

**A New species of the genus *Arcturus* (Crustacea : Isopoda: Arcturidae)
from colonies of a hydrozoan, *Lytocarpia niger*, Tomioka, western Japan***

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西日本富岡湾のクロガヤ群落中から発見されたオニナナフシ属 (甲殻亜門:等脚目:オニナナフシ科) の1新種

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熊本県富岡町のクロガヤ *Lytocarpia niger* (Nutting) から発見された *Arcturus* 属の1種を新種 *Arcturus lytocarpicola* として記載した。本種は雌雄とも3-4胸脚を欠くことならびに全身が黒いことにより同属他種と別される。本種はアラスカからベーリング海に生息する *Arcturus beringanus* Benedict と若干類似するが、上記に加え、(1)胸脚が短いこと、(2)腹尾節後端に凹みがないこと、(3)胸節前側部に突起があること、(4)第2触角が短いこと、(5)第1胸脚に枝分かかれた剛毛があること、(6)第1触角上に剛毛が少ないこと、(7)第2胸脚が短く剛毛が少ないこと、(8)尾肢外肢に多数の剛毛があることなどによって区別される。本種のホロタイプは富山市科学博物館に保管される。

キーワード：等脚目、オニナナフシ科、新種、クロガヤオニナナフシ、クロガヤ群集、日本

Key words : Isopoda, Arcturidae, new species, colonies of *Lytocarpia niger*, Japan.

During ecological and taxonomical surveys, Dr. Masakazu Aokii, Amakusa Marine Biological Laboratory, Kyushu University (present: Shimoda Marine Research Center University of Tsukuba) had collected a strange arcturid species among colonies of *Lytocarpia niger* (Nutting), Tomioka, Bay (Aoki, 1991) and he sent to me for identification and my study. As the result of my examination, it proved to be new to science. Holotype will be deposited at Toyama Science Museum.

Taxonomy

Order Isopoda

Suborder Valvifera

Family Arcturidae

***Arcturus lytocarpicola* n.sp.**

(Japanese name: Kurogaya-oninanafushi, new)

(Figs.1-2)

Material examined: 2♂♂ (1♂ allotype, 3.5 mm in body length and 1♂ paratype, 4.3 mm in body length) 10♀♀ (1♀ holotype, 5.1 mm in body length and 9♀♀ paratypes, 2.1-5.9). Among the colonies of *hydrozoan Lytocarpia niger* (Nutting), Tomioka Bay, 3m in depth, 15, May, 1991, coll. Masakazu Aoki.

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Type series is deposited as follows: holotype (TOYA Cr-23285) allotype (TOYA Cr-23286) and 5 paratypes at (TOYA Cr-23287~23296, 23313) at Toyama Science Museum; 2 paratypes (NSMT Cr-21257) at National Museum of Nature and Science, Tokyo; 2 paratypes (OMNH Ar-8374) at the Osaka Museum of Natural History and 2 paratypes (KMNH IvR-500,503, 500,504) at the Kitakyushu Museum of Natural History and History.

Description of female: Body (Fig.1. A) 6.2 times as long as wide, except of both antennae. Cephalon extended anterolaterally and with a process at medial part of anterior margin. Pereonite 1 rectangular and as long as cephalon; pereonite 2 as long as pereonite 1, with a pair of protuberances near anterolateral region; pereonite 3 a little longer than pereonite 2 with a pair of protuberances near anterolateral region. Pereonite 4 as long as pereopod 3, with a pair of protuberances near anterolateral region. Pereonites 5- 7 narrower and shorter than pereonite 4, with a pair of very small protuberances near anterolateral region. Pleotelson with posterior margin rounded.

