

A new species of *Tenagomysis* (Crustacea: Mysida: Mysidae) from New Zealand with notes on three *Tenagomysis* species

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Abstract

Tenagomysis longisquama sp. nov. is described from South Island, New Zealand. *T. longisquama* is readily distinguished from the other species of *Tenagomysis* by the elongate antennal scale with an acute apex and the 10- to 16-subsegmented carpopropodus of the third to eighth thoracopodal endopods. *T. macropsis* Tattersall, 1923 and *T. producta* Tattersall, 1923, and an unidentifiable species, *Tenagomysis* sp., are also recorded from South Island. A key to the New Zealand species of *Tenagomysis* is provided.

Key words: Mysida, Leptomysini, *Tenagomysis*, new species, New Zealand, southwest Pacific

Introduction

The genus *Tenagomysis* currently comprises 13 species, nine of which are known from New Zealand (Thomson 1900; Tattersall 1918, 1923; Fenton 1991). The genus occurs predominantly in the southwestern Pacific with all but one species (*Tenagomysis (Nouvelia) tanzaniana* Bacescu, 1975 from the western Indian Ocean) from Australia and New Zealand. The systematic position of *Tenagomysis (Nouvelia) tanzaniana* remains uncertain, requiring revision (Fenton 1991).

Collections of mysids obtained during the Ports Survey conducted by the National Institute of Water and Atmospheric Research (NIWA) of New Zealand, contained four species of *Tenagomysis*: two species previously known from New Zealand, *T. macropsis* Tattersall, 1923, and *T. producta* Tattersall, 1923; the new species described here; the fourth species is not identified because of its damaged condition. This paper describes the new species together with taxonomic notes on the other three species.

Body length was measured from the tip of the rostrum to the posterior end of the telson excluding the spines. Type specimens are deposited in NIWA and the National Science Museum, Tokyo (NSMT).

Taxonomy

Subfamily Mysinae

Tribe Leptomysini

Genus *Tenagomysis* Thomson, 1900

Tenagomysis longisquama sp. nov. (Figs 1A, B, 2–5)

Material examined

All material is from Timaru, South Island, New Zealand.

Holotype: NIWA 3927 (H-878), ♂ (23.1 mm), dissected, stn TM065, 44°38.7'S 171°26.0'E, 13 Feb. 2002, 7 m, epibenthic sled. **Paratypes:** NIWA 3928 (P-1433), 1 ♀ (26.1 mm), dissected, same data as holotype; NIWA 3929 (P-1434), 15 ♀ (20.6–24.6 mm), same data as holotype; NIWA 3930 (P-1435), 2 ♂ (18.2, 22.5 mm) and 2 ♀ (19.0, 22.1 mm), stn TM060, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled; NSMT-Cr 16092, 1 ♂ (19.3 mm) and 1 ♀ (20.9 mm), stn TM063, 44°38.7'S 171°26.0'E, 13 Feb. 2002, 7 m, epibenthic sled.

Other material. NIWA 3931: 1 ♂ (broken), stn TM056, 44°38.7'S 171°26.0'E, 12 Feb. 2002, 6.5 m, epibenthic sled. NIWA 3932: 4 ♂ (13.8–22.0 mm), 2 imm. ♂ (12.4, 12.8 mm), 22 ♀ (18.7–23.6 mm) and 2 imm. ♀ (15.6, 17.6 mm), stn TM058, 44°39.2'S 171°26.0'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3943: 2 ♂ (18.6 mm, damaged), 4 ♀ (19.6–24.4 mm) and 5 imm. ♀ (13.2–19.5 mm), stn TM059, 44°39.2'S 171°26.0'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3944: 6 ♂ (17.5–19.6 mm), 4 imm. ♂ (damaged), 1 ♀ (damaged) and 6 imm. ♀ (15.8–17.4 mm), stn TM060, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3945: 3 ♂ (18.3 mm, damaged), 10 ♀ (18.6–24.4 mm) and 2 imm. ♀ (15.2, 16.8 mm), stn TM061, 44°39.1'S 171°25.6'E, 13 Feb. 2002, 8 m, epibenthic sled. NIWA 3946: 2 ♂ (14.6, 15.3 mm) and 1 ♀ (broken), stn TM062, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3947: 8 ♂ (13.5–17.6 mm), 12 ♀ (18.3–26.7 mm) and 4 imm. ♀ (16.4–17.3 mm), stn TM063, 44°38.7'S 171°26.0'E, 13 Feb. 2002, 7 m, epibenthic sled. NIWA 3948: 8 ♂ (16.2–18.8 mm), 1 imm. ♂ (9.8 mm), 23 ♀ (17.6–23.3 mm) and 4 imm. ♀ (13.4–17.0 mm), same data as holotype. NIWA 3949: 1 ♀ (damaged), stn TM070, 44°39.2'S 171°26.0'E, 13 Feb. 2002, 9 m, Shippek benthic grab.

Description

Body robust (Fig. 1A, B). Thoracic somites without sternal processes. Abdominal somites smooth, gradually increasing in length from first to fifth somites, sixth somite 1.7–1.8 times as long as fifth.



FIGURE 1. A, *T. longisquama* sp. nov., ♂ (23.1 mm), holotype, NIWA 3927 (H-878); B, *T. longisquama* sp. nov., ♀ (26.1 mm), paratype, NIWA 3928 (P-1433); C, *T. macropsis*, ♂ (9.1 mm), NIWA 3951; D, *T. macropsis*, ♀ (10.3 mm), NIWA 3951; E, *T. producta*, ♂ (10.5 mm), NIWA 3956; F, *T. producta*, ♀ (15.7 mm), NIWA 3953.

