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(Crustacea: Isopoda) from Ashiu, Miyama,
Nantan-shi, Kyoto, central Japan

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**A New Species of the Genus *Lucasioides* (Crustacea: Isopoda) from Ashiu,
Miyama, Nantan-shi, Kyoto, Central Japan***

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京都大学芦生研究林から発見されたハヤシワラジムシの1新種

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京都府南丹市の京都大学フィールド科学教育研究センター森林ステーション芦生研究林内から渡辺弘之博士により採集された陸生等脚目の1種を調査したところ、オオハヤシワラジムシ属の新種であることが判明し、新種 *Lucasioides ashuiensis* (和名: アシュウハヤシワラジムシ: 新称) として記載した。本種は宮崎県から知られているニチナンハヤシワラジムシ *L. nichinanensis* Nunomura と最も類似するが、(1)はつきりした背面の模様があること、(2)第2触角の第2節が第1節より明らかに長いこと、(3)胸肢に多数の2叉剛毛が見られること、(4)第1触角の剛毛数が多いこと、(5)第1~4胸節の剛毛が側縁からより離れた位置にあること、(6)第1および第2胸節の長節や腕節の剛毛は比較的密生しないことなどで区別される。本種のホロタイプは富山市科学博物館 (TOYA Cr-19907) に保管される。

キーワード: 等脚類、新種、芦生、分類学、アシュウハヤシワラジムシ

Key words: : Isopod, new species, Ashiu, taxonomy, *Lucasioides ashuiensis*

Hitherto, 11 species of the genus *Lucasioides* in the world (Shmalfuss, 2003) and 7 species in Japan (Nunomura, 1987, 1991, 1992, 2000, 2003, 2008) have already been known as valed. Recently, Prof. Emeritus Dr. Watanabe happened to collect strange terrestrial isopod crustaceans in Ashiu Forest Research Station, Field Science and Research Center, Nantan-shi, Kyoto. They were sent to me for identification. At the closer examinations of mine, they proved to represent to be as new species of the genus *Lucasioides*.

Order Isopoda
Family Agnaridae
***Lucasioides ashuiensis*, n.sp.**
(Japanese name: Ashiu-hayashi-warajimushi, new)
(Figs. 1-3)

Material examined: 2 ♀♀ (1 ♀ holotype, 7.0 mm in body length and 1 ♀ paratype, 5.4 mm in body length), Nodahatadani, Ashiu, Miyama, Nantan-shi, Kyoto, 31 July 2009, coll. Hiroyuki Watanabe; 1 ♂ (allotype, 7.0 mm in body length) and 1 ♀ paratype, 5.5 mm in body length, Kamitani, Ashiu Miyama, Nantan-shi, Kyoto, May 26, 2009, coll. Hiroyuki Watanabe. Type series is deposited as follows: holotype (TOYA Cr-19907), allotype (TOYA Cr-19908) and

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a paratype (TOYA Cr-19909) at Toyama Science Museum, paratypes and a paratype (OMNH Ar- 7776) at the Osaka Museum of Natural History.

Description of holotype female: Body ellipsoid(Fig.1A), 2.1 times as long as wide. Color blackish, with longitudinal darker patterns, symmetry with respect to a line, it looks as if an image of Rorschach test. Medial area of anterior margin of cephalon triangular (Fig.1B). Anterolateral lappet lateral border. Noduli lateralis on pereonal somites 1-4 (Fig. 1R) remote from the lateral border. Posterior margin of pleotelson triangular.

