

A New Species of the Genus *Detonella* (Crustacea: Isopoda: Detonidae) from Rishiri Island, Hokkaido, the Sea of Japan

メタデータ	言語: eng 出版者: 公開日: 2019-05-22 キーワード (Ja): キーワード (En): 作成者: 布村, 昇 メールアドレス: 所属:
URL	https://doi.org/10.24517/00054032

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 3.0
International License.



A New Species of the Genus *Detonella* (Crustacea: Isopoda: Detonidae) from Rishiri Island, Hokkaido, the Sea of Japan

Noboru NUNOMURA^{1*}

Received 27 September 2018

Accepted 23 January 2019

Abstract

A new species, *Detonella oblata* (Crustacea: Isopoda: Detonidae) is described based on two female specimens collected from Rishiri Island, Hokkaido, in the Sea of Japan. The present new species is separated from *Detonella papillicornis* (Richardson, 1904), a single species of the genus with regards to the following features: a shorter and flatter body, a triangular pleotelson, less sinuate margin regarding the fifth peduncular segment of the antenna, larger eyes with numerous ommatidea, a shorter exopod in pleopods for females, numerous setae of pleopods, a lack of bifurcated teeth on the lateral endite of the maxillula, longer spines on the mesial endite of the same, less numerous setae on pereopods, especially in terms of carpus and merus, sparsely spread pectinate scale on the exopod of the pleopod 5, and an arrangement of small tubercles on the pereonal somites.

Key Words: *Detonella oblata*, Isopoda, Detonidae, new species, taxonomy

The genus *Detonella* (Crustacea: Isopoda: Detonidae) was established by Lohmander (1927) and three species had been known until 2000: *D. papillicornis* (Richardson, 1904), *D. saccharina* Verhoeff, 1942, *D. lohmanderi* Verhoeff, 1942 and *D. japonica* Nunomura, 1984. However, Schmidt (2000) proved to *saccharina* and *japonica* are junior synonym of *papillicornis*, by his distinct study including of transverse study of muscles, therefore, *Detonella papillicornis* (Richardson, 1904) has been a single species of the genus now (Nunomura and Shimomura, 2018).

Recently, I examined a small collection from Rishiri Island, the Sea of Japan side of Hokkaido, which had been collected by Mr. Masahiko Sato of Rishiri Museum. Among them, I happened to find a strange species of the

genus *Detonella* and at a closer examination of mine, the species proved to represent a new species and it rather different from *papillicornis* (Richardson, 1904) in not only in outer features but also morphology of many appendages. However, unfortunately, they were only two not so good conditioned female specimens.

Therefore, I asked Mr. Sato, the curator of Rishiri Museum, to get any additional specimens of this species. Through his courtesy, some bottles of specimens of the sea shore isopod including the genus *Detonella* collected from Rishiri Island was placed at my disposal, but any specimen of the present species was not included. The population of the present new species must be very low and its habitat is strictly limited. Therefore, obtaining of additional specimens of this species considered to be very difficult. Accordingly, though male specimens are

¹Noto Marine Laboratory, Division of Marine Environmental Studies, Department of Environmental Research, Institute of Nature and Environmental Technology, Kanazawa University, 4-1 Mu, Ogi, Noto-cho, 927-0553 Japan

* Author for correspondence

not yet at my disposal, I described the present new species on two female specimens.

Order Isopoda Latreille, 1817

Suborder Oniscidea Latreille, 1802

Detonidae Budde-Lund, 1904

***Detonella oblata* n. sp.**

(Japanese name: Hirata-hama-warajimushi, new)

(Fig. 1 A - T)

Material examined: 1 gravid ♀, holotype 4.5 mm in body length), sea shore of Senhoushi, Rishiri Island, Hokkaido, 25 May 1994, coll. Masahiko Sato. and 1 ♀ (paratype, 4.0 mm in body length), sea shore of Numaura, Rishiri Island, Hokkaido, 7 July 1995, coll. Masahiko Sato. Holotype will be deposited at Toyama Science Museum (TOYA Cr – 23765). 2 and a paratype at Rishiri Museum (RTMCRU 193).