Carapace anteriorly produced into long, triangular rostral plate with acute apex reaching distal margin of second segment of antennular peduncle (Fig. 2A, B); anterolateral corner rounded; posterior margin not emarginate, leaving last 2 thoracic somites uncovered.

Eye large, not depressed dorsoventrally, 1.3–1.5 times as long as broad; cornea occupying distal 1/3 of eye; eyestalk without papilliform process (Figs. 1A, B, 2A, B). Antennular peduncle robust; in male third segment as long as first segment, 1.2 times as long as broad, with developed appendix masculina (Fig. 2A); in female first segment 1.2 times as long as third segment, third segment 1.1 times as long as broad (Fig. 2B).

Antennal scale 15 times as long as broad, acute distally, extending beyond apex of antennular peduncle by 2/3 of its length in male and by 7/10 of its length in female (Fig. 2A–D). Antennal peduncle extending to proximal 2/9 of scale in male and to proximal 1/6 of scale in female, second and third segments subequal in length (Fig. 2C, D). Antennal sympod with 2 spiniform processes, one at lateral distal angle and another on ventral surface (Fig. 2C, D).

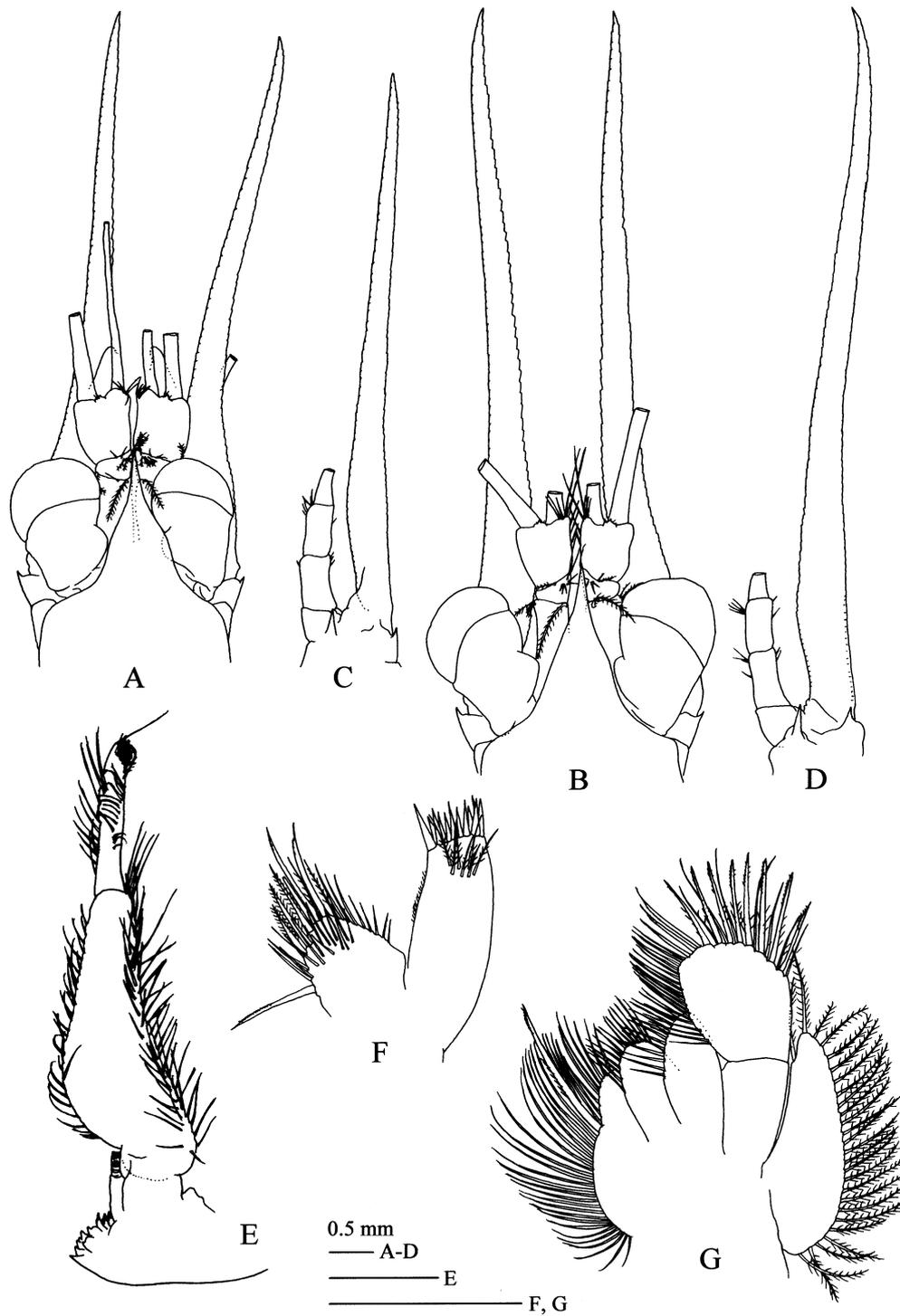


FIGURE 2. *Tenagomysis longisquama* sp. nov. A, C, E, G, ♂ (23.1 mm), holotype, NIWA 3927 (H-878); B, D, F, ♀ (26.1 mm), paratype, NIWA 3928 (P-1433). A, B, anterior part of body, dorsal; C, D, left antenna, ventral; E, left mandible, ventral; F, left maxillule, ventral; G, left maxilla, ventral.

Labrum without frontal process.

Mandibular palp with second segment expanded in middle part, armed with numerous setae on mesial and lateral margins; third segment half as long as second segment (Fig. 2E).

Mesial lobe of maxillule armed with 1 long, spiniform, 3 robust, plumose and 2 slender setae on mesial margin, with 3 long, barbed, spiniform setae on distal margin, 8 slender setae on lateral margin, and with 13 slender setae on distal third of ventral surface (Fig. 2F). Lateral lobe of maxillule armed with 13 or 14 robust spines on distal margin and with 5–7 long setae on ventral surface (Fig. 2F).