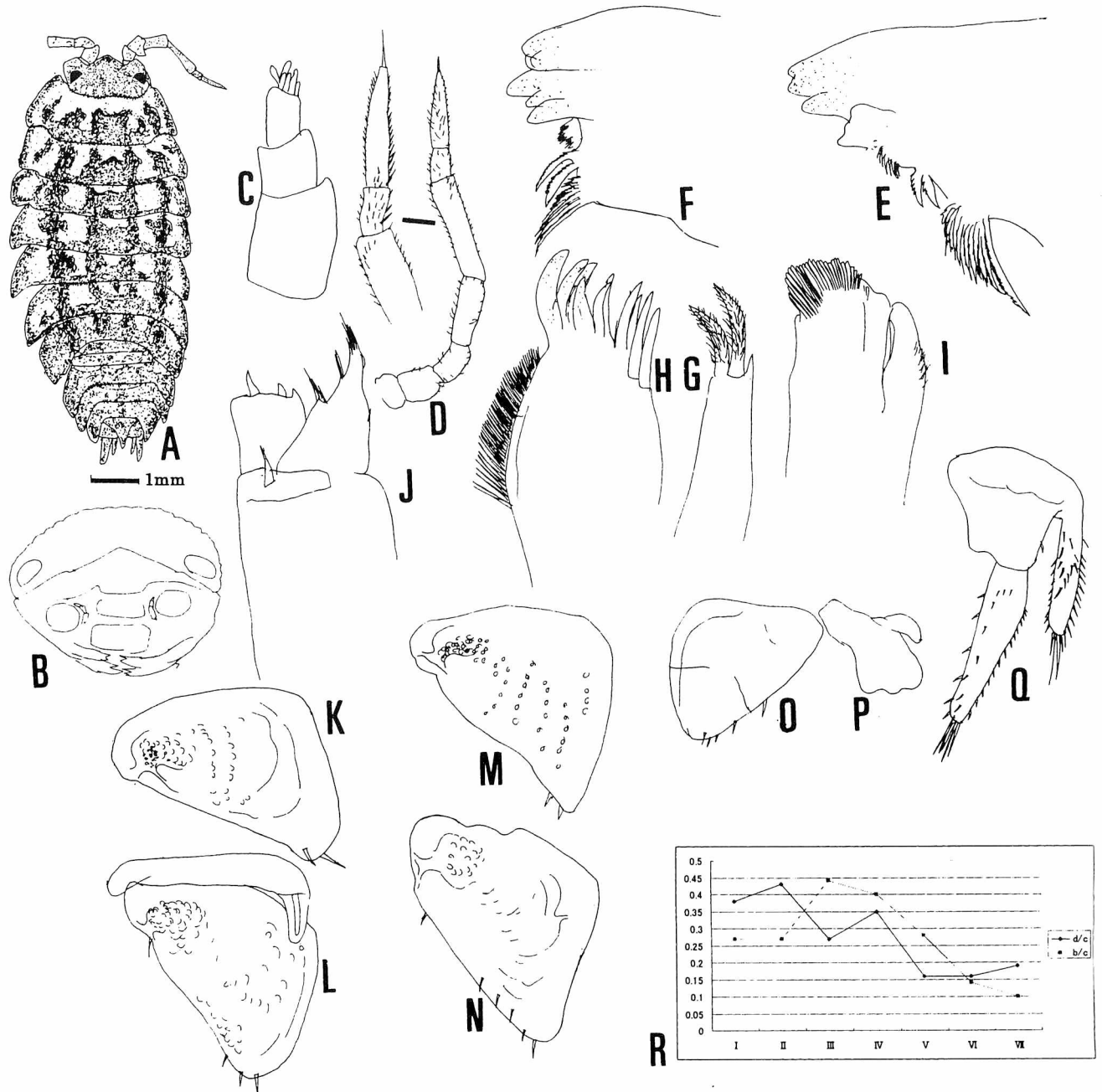


Fig. 1. *Lucasioides ashiuensis* n.sp.

A, Dorsal view; B, Anterior view of cephalon; C, Antennule; D, Antenna; E, Right mandible; F, Left mandible; G, Inner lobe of maxillula; H, Outer lobe of the same; I, Maxilla; J, Maxilliped; K-N, Pleopods of female 1-4; O, Endopod of pleopod 5; P, Exopod of the same; Q, Uropod; R, Position of noduli lateralis (All, Holotype female).

Antennule (Fig. 1C) 3-segmented; terminal segment with 6 aesthetascs at the tip. Antenna (Fig. 1D), reaching the boundary between pereonites 1 and 2. Terminal flagellar segments 1.6 times longer than the basal one. Right mandible (Fig. 1E): pars incisiva 3-headed; lacinia mobilis not chitinized weakly 3-toothed; 3 penicils; processus molaris represented by a tuft of setae. Left mandible (Fig. 1F): pars incisiva 3-headed; lacinia mobilis 3-toothed; 2 penicils; processus molaris represented by a tuft of setae. Maxillula: inner lobe (Fig. 1G) with 2 plumose setae a small acute projection; outer lobe (Fig. 1H) with 10 simple teeth on distal margin. Maxilla (Fig. 1I) relatively slender; apically bilobed, the inner wider and bearing a field of densely spaced sensilla. Maxilliped (Fig. 1J): endite with 3 spurs on distal margin; palpal segment 1 with a strong tooth.