Description: Body (Fig. 1A) flattened, 1.4-1.5 times as long as wide and 5.1-5.6 times as long as the maximum body thickness. Color reddish brown in alcohol. Body almost smooth, but pereonal somites 4-7 covered with several minute low tubercles along the posterior margin of each pereonal somite and several scattered ones. Lateral lobe of antero-lateral angle or cephalon (Fig. 1B) strongly protruded. Eyes rather large, each eye composed of 20-22 ommatidia. Each pereonal somite subequal but only the seventh somite slightly shorter than the previous one. Each pleonal somite subequal in length. Pleon narrower than pereon. Pleotelson triangular, posterior end of pleotelson forms an obtuse angle.

Antennule (Fig. 1C) 3-segmented; first segment big occupies 70 % of whole length; second segment 0.3 times as long as the first, with 2 setae on lateral margin; terminal segment small, 0.13 times as long as the first, with 4-5 aesthetascs at the tip. Antenna (Fig. 1D): peduncle with 5 peduncular segments and 4 flagellar segments: mutual length of five peduncular segments is approximately 1: 1: 2: 3: 4. Flagellum half the length of the fifth peduncular segment; each of second and third segment is twice as long as the first, and fourth segment approximately as long as the first one; each segment with much hair.

Left mandible (Fig. 1E): pars incisiva with 3 teeth; lacinia mobilis chitinized, with 4 setae; a plumose seta behind lacinia mobilis; processus molaris represented by a tuft of setae. Right mandible (Fig. 1F): pars incisiva with 3 teeth; lacinia mobilis not chitinized, with 4 teeth; a plumose seta behind lacinia mobilis; processus molaris represented by a tuft of setae. Maxillula (Fig. 1G): mesial endite with 2 long plumose setae and a relatively long seta; lateral endite with 12 simple teeth. Maxilla (Fig. 1H) slender, with much hair. Maxilliped (Fig. 1I): endite slender, tapering towards the tip, with many setae at the tip and; palp rather robust, with relatively deep incisions and much hair, epipodite slender.

Pereopods 5-7 slightly longer than pereopods 1-4. Dactylus with a simple unguis and a sensory seta. Pereopod 1 (Fig. 1J): basis 2.6 times as long as wide and occupied 28% of whole length, with 5-6 setae on inner area and a group of short setae on outer distal area; ischium two-thirds as long as basis, with 2 setae on inner side; merus two-thirds as long as ischium, with 4 setae on inner side; carpus almost as long as merus, with 4 setae on inner side; propodus 1.3 times as long as carpus, with 2-3 setae on inner side and many shorter setae on outer distal part.

Pereopods 2-3 (Fig. 1K) similar in shape and more setose than pereopod 1: basis 3.1-3.3 times as long as wide and occupied 29 - 33% of whole length, with a mount of short setae on both sides; ischium half the length of basis; merus three-fourths as long as ischium, with 4-5 setae on inner side; carpus almost as long as merus, 3 with setae including a long one on inner side; propodus a little longer than carpus.

Pereopod 4 (Fig. 1L): basis 3.5 times as long as wide and occupied 29 - 30% of whole length, with 10-15 setae sparsely; ischium 0.7 times as long as basis, with 2 setae on inner side; merus half the length of ischium, with 5-11 setae on inner side; carpus 1.2 times longer than merus, with 3 setae on inner side; propodus 1.4 times as long as carpus, with 3 setae on inner side.

Pereopod 5 (Fig. 1M): basis 3.8 times as long as wide and occupied 35 % of whole length, 2 with setae on inner side; ischium almost half length of basis, with 2 setae on inner side; merus 0.7 times as long as ischium,