Endopod of maxilla with second segment 1.1–1.2 times as long as broad, armed with 8–10 spiniform setae on distal margin (Fig. 2G). Exopod of maxilla extending beyond distal margin of first segment of endopod (Fig. 2G).

First thoracopodal endopod short, robust (Fig. 3A). Second thoracopodal endopod short (Fig. 3B). Third to eighth thoracopodal endopods long; carpopropodus divided into 10–16 subsegments by transverse articulations (Fig. 3C, D). Thoracopodal exopod with flagellum 9-segmented in first and eighth pairs and 10-segmented in second to seventh pairs; basal plate with tiny, acute process at distolateral corner (Fig. 3A–D).

Penis armed with 6 mesially directed setae on distal margin and with about 10 setae on distal half of lateral surface (Fig. 4A).

Marsupium composed of 3 pairs of developed oostegites; oostegites on seventh thoracopod with small posterior lobe.

All pleopods of male developed, biramous (Fig. 4B–E, H). First pleopod with endopod reduced to unsegmented lobe, exopod 6-segmented (Fig. 4B). Second and third pleopods with 5-segmented endopod, and 6-segmented exopod longer than endopod (Fig. 4C–E). Fourth pleopodal endopod 5-segmented, extending to distal end of antepenultimate segment of exopod (Fig. 4E). Fourth pleopodal exopod 7-segmented; proximal segment with small mesial lobe, which is curved distally and spinulated on proximal margin (Fig. 4F); antepenultimate segment armed with long, strong, spiniform seta, arising from near distal end, slightly curved mesially, and extending slightly beyond apex of terminal setae; penultimate segment long, 1.5 times longer than preceding segment, 3.7 times as long as broad, armed with long, spiniform seta, which is almost straight, arising from distal end, and extending beyond apex of strong seta from preceding segment; terminal segment short, 0.4 as long as antepenultimate segment, armed with 2 subequal, terminal setae, which are 4 times as long as own segment (Fig. 4E–G). Fifth pleopod with 6-segmented exopod; 5-segmented endopod with rectangular lobe armed with single seta on proximal segment in addition to usual pseudobranchial lobe (Fig. 4H). Pseudobranchial lobe of all pleopods developed, slightly expanded distally in second to fifth pleopods (Fig. 4B–E, H).

All pleopods of female reduced to unsegmented single lobe, flattened, gradually increasing in length from first to fifth pleopods; third to fifth pleopods knife-shaped with acute apex (Fig. 3E–L).