Pereopod 1 (Fig. 2A): basis 3.6 times as long as wide, with 10-12 setae on inner margin and 5 setae on outer margin; ischium 45% as long as basis, with 6 setae on inner margin and 2 setae on outer margin; merus almost as long as ischium, with 10 setae on inner margin and some short setae on outer margin; carpus as long as merus, with about 20 setae including 6-7 bifurcated ones on inner margin; propodus a little longer than carpus, with 8 long setae and more than 18 short setae on inner margin, and 11 setae on outer margin.

Pereopod 2 (Fig. 2B): basis 3.3 times as long as wide, with 7 setae on inner margin and 4 setae on outer margin; ischium 0.6 times as long as basis, with 10 setae on inner margin and 2-3 setae on outer distal area; merus 0.8 times as long as ischium, with 8 setae on inner margin and a seta at outer distal area; carpus 1.3 times longer than merus, with 4 long bifurcated setae and 4-5 shorter setae on inner margin 11-12 setae on outer margin and 4 setae at outer distal angle; propodus a little longer than carpus, with 2 bifurcated setae and 3-4 setae on inner margin and 9-10 setae on outer margin.

Pereopod 3 (Fig. 2C): basis 2.8 times as long as wide, with 10-12 setae on both margins; ischium 45% as long as basis, with 10 setae on inner margin and a seta at outer distal angle; merus 0.65 times as long as ischium, with 9-10 setae on inner margin and a seta at outer distal angle; carpus 1.5 times longer than merus, with about 12 setae including 3-5 bifurcated ones on inner margin, 2 relatively long and some short setae including bifurcated ones on distal margin, and 8-9 setae on outer margin; propodus a little longer than carpus, with 10 setae on both margins.

Pereopod 4 (Fig. 2D): basis 2.7 times as long as wide, with 13-14 short setae; ischium half the length of basis, with 5 setae on inner margin and 2-3 setae on outer margin; merus 0.7 times as long as ischium, with 7 setae on inner margin; carpus 1.3 times longer than merus, with 10 setae including 4 bifurcated ones on inner margin, 4-5 setae on distal margin and 6-8 short setae on inner margin; propodus almost as long as carpus, with 5 setae on both margins.

Pereopod 5 (Fig. 2E): basis wide, basis 2.9 times as long as wide, with 9-10 shorter setae on inner margin and a longer seta at inner distal angle; ischium 0.7 times as long as basis, with 10-12 setae on inner margin and 2 setae on outer margin; merus 0.4 times as long as ischium, with 9-10 setae on inner margin and 2 setae on outer distal area; carpus 1.4 times longer than merus, with 7-9 setae on inner margin, 2-3 setae on distal margin and 15-16 setae on outer margin; propodus a little longer than carpus, with 10 setae on inner margin and 6 setae on outer margin.

Pereopod 6 (Fig. 2F): basis 2.7 times as long as wide, with a seta at inner distal angle and 10 setae on inner margin; ischium 65% as long as basis, with 8 setae on inner margin and 3 setae on outer distal area; merus 0.55 times as long as ischium, with 7 setae on both margin; carpus 1.7 times longer than merus, with 10 setae on inner margin, 3 setae on distal margin and 13-14 setae on outer margin; propodus a little longer than carpus, with 13 longer and shorter setae on inner margin 11-12 setae on outer margin.

Pereopod 7 (Fig. 2G): basis 3.7 times as long as wide, with 7-8 setae on inner margin and 3-4 setae on outer margin; ischium 55% as long as wide, with 3 setae on outer margin; merus 0.8 times as long as ischium, with 5 setae on inner margin, 4 setae on inner distal area, 2 setae on outer distal area and 5-6 setae on outer margin; carpus 1.2 times longer than merus, with 11 setae on inner margin, 2 setae on distal margin and 7-8 setae on outer margin; propodus as long as carpus, with 3 weaker setae on basal area and 3 stronger setae on distal area of inner margin, about 11-12 shorter setae on outer margin.

Pleopod 1 (Fig.1K): exopod rounded triangular, with 2 setae on outer margin.

Pleopod 2 (Fig.1L): exopod with 3-4 setae on outer margin.

Pleopod 3 (Fig.1M): exopod with 2 setae on outer margin.

Pleopod 4 (Fig.1N): exopod triangular, with 6 setae on outer margin.