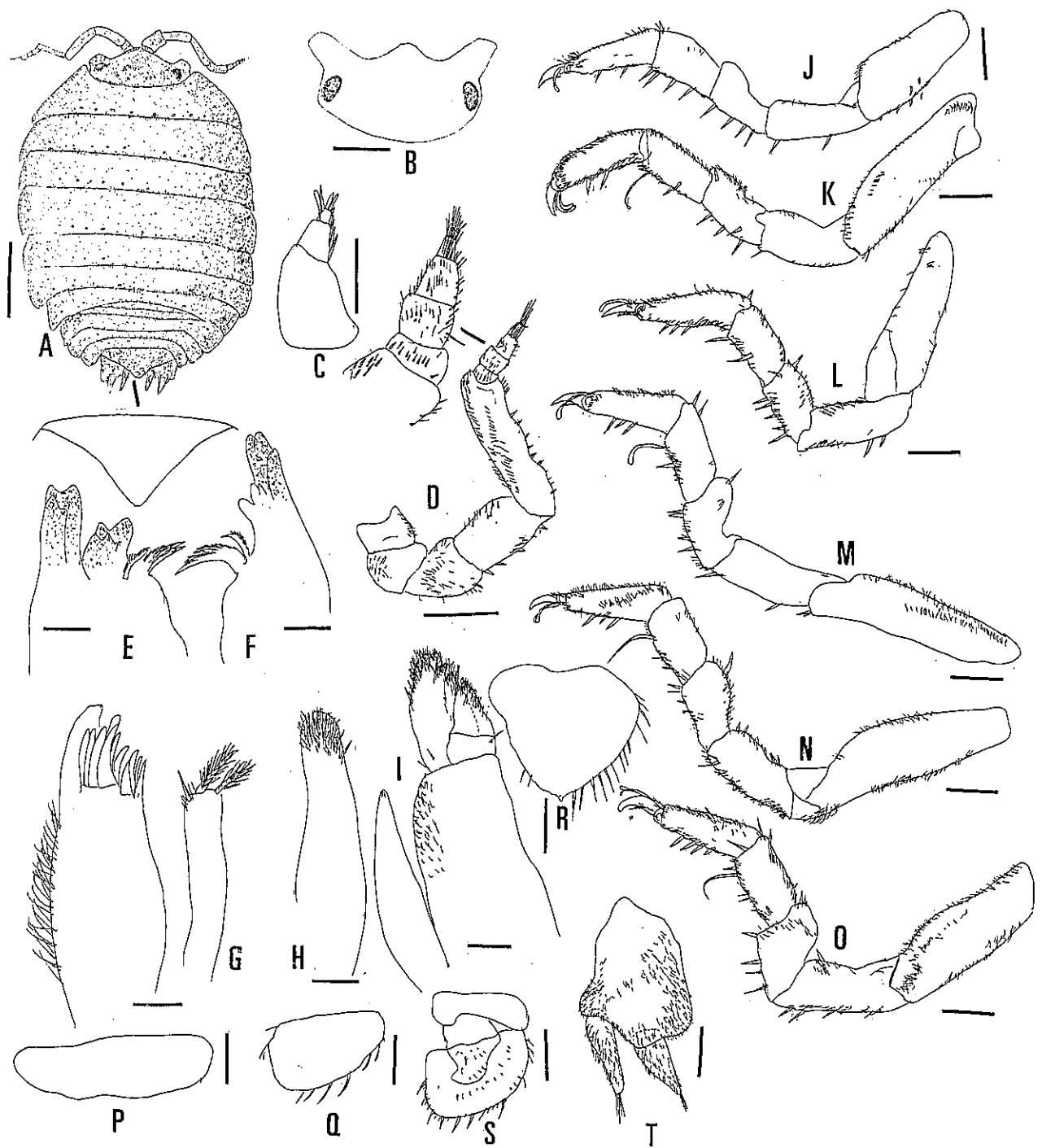


Fig. 1 *Detonella oblata* n.sp. (A: Dorsal view, B: Cephalon in dorsal view, C: Antennule, D: Antenna, E: Left mandible, F: Right mandible, G: Maxillula, H: Maxilla, I: Maxilliped, J: Pereopod 1, K - O: Pereopods 3-7, P: Exopod of pleopod 1, Q: Exopod of pleopod 2, R: Exopod of pleopod 3, S: Pleopod 5, T: Uropod (All: Female holotype). Scale bars show A: 1.0 mm, B: 0.5 mm, C and I: 0.1 mm; D: 0.3 mm, E - H: 0.05 mm, J - T: 0.2 mm).

with 4 setae on inner side and a seta at outer distal area; carpus 1.2 times as long as merus, with a long seta on inner side; propodus 1.4 times as long as carpus, with 3 setae on inner side.

