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journal or publication title	Bulletin of the Toyama Science Museum
number	33
page range	33-37
year	2010-03-15
URL	http://repo.tsm.toyama.toyama.jp/?action=repository_uri&item_id=922

A New Species of the Genus *Lucasioides* (Crustacea: Isopoda) from nest material of *Mogera imaizumii*, Toyama-ken, central Japan*

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**富山県のアズマモグラの巣材から発見された
ハヤシワラジムシの1新種**

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横畑泰志氏が富山県東部魚津市三ヶの魚津市ミラージュランドのアズマモグラの巣材から採取した陸産等脚目を新種 *Lucasioides yokohatai* (和名: ヨコハタモグラワラジムシ: 新称) として記載した。本種は富山県西部のモグラの巣から記録されている *Lucasioides toyamaensis* Nunomura, 2008と類似するが、(1) 第1腹肢外肢の先端付近に剛毛があること、(2) 頭部前面観で上方が低い三角形であること、(3) 第3胸節の剛毛も側縁から遠くにあること、(4) 第6胸肢座節に多数の長い剛毛があること、(5) 雄の第2腹肢外肢の内縁に剛毛が無く、外縁に剛毛があることなどによって区別される。

キーワード: 等脚類、新種、富山、モグラ、巣材分類学、ヨコハタモグラワラジムシ

Key words: Isopod, new species, nest material of *Mogera*, taxonomy,

Lucasioides yokohatai

Hitherto, 11 species of the genus *Lucasioides* have been recorded from all over the world as valid, (Schmalfuss, 2003), 7 species from Japan (Nunomura, 1987, 1991, 1992, 2000, 2003, 2008, 2009) and two species have already recorded from the nest material of *Mogera* in the western part of Toyama Prefecture (Nunomura, 2008).

Recently, Dr. Yasuharu Yokohata of the Toyama University carried out an ecological survey on at "Mirage-land" Uozu-shi, Toyama. He collected several specimens of terrestrial isopod crustaceans and sent to me. At the closer examination of mine, they are proved to represent a new species of the genus *Lucasioides* and I described it as *Lucasioides yokohatai*. The holotype is deposited at Toyama Science Museum (TOYA Cr-19939).

Before going further, I would like to express my sincere gratitude to Dr. Yasuharu Yokohata, University of Toyama for his kindness in giving me a chance to examine such interesting materials.

Order Isopoda

Suborder Oniscidea

Family Agnaridae

***Lucasioides yokohatai* n.sp.**

(Japanese name; Yokohata-mogura-warajimushi, new)

(Figs. 1–2)

*Contributions from the Toyama Science Museum, No.381

Material examined 5♂♂ (1♂ holotype, 6.0 mm in body length and 4♂♂ paratypes, 4.1~5.3 mm in body length) and 7♀♀ (1♀ allotype, 6.3 mm in body length, 6♀♀ and 3.5~6.2 mm in body length) from nest material of a mole, *Mogera imaizumii*, Sanga, Uozu-shi, Toyama ken, Oct.2009 coll. Yasushi Yokohata. Type series is deposited as follows: holotype (TOYA Cr-19939), allotype (TOYA Cr-19940) and 3 paratypes (TOYA Cr-19941~19942) at Toyama Science Museum, 3 paratypes, (OMNH Ar-7758-7760) at Osaka Museum of Natural History, 2 paratypes (KMNH IvR 506,466~500,467) at Kitakyushu Museum of Natural History and Human History, and 2 paratypes (NSMT Cr-20959) at National Museum of Nature and Science, Tokyo.