Antennule (Fig.1B) 4-segmented and terminal segment, with 3-4 aesthetascs. Antenna (Fig.1A and C.) is equal to 40% of body length; flagellum 3-segmented and mutual lengths are 7: 2: 1; segment 1 with sinuate margin. Right mandible with pars incisiva 3-toothed; lacinia mobilis 2-toothed; processus molaris wide. Left mandible (Fig.1.D): pars incisiva 4-toothed; lacinia mobilis 3-toothed; processus molaris wide. Maxillula (Fig.1.E): mesial endite with 3 plumose setae; lateral endite with 10 simple teeth at the tip. Maxilla (Fig.1.F): inner endite with 8 setae; mesial ramus of outer endite with 3 setae. Maxilliped (Fig.1.G): endite with 2 coupling hooks on lateral margin, plumose setae on distal margin. Palp 5-segmented; segment 1 small and rectangular; segment 2 Segment 3 biggest, with times 3 setae on inner margin; segment 4 with 5 setae on inner margin; terminal segment small and rectangular, with 4 setae on inner margin.

Pereopod 1 (Fig.1.H) with basis 2.0 times as long as wide; ischium 0.45times as long as basis, with 1 seta at inner distal angle; merus 0.85 times as long as ischium, with 3 setae on distal half of inner margin and 1 long seta on outer distal angle ; carpus a little longer than merus, with 7-8 bifurcated or trifurcated setae on inner margin; propodus 1.2 times longer than carpus, with 7-8 bifurcated or trifurcated setae on inner margin and 6-7 simple setae on outer margin; dactylus 0.3 times as long as propodus, with a strong tooth at the tip.

Pereopod 2 (Fig.1. I) with basis rectangular, with 4 setae on both margins; ischium short, with 1-2 relatively long setae on both margins; merus 2.3 times longer than merus, with 2-4 setae on both margins; propodus 1.6 times longer than carpus, with 3-4 setae on inner margin. dactylus 0.3 times as long as wide, with sinuate inner margin.

Pereopod 3 and 4 (Fig.1. J) lacking.

Pereopod 5 (Fig.1. K) with basis 1.9 times as long as wide; ischium 0.9 times as long as basis, with 1 seta on outer margin; merus 0.6 times as long as wide, with 2 setae on inner margin and 2 setae on outer margin; carpus 0.8 times as long as merus, with 2-3 setae on inner margin; propodus 2.3 times longer than carpus, with a seta at middle part of inner margin and sinuate margin of distal half of inner margin; dactylus as long as carpus, with strongly sinuate inner margin.

Pereopod 6 (Fig.1 L) with basis twice as long as wide, with 2 setae at inner margin and 6 setae on outer margin; ischium 0.8 times as long as basis, with 1 seta on inner margin; merus 0.7 times as long as ischium, with 2 setae on inner margin; carpus half the length of merus, with 1 seta on inner margin; propodus 2.5 times longer than merus, with 2 setae on inner margin; dactylus bifid.

Pereopod 7 (Fig.1. M) with basis almost square; ischium rectangular; merus about half as long as ischium, with 2 setae on both margins; carpus almost as long as merus, with sinuate inner margin; propodus 2.4 times longer than carpus, with sinuate inner margin; dactylus with a bifid claw and sinuate inner margin.

Pleopod 1 (Fig.1. N): peduncle 4.8 times as long as wide, with 2 coupling hooks; both rami about 6 times as long as wide, with sinuate margin and 8 plumose setae. Pleopod 2 (Fig.1. O) similar to pereopod 1. Pleopods 3-5 (Fig.1.P-R) becoming successively smaller, rami apical rounded with a single seta on endopod.

Uropod (Fig.1.S) unarmed, rounded anteriorly tapering posteriorly; endopod broader, apically rounded with several setae around the margin; exopod half the length of endopod, with 4-5 relatively long setae.

Male: Pereopods similar to those of female (Fig. 2A) except sexual characters. Penes (Fig.2B) single and lanceolate, it tapers toward the rounded distal end, and about 4 times as long as wide.