Pereopod 6 (Fig. 1N): basis 3.6 times as long as wide and occupied 34 - 35 % of whole length, with many short setae on both sides; ischium half the length of basis, with many setae on both sides; merus two-thirds as long as ischium, with 4-5 setae on inner side and a rather on setae on outer margin; carpus margin as long as merus, with a long seta on inner side and 2-3 short setae on inner side and 2 setae on outer side; propodus 1.4 times as long as carpus, with 3-4 setae on inner side and many setae on outer side.

Pereopod 7 (Fig. 1O): basis 3.1 times as long as wide and occupied 31 - 32 % of whole length, with many setae on both sides; ischium two-thirds as long as ischium, half as long as basis, with 3-5 setae on inner side; merus half as long as basis, with 4 setae on inner side; carpus a little longer than merus, with a long seta and 4-5 setae on inner side; propodus 1.3 times as long as carpus, with 4 setae on inner side.

Pleopod 1 (Fig. 1P): exopod 0.3 times as long as wide, without seta around the margin. Pleopod 2 (Fig. 1Q): exopod, 0.9 times as long as wide, with 6 setae around the margin. Pleopod 3 (Fig. 1R): exopod 0.6 times as long as wide, with 14-15 setae around the margin. Pleopod 4 broken. Pleopod 5 (Fig. 1S): endopod vertically long with sinuate margin; exopod semicircular, two-thirds as long as wide, with 12 setae, with minute setae sparsely, many pectinate scales are present on central area.

Uropod (Fig. 1T) very setose: sympod stout, 1.4 times as long as wide; endopod conical; 4.3 times as long as wide; exopod conical, twice as long as wide a little longer than endopod.

Etymology: The species name "*oblatus*" means "oblate" in Latin. The present new species is characteristically flat body in external form.

Remarks: The present new species is separated from *Detonella papillicornis* (Richardson, 1904), the only valid species of the genus, in the following feature: (1) shorter and flatter body (ratio of body length/body width

is 1.4 - 1.5 in this species, whereas 2.0 - 2.5 in *papillicornis* (based on the specimens from Rishiri, Hokkaido and the same hereinafter), ratio of body length/body thickness is 5.1 - 5.6 in this species, whereas 3.7 - 3.8 in *papillicornis* and ratio of body width/body thickness is 3.5 - 4.0 mm in this species, whereas 1.9 - 2.0 in *papillicornis*, (2) shorter and triangular pleotelson, whereas trapezoidal in *papillicornis*, (3) less sinuate margin of process on fifth peduncular segment of antenna, (4) bigger eyes with numerous ommatidia: 22 in this species, whereas 8 - 9 in *papillicornis*, (5) shorter exopod of pleopods of female, 1, 2, 3, 5 in female: the ratio of length/width is 0.3, 0.7, 0.8, 0.8 respectively in this species, whereas 0.75, 0.85, 1.0, 1.25, respectively in *papillicornis*, and as to pleopod 2, (6) numerous setae on pleopods 2, 3, 5 in female: 6, 15, 10 respectively in this species, whereas 2, 3, 0, respectively in *papillicornis*, (7) teeth on lateral endite of maxillula are single type whereas, some are bifurcated in *papillicornis*, (8) longer spines on mesial endite of the same, (9) less numerous setae on pereopods, especially of carpus and merus, (10) sparsely spread pectinate scale on exopod of pleopod 5, whereas laterally distributed in *papillicornis*, and (11) arrangement of small tubercles on pereonal somites; a row and some scattered one on pereopods 4 - 7 in this species, whereas 2 rows of all the pereonal segments.

Holotype female with 10 eggs in her brood pouch. According the collector's memo, the color of the eggs is red.