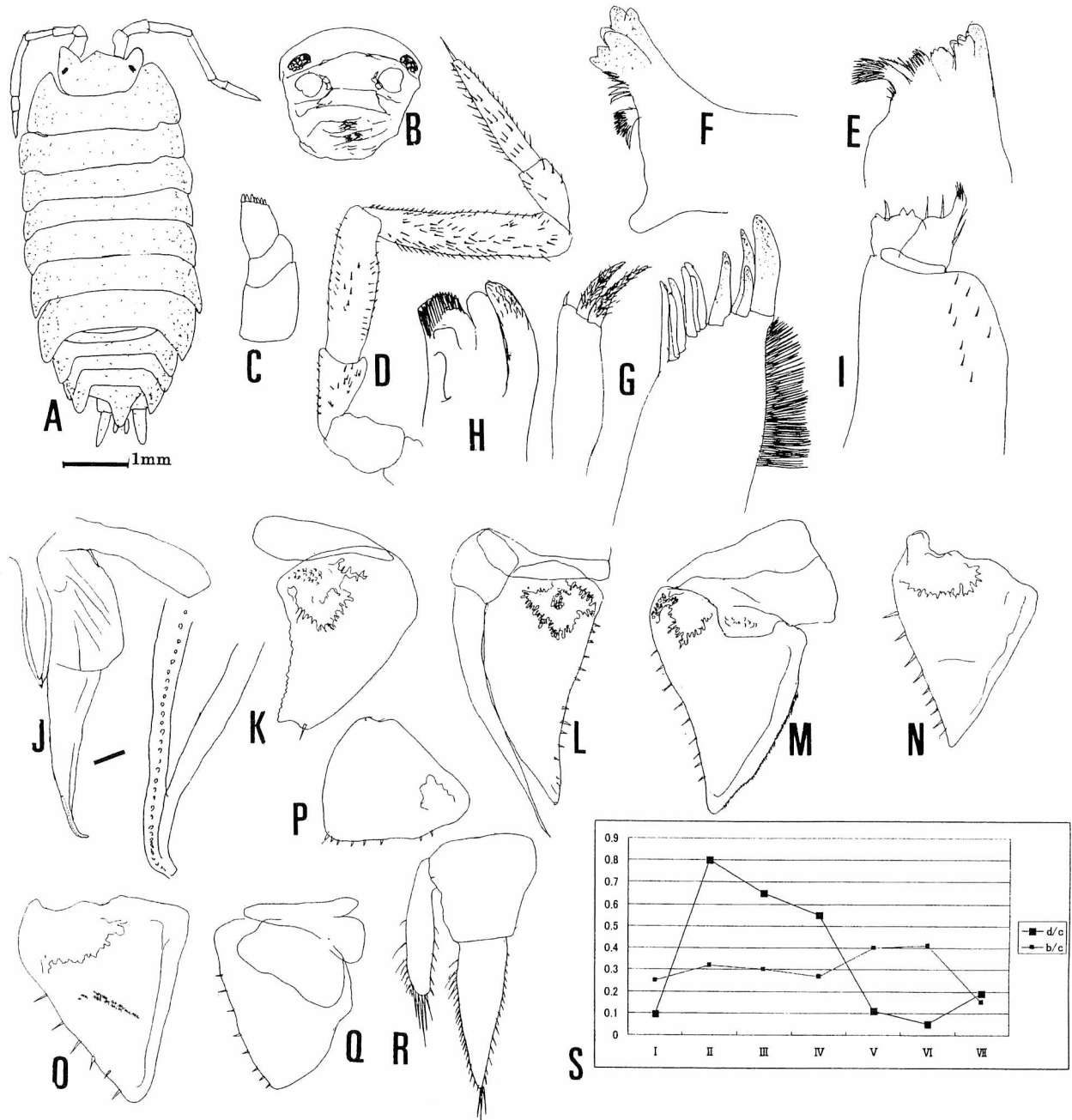


Fig. 1. *Lucasioides yokohatai* n.sp.

A, Dorsal view; B, Frontal view of cephalon; C, Antennule; D, Antenna; E, Right mandible; F, Left mandible; G, Maxillula; H, Maxilla; I, Maxilliped; J, Penes and male pleopod 1; K, Exopod of the same; L, Male second pleopod; M, Pleopod 3 of male; N, Pleopod 4 of male; O, Pleopod 5; P, Exopod of female pleopod 1; Q, Pleopod 2 of female; R, Uropod; S, Position of noduli lateralis (A-O, R-S, Holotype male; P-Q, Allotype female).

Description of male: Body 2.2 times as long as long wide (Fig 1A). Anterolateral angle of cephalon protruded. Posterior margin of pereonal somites 1-2 sinuate. Color almost white, slightly pale brown. Pereonal somites almost parallel. Pleotelson with a rounded tip. Position of noduli lateralis (Fig.1S) on pereonal somites 2-4 remote from the lateral border.

Antennule (Fig.1C): 3-segmented, terminal segment with 7 short aesthetascs on distal margin. Antenna (Fig.1D): terminal flagellar segment 2.0 times longer than basal one.

Right mandible (Fig. 1E): pars incisiva 3-headed; lacinia mobilis not chitinized and slightly 2-headed; a plumose seta; processus molaris represented by a tuft of setae. Left mandible (Fig.1F): pars incisiva 3-headed; lacinia mobilis chitinized 3-headed; 3 plumose setae; processus molaris represented by a tuft of setae. Maxillula (Fig. 1G): inner lobe with 2 plumose setae and a small acute projection; outer lobe with 10 simple teeth. Maxilla (Fig. 1H): relatively narrow. Maxilliped (Fig. 1I): endite rectangular, with 3 spurs and setae on distal margin; palp relatively narrow.

