

First Report of *Nereiphylla hera* (Polychaeta: Phyllodocidae) from Korea

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Abstract - A newly recorded species, *Nereiphylla hera* Kato and Mawatari, 1999 which was originally described from northern Japan, was collected from East Sea in Korea. Our Korean materials of *N. hera* are distinguished from its congeners by the following characteristics that agree well with the original description of the species: the tentacular cirri are flat and spatulate with a narrow and distinct tip, reaching to segment 4-6, and broader than their cirrophores; the parapodia possess elongated dorsal cirri. We provide a key for distinguishing the species of genus *Nereiphylla* from Korean waters.

Key words: *Nereiphylla hera*, Polychaeta, Phyllodocidae, taxonomy, Korea

INTRODUCTION

The family Phyllodocidae Örsted, 1843 is easily distinguishable by the enlarged tentacular cirri and flattened dorsal cirri on the body (Rouse and Pleijel 2001; Eklöf *et al.* 2007). It includes the both benthic and pelagic forms, and its members show conspicuously bright color and unique pigment patterns on body (Blake 1994; Tzvetlin 1998). To date, 18 genera of this family have been classified (Pleijel 1991; Eklöf *et al.* 2007).

Among phyllodocid genera, the genus *Nereiphylla* Blainville, 1828 had been usually distinguished from the genus *Genetyllis* Malmgren, 1865 by the presence of flattened tentacular cirri (Blake 1994; Kato and Mawatari 1999). However, *Genetyllis* is now treated as a junior synonym of *Nereiphylla*, because it is known that the presence of flattened cirri, which was regarded as a characteristic feature of *Nereiphylla*, is also present on *Genetyllis* species including *G.*

lutea Malmgren, 1865, the type species of the genus, and sometimes appeared in the species of other phyllodocid genera (Pleijel 1991; Blake 1994). Currently, total 10 valid species are known in the genus *Nereiphylla* (Kato and Mawatari 1999).

In East Asia, one species among the total of three *Nereiphylla* species recorded, *N. castanea* (Marenzeller 1879), had been reported from several parts across the region (Izuka 1912; Okuda 1938; Okuda and Yamada 1954; Imajima and Hartman 1964; Yang and Sun 1988; Paik 1982, 1989; Paxton and Chou 2000), and other two species, *N. crassa* Imajima, 2003 and *N. hera* Kato and Mawatari, 1999, were recorded only from Japanese waters by the original descriptions (Kato and Mawatari 1999; Imajima 2003). While investigating on phyllodocid fauna, the authors met with several materials of *N. hera* that had not been known from Korea.

The purpose of this study is to report a new record of *Nereiphylla* species, *N. hera*, from Korean waters with detailed description and illustration. We also provide a key to *Nereiphylla* species from Korean waters.

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MATERIALS AND METHODS

Samples were collected from the rocky shore in East Sea of Korea. The specimens were sorted by using sieves with a pore size of 0.5 mm, fixed initially with 5% formaldehyde-seawater solution, and transferred to 85% ethyl alcohol after sorting in the laboratory. The characteristics of the whole body were observed and the appendages were dissected in a petri dish by using dissection forceps or surgical knives and needles under stereomicroscope (SMZ1500; Olympus, Tokyo, Japan). Dissected specimens were mounted on temporary slides using glycerol or permanent slides using polyvinyl lactophenol solution. Drawings were made by the stereomicroscope and light microscope (LABOPHOT-2; Nikon, Tokyo, Japan) with the aids of drawing tubes. The examined materials are deposited in Chosun University and the National Institute of Biological Resources (NIBR) in Korea.

RESULTS AND DISCUSSION

Class Polychaeta Grube, 1850 다모 강
 Order Phyllodocida Örsted, 1843 부채발갯지렁이 목
 Family Phyllodocidae Örsted, 1843 부채발갯지렁이 과
 Genus *Nereiphylla* Blainville, 1828
 납작수염부채발갯지렁이 속

1. *Nereiphylla hera* Kato and Mawatari, 1999

뾰족납작수염부채발갯지렁이 (신칭) (Fig. 1)

Synonym: *Nereiphylla hera* Kato and Mawatari, 1999: 353, Figs. 1-3.