The present new species is not contradictory with Lohmander's first describing this genus (Lohmander, 1927). However, the following features of the present new species do not agree with the diagnosis given by Schmidt (2000). Especially, the shape of pleotelson may be considered to be important: almost triangular in this species, whereas apically truncate" in Schmidt's diagnosis. However, shape of pleotelson of this genus may be changeable feature: that of hitherto known single species, *D. papillicornis*, morphologically variable (Hiebert, 2015); in fact many kinds of pleotelson have been reported.

Acknowledgments: I would like to represent my sincere

gratitude to Mr. Masahiko Sato for his kindness in giving me a chance of the important and interesting material. Thanks are also to Mr. Tomofumi Iwata of Toyama Science Museum for loaning of specimens of *D. papillicornis*.

References

- Hiebert, T. C., 2015: *Detonella papillicornis*. in Hiebert, T. C., Butler, B. A. and Shanks, A. L. eds., *Oregon Estuarine Invertebrates: Rudys' Illustrated Guide to Common Species*, 3rd ed. University of Oregon Libraries and Oregon Institute of Marine Biology, Charleston, Oregon, USA, 861p.
- Kussakin, O. G., 1974: Fauna and ecology of isopods (Crustacea) from the intertidal zone of the Kurile Islands. *Transactions of the Academy of Science of the USSR, Far East Center, Institute of Marine Biology*, 1, 227-275.
- Lohmander, H., 1927: On some terrestrial isopods in the United States National Museum. *Proceedings of U. S. National Museum*, 72 (17), 1-18.
- Nunomura, N., 1984: Studies on the terrestrial isopod crustaceans in Japan II. Taxonomy of the family Scyphacidae. *Bulletin of the Toyama Science Museum*, 6, 1-43.
- Nunomura, N. and Shimomura, M., 2018: Isopoda from Japan (52) Suborder Oniscidea Family Detonidae. *Kaiyo to Seibutsu (Aqua Biology)*, 40, 386-392.
- Richardson, H., 1904: Contributions to the Natural History of the Isopoda [Second Part]. *Proceedings of the United States National Museum*, 28 (1369), 657-681.
- Schmidt, C., 2000: Revision of *Detonella* Lohmander, 1927 (Crustacea, Isopoda, Oniscidea). *Mitteilungen aus dem Museum für Naturkunde in Berlin, Zoologische Reihe*, 76, 51-60.
- Verhoeff, K. W., 1942: Zur Kenntnis der Armadilliden und über *Detonella*. *Zoologischer Anzeiger*, 138, 162-174.

北海道利尻島から発見されたハマベワラジムシ属 (甲殻亜門, 等脚目, シオサイワラジムシ科) の一種

布村 昇^{1*}

2018年9月27日受付

2019年1月23日受理

要 旨

北海道利尻島から発見されたハマベワラジムシ属 (甲殻亜門, 等脚目, シオサイワラジムシ科) の一種を新種 *Detonella oblata* (和名: ヒラタハマベワラジムシ) として記載した。本属には *Detonella papillicornis* のみが知られていたが, 本新種は *papillicornis* に比べて外形では体の幅が明瞭に広いこと, 複眼が大きく, 多数の個眼からできていること, 胸節背面の小顆粒配列が相違すること, 腹尾節が短く後端中央が鈍角をなしていることで区別されるが, 付属肢については第2触角鞭節が短く, その第5柄節側縁が波状にならないこと, 第1小顎基節内葉の歯がすべて単純なタイプばかりであり, 底節内葉のとげが長いこと, 胸脚基節が長いこと, 胸脚, 特に長節と腕節の剛毛数が少ないこと, メス各腹肢外肢が短く, 剛毛数が多いことにより明瞭に区別できる。ただ, オスが見つかっておらず, 性による形態差, 特に雄性交尾器官の知見を欠くが, 追加標本が得られないため, メスだけで記載を行った。

キーワード: ヒラタハマベワラジムシ, シオサイワラジムシ科, 等脚目, 新種, 分類学

¹金沢大学環日本海域環境研究センター研究領域部門海洋環境領域臨海実験施設 〒927-0553 石川県鳳珠郡能登町小木

△4-1
*連絡著者