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## A NEW DEEP-SEA MYSID, *STELLAMBLYOPS VASSILENKOAE* GEN. NOV., SP. NOV., FROM THE NORTHWEST PACIFIC (CRUSTACEA: MYSIDA)

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### ABSTRACT

A new mysid genus and species, *Stellamblyops vassilenkoae* gen. nov., sp. nov., is described. It is the seventh genus of the tribe Amblyopsini. *Stellamblyops* gen. nov. is characterized by the form of eyes, which are flattened laterally, tear-shaped plates with very long, pointed frontal processus, the uropodal endopod without spines in the statocyst region and the form of the telson, which is elongated, linguiform with minimal width on the distal third, the telson apex with small cleft, whose margins have small spines, distal three-quarters of the lateral margins of the telson with larger spines. All specimens of this species were collected with help of a camera-epibenthic sledge during two deep-sea Russian-German expeditions in the Kuril-Kamchatka Trench and its adjacent waters: KuramBio expedition (Kurile Kamchatka Biodiversity Studies) and SokhoBio expedition (Sea of Okhotsk Biodiversity Studies): holotype: 1♂, length 13.2 mm, 23.08.2012, RV *Sonne*, KuramBio expedition, st. 09-9, depth: 5399–5408 m, 40°35.48'N; 150°59.92'E – 40°34.25'N; 150°59.91'E; non-type specimens: 1♀, length approximately 9.1 mm, 17.08.2012, RV *Sonne*, KuramBio expedition, st. 07-9, depth: 5216–5223 m, 43°02.84'N; 152°59.43'E – 43°01.49'N; 152°58.36'E; 1juv., length 6.0 mm, 30.07.2012, RV *Sonne*, KuramBio expedition, st. 01-10, depth: 5418–5429 m, 43°58.26'N; 157°19.67'E – 43°58.33'N; 157°17.97'E; and 1♂, length approximately 18.5 mm, 26.07.2015, RV Akademik M.A. Lavrentiev, SokhoBio expedition, st. 09-7, depth: 3371–3377 m, 46°16.16'N; 152°03.10'E – 46°16.07'N; 152°03.32'E.

**Key words:** Amblyopsini, Mysidae, new genus, new species, North-west Pacific, *Stellamblyops*

## НОВЫЙ РОД И ВИД МИЗИД, *STELLAMBLYOPS VASSILENKOAE* GEN. NOV., SP. NOV., ИЗ СЕВЕРО-ЗАПАДНОЙ ПАЦИФИКИ (CRUSTACEA: MYSIDA)

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### РЕЗЮМЕ

Описывается новый род и вид мизид, *Stellamblyops vassilenkoae* gen. nov., sp. nov. Это седьмой род трибы Amblyopsini. От видов других родов *Stellamblyops vassilenkoae* gen. nov., sp. nov. отличается формой глаз, ко-

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торые представляют собой уплощенные латерально каплевидные пластинки с очень длинным, заостренным фронтальным отростком; отсутствием шипов на внутреннем крае эндоподитов уроподов в районе статоциста; тельсоном удлинённой, языковидной формы с минимальной шириной в дистальной трети и небольшой выемкой на вершине, края которой несут маленькие шипики, дистальные три четверти длины латеральных краев с более крупными шипами. Все экземпляры этого вида были собраны коробчатым эпибентосным следжем во время двух глубоководных российско-германских экспедиций в Курило-Камчатском желобе и сопредельных водах: экспедицией KuramBio (по изучению биоразнообразия Курило-Камчатского желоба) и экспедицией SokhoBio (по изучению биоразнообразия Охотского моря): голотип: 1♂, длиной 13.2 мм, 23.08.2012, НИС “Sonne”, экспедиция KuramBio, ст. 09-9, глубина: 5399–5408 м, 40°35.48′N; 150°59.92′E – 40°34.25′N; 150°59.91′E; нетиповые экземпляры: 1♀, длиной примерно 9.1 мм, 17.08.2012, НИС “Sonne”, экспедиция KuramBio, ст. 07-9, глубина: 5216–5223 м, 43°02.84′N; 152°59.43′E – 43°01.49′N; 152°58.36′E; 1juv., длиной 6.0 мм, 30.07.2012, НИС “Sonne”, экспедиция KuramBio, ст. 01-10, глубина: 5418–5429 м, 43°58.26′N; 157°19.67′E – 43°58.33′N; 157°17.97′; и 1♂, длиной примерно 18.5 мм, 26.07.2015, НИС “Академик М.А. Лаврентьев”, экспедиция SokhoBio, ст. 09-7, глубина: 3371–3377 м, 46°16.16′N; 152°03.10′E – 46°16.07′N; 152°03.32′E.

**Ключевые слова:** Amblyopsini, Mysidae, новый род, новый вид, северо-западная Пацифика, *Stellamblyops*

## INTRODUCTION

In 2014 Wittmann et al. (2014) revised the mysid subfamily Erythropinae and restored the tribe Amblyopsini to include six genera: *Amblyops* G.O. Sars, 1872; *Amblyopsoides* O. Tattersall, 1955; *Eoamblyops* Murano, 2013; *Paramblyops* Holt et Tattersall, 1905; *Scolamblyops* Murano, 1974; *Teratamblyops* Murano, 2001 (G.O. Sars 1872; Holt and Tattersall 1905; O. Tattersall 1955; Murano 1974, 2001, 2013). All these genera share the following characters: eyes separate, eyestalks reduced to immotile plates, visual elements rudimentary or absent; antennal scale well-developed, its smooth outer margin ending in a non-articulate spine, antennal gland mostly hypertrophic; labrum normal; thoracopods 3–8 with the carpus separated from the propodus by an oblique articulation; 2–3 pairs of oostegites; endopod of male pleopod 1 reduced to a single segment, exopod multi-segmented, male pleopods 2–5 well-developed, biramous; a number of species show (sub)apical, modified setae in some of male pleopods 2–4, most frequently on exopod 4; telson entire, lateral margins smooth (not serrate), only terminally or all along with spines, two (sub)apical setae present in some species (Wittmann et al. 2014). Nine species from four aforementioned genera of the tribe Amblyopsini inhabit the Kuril-Kamchatka Trench and its adjacent waters: *Amblyops abbreviatus* (M. Sars, 1869); *A. magnus* Birstein et Tchindonova, 1958; *A. aequispina* Birstein et Tchindonova, 1958; *Amblyopsoides*

*crozetii* (Willemoes-Suhm in G.O. Sars, 1884); *A. ohlinii* (W.M. Tattersall, 1951); *Paramblyops globorostris* Birstein et Tchindonova, 1970 (Birstein and Tchindonova 1958, 1970); *Amblyops ewingi* Bacescu, 1967; *Eoamblyops japonicus* Murano, 2013; *Paramblyops hamatilis* Fukuoka, 2009.

## MATERIAL AND METHODS

Several specimens of mysid from the tribe Amblyopsini were collected with the help of a camera-epibenthic sledge (C-EBS) during two recent international deep-sea expeditions in the Northwest Pacific: the German-Russian expedition KuramBio (Kurile Kamchatka Biodiversity Studies) in 2012 in the Kuril-Kamchatka Trench area (Brandt et al. 2015; Brandt and Malyutina 2015; Golovan et al., in press) and the Russian-German expedition SokhoBio (Sea of Okhotsk Biodiversity Studies) in 2015 in the Kuril Basin of the Sea of Okhotsk (Malyutina et al., 2015). These specimens differ substantially from the species of other genera in this tribe mainly by the form of eyes and telson. The eyes are laterally flattened, tear-shaped plates with a very long, pointed frontal processus. The telson has the minimum width on the distal third with a small cleft on the apex. In this study, a new genus and new species are described. Therefore, some additions are necessary to make in the previous diagnosis of the tribe Amblyopsini (Wittmann et al. 2014). An identification key to genera of the tribe Amblyopsini is also provided.

## SYSTEMATICS

### Order Mysida Boas, 1883

### Family Mysidae Haworth, 1825

### Subfamily Erythropinae Hansen, 1910

### Tribe Amblyopsini Tchindonova, 1981

#### Revised definition of the tribe Amblyopsini.

Eyes separate, flattened dorsoventrally or laterally, eyestalks reduced to immotile plates, visual elements rudimentary or absent; antennal scale well-developed, its smooth outer margin ending in a non-articulate spine, antennal gland mostly hypertrophic; labrum normal; thoracopods 3–8 with the carpus separated from the propodus by an oblique articulation; 2–3 pairs of oostegites; endopod of male pleopod 1 reduced to a single segment, exopod multi-segmented; male pleopods 2–5 well-developed, biramous; telson entire or with a small cleft on the apex, lateral margin not serrate, smooth or with spine.

#### *Stellamblyops* gen. nov.

**Diagnosis.** Carapace with anterior margin produced forward into long, narrow, triangular rostral plate with acute apex, posterior margin elongating to abdomen, leaving distal part of last thoracic somite uncovered dorsally. Eyes laterally flattened, tear-shaped plates (lateral view) with strongly rudimentary visual elements and with very long, pointed frontal process. Sympod of antenna with one long prominent spine on outer distal corner. Male pleopods biramous, nearly without setae. Uropodal endopod without spines in statocyst region. Telson elongate, linguiform, with minimum width on distal third; telson apex with small cleft, margins of cleft with small spines, without median plumose setae; lateral margins with larger spines on distal three-quarters.

**Type species.** *Stellamblyops vassilenkoae* gen. nov., sp. nov.

**Etymology.** The new genus and species have been named in honor of carcinologist Dr. Stella Vassilenko (1936–2011), plus *Amblyops*; gender masculine.

**Remarks.** The new genus, *Stellamblyops* gen. nov., clearly differs from other genera of the tribe

Amblyopsini by the form of eyes and telson. Only eyes of this genus are flattened laterally, not dorsoventrally, as in other genera. The frontal process of the eye in the new genus is very long, its length is more than half the eye length; processus and papillus of the eyes of the other genera are small and located on the anterolateral part of eyes, not in the middle of the frontal margin. *Stellamblyops* gen. nov. has the minimum width of the telson in the distal third, not on the apex, as the other genera of the tribe. Only the new genus in the tribe Amblyopsini has a small cleft on the telson apex.

#### Key to genera of the tribe Amblyopsini

1. Eyes flattened laterally; apex of telson with small cleft . . . . . *Stellamblyops* gen. nov., sp. nov.
- Eyes flattened dorsoventrally; apex of telson without cleft . . . . . 2
2. Anterior margin of carapace produced forward into long, narrow, triangular rostral plate partially covering eyes. (Eyes semicircular or triangular in shape; telson elongate, rectangular with spines on distal two thirds of lateral margin; apex of telson with 4 or 5 pairs of spines, without median plumose setae) . . . . . *Paramblyops* Holt et Tattersall, 1905
- Anterior margin of carapace widely rounded or sometimes with wide obtuse-angled rostral plate . . . . . 3
3. Eyes ellipsoidal; sympod of antenna with 2 spines on outer distal corner. (Telson triangular with rounded apex, distal two thirds of lateral margin with spines of variable length) . . . . . *Eoamblyops* Murano, 2013
- Eyes approximately rectangular or triangular . . . . . 4
4. Eyes approximately triangular. (Telson triangular with narrow apex; only distal third of lateral margin with spines, apex of telson without median plumose setae) . . . . . *Teratamblyops* Murano, 2001
- Eyes approximately rectangular . . . . . 5
5. Telson apex with spines become progressively longer from innermost pair to outermost, without median plumose setae. (Telson trapezoidal, distal three-fifths of lateral margin with spines) . . . . . *Scolamblyops* Murano, 1974
- Telson apex with spines become progressively longer from outermost pair to innermost, with median plumose setae. (Telson linguiform or trapezoidal, distal two thirds of lateral margin with spines) . . . . . 6
6. Base of distal spine on outer lateral margin marking to nearly half total length of antennal scale . . . . . *Amblyopsoides* O. Tattersall, 1955
- Base of distal spine on outer lateral margin marking to nearly apex of antennal scale . . . . . *Amblyops* G.O. Sars, 1872

***Stellamblyops vassilenkoae* sp. nov.**  
(Figs. 1–2)

**Holotype:** 1♂ (13.2 mm): ZMHK-46192. Holotype was deposited in the Zoological Museum of Hamburg. 23.08.2012, RV *Sonne*, KuramBio expedition, st. 09-9, C-EBS, depth: 5399–5408 m, 40°35.48'N; 150°59.92'E – 40°34.25'N; 150°59.91'E.

**Non-type very damaged specimens** were deposited in the ZIN: 1♀ (≈ 9.1 mm): 17.08.2012, RV *Sonne*, KuramBio expedition, st. 07-9, C-EBS, depth: 5216–5223 m, 43°02.84'N; 152°59.43'E – 43°01.49'N; 152°58.36'E.

1 juv. (6.0 mm): 30.07.2012, RV *Sonne*, KuramBio expedition, st. 01-10, C-EBS, depth: 5418–5429 m, 43°58.26'N; 157°19.67'E – 43°58.33'N; 157°17.97'E.  
1♂ (≈18.5 mm): 26.07.2015, RV *Akademik M.A. Lavrentiev*, SokhoBio expedition, st. 09-7, C-EBS, depth: 3371–3377 m, 46°16.16'N; 152°03.10'E – 46°16.07'N; 152°03.32'E.

**Description of holotype.** *Carapace* long, more than one third of body length, produced frontally into long (0.15 times carapace length), narrow, acute rostral plate, extending to middle second segment of antennular peduncle; posterior margin slightly emarginated, leaving distal part of last thoracic somite exposed in dorsal view (Fig. 1A, B).

*Eyes* widely arranged, not connected to each other, flattened laterally, stylet-shape in dorsal view or tear-shaped in lateral view, without visual elements (reduced visual elements appeared slightly in middle of eyes); basal part of eye in lateral view gradually turning into tapering, pointed frontal process as approximately half of whole eye length and extending to middle of antennal scale (Fig. 1A, B, E).

*Antennular peduncle* damaged, first segment of peduncle approximately 2 times as long as second segment, segment 1 and 2 without setae (Fig. 1A, B).

*Antennal scale* damaged, more than 4.7 times as long as broad, outer margin smooth, very slightly curved. *Antennal sympod* with 1 long, acutely pointed denticle on outer distal corner (Fig. 1F).

*Strong median spear-shaped outgrowth*, as in species of *Paramblyops rostratus*-group (Murano, 2002; Fukuoka, 2009), extending to middle of antennal scale, slightly curved downwards, more than 7 times as long as maximum width, without setae and spines (Fig. 1D).

*Labrum* normal shape, frontal margin with rounded apex, without spine-like median projection in front (Fig. 1G).

*Mandibular palp* very long; second segment expanded inwards; third segment narrow, 7 times as long as broad and 0.6 times as long as second segment (Fig. 1H).

*Maxilla* (Fig. 1J) as in *Paramblyops rostratus*-group (Murano, 2002; Fukuoka, 2009).

*First thoracic endopod* slender, with simple setae; basis with relatively big lobe; dactylus without claw-shaped terminal spine, only with simple setae (Fig. 1K).

*Second thoracic endopod* relatively short; merus approximately as long as carpopropodus and dactylus combined, slightly curved, 5 times as long as broad; carpopropodus 3 times as long as broad (Fig. 1L).

*First somite of abdomen* with small pseudopleural creases expanding forward from middle somite to frontal margin (Fig. 1A); sixth somite the longest, 1.7 times as long as broad, approximately even long as preceding 2 segments together (Fig. 1C).

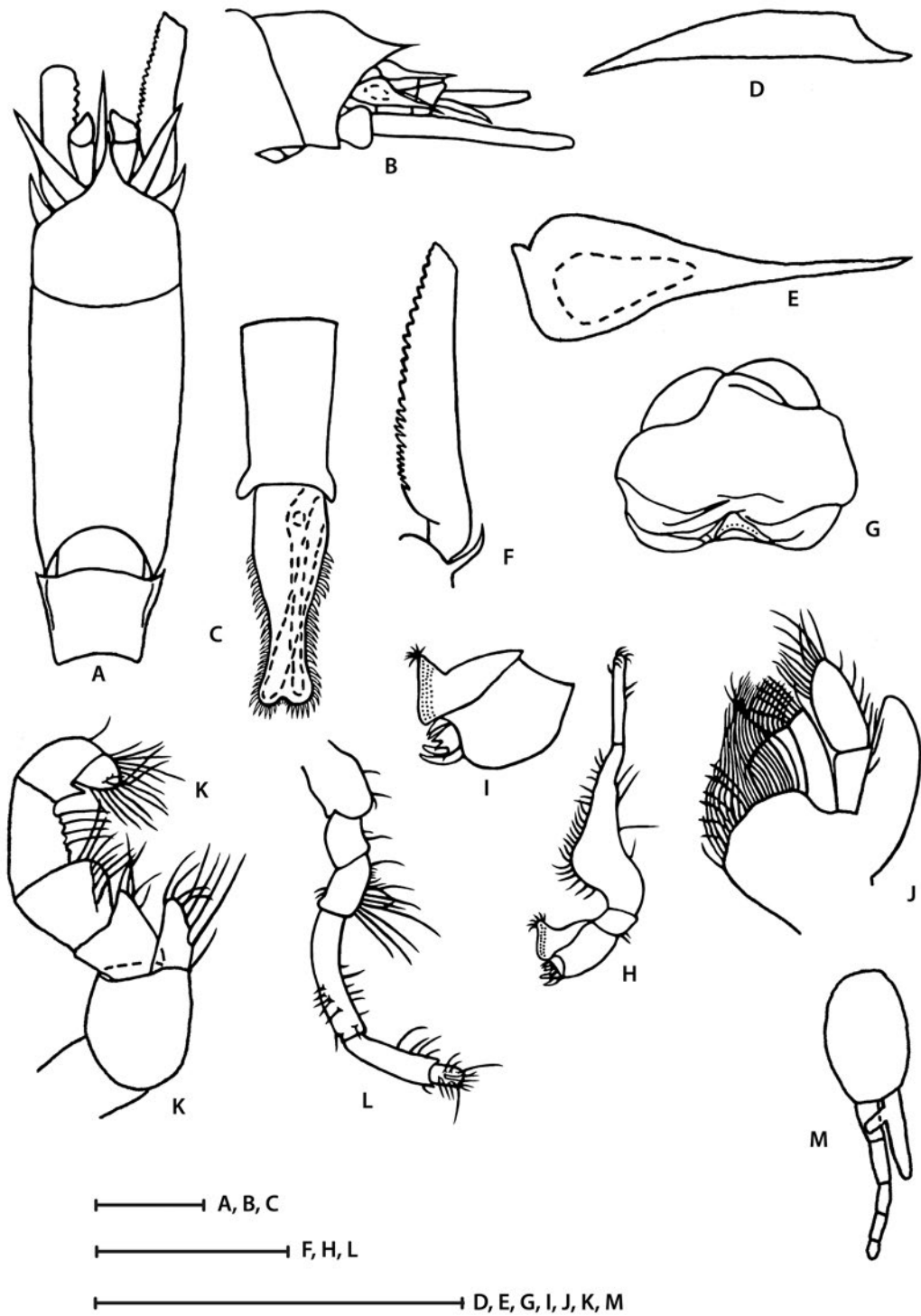
*Pleopods* small and biramous. First pleopod with 5-segmented exopod and unsegmented endopod, setae omitted (Fig. 1M). Second pleopod with 10-segmented exopod and 7-segmented endopod, setae omitted (Fig. 2A).

*Uropod* short, extending to distal margin of telson, exopod and endopod nearly equal in length, endopod without spines on inner ventral margin in statocyst region (Fig. 2B).

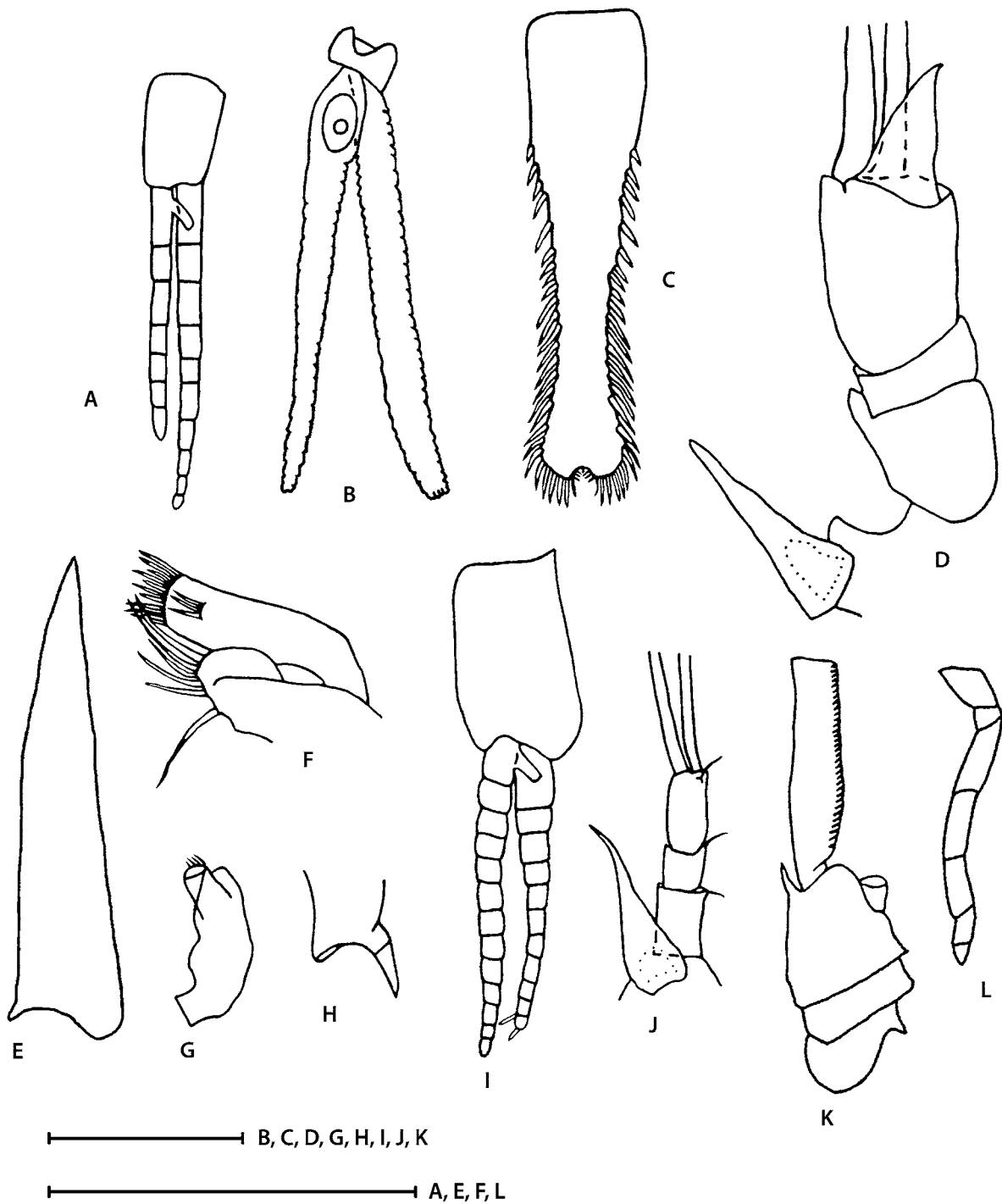
*Telson* long, approximately 1.5 times as long as last abdominal somite, 4 times as long as maximum width; ratios of telson width on basis, on distal third and near apex 2.5:1.0:1.5, respectively; apex rounded with small cleft in middle, depth of cleft 0.04 of telson length; distal three-quarters of lateral margins with 20 strong, closely located spines; apex with 5 pairs of long spines approximately equal to lateral spines in length and with 9 small spines on margin of cleft, without medial plumose setae (Fig. 2C).

**Remarks.** Some characteristics of holotype are damaged and, therefore, are shown for other specimens.

*Antennular peduncle* of male very robust, first segment nearly 2 times as long as second one, with conical process on outer distal corner; third segment the longest, much longer than preceding 2 segments combined; first segment 1.0 times as long as broad, second segment 0.5 times and third segment 1.5 times; processus masculinus large, 0.75 times as long as third segment; apex of eye extending to basal third of third segment, antennular peduncle including processus masculinus without setae (Fig. 2D).



**Fig. 1.** *Stellamblyops vassilenkoae* gen. nov., sp. nov. Holotype: A – front part of body (dorsal view); B – front part of body (lateral view); C – posterior part of body (dorsal view); D – median spear-shaped outgrowth; E – eye (lateral view); F – antennal scale; G – labrum; H – mandible; I – trunk of mandible; J – maxilla; K – endopod of thoracopod 1; L – endopod of thoracopod 2; M – pleopod 1. Scale 1 mm.



**Fig. 2.** *Stellamblyops vassilenkoae* gen. nov., sp. nov. A–C – Holotype: A – pleopod 2; B – uropod; C – telson. D–I – male ( $\approx 18.5$  mm): D – antennule and eye; E – median spear-shaped outgrowth; F – maxillule; G – penis; H – fourth thoracic somite with sternal process; I – pleopod 3; J–K – female ( $\approx 9.1$  mm): J – antennule and eye; K – basal part of antenna; L – sixth thoracic endopod of juvenile (6.0 mm). Scale 1 mm.

*Antennular peduncle* of female slender, first, second and third segments with length ratios of 1.6:1.0:2.0, respectively; first segment 1.4 times as long as broad, second 1.0 and third 2.0 times; all three segments with one short seta on inner distal corners; apex of eye extending to middle of third segment (Fig. 2J).

*Antennal sympod* of female 3-segmented; first segment insignificantly longer than second; third segment longer than preceding 2 segments combined; outer distal corner of third segment with one strong acutely pointed denticle (Fig. 2K).

*Strong median spear-shaped outgrowth* of male 4.6 times as long as broad (Fig. 2E).

*Maxillule* (Fig. 2F) as in *Paramblyops rostratus*-group (Murano, 2002; Fukuoka, 2009).

*Thoracic somites* 3–5 with sternal processus curved forward (Fig. 2H).

*Penis* of male tubular, 3 times as long as broad, with 4 small setae on distal end (Fig. 2G).

Female with 2 pairs of *oostegites*.

Sixth thoracopodal endopod of juvenile without spines and setae (Fig. 2L).

Third pleopod of male with 11-segmented exopod and 13-segmented endopod; two distal segments of exopod with one small specular seta on every segment (Fig. 2I).

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