Material examined: Korea, 4 specimens, Gangwon-do, Yangyang-gun, Hyeonnam-myeon, Namae-ri (37°55'46"N, 128°45'20"E), 15 Sep 2014, Choi HK; 5 specimens, Gangwon-do, Sokcho-si, Daepo-dong (38°10'17"N, 128°37'40"E), 15 Sep 2014, Choi HK; 8 specimens, Gyeongsangbuk-do, Yeongdeok-gun, Chuksan-myeon, Gyeongjeong-ri (36°27'53"N, 129°29'39"E), 17 Sep 2014, Choi HK.

Description: Body slender, about 16.0 to 28.0 mm long and width about 0.8 to 1.3 mm, with tapering posterior segments.

Prostomium sub-pentagonal in shape, with rounded anterior margin; 4 antennae on anterior margin as long as prostomium, thick, medially inflated, and distally tipped; paired eye spots large, rounded, and located nearly on lateral margin. Proboscis with numerous minute papillae irregularly distributed; terminal papillae absent (Fig. 1A, B).

Tentacular cirri 4 pairs, flat, with narrow and distinct tip; tentacular cirri on segment 1 slightly short, extending to segment 5; dorsal tentacular cirri on segment 2 and 3 long, reaching to segment 6; ventral tentacular cirri on segment 2 short, extending to segment 4. Tentacular formula: (1 + S1/1) + S1/N (Fig. 1A, D-F).

Segments 1 and 2 fused dorsally (Fig. 1A, B); segment 2 without neuropodia but with setae arising from cirrophores of ventral tentacular cirri (Fig. 1E).

Parapodia uniramous, with neuropodia and well developed dorsal and ventral cirri; neuropodia sub-retangular, with rounded margins; dorsal cirri heart-shaped, elongated, arising from well-developed cirrophores, and partially covering dorsum; ventral cirri expanded, broader than neuropodia, and attached on posterior side of neuropodia (Fig. 1G, H).

Setae composite, 13-15 about per parapodium; rostrum of setal shaft with distal crown bearing numerous teeth; setal blades short, with small teeth arranged in one side (Fig. 1I).

Pygidium with 2 cirri slightly flattened (Fig. 1C).

Remarks: *Nereiphylla* materials of the present study agree well with the original description of *N. hera* from Japanese waters in that the tentacular cirri are flat and spatulate with a narrow and distinct tip and broader than their cirrophores, and the parapodia possess elongated dorsal cirri (Kato and Mawatari 1999). However, Korean materials of *N. hera* show the following minor differences: the tentacular cirrus on 1st segment is extending to segment 5 in Korean materials, while that of Japanese materials is extending to segment 4; the pygidial papilla is invisible in Korean materials, but that of Japanese materials is distinct (Kato and Mawatari 1999).

Nereiphylla hera is distinguishable from two *Nereiphylla* species, *N. castanea* and *N. crassa*, recorded from East Asia, by several characteristics. *N. hera* differs from *N. castanea* in the morphologies of tentacular and dorsal cirri: the tentacular cirri are flattened, reaching to segments 4-6 in *N. hera*, while those of *N. castanea* are cylindrical, extending to segments 7-13; the dorsal cirri are much longer than broad in *N.*

