doxomysis*, *D. spinata* (identified provisionally), *D. australiensis* and the new species *D. acanthina* described here, were found in a survey of the mysid fauna of the Lizard Island region of the Great Barrier Reef during the years 1975–1980. These records extend the known distributions of *D. spinata* and *D. australiensis* eastwards and northwards respectively into the waters of northeastern Queensland. Murano's (1990) description of *D. spinata* was made from a single adult male. The females of this species from Lizard Island reveal that it exhibits the same type of sexual dimorphism in the structure of the telson as that found in *D. longiura* by Pillai (1973) and as is also seen in *D. australiensis* (Bacescu & Udrescu 1982, fig. 5) and in *D. acanthina*.

The genus *Doxomysis* is one of a group of 9 allied genera in the tribe Leptomysini. Although full descriptions are not available for many of the 48 species that belong to these genera, an affinity among them is suggested by resemblances in the following characters: the enlargement and elaboration of the palp on the endopod of the maxilla; the similarity in the structure of the modified terminal and subterminal setae of the exopod of the fourth male pleopod; the

well-defined cleft in the telson and the overall resemblance in the structure and pattern of distribution of telson spines. The genera are listed below:

Afromysis Zimmer, 1916 (6 species)
Australomysis W. M. Tattersall, 1927 (5 species)
Bathymysis W. M. Tattersall, 1907 (2 species)
Doxomysis Hansen, 1912 (15 species)
Hyperiimysis Nouvel, 1966 (1 species)
Iimysis Nouvel, 1966 (2 species)
Nouvelia Bacescu & Vasilescu, 1973 (3 species)
Pseudoxomysis Nouvel, 1973 (1 species)
Tenagomysis Thomson, 1900 (13 species)

Fenton (1991) pointed out the need to reassess the status of this group of genera and discussed problems arising from the lack of information on diagnostic features in many of the species. Members of the genus *Afromysis* are characterised by the markedly crescentic form of the maxillary palp, a feature that distinguishes them from members of the other genera in the group. In the genera *Doxomysis, Hyperiimysis* and *Pseudoxomysis* (the doxomysid sub-group), the palp is broader than long and typically fan-like in appearance, while in the genera *Tenagomysis, Iimysis, Australomysis, Bathymysis* and *Nouvelia* (the tenagomysid sub-group), it is longer than broad and usually obovate in shape. *Nouvelia* also contains a single species in which the palp is broader than long and resembles that of the doxomysid sub-group.

The doxomysid sub-group may be further divided on the basis of the structure of the marsupium of the female, which is formed of only two pairs of oostegites in the genus *Doxomysis,* while in both *Hyperiimysis* and *Pseudoxomysis* it is made up of three pairs and in both, there is also a small projection at the base of the fifth pair of thoracic limbs, which, in the case of *Pseudoxomysis,* has been interpreted as a rudimentary forth pair of oostegites. Although smaller, the basal projection in *Hyperiimysis* could be given the same interpretation. This feature is probably indicative of a close affinity between the two genera, as are others they have in common, such as a spine on the anterior border of the labrum and secondary spinules on the distal spines of the maxillary palp. Such similarities suggest that the species concerned should be placed in the same genus. However, differences in the structure of their thoracic limbs may mitigate against doing so, as the carpopropodus is made up of 3 articles in *Pseudoxomysis* and two articles in *Hyperiimysis.* Additionally, in the the latter genus the carpo-propodus of the eighth thoracic limb is enlarged and modified to form a prehensile structure.

Among the members of the tenagomysid sub-group, *Australomysis* and *Bathymysis* both lack the pair of plumose setae present in the telson cleft of all the other genera. They both contain species with dorso-ventrally flattened eyes and they are not clearly distinguished from each other anatomically, apart from the fact that the distal spines of the maxillary palp are barbed in *Bathymysis* and simple in *Australomysis.* They also have widely separate distributions and contrasting habitats. *Australomysis* has been found in shallow inshore waters along the south-west, south and east coasts of Australia and in the surf zone on the Pacific coast of central Japan (Fukuoka & Murano 1994), while both species of *Bathymysis* were taken at depth in the Atlantic (W. M. Tattersall 1907, 1951).

The genus *Iimysis* was erected to accommodate those *Tenagomysis* species that had an anterior spine on the labrum and a tarsus made up of four articles (Nouvel 1966). As indicated by Fenton, 1991, *T. tanzaniana* (Bacescu 1975) should probably be transferred to this genus. Its tarsus is made up of only three articles, but it has a spine on the anterior border of the labrum.

