

The First Record of the Genus *Glycinde* (Polychaeta: Goniadidae) from Korea

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Abstract - The goniadid species, *Glycinde bonhourei* Gravier, 1904, is newly reported with the description and illustration from Korean waters. Our Korean materials of *G. bonhourei* have the following characteristics that are generally known as distinctive features from its congeners: the area II-1 on proboscis possesses unidentate papillae bearing broad base; the area IV on proboscis bears the papillae of duct's foot-shaped with rounded teeth; the area V on proboscis has straightly conical papillae bearing slightly bifid tip; 4-16 micrognaths are arranged on the dorsal side; all parapodia have one neuropodial presetal lobe; uniramous parapodia are present on 19-26 anterior segments. As a result of the present study, the genus *Glycinde* is newly reported from Korean waters.

Key words: *Glycinde bonhourei*, Polychaeta, Goniadidae, taxonomy, Korea

INTRODUCTION

The taxonomic status of the family Goniadidae established by Kinberg (1865) had been controversial because of their great resemblance with the family Glyceridae Grube, 1850 (Ehlers 1868; Fauvel 1923). Later, Hartman (1950) re-established the family Goniadidae with the clear distinctions between Goniadidae and Glyceridae by the morphologies of their jaws and parapodia. Presently, the eight genera, *Bathyglycinde* Fauchald, 1972, *Glycinde* Müller, 1858, *Goniada* Audouin and Milne-Edwards, 1833, *Goniadella* Hartman, 1950, *Goniadides* Hartmann-Schröder, 1960, *Goniadopsis* Fauvel, 1928, *Ophiogoniada* Böggemann, 2005, and *Progoniada* Hartman, 1965, are known worldwide in this family (Böggemann 2005).

The genus *Glycinde* Müller, 1858 is a relatively large group consisted of 11 valid species (Hilbig 1997; Böggemann 2005).

They are clearly distinguished by the diagnostic features such that the chevron is absent on the proboscis, the probocidial papillae composed of several different types are arranged in distinct longitudinal rows, and the notosetae has hooked tip and pointed hood terminally (Hartman 1950; Hilbig 1997; Böggemann 2005).

In East Asia, four *Glycinde* species, *G. armigera* Moore, 1911, *G. bonhourei* Gravier, 1904, *G. picta* Berkeley, 1927, and *G. wireni* Arwidsson, 1899, have been recorded from Chinese waters and Japanese waters (Böggemann 2005). In Korean waters, the only one *Glycinde* species identified as *G. gurjanovae* Uschkov and Wu, 1962 has been used in several ecological investigations without any taxonomical information (Hong and Lim 1997; Hong *et al.* 1997; Yoon *et al.* 2008). Therefore, the real distribution of *Glycinde* species has been unclear and a taxonomic study on this genus is necessary to solve this problem in Korean waters.

The purpose of this study is to describe a new record of *Glycinde* species from Korean waters with detailed description and illustration.

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MATERIALS AND METHODS

Samples were collected from mud of the tidal flat in the west coast of Korea (Fig. 1). 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 Goniadidae Kinberg, 1865 고리갯지렁이 과
 Genus *Glycinde* Müller, 1858 헛고리갯지렁이 속 (신칭)

***Glycinde bonhourei* Gravier, 1904 외돌기헛고리갯지렁이 (신칭) (Fig. 2)**

Synonyms: *Glycinde bonhourei* Gravier, 1904: 474; Bögge-mann, 2005: 226, Figs. 132-133.

Glycinde gurjanovae Uschkov and Wu, 1979: 50, Fig. 16a-g.

Glycinde nipponica Imajima, 1967: 426, Fig. 8a-x.

Material examined: Korea, 2 specimens, Incheon-si, Ongjin-gun, Yeongheung-myeon, Janggyeong-ri (37°15'46"N, 126°25'20"E), 17 Jul 2012, Choi HK; 4 specimens, Jeollabuk-do, Buan-gun, Jinseo-myeon, Gomso-ri (35°35'11"N, 126°36'55"E), 14 Aug 2014, Choi HK.