Pereopod 1 (Fig. 2A): basis 3.1 times as long as wide; ischium half the length of basis, with 9-10 setae on inner margin; merus 0.7 times as long as ischium, with 11-12 setae including some bifurcated ones on inner margin; carpus 1.7 times longer than merus, with 15-16 setae on inner margin; propodus 0.8 times as long as carpus, with 4 setae on inner margin.

Pereopod 2 (Fig. 2B): basis 2.9 times as long as wide; ischium 65% as long; as basis, with 10-12 setae on inner margin and 3 setae on outer margin; merus 0.7 times as long as ischium, with more than 18 setae including as bifurcated one on inner margin and 3 setae at outer distal angle; carpus 1.4 times longer than merus, with more than 33 long setae including 3 trifurcated ones; propodus with 8 longer and several shorter ones on inner margin and 10 short setae on outer margin.

Pereopod 3 (Fig. 2C): basis 3.7 times as long as wide; ischium half the length of basis, with 2 setae on outer margin; merus 0.6 times as long as ischium, with 13-14 setae on inner margin and a seta at outer distal angle; carpus 1.6 times longer than merus, with 24-25 setae including bifurcated or trifurcated longer ones on inner margin; propodus 0.7 times as long as carpus, with 7-8 longer and several shorter setae on inner margin and 12-13 setae on outer margin.

Pereopod 4 (Fig. 2D): basis 2.7 times as long as wide; ischium 0.6 times as long as basis; merus 0.6 times as long as ischium; carpus 1.4 times longer than merus, with 17-18 setae on inner margin, 4-5 setae on distal margin and 12-13 setae on outer margin; propodus 1.2 times longer than carpus, with 9-10 setae on inner margin and 10-11 setae on outer margin.

Pereopod 5 (Fig. 2E): basis 2.9 times as long as wide; ischium 0.6 times as long as basis, with 2 setae on distal outer area; merus 0.7 times as long as ischium, with 15-16 setae on inner margin and 2 setae at outer distal part ; carpus 1.2 times longer than merus, with 14-15 setae including long ones; propodus 0.8 times as long as carpus, with 7 setae including 3 bifurcated ones on inner margin.

Pereopod 6 (Fig. 2F and G): basis 3.7 times as long as wide, with many long setae on left surface; ischium 0.6 times as long as basis; merus 0.6 times as long as ischium, with 7-8 setae on inner margin; carpus 1.6 times longer than merus, with 10-12 setae including a bifurcated one on inner margin; propodus as long as carpus, with 7 setae on inner margin and 13-14 setae on outer margin.

Pereopod 7 (Fig. 2H): basis 3.4 times as long as wide; ischium 0.6 times as long as basis and spreading toward the distal area, with about 30 setae on inner margin and about 10 setae on outer margin; merus 85% as long as ischium, with more than 20 setae on inner margin; carpus a little longer than merus, outer margin raised roundly, with 9-10 setae on inner margin 2-3 setae on outer margin; propodus 1.1 times longer than carpus, with 11-12 setae on inner margin and setae on outer margin.

Penes (Fig.1J) fusiform, with acute tip.

Pleopod 1 (Fig. 1J and K): endopod straight and apical area bents outward, with a series of more than 30 denticles on apical area; exopod rectangular external margin slightly sinuate, with a very shallow concavity and a seta on distal margin.