The genus *Nouvelia* is distinguished by a tarsus consisting of only three articles and a gap in the row of lateral spines on the telson. It includes *N. nigeriensis* (O. Tatter-

sall, 1957), a species in which the palp on the maxilla is broader than long and which might, therefore, be better placed in the genus *Doxomysis*.

At least 10 species are known to have secondary spinules on the spines that border the distal margin of the maxillary palp. In the descriptions of 3 of these, the spinules are shown in figures of the maxillae, but not mentioned in the text. They are present in the members of the genus *Bathymysis* and in 3 species of *Tenagomysis, T. australis, T. tasmaniae* and *T. bruniensis* (Fenton 1991), in *Hyperiimysis madagascariensis* (Nouvel 1966, fig. 10), in *Pseudoxomysis caudaensis* (Nouvel 1973, fig. 10) and in 3 species of *Doxomysis, D. spinata,* where they are long and slender (Murano 1990, fig), *D. rinkaiensis,* which has small spinules on the expanded tips of some of the spines (Valbonesi & Murano 1980, fig 3D) and *D. acanthina,* described below, in which there are 2 distinct sets of spinules, one, long and slender, towards the bases of the spines and the second, short and close- set nearer the tips. Among the species under discussion, *D. acanthina* is the only one so far found with more than 1 type of secondary spinule.

As *D. murariui* was described from 1 damaged female and *D. sanuriensis* from two damaged specimens, the status of these two species is difficult to ascertain. The illustrations of both show secondary spinules on the spines of the maxillary palps (Bacescu 1993, figs. 1E, maxillule (sic) and 2B, maxillule (sic)). This does not correspond with the account of the spines in the description of *D. sanuriensis,* however, while in the description of *D. murariui,* the spines are not discussed. The elongate shape of the maxillary palp of the latter species suggests that it may have a greater affinity with the tenagomysid group of species than with the doxomysid group.

Doxomysis acanthina, new species
Figs. 1–3

Material examined.—179 specimens were taken from the Lizard Island lagoon, during 1975–1980. Of these 113 were caught in nets and traps deployed close to the sandy floor, 60 in plankton hauls made in the lagoon center at night and 3 in traps placed above living coral. 3 additional specimens were taken in a night haul in the open channel between Lizard Island and Eagle Cay.

Size range.—Length, measured from anterior border of eyes to end of telson; 55 adult males, 3.7–6.5 mm.; 27 immature males, 2.5–3.8 mm.; 4 brooding females (up to 8 larvae in marsupium), 5.0–5.5 mm.; 12 adult females, marsupium empty, 4.5–5.5 mm.; 32 immature females, 2.8–5.0 mm.; 49 juveniles, 1.5–3.5 mm.

Type series.—Type specimens deposited in the Australian Museum, Sydney, paratypes deposited in the National Museum of Natural History, Smithsonian Institution, Washington D.C. Types and Paratypes all collected in the Lizard Island lagoon, 14°40′S, 145°27′E.

Holotype: adult male and slide preparation of right maxilla, AM P42693, light trap, sandy lagoon floor, depth 11 m, 28 May 1975, 1922–1927 hrs (Sta. #STL-75-L10).

Allotype: adult female, AM P42694, plankton net pushed above lagoon floor, depth 9 m, 31 May 1975, 1600 hrs (Sta #STL-75-P8).

Paratypes: 2 adult males, AM P43138, 3 adult males, USNM 259765, light trap light, sandy lagoon floor, depth 11 m, 28 May 1975, 1922–1927 hrs (Sta. #STL-75-L10). 1 adult female, USNM 259766, light trap on living *Porites* coral, E of Palfrey Island, depth 1 m, 4 Jan 1975, 2228–2233 hrs (Sta. #STL-75-T11).

Description.—Body slender. Integument spiny, small scale-like spinules conspicuously dense on carapace, less dense on abdomen, eyestalks, sparse on bases of antennae, pleopods. Carapace small, rounded, exposing last 2 thoracic segments. Rostrum short, bluntly pointed, reaching base of eyestalks (Figs. 1A, B).

Eyes prominent, fairly dark, hemispherical, greater in diameter than width of eyestalks.

Antennular peduncle of male stout, first article less than 0.5 total length, third article expanded, appendix masculina conical with prominent sensory bristles (Fig. 1A). Antennular peduncle of female slender, first segment 0.5 total length (Fig. 1B).