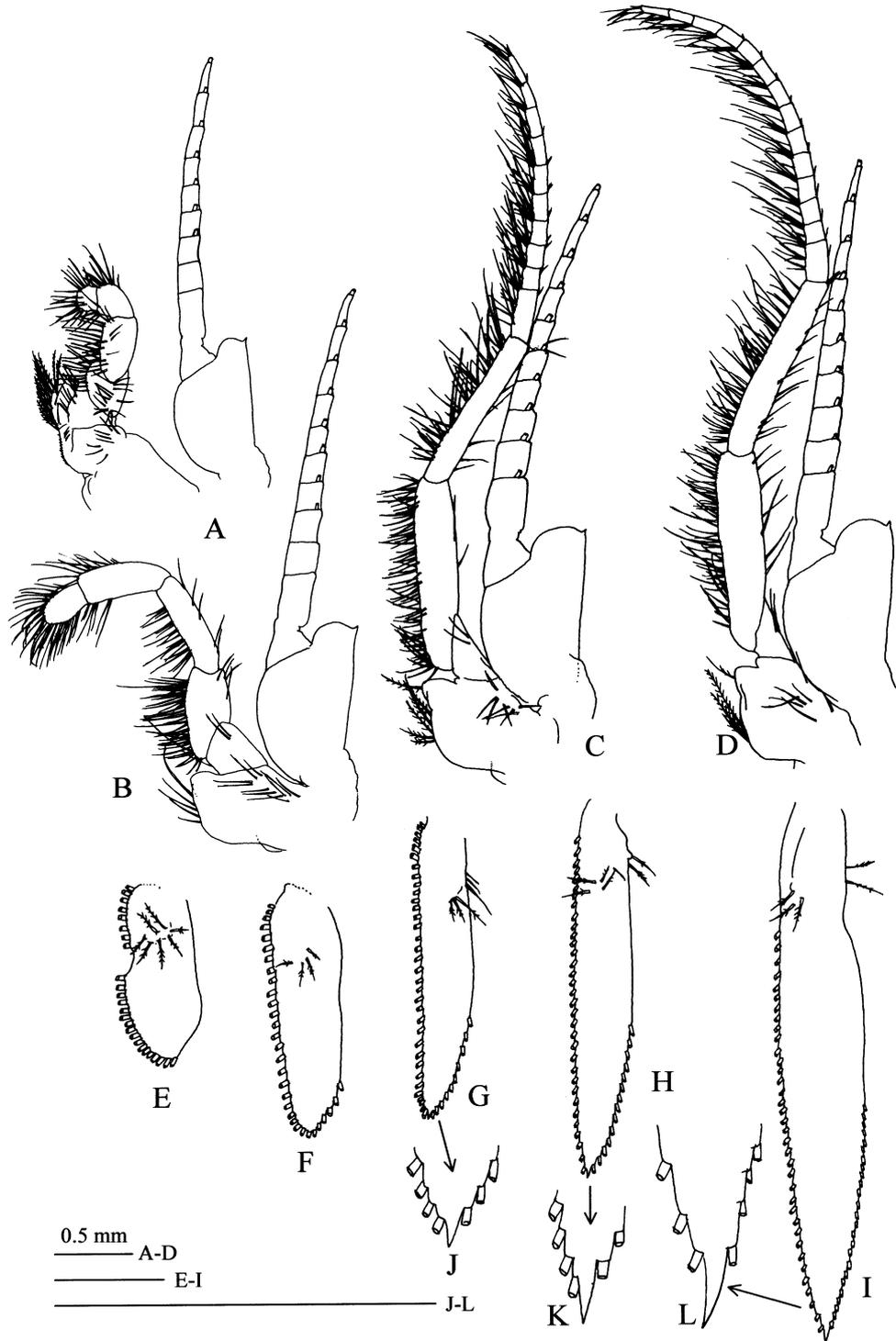


FIGURE 3. *Tenagomysis longisquama* sp. nov. A–D, ♂ (23.1 mm), holotype, NIWA 3927 (H-878); E–L, female (26.1 mm), paratype, NIWA 3928 (P-1433). A–C, first to third left thoracopod, posterior; D, sixth left thoracopod, posterior; E–I, first to fifth left pleopods of female, posterior; J–L, apical part of third to fifth left pleopods, posterior.

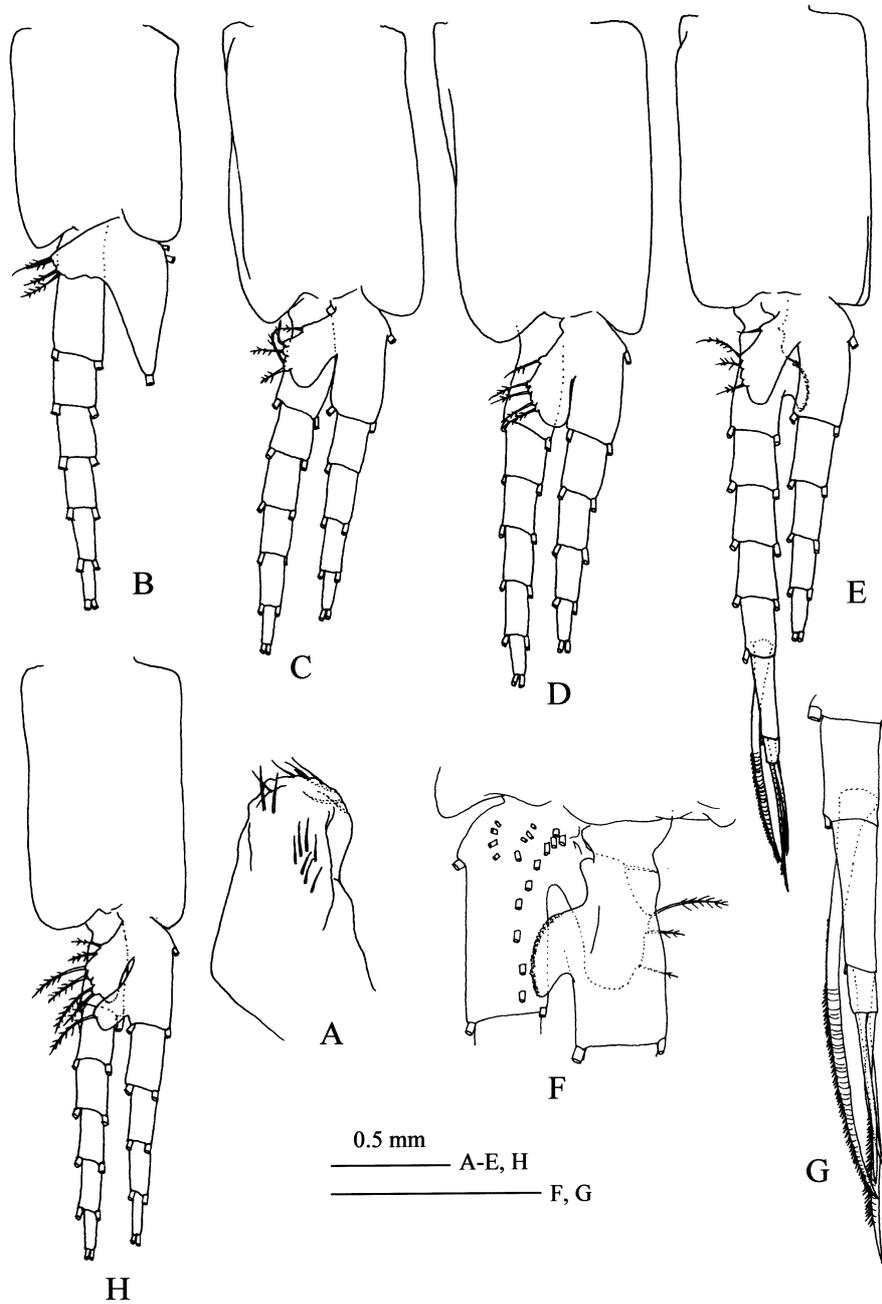


FIGURE 4. *Tenagomysis longisquama* sp. nov. ♂ (23.1 mm), holotype, NIWA 3927 (H-878). A, left penis, lateral; B–E, first to fourth left pleopods of male, posterior; F, proximal part of both rami of fourth left pleopod of male, anterior; G, apical part of exopod of fourth left pleopod of male, posterior; H, fifth left pleopod of male, posterior.