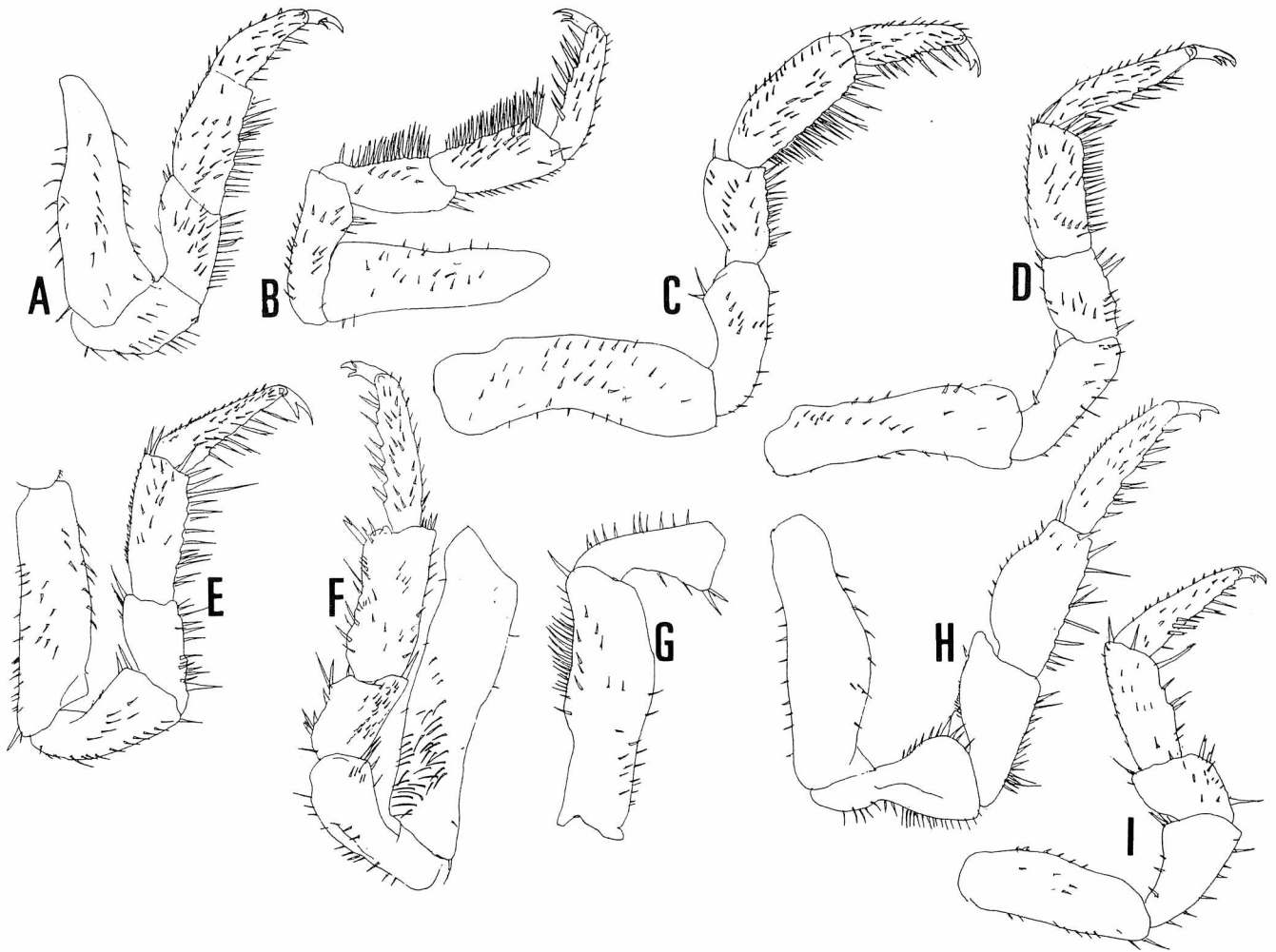


Fig.2 *Lucasioides yokohatai* n.sp.

A-E, Pereopods 1-5; F, Pereopod 6 G: basis and of ischium of the same in the opposite side; H, Male pereopod 7; I: Female pereopod 7. (A-H: Male holotype; I: Allotype female).

Pleopod 2 (Fig. 1L): endopod slender toward the tip and slightly exceeding the tip of exopod; exopod long and triangular, with more than 15 short setae on outer margin. Pleopod 3 (Fig. 1M): endopod rectangular; exopod triangular, with 9 setae on outer margin. Pleopod 4 (Fig. 1N): exopod triangular with 9 setae on outer margin. Pleopod 5 (Fig. 1O): exopod triangular but a little smaller than the preceding ones, with 6 setae on outer margin and many small setae on middle area.

Uropod (Fig. 1R): basis rectangular; endopod 1.4 times longer than basis, with a tuft of long setae at the tip; exopod slightly longer than endopod, with many setae on inner margin, 16-17 setae on outer margin and several setae at the tip.

Female: Roughly same to male except of sexual characters and shape of pereopod 7 differs from that of male. Number of setae on outer margin of exopod of peopods less numerous than those of male (Fig. 2Q).

Ecology: The present new species were found from the nest material in the tunnel of *Mogera imaizumii*, together with other isopods, *Exalloniscus cortii* and *Porcellio scaber*, and an ant, *Tertamorium tsushimae*.

Etymology: The present new species is named after the collector, Dr. Yasuharu Yokohata.

Remarks: The present new species is most closely allied to *Lucasioides toyamaensis* Nunomura, 2008, but the former is separated from the latter in the following features: (1) presence of some setae of distal margin of male first pleopod, (2) triangular frontal margin of cephalon, (3) remote position of setae on 3rd pereonal somite, (4) presence

of many long setae on ischium of male sixth pereopod and (5) presence of setae on outer margin exopod of male second pleopod.

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