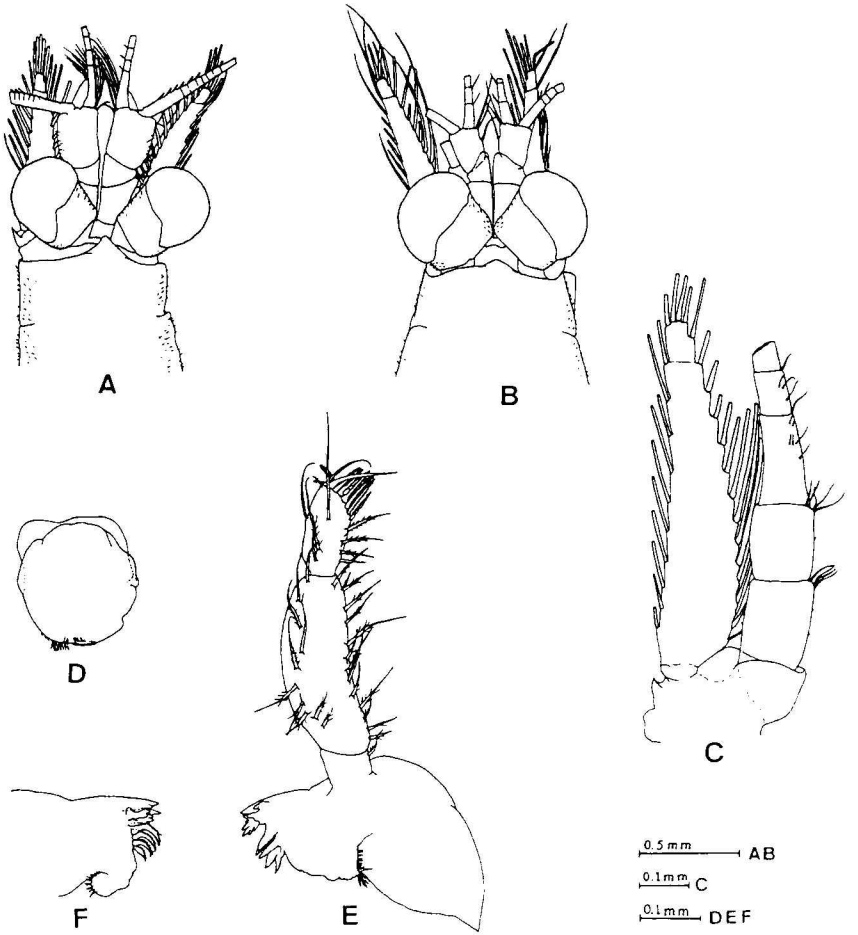

Fig. 1. *Doxomysis acanthina.* A, Anterior end of male. B, Anterior end of female. C, Left antenna. D, Labrum. E, Right mandible and palp. F, Left mandible.

Antennal scale narrow, overreaching antennular peduncle by about 0.25 of its length, distal segment present, suture inconspicuous (Fig. 1C).

Labrum rounded, without anterior spine (Fig. 1D).

Mandible with well-developed incisor process, lacinia mobilis, spine row and spinulose molar process, palp typical of genus,