Description: Body length about 20 mm long with approximately 96 segments, slender and cylindrical shaped; segments uniannulate or sometimes biannulate dorsum present

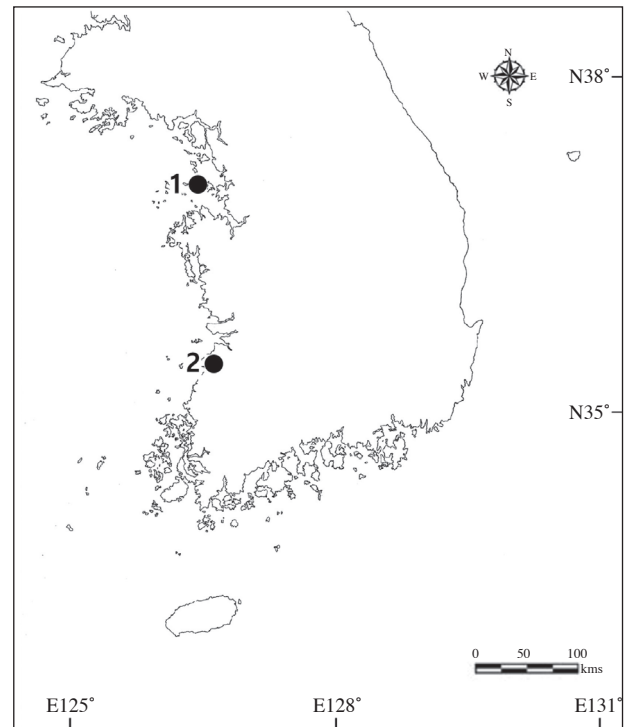


Fig. 1. A map showing the distributions of *Glycinde bonhourei* from Korean waters in the present study. 1, Ongjin-gun, Janggyeong-ri; 2, Buan-gun, Gomso-ri.

on median segments.

Prostomium long conical shaped, composed of about 9 rings; anterior end with 4 short appendages; subdistal annulus without eyespots and basal annulus with pair of eyespots (Fig. 2A).

Proboscis with numerous papillae arranged in longitudinal rows, composed of several different types; area I with 1 row of small teapot-shaped papillae bearing lateral protrusion; area II-1 with short and unidentate papillae bearing wide base; area II-2 to II-6 with long fang-shaped papillae; II-2 to II-3 with unidentate and II-4 to II-6 with bidentate; area III with 1 row of small and rectangular papillae bearing narrow base and 2 short protrusions; area IV with 1 row of duckfoot-shaped papillae bearing rounded teeth; area V with 1 row of straightly conical papillae bearing slightly bifid tip; area VI without papillae (Fig. 2A-H).

Macrognaths large, with 3 teeth, and present on ventral side. Micrognaths H + v-shaped, with sub-globular bases, composed of 5 or 6 on dorsal side, and absent on ventral side (Fig. 2I). Chevrons absent (Fig. 2A).