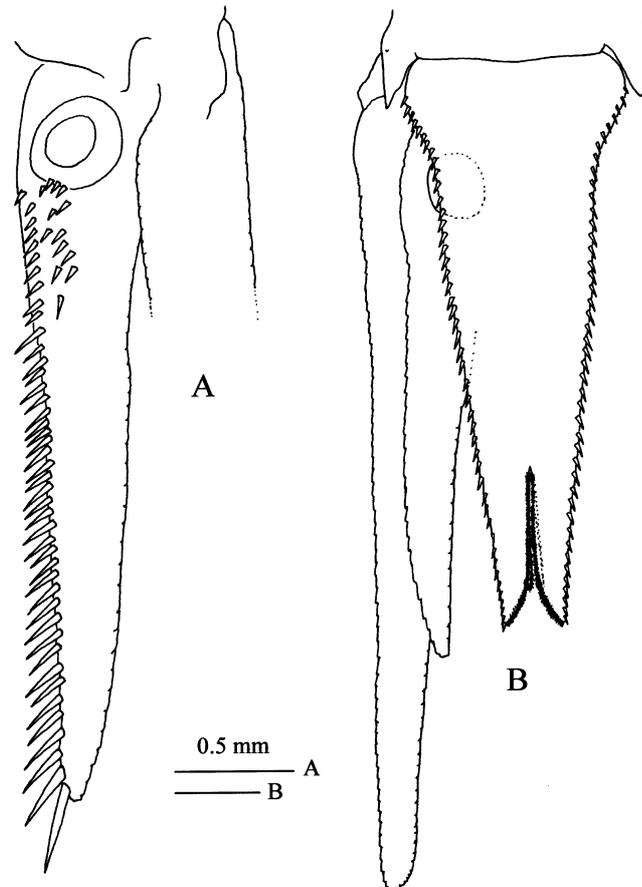


FIGURE 5. *Tenagomysis longisquama* sp. nov. ♂ (23.1 mm), holotype, NIWA 3927 (H-878). A, left uropodal endopod, ventral; B, uropod and telson, dorsal.

Uropodal endopod slightly longer than telson, armed on mesial ventral margin from statocyst region to near apex with 44–52 spines becoming larger distally, and on ventral surface of proximal 1/3 with 13–20 spines arranged irregularly (Fig. 5A, B). Uropodal exopod 1.4 times as long as endopod (Fig. 5B).

Telson 1.4 times as long as last abdominal somite, 2.6–2.7 times as long as broad, tapering towards posterior end, with apical cleft (Fig. 5B). Lateral margin of telson armed with 45–48 subequal small spines on entire length (Fig. 5B). Apical cleft 1/4 of telson length, narrow in anterior 2/3, diverging in posterior 1/3, with pair of plumose setae on anterior end; lateral margin of cleft convex, serrulated on entire length (Fig. 5B).

Etymology

The specific name is derived from Latin *longus*, long, and *squama*, scale, referring to the elongate antennal scale.

Remarks

Tenagomysis longisquama is similar to *T. tenuipes* Tattersall, 1918, in having the antennal scale with an acute apex, the 10- to 16-subsegmented carpopropodus of the endopods of the third to eighth thoracopods, and in the shape and armature of the telson. However, it is separated from *T. tenuipes* by the character states given in Table 1.

Tenagomysis longisquama is readily distinguished from the other species of the genus, except *T. tenuipes*, by a combination of the long rostrum with an acute apex, elongate antennal scale with an acute apex, 10- to 16-subsegmented carpopropodus of the third to eighth thoracopodal endopods, arrangement of spines on the mesial margin of the uropodal endopod, and shape and armature of the telson.

The female pleopods of a *Tenagomysis* are here described for the first time.

TABLE 1. Comparison of the characters between *T. tenuipes* W. Tattersall, 1923, and *T. longisquama*.

	<i>T. tenuipes</i>	<i>T. longisquama</i>
Body length	21 mm	up to 26.7 mm
Apex of carapace	not pointed, extends to proximal 1/3 of 1st segment of antennular peduncle	acutely pointed, extends to distal margin of 2nd segment of antennular peduncle
Antennular peduncle	rather slender; 3rd segment 2.4 times as long as broad	robust; 3rd segment 1.1-1.2 times as long as broad
Antennal scale	overreaches apex of antennular peduncle for 1/4 of its length; 11 times as long as broad	overreaches apex of antennular peduncle for 2/3-7/10 of its length; 15 times as long as broad
Endopod of 4th male pleopod	extends to half of exopod	extends to distal 2/7 of exopod
Exopod of 4th male pleopod	2nd-5th segments rather slender, 2.5-4 times as long as broad; 2 terminal setae short, reach distal 0.3 of spiniform seta of antepenultimate segment	2nd-5th segments robust, 1.3-2 times as long as broad; 2 terminal setae reach near apex of spiniform seta of antepenultimate segment
Spines on uropodal endopod	arranged more or less in series, sometimes as many as 4 in a series	not arranged series

Tenagomysis macropsis Tattersall, 1923 (Figs 1C, D, 6)

Tenagomysis macropsis Tattersall, 1923, 294–295, plate III figs. 1–12.