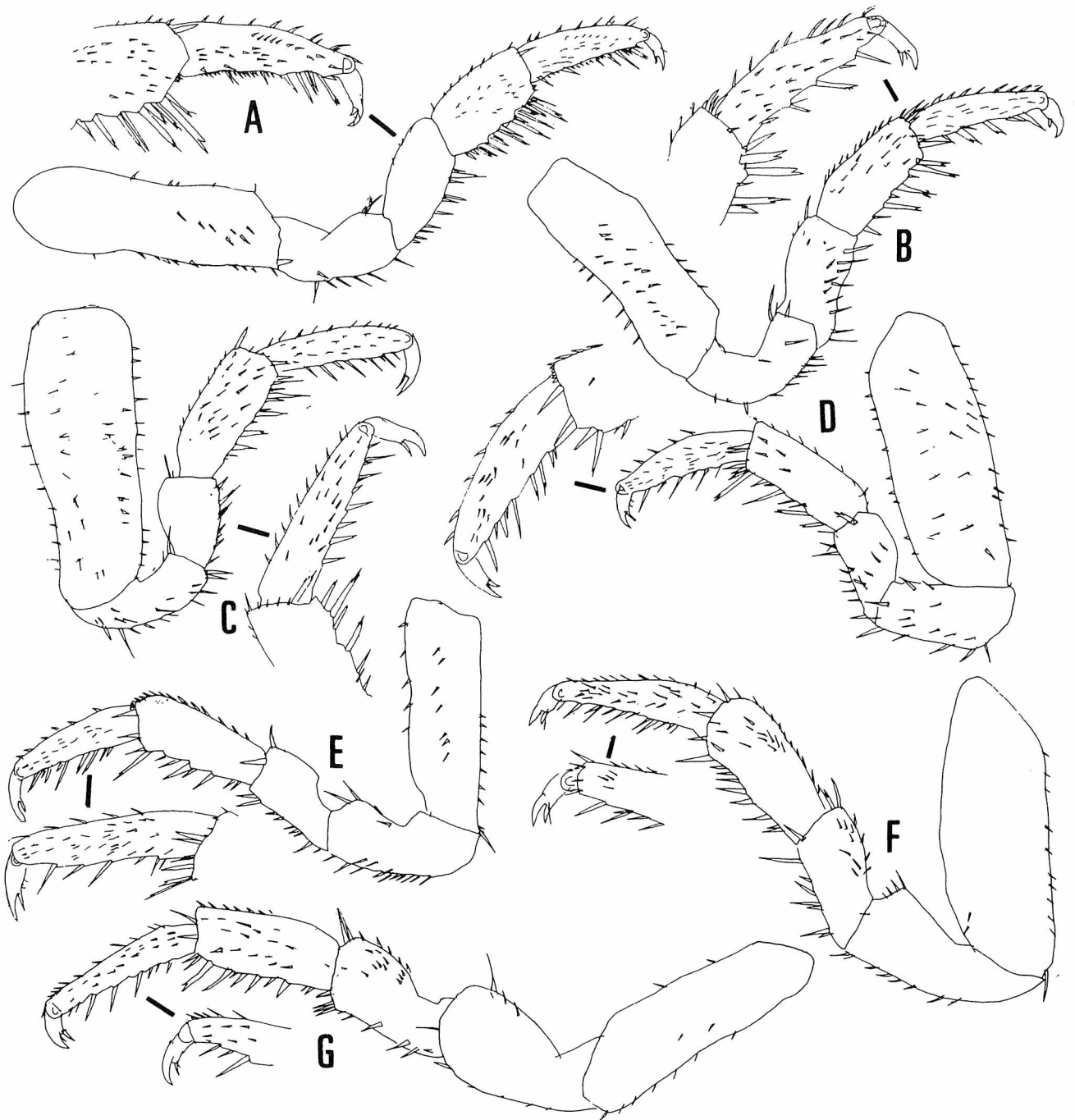


Fig. 2. *Lucasioides ashiuensis*, n.sp.

A-G; Pereopods 1-7(All: Holotype female).

Pleopod 5: endopod (Fig. 1O) rectangular; exopod (Fig. 1P) rounded triangular, with 5 setae on outer margin.

Uropod (Fig. 1Q): basis trapezoid; endopod as long as basis, with more than 10 setae on both sides; exopod 1.4 times longer than endopod, with more than 15 setae on inner margin and 6-7 setae on outer margin and a tuft of setae on apical margin.

Male: As to pereopods, pleopods and antenna, there are some differences in male.