Parapodia uniramous in anterior segments, and follow-

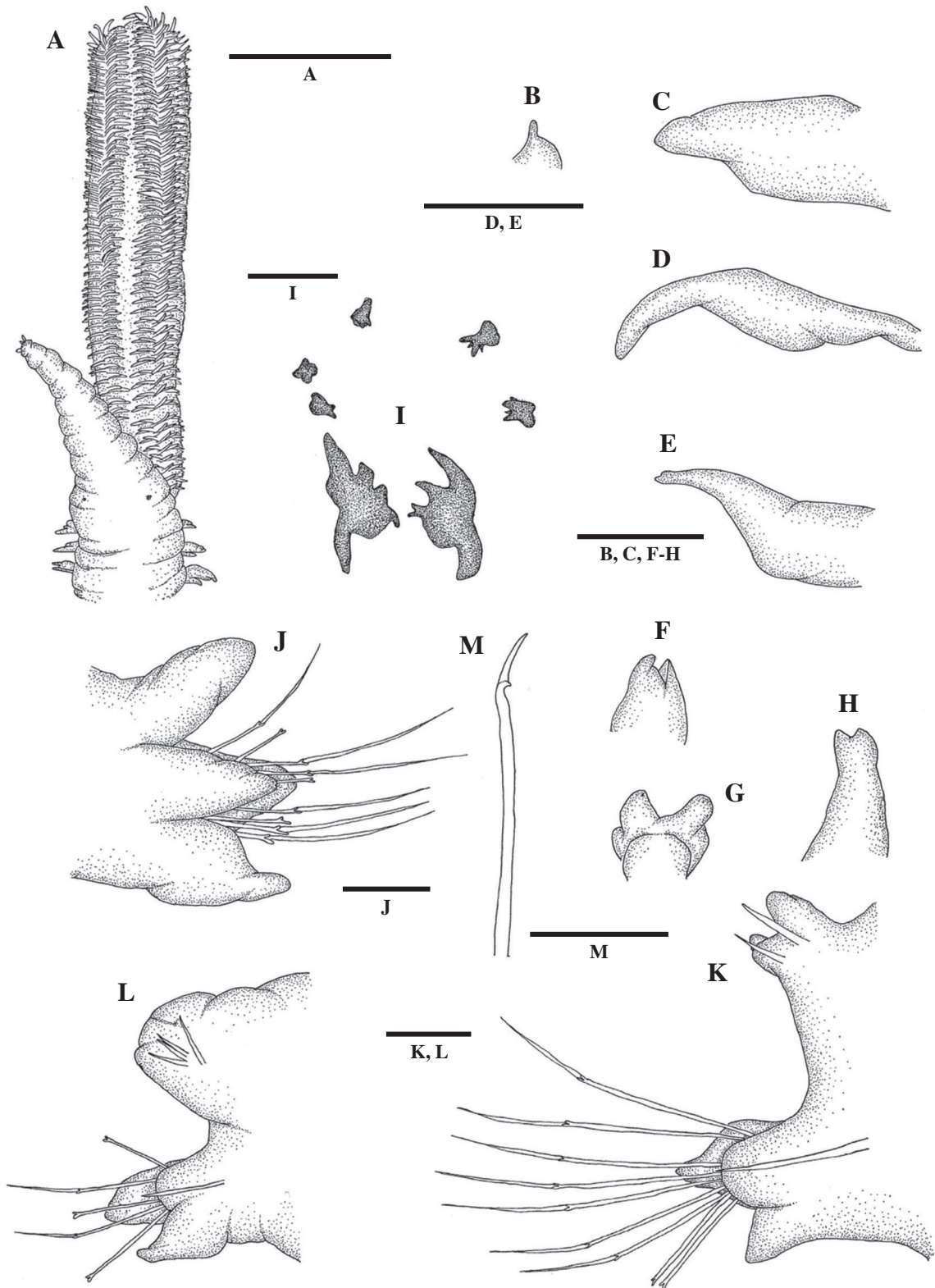


Fig. 2. *Glycinde bonhourei* Gravier, 1904. A, anterior dorsal view; B-H, papillae on proboscis, papilla of area I (B), papilla of area II-1 (C), papilla of area II-2 to II-3 (D), papilla of area II-4 to II-6 (E), papilla of area III (F), papilla of area IV (G), and papilla of area V (H); I, arrangement of macrognath and micrognath; J-L, posterior view of parapodia, 12th parapodium (J), 41th parapodium (K), posterior parapodium (L); M, notosetae. Scale bars: A = 1.0 mm, B, C, F-H = 0.025 mm, D, E = 0.1 mm, I, J, M = 0.05 mm, K-L = 0.2 mm.

ing parapodia biramous; anterior uniramous composed of approximately 24-26 setigers, with only neuropodial lobes; neuropodial presetal lobe broadly conical shaped; neuropodial postsetal lobe conical shaped and slightly shorter than presetal lobe; biramous more enlarged than uniramous, with distinctly separated notopodium; notopodial presetal lobe long oval-shaped, longer than rounded postsetal lobes; neuropodial presetal lobe broadly conical shaped and slightly slender distally, much longer than