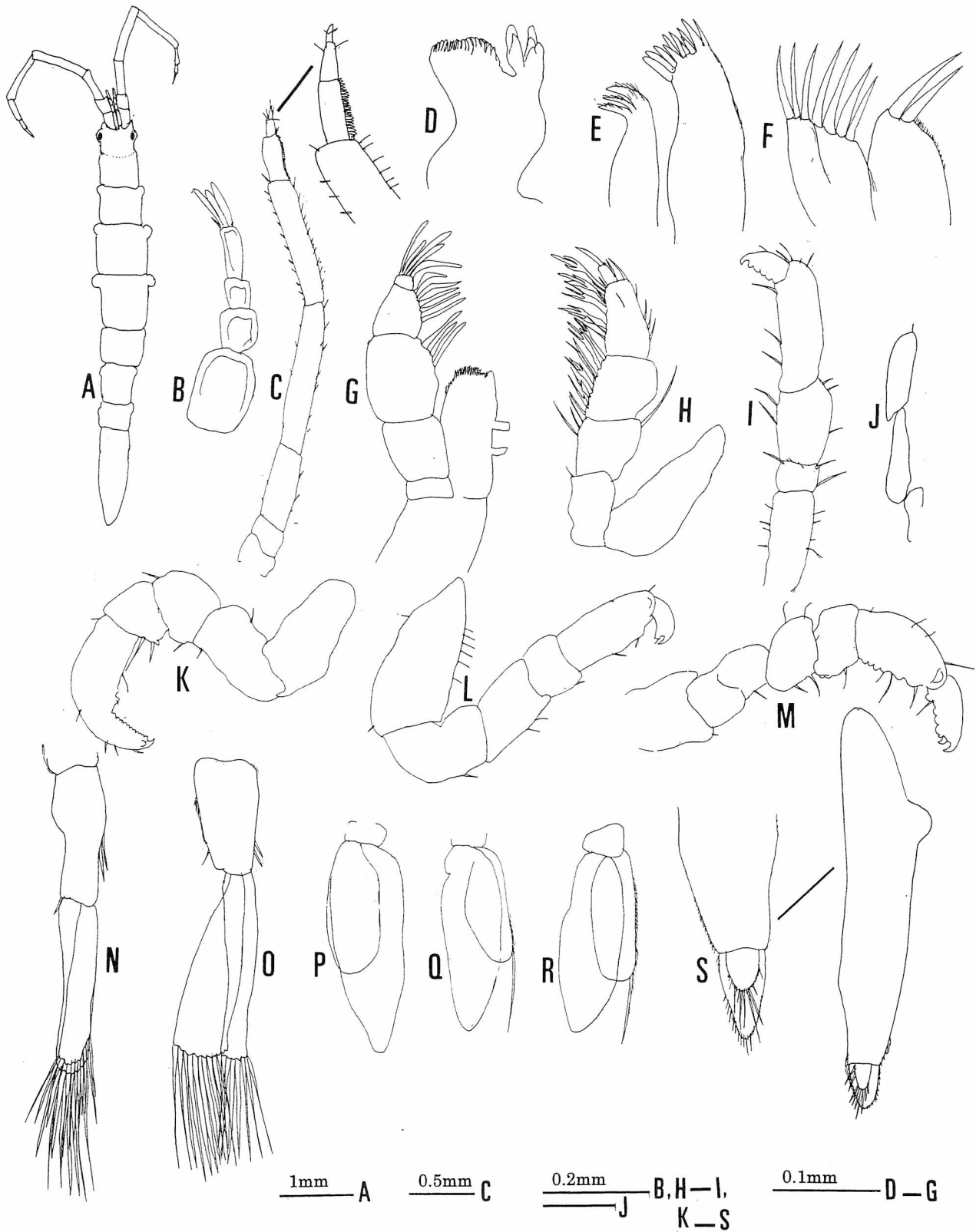


Fig.1 *Arcturus lytocarpicola* n.sp.