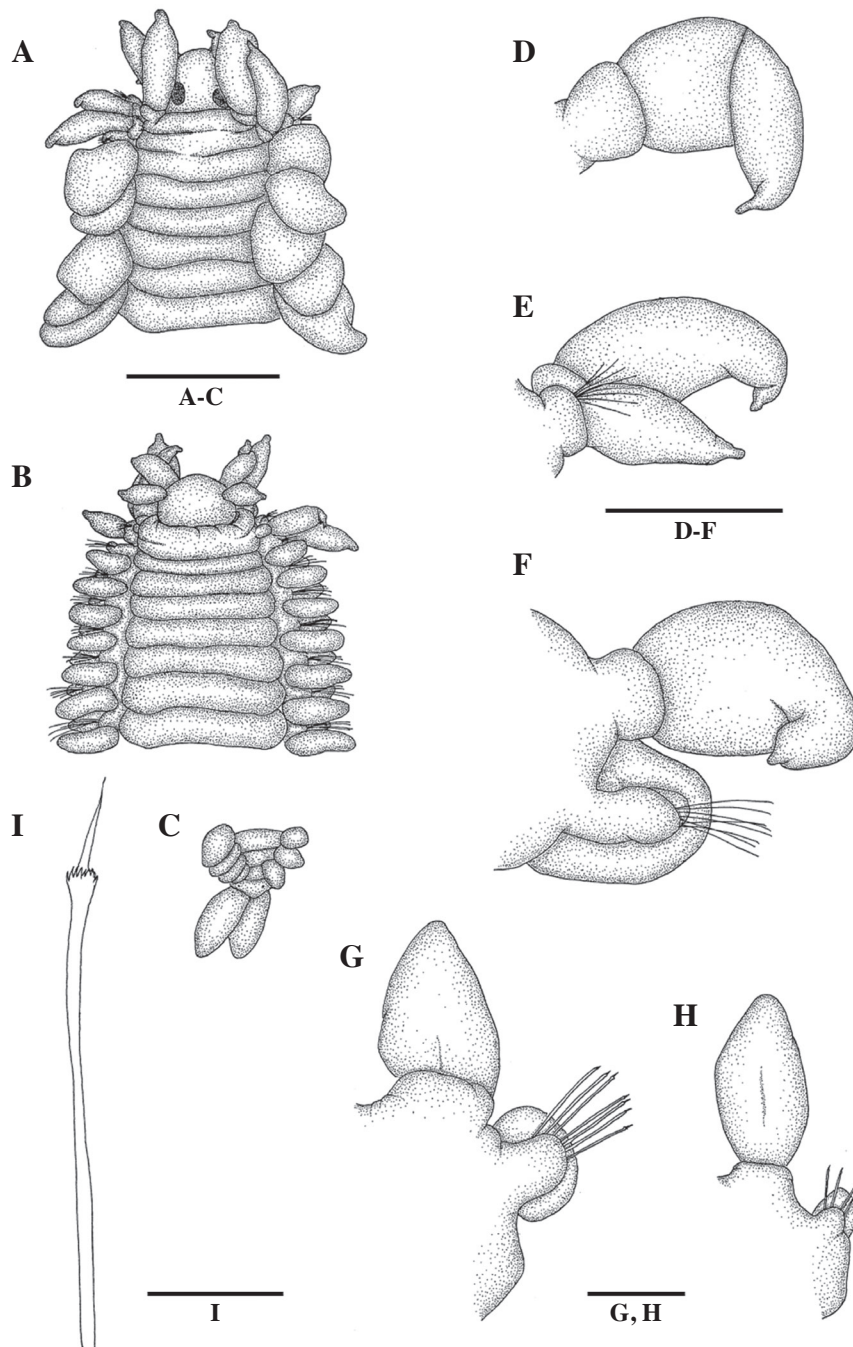


Fig. 1. *Nereiphylla hera* Kato and Mawatari, 1999. A, anterior end, dorsal view; B, anterior end, ventral view; C, dorsal view of pygidium; D, anterior view of tentacular cirri on 1st segment; E, anterior view of tentacular cirri on 2nd segment; F, anterior view of tentacular cirri on 3rd segment; G, anterior view of 55th parapodium; H, anterior view of posterior parapodium; I, composite seta of median parapodium. Scale bars: A-C = 0.5 mm, D-H = 0.2 mm, I = 0.05 mm.

hera, but those of *N. castanea* are slightly longer than broad (Blake 1994; Kato and Mawatari 1999; Imajima 2003). Although *N. crassa* has also flattened tentacular cirri with a narrow and distinct tip as *N. hera*, it shows some differ-

ences in the prostomial eye spots and dorsal cirri: the small lenses on prostomial eye spots are absent in *N. hera*, while those are present in *N. crassa*; the dorsal cirri of *N. hera* are elongated with smooth surface and partially covering the

dorsum, whereas those of *N. crassa* are circular shaped with undulate surface and covering the dorsum completely (Kato and Mawatari 1999; Imajima 2003).

This species was reported only from Hokkaido in northern Japan by the original description (Kato and Mawatari 1999). The present study is the second report of *N. hera* and the first record from the region beyond Japan.

Habitat: This species collected from algae on the rocky shore in East Sea of Korea.

World distribution: Korea, Japan.

Deposition: NIBRIV0000324230.

Identifiers: Hyun Ki Choi, Seong Myeong Yoon.

Key to the species of genus *Nereiphylla* from Korea

1. Tentacular cirri cylindrical, reaching to segment 7-13; dorsal cirri slightly longer than width
..... *N. castanea* (Marenzeller, 1879)
- Tentacular cirri flattened, reaching to segment 4-6; dorsal cirri much longer than width
..... *N. hera* Kato and Mawatari, 1999

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