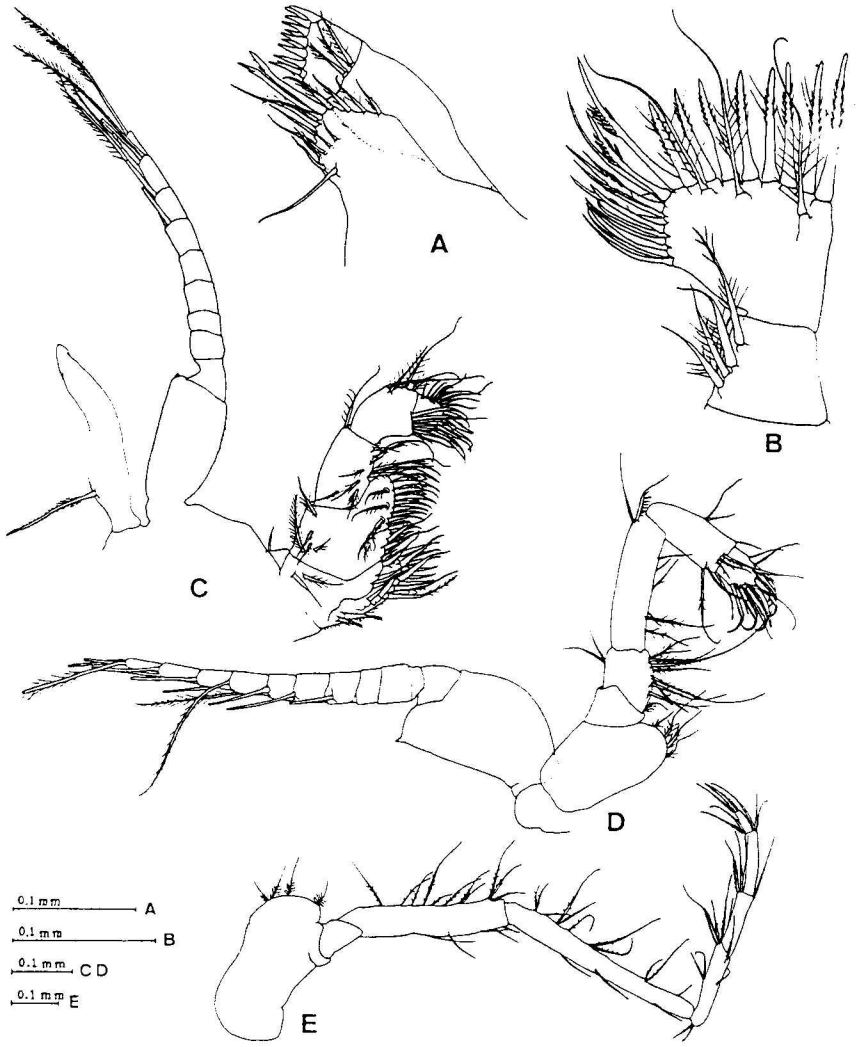

Fig. 2. *Doxomysis acanthina*. A, Maxillule. B, Segment 2 of endopod of maxilla. C, Thoracic limb 1. D, Thoracic limb 2. E, Endopod of thoracic limb 4.

apart from relatively slender second article (Figs. 1E, F).

Maxillule with inner lobe of segment 1 ending in 2 prominent notched spines, segment 3 armed with 10 short straight spines (Fig. 2A).

Palp of maxillary endopod expanded to form characteristic plate, bordered by 8

stout spines, each carrying a few long slender secondary spinules and 3–6 small, thorn-like, closely spaced spinules, in 2 lateral rows on distal part of each spine (Fig. 2B).

Thoracic limb 1 with robust endopod, row of 10 strong curved setae on masticatory endite of merus, epipod with a long seta near base (Fig. 2C). Dactylus of thoracic limb 2 armed with 7 prominent serrate spines (Fig. 2D). Thoracic endopods 3–8 with oblique articulation between carpus and propodus, propodus made up of 2 subequal subsegments, dactylus slender, ending in long sharp nail (Fig. 2E).

Marsupium of female formed of 2 pairs of oostegites borne on thoracic limbs 7 and 8.

Segment 6 of abdomen elongate, almost twice as long as segment 5.

Pleopods of male biramous, sympod slightly spinulose, exopods with 7 segments. Endopod of pleopod 1 short, unsegmented with single distal seta, 5 lateral setae, pseudobranchial lobe ending in 4 setae with bulbous bases (Fig. 3A). Pleopods 2–5 with 6-segmented endopods. Exopod of pleopod 4 modified: basal segment with shallow keel on inner edge; 4th segment with small, naked seta on inner distal margin; 5th segment with large, robust, curved spine, extending from outer distal margin to reach almost 0.6 length of terminal spines, distal 0.3 with outer row of close-set, secondary spinules; 6th segment with slender, naked distal seta on outer border, adjacent to strong, slightly curved spine, extending beyond terminal setae, row of sharp, slender secondary spinules on distal 0.6 of outer margin; 7th segment small, ending in 2 long subequal setae (Figs. 3B, C). Pleopod 5 with prominent conical distolateral process on basal segment of endopod (Fig. 3D).

Uropod slender, all margins setose, exopod almost twice as long as telson, endopod slightly more than 0.75 length of exopod, spine row of endopod with 22–23 spines, closely-set, alternately small and large in proximal part near statocyst, grading distally to larger, more widely-spaced spines near apex (Fig. 3E).

Telson about equal in length to pleonite 6, cleft slightly more than 0.25 total telson length. Telson of male strongly tapering, width at apex 0.5 width at base, apical lobes narrow, margins slightly concave, 11–12 lateral spines, terminating in 4 prominent apical spines, the second being the longest, cleft with 8–9 small spines on each side, 2 plumose setae projecting from base (Fig. 3F). Telson of female with less pronounced taper than that of male, width at apex 0.6 that of base, apical lobes broad, margins markedly concave, 12 lateral spines, grading into 5 large, somewhat spatulate apical spines, central apical spines subequal, 9–10 cleft spines on each side (Fig. 3G).