A, dorsal view; B, antennule; C, antenna; D, left mandible; E, maxillula; F, maxilla; G, maxilliped; H-I, Pereopods 1-2; J, coxae of pereopods 3-4; K-M, pereopods 5-7; N-R, pleopods 1-5, S, uropod (All, Holotype female).

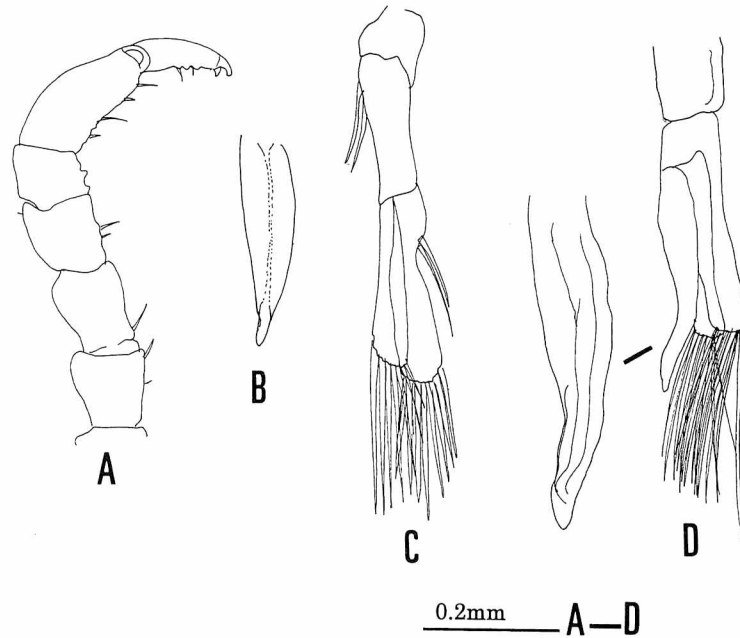


Fig.2 *Arcturus lytocarpicola* n.sp.

A, pereopod 7, B, penes; C, pleopod 1; D, pleopod 2 (All, paratype male).

pleopod 1 (Fig.2C) similar to that of female.

Pleopods 2 (Fig.2D) with rectangular basis; stylus long, its apical area bent inner wards and with slightly sinuate margin: endopod rectangular bearing 10 setae.

Etymology: The species name derives in reference to the association with a hydrozoan, *Lytocarpia niger* (Nutting).

Remarks: Hitherto, 27 species of the genus *Arcturus*. (Kussakin, 1982, Kensley et al, 1996). Among them, the present new species is very characteristic: absence of pereopods 3-4 and is separated from all the congeners' absence of a part of pereopod. It may be enough to hold twigs of hydroid. This reminds caprellid reductive evolution from the gammarid ancestor in amphipod crustaceans.

The present new species is separated from the another science of the genus *Arcturus beringanus* Benedict, 1898 distributed in Alaska and Bering Sea but the former is separated from the latter in the following features: (1) absence of pereopods 3-4, (2) short pereonal somite 4, (3) black body, (4) entire posterior margin of pleotelson, (5) presence of anterolateral projections of pereonal somite, (6) shorter antenna, (7) branched setae on pereopod 1, (8) less numerous setae on antennule, (9) less setose pereopod 1, (10) shorter and less setose pereopod 2, (11) presence of bifurcated setae on pereopod 1 and (12) numerous setae on exopod of uropod.

The present new species also allied to *Arcturus hastatus* Nunomura, 2006 recorded from Sagami Sea, central Japan. But, the present new species is separated *hastatus* in the following features: (1) absence of pereopods 3-4, (2) short pereonal somite 4, (3) black body, (4) absence of acute lateral projections, (5) branched setae on pereopod 1, (6) less numerous setae on antennule, (7) less setose pereopod 1, (8) shorter and less setose pereopod 2 and (9) presence of bifurcated setae on pereopod 1.

Thus, the present new species is characteristically separated from the other species of the genus, but no male specimens have collected, therefore, I refrained to establish a new genus.

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