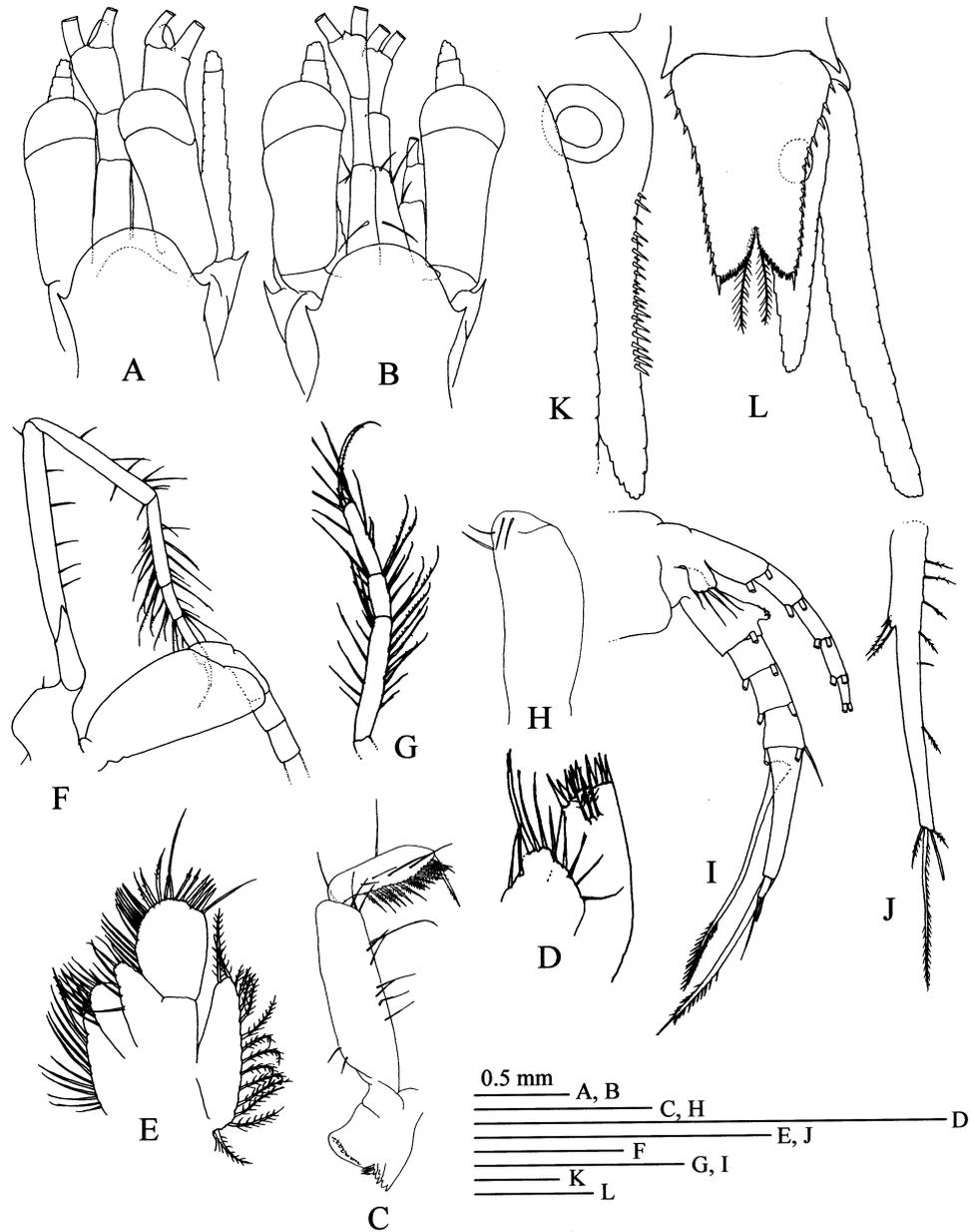


FIGURE 6. *Tenagomysis macropsis* Tattersall, 1923. A, C–I, K, L, ♂ (9.1 mm), NIWA 3951; B, J, ♀ (10.3 mm), NIWA 3951. A, B, anterior part of body, dorsal; C, left mandible, ventral; D, left maxillule, dorsal; E, left maxilla, ventral; F, eighth left thoracopod, posterior; G, carpopropodus of eighth left thoracopodal endopod, posterior; H, left penis, mesial; I, fourth left pleopod of male, posterior; J, fifth left pleopod of female, posterior; K, uropodal endopod, ventral; L, uropod and telson, dorsal.

Material examined

All material Timaru, South Is., New Zealand. NIWA 3950: 1 ♀ (10.5 mm), stn TM060, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3951: 2 ♂ (9.1, 9.2 mm) and 5 ♀ (10.3–12.1 mm), stn TM065, 44°38.7'S 171°26.0'E, 13 Feb. 2002, 7 m, epibenthic sled.

Remarks

Tenagomysis macropsis was established on the basis of specimens collected from northern New Zealand by Tattersall (1923). This species had not since been recorded.

The Timaru specimens agree with the original description except for the carpopropodus of the eighth thoracopod. In the original description the distal subsegment of the carpopropodus is shorter than the middle subsegment, whereas it is twice as long as the middle subsegment in the present specimens (Fig. 6G).

The mouthparts of *T. macropsis* are first illustrated here (Fig. 6C–E).

The female pleopods of *T. macropsis* differ from those of *T. longisquama* in that they are slender and gradually narrowed distally (Fig. 6J) as opposed to the knife-shaped pleopods of *T. longisquama* (Fig. 3E–I).

***Tenagomysis producta* Tattersall, 1923 (Fig 1E, F, 7)**

Tenagomysis producta Tattersall, 1923, 297–298, plate III figs. 13–18.

Material examined

All material Timaru, South Is., New Zealand. NIWA 3952: 1 ♂ (10.7 mm), stn TM058, 44°39.2'S 171°26.0'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3953: 1 ♀ (15.7 mm), stn TM059, 44°39.2'S 171°26.0'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3954: 2 ♂ (8.1 mm, broken) and 1 ♀ (8.4 mm), stn TM060, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3955: 1 ♀ (14.8 mm), stn TM062, 44°39.1'S 171°25.8'E, 13 Feb. 2002, 9 m, epibenthic sled. NIWA 3956: 1 ♂ (10.5 mm), stn TM065, 44°38.7'S 171°26.0'E, 13 Feb. 2002, 7 m, epibenthic sled.

Remarks

Tenagomysis producta has only been previously recorded from the Bay of Islands, northern New Zealand (Tattersall 1923).

The material reported here agrees with the original description except for the armature of the uropodal endopod, which is armed with four to eight spines arranged irregularly on the ventral surface of the basal part in addition to the spines on the mesial ventral margin (Fig. 7G); in the original description the existence of these spines was not noted, possibly having been overlooked.