Chromatophore pattern.—Observed in 2 females hand-netted above the pale sandy lagoon floor. Eyestalk; 1 white chromatophore and 1 red chromatophore. Cephalothorax; 1 large, highly branched white chromatophore and 1 red chromatophore mid-dorsally above proventriculus, 1 white mid-lateral chromatophore on each side, 1 red mid-ventral chromatophore. Marsupium; 1 white dorso-lateral chromatophore on each oostegite, 1 red ventro-lateral chromatophore on anterior part of each posterior oostegite. Abdomen; 1 white mid-dorsal chromatophore on each segment, that of last segment large and highly branched, situated above sixth abdominal ganglia, 1 white and 1 red mid-ventral chromatophore on each segment. Telson; 1 red dorsal chromatophore.

Note on habitat.—The major portion of the *D. acanthina* catch was made up of 113 specimens found living just above the sandy floor of the lagoon, while 60 were caught in plankton tows taken in the lagoon at night, an indication that this species migrates into the water column during the hours of darkness. Only 3 specimens were caught above living coral and 3 in offshore plankton tows made at night

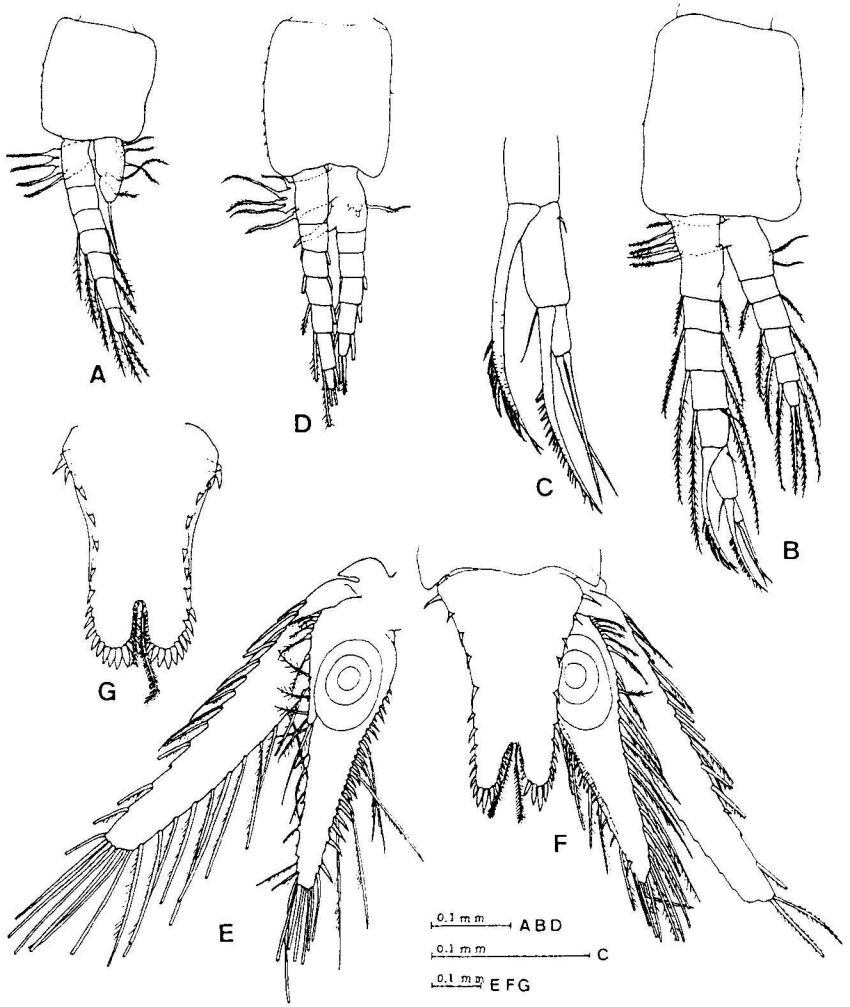

Fig. 3. *Doxomysis acanthina*. A, Pleopod 1. B, Pleopod 4. C, Terminal 3 segments of exopod of pleopod 4. D, Pleopod 5. E, Left uropod of male. F, Right uropod and telson of male. G, Telson of female.

in the channel between Lizard Island and Eagle Cay.

Etymology.—From the Greek "akanthinos", thorny, referring to the lateral rows of small, thorn-like secondary spinules on the spines of the maxillary palp.

Doxomysis spinata Murano, 1990
Fig. 4.

Material examined.—326 specimens, provisionally assigned to this species, were caught at Lizard Island, 308 in a light trap

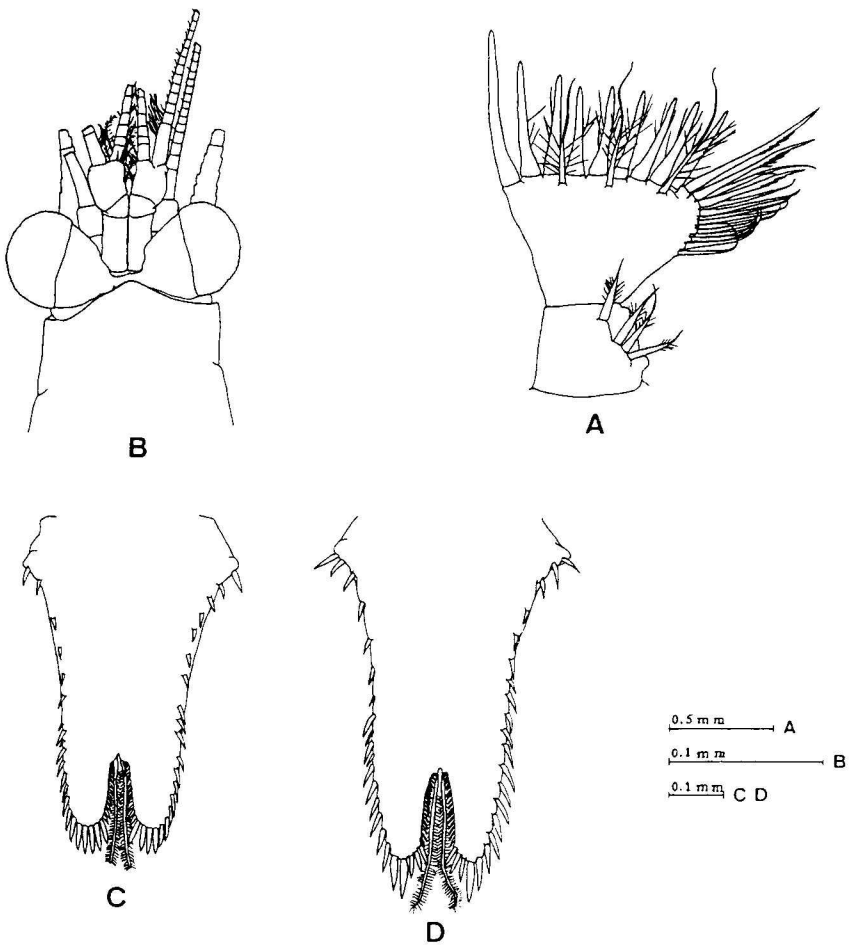

Fig. 4. *Doxomysis spinata*. A, Segment 2 of endopod of maxilla. B, Anterior end of female. C, Telson of female. D, Telson of male.

on the reef flat, 17 in a light trap on living *Acropora formosa* and a single female in a hand-net just above the sandy lagoon floor.

Size range.—Length, measured from anterior border of eyes to end of telson, 93 adult males, 3.5–5.7 mm; 36 immature males, 2.8–4.0 mm; 38 brooding females (up to 9 larvae in marsupium), 4.5–6.0 mm; 17 adult females, marsupium empty, 4.5–5.5 mm; 141 immature females, 3.0–5.2 mm; 1 juvenile, 1.7 mm.

Description of Lizard Island specimens.—These correspond in most features with Murano's (1990) description of *D. spinata*, which was made from a single male, 5.8 mm in length, taken in Port Essington, Northern Territory. Their integument is smooth and they have the long slender sec-

ondary spinules on the spines of the maxillary palp, noted in *D. spinata* (Fig. 4A). The secondary sexual characters of the males resemble those of the type specimen. They have a similarly robust antennular peduncle with a prominent appendix masculina and the exopod of pleopod 4 is modified in the same way as in the type specimen, although mature individuals have a slightly longer inner seta on segment 7 than is shown in Murano's Fig. 4C.

It is possible, however, that in spite of their similarity to *D. spinata*, the specimens from Lizard Island will prove to belong to a separate species, because they differ from the type specimen in the number of spines on the endite on the merus of the endopod of thoracic limb 1, in the number in the spine row on the endopod of the uropod and in the number of spines on the telson. The counts were made on 10 of the Lizard Island males, varying in length from 4.2–6.8 mm, with the smaller specimens tending to have a smaller number of spines than the larger. The spine counts were as follows:

	L.I. specimens	Holotype
Endite on thoracic limb 1—	8–10	7
Endopod of uropod—	21–33	37
Each side of telson,		
lateral spines—	14–20	12
apical spines—	5	3
cleft spines—	10–16	9

These differences suggest that the Lizard Island specimens may be distinct from *D. spinata*, but since the range of variation in specimens from the type locality cannot as yet be assessed, they have been relegated to the same species provisionally, pending the collection of further material in the Northern Territory. An examination of the type specimen of *D. spinata* has confirmed that it corresponds with the Lizard Island specimens, except in the features detailed above.

In the females from Lizard Island the antennule has a slender basal segment equal in length to the combined lengths of the second and third segments (Fig. 4B). The marsupium is formed of 2 pairs of oostegites. The telson is moderately tapered and has 16 lateral spines, 5 subequal apical spines and 12 cleft spines on each side (Fig. 4C). It differs from the male telson (Fig. 4D) in being slightly less tapered, in lacking a large posterior apical spine and in having a shorter cleft with fewer cleft spines.

Note on habitat.—325 of the Lizard Island specimens of *D. spinata* were trapped in the vicinity of coral, while only 1 was netted above the sandy lagoon floor.

Doxomysis australiensis (W. Tattersall, 1940)

Material examined.—During May 1976, 4 specimens of *D. australiensis* were taken at Lizard Island. They included a single female, caught in a net pushed above the lagoon floor and an immature male and 2 juveniles caught in 2 plankton tows made at night in the channel between Lizard Island and Eagle Cay. Its smooth integument distinguishes it from *D. acanthina* and its lack of secondary spinules on the maxillary palp separates it from *D. spinata* (Table 1).

Size range.—Length, measured from the anterior border of the eyes to the end of the telson, 1 immature male, 4.0 mm; 1 brooding female (12 larvae in marsupium), 6.5 mm; 2 juveniles, 1.5 and 2.4 mm.

Note on distribution.—This species was described from Broken Bay, New South Wales, and has been recorded from Moreton Bay, southern Queensland (Bacescu & Udrescu 1982). The Lizard Island material extends its known range into the waters of northern Queensland.

The 4 specimens of *D. australiensis* in the Lizard Island samples were taken on 2 days in mid-May 1976, one in association with *D. acanthina* near the lagoon floor and the other three at night in offshore plankton tows. *Doxomysis australiensis* occurs in the coastal waters of central New South Wales and southern Queensland, where it was the second most abundant mysid in samples from Moreton Bay examined by Bacescu & Udrescu (1982). It may be reaching the northern limit of its range in the region of Lizard Island. The small number of specimens taken and the fact that strong southeasterly trade winds were blowing at the time, raise the possibility that it is carried into the area intermittently, when trade winds dominate the weather pattern and enhance the northward flow of the coastal current.

Table 1.—Comparison between *D. acanthina*, *D. spinata* and *D. australiensis*.

	D. acanthina	*D. spinata*	*D. australiensis*
Integument			
Carapace	spiny	smooth	smooth
Abdomen	spiny	smooth	smooth
Max. palp			
Spine no.	7–8	8–10	10
Secondary spinules	2 types	1 type	absent
1st type	long, slender	long, slender	
2nd type	close-set	absent	
Male pleop. 4			
Exop. seg. 7			
Distal setae	both long, stout	1 long, 1 small	both curved, moderate
Exop. seg. 6			
Length	greater than 2 × seg. 7	2 × seg. 7	6 × seg. 7
Exop. seg. 5			
Distal seta length	greater than distal seta	less than distal seta	greater than 2 × distal seta
Exop. seg. 1			
Keel	present on inner margin	absent	keel not recorded
Uropod			
Endop. spines	22–23	type, 37 L. Is., 21–33	42–45
Telson			
Lat. spines	11–12	type, 12 L. Is., 14–20	19–21
Apic. spines	4	type, 3 L. Is., 5	4
Cleft spines	9–10	type, 9 L. Is., 10–16	23
Sexual dimorphism			
Male telson:			
Apic. lobes	tapered	tapered	tapered
Apic. spines	pointed	pointed	pointed
Fem. telson:			
Apic. lobes	rounded	less rounded	tapered
Apic. spines	spatulate	more pointed	pointed

The species of Doxomysis.—The genus *Doxomysis* is made up of the following 15 species:

D. acanthina n. sp.—Lizard Island, Queensland, Australia.

D. anomala W. M. Tattersall, 1922—Andaman Islands, India.

D. australiensis (W. M. Tattersall, 1940)—E. coast, Australia; Mossel Bay, South Africa.

D. brucei Murano, 1990—Port Essington, N.T., Australia.

D. hanseni Colosi, 1920—Malay Archipelago.

D. johnsoni Panampunnayil, 1986—W. coast, Australia.
D. littoralis W. M. Tattersall, 1922—Andaman Islands, India; Great Barrier Reef, Australia.
D. longiura Pillai, 1963—Kerala, India.
D. microps Colosi, 1920—Galapagos Is., Ecuador.
D. murariui Bacescu, 1993—Bali, Indonesia.
D. proxima Bacescu & Udrescu, 1982—Moreton Bay, Australia.
D. quadrispinosa (Illig, 1906)—Tropical Indo-Pacific.
D. rinkaiensis Valbonesi & Murano, 1980—Tanabe Bay, Japan.
D. sanuriensis Bacescu, 1993—Bali, Indonesia.
D. spinata Murano 1990—Port Essington, N.T., Australia.

Doxomysis zimmeri Colosi, 1920 has been omitted from the above list, as it was considered to be a synonym of *D. quadrispinosa* (Illig 1906) when reviewed by W. Tattersall (1922, 1951) and Pillai (1973). They argued that its description lacked characters distinguishing it from the latter species. Sri Lanka, the type locality of *D. zimmeri*, is also within the known distribution range of *D. quadrispinosa*.

Key to the Species of *Doxomysis*

1a. Integument of carapace and abdomen smooth 2
b. Integument of carapace and abdomen spiny 12
2a. Median dorsal tubercle on posterior surface of carapace ..... *D. johnsoni*
b. Dorsal surface of carapace lacking projections 3
3a. Telson with 1 stout and 2 small terminal spines on each apical lobe, cleft wide and shallow ..... *D. anomala*
b. Telson with 3–8 stout terminal spines on each apical lobe, cleft narrow and deep 4
4a. Row of spines on lateral margin of telson with large gap, at least half as long as telson 5
b. Spine row on lateral margin of telson without gap, or with small gap, 1 quarter telson length, or less 6
5a. Telson with 6 spines on each lateral margin, a large gap between the 3 proximal spines and the 3 distal spines ..... *D. murariui*
b. Telson with set of 8–9 small, evenly spaced spines on distal extremity of each lateral margin ..... *D. hanseni*
6a. Telson with 9 spines on each lateral margin, a gap between the 4 proximal and the 5 distal spines, endopod of uropod with row of 29 spines ..... *D. sanuriensis*
b. At least 12 spines on each lateral margin of telson, 32–50 spines on endopod of uropod 7
7a. Telson with rounded apical lobes, about 8 broad, spatulate terminal spines on each lobe ..... *D. brucei*
b. Telson with tapered apical lobes, 3–4 long, pointed terminal spines on each lobe 8
8a. Spines on distal margin of maxillary palp with secondary spinules 9
b. Spines on distal margin of maxillary palp without secondary spinules ... 10
9a. Spines on maxillary palp expanded towards tip, small secondary spinules located distally on expanded part, 48–50 spines on endopod of uropod ..... *D. rinkaiensis*
b. Spines on maxillary palp taper to a point, long slender secondary spinules more proximally located, fewer than 40 spines on endopod of uropod ..... *D. spinata*
10a. Lateral and terminal spines total about 17 on each side of telson, maxillary palp with 9 blunt spines ... *D. littoralis*
b. Lateral and terminal spines total 25–29 on each side of telson, maxillary palp with 10 or 12 sharp spines ... 11
11a. Maxillary palp with 10 spines, about 47 spines on endopod of uropod ..... *D. australiensis*
b. Maxillary palp with 12 spines, about 32 spines on endopod of uropod ..... *D. proxima*
12a. Gap in lateral spine row of telson, or spines confined to distal part of margin 13
b. Lateral spine row of telson without gap 14
13a. Eyes large, rounded, diameter approximately twice that of eyestalk ..... *D. quadrispinosa*
b. Eyes small, flattened, diameter similar to that of eyestalk ..... *D. microps*
14a. Antennal scale reaches end of antennular peduncle, maxillary palp with 9 simple spines ..... *D. longiura*
b. Antennal scale extends beyond antennular peduncle by 1 third of its length, maxillary palp with 7–8 spines bearing both long slender and short thornlike secondary spinules ... *D. acanthina*

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