Antenna (Fig. 3A) terminal flagellar segments 2.1 times longer than the basal one; mutual length of terminal segment slightly shorter than female.

Pereopod 1 (Fig. 3B): basis 2.9 times as long as wide; ischium half the length of basis; merus 0.8 times as long as wide, with densely setae including bifurcated and trifurcated setae on inner margin; carpus 1.2 times longer than merus, with dense setae including some bifurcated and trifurcated ones on inner margin; propodus 0.8 times as long as carpus, with a series of setae on basal half of inner margin and 2 setae on distal half of inner margin.

Pereopod 2 (Fig. 3C): basis 3.3 times as long as wide; ischium 0.55 times as long as wide, with 12 setae on inner margin and 2 setae on outer distal area; merus about half the length of ischium, with many setae including bifurcated and trifurcated ones on inner margin; carpus with many setae including bifurcated and trifurcated setae on inner margin; propodus 0.8 times as long as carpus, with 9-10 setae on inner margin.

Pereopod 3 (Fig. 3D): basis 2.9 times as long as wide; ischium 0.6 times as long as basis, with 2 long setae on distal area and about 4 setae on inner margin and distal angle; merus $\frac{2}{3}$ as long as ischium with more than 20 setae on inner margin and 2 setae on inner margin; carpus 1.3 times longer than merus, with more than 15 setae including bifurcated ones on inner margin and 2-3 setae on inner margin; propodus 1.2 times longer than carpus, with 8 setae on inner margin.

Pereopod 4 (Fig. 3E): basis 2.8 times as long as wide; ischium 45 % as long as wide, with 8-10 setae on inner margin and 3-4 outer distal area; merus with more than 20 setae on inner margin including bifurcated ones; carpus 1.5 times longer than merus, with more than 20 setae including bifurcated ones on inner margin; propodus a little longer than carpus, with 6-7 bifurcated or trifurcated setae on inner margin and 17-19 setae on outer margin.

Pereopod 5 (Fig. 3F): basis 3.2 times as long as wide; ischium 0.6 times as long as wide, with 8-9 setae on inner margin and 4-5 setae on outer distal area; merus 0.6 times as long as ischium, with 12-13 setae on inner margin and 3 setae on outer distal area; carpus 1.5 times longer than merus, with 13-14 setae on inner margin; propodus a little longer than 10 setae on inner margin and more than 20 short setae on outer margin.

Pereopod 6 (Fig. 3G): basis 3.1 times as long as wide, with 15-16 setae on inner margin and 8-11 setae on outer margin; ischium 0.6 times as long as basis, with 11-12 setae on inner margin and 2 long bifurcated setae on outer distal area; merus $\frac{2}{3}$ as long as ischium, with 10-12 setae including bifurcated ones on inner margin and 2 setae on outer distal area; carpus 1.2 times longer than merus, with 10-11 setae including 2 long bifurcated ones on inner margin; propodus as long as carpus, with 12-14 setae on inner margin and 13-14 setae on outer margin.

Pereopod 7 (Fig. 3H): basis 2.3 times as long as wide, with 2 setae at inner distal angle; ischium 0.8 half the length of basis, with 3 setae on inner margin; merus 85% as long as ischium; carpus as long as merus, posterior part protruded roundly, with 8-9 longer and 7-8 shorter setae on inner margin, and a seta at outer distal angle; propodus as long as carpus with 8 setae on inner margin and 15-16 setae on outer margin.

Penes (Fig. 3I) fusiform.

Pleopod 1: endopod (Fig. 3I) straight and apical part slightly bends outwards, with a series of denticles; exopod (Fig. 3J) semicircular, inner margin slightly sinuate and outer margin with 2 setae.

Pleopod 2: endopod (Fig. 3K) long and tapering toward the tip and slightly exceeding beyond the tip of exopod; exopod (Fig. 3L) triangular, with rounded tip and 5 setae on outer margin. Pleopod 3 (Fig. 3M): endopod with 3 setae on outer margin. Pleopod 4 (Fig. 3N) exopod with 3 setae on outer margin. Pleopod 5 (Fig. 3O): endopod with 3 setae on outer margin.