All the pleopods of the present female specimens are knife-shaped, as are those of *T. longisquama*. The apex is rounded however.

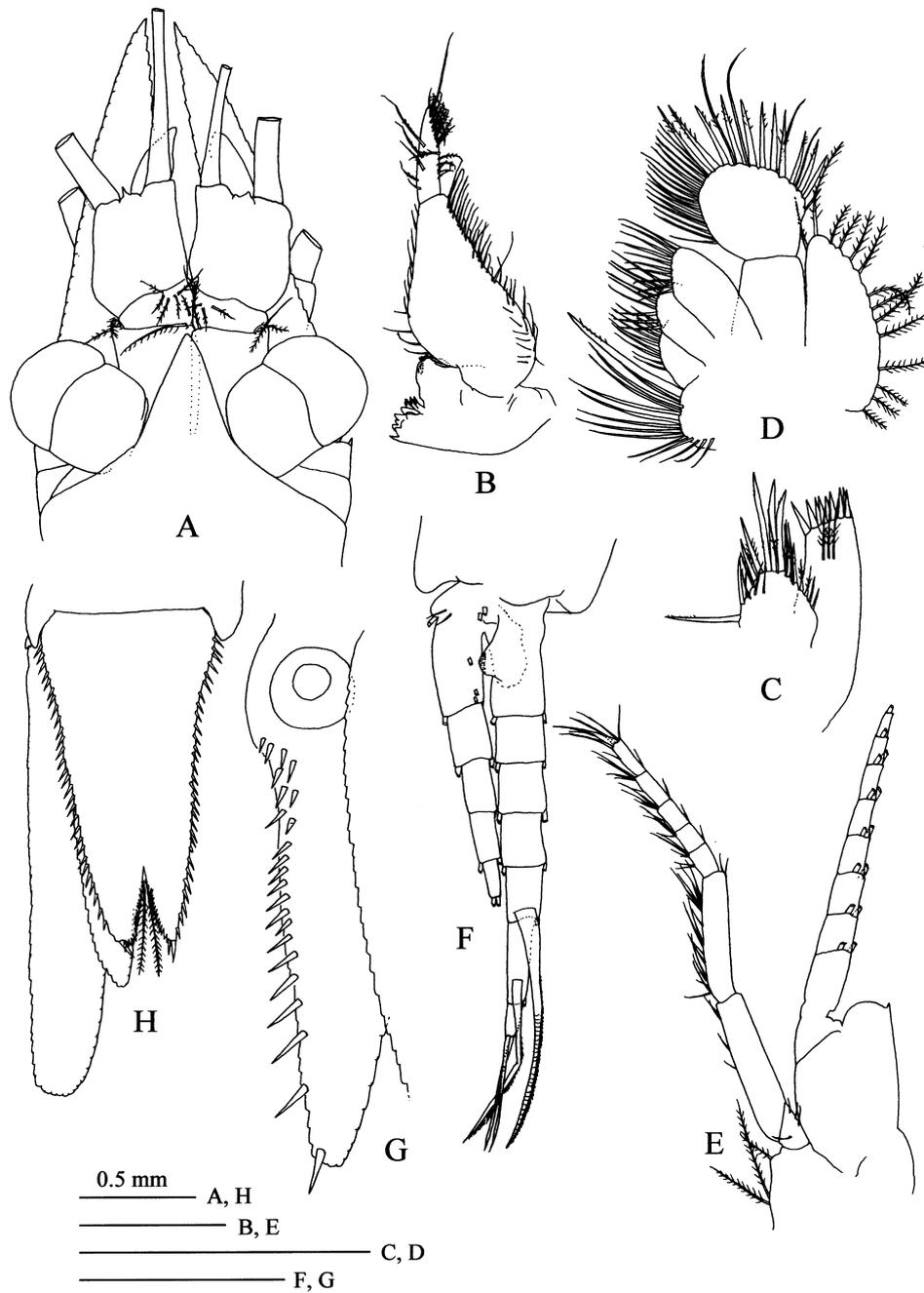


FIGURE 7. *Tenagomysis producta* Tattersall, 1923. ♂ (10.5 mm), NIWA 3956. A, anterior part of body, dorsal; B, left mandible, ventral; C, left maxillule, ventral; D, left maxilla, ventral; E, eighth left thoracopod, posterior; F, fourth left pleopod of male, anterior; G, uropodal endopod, ventral; H, uropod and telson, dorsal.

Tenagomysis sp. (Fig. 8)

Material examined

NIWA 3957: 1 ♂ (broken, 6.2 mm from tip of rostrum to posterior end of last abdominal somite), stn NE071, 41°25.6'S 173°27.6'E, Nelson, 24 Jan. 2002, 7 m, epibenthic sled.

Remarks

This unidentified specimen lacks the uropods and the telson. However, it is readily distinguished from other species of the genus, except for *T. novaezealandiae* Thomson, 1900, by the armature of the fourth pleopod (Fig. 8F, G).

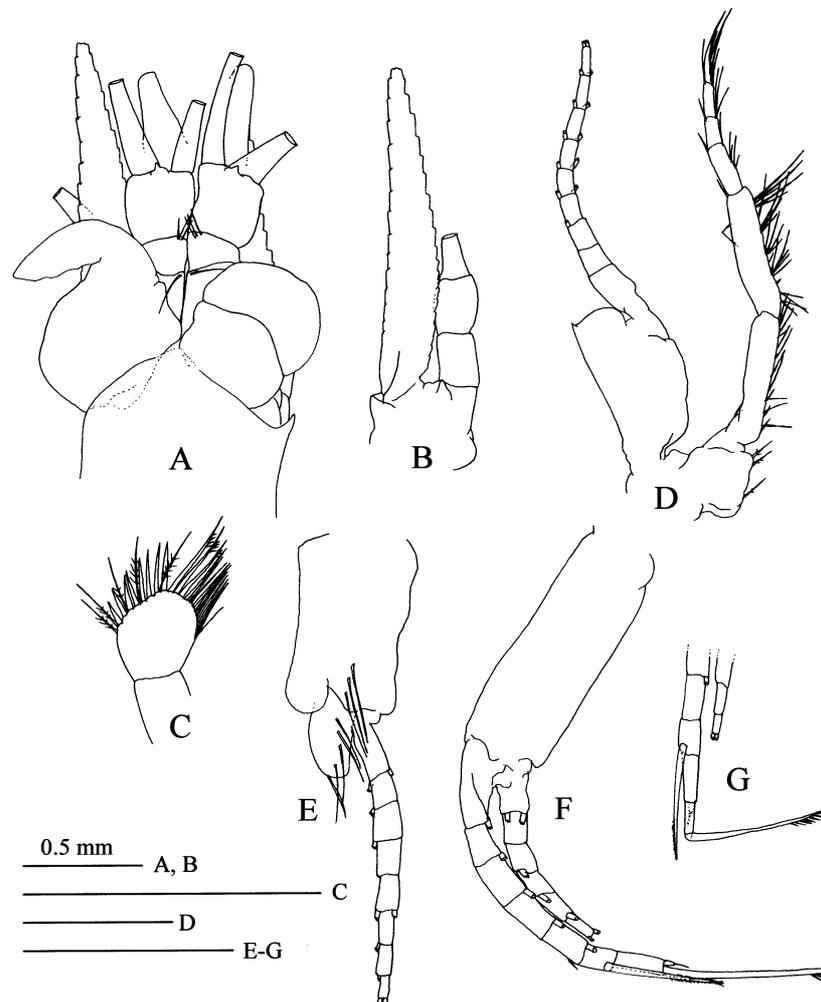


FIGURE 8. *Tenagomysis* sp. ♂, NIWA 3957. A, anterior part of body, dorsal; B, left antenna, dorsal; C, second endopodal segment of left maxilla, dorsal; D, sixth left thoracopod, anterior; E, first left pleopod, anterior; F, fourth left pleopod, posterior; G, distal part of fourth right pleopod, anterior.

The fourth male pleopod of *T. novaezealandiae* has not been described (Thomson 1900, Tattersall 1923). The present specimen can be distinguished from *T. novaezealandiae* by the rounded anterolateral corner of the carapace, which is pointed in *T. novaezealandiae*.

This unidentified specimen is probably a new species, but as the specimen is not fully intact, it is recorded as *Tenagomysis* sp. in the present study.

Key to the New Zealand species of *Tenagomysis*

1. Carpopropodus of third to eighth thoracopodal endopods divided into 9 more subsegments 2
 Carpopropodus of third to eighth thoracopodal endopods divided into 2–5 subsegments 3
2. Rostrum extending to proximal 1/3 of first segment of antennular peduncle. Antennal scale extending beyond distal end of antennular peduncle for 1/4 of its length, 11 times as long as broad. Endopod of fourth male pleopod extending to middle of exopod
 *T. tenuipes* Tattersall, 1918
 Rostrum extending to distal margin of second segment of antennular peduncle. Antennal scale extending beyond distal end of antennular peduncle for 2/3–7/10 of its length, 15 times as long as broad. Endopod of fourth male pleopod extending to distal 2/7 of exopod..... *T. longisquama* sp. nov.
3. Eye elongate, 3 times as long as broad..... *T. macropsis* Tattersall, 1923
 Eye moderate size, up to twice as long as broad 4
4. Exopod of uropod subequal in length to endopod..... *T. robusta* Tattersall, 1923
 Exopod of uropod much longer than endopod 5
5. Anterolateral corner of carapace acute 6
 Anterolateral corner of carapace rounded 8
6. Antennal scale slightly longer than antennular peduncle, 3.5 times as long as broad. Carpopropodus of third to eighth thoracopodal endopods divided into 2 subsegments. Uropodal endopod armed with about 10 spines on mesial margin
 *T. similis* Tattersall, 1923
 Antennal scale 1.5–2 times as long as antennular peduncle, 5–10 times as long as broad. Carpopropodus of third to eighth thoracopodal endopods divided into 3–5 subsegments. Uropodal endopod armed with 16–32 spines on mesial margin 7
7. Antennal scale 5 times as long as broad. Carpopropodus of third to eighth thoracopodal endopods divided into 3 subsegments. Apical cleft of telson 1/5 of telson length, armed with teeth on entire lateral margin..... *T. novaezealandiae* Thomson, 1900
 Antennal scale 9–10 times as long as broad. Carpopropodus of third to eighth thoracopodal endopods divided into 4 or 5 subsegments. Apical cleft of telson 1/4 of telson length, unarmed with teeth on short proximal portion of lateral margin

- *T. chiltoni* Tattersall, 1923
- 8 Antennal scale with acute apex *T. producta* Tattersall, 1923
- Antennal scale with rounded apex 9
- 9 Antennal scale extending beyond antennular peduncle by 1/3 of its length. Carpopropodus of third to eighth thoracopodal endopods divided into 4 subsegments. Lateral margin of telson armed with 17–19 spines. Exopod of fourth male pleopod with strong modified seta on only penultimate segment; ultimate segment with single short seta
..... *T. scotti* Tattersall, 1923
- Antennal scale as long as antennular peduncle. Carpopropodus of third to eighth thoracopodal endopods divided into 5 subsegments. Lateral margin of telson armed with 26–28 spines. Exopod of fourth male pleopod with strong modified seta on antepenultimate and penultimate segments; ultimate segment with 2 short setae
..... *T. thomsoni* Tattersall, 1923

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