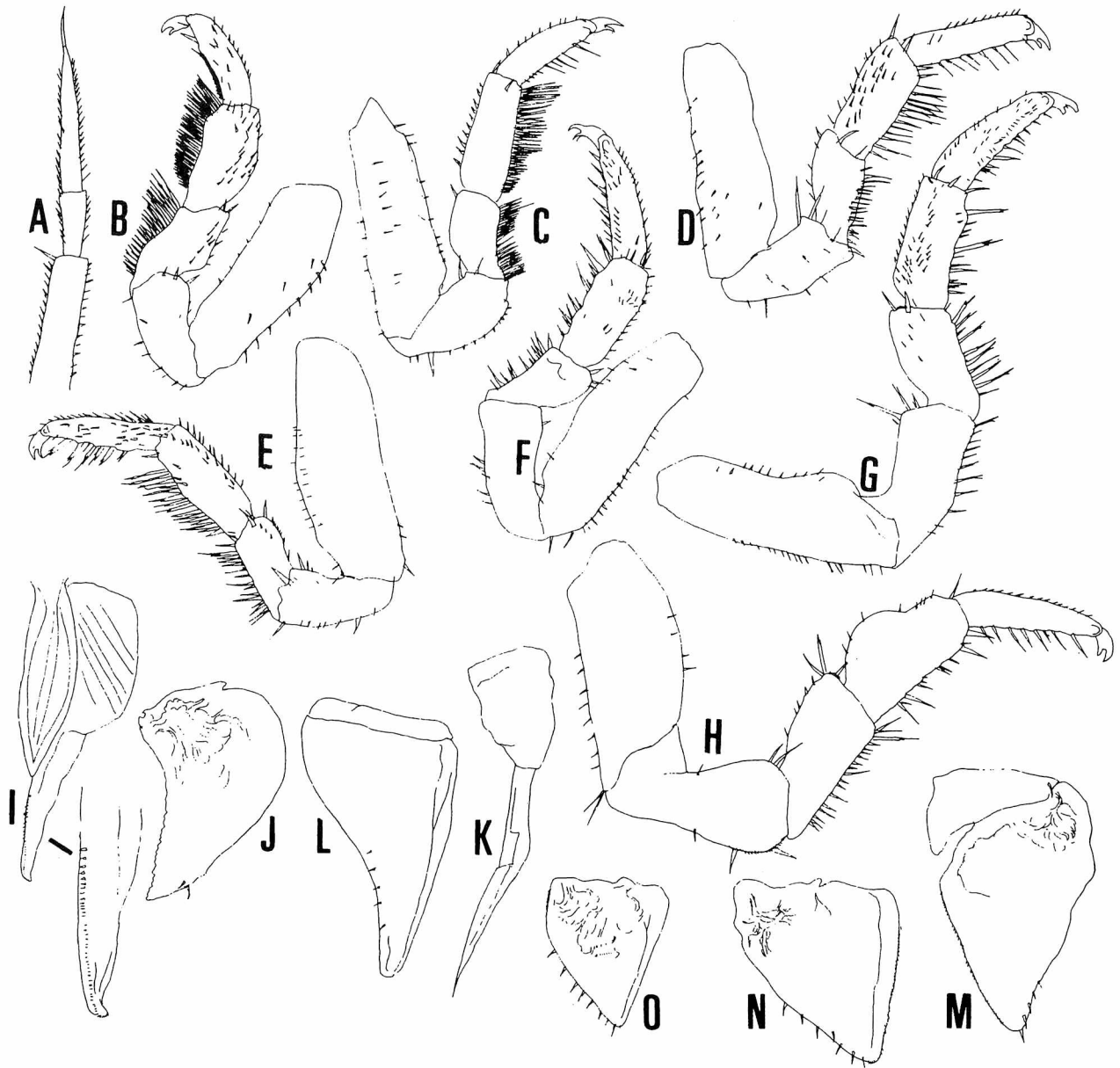


Fig. 3. *Lucasioides ashiuensis* n.sp.

A, Flagellum of antenna of male; B-H, Pereopods 1-7 of male; I, Penes and Pleopod 1; J, Exopod of the same; K, Endopod of male second pleopod; L, Exopod of the same; M-O, Exopod of male pleopods 3-5 (All: Allotype male).

Etymology: "Ashiu" is the name of type locality.

Remarks: The present new species is most closely allied to *L. nichinanensis* (Nunomura, 2003), recorded from Miyazaki, southern Kyushu. But the former is separated from the latter in the following features: (1) distinguished color pattern, (2) longer terminal flagellar segment, (3) presence of many bifurcated setae on pereopods, (4) more aesthetascs of antennule, (5) remote position of pereonal somites 1-4 and (6) less setose on merus and carpus of pereopods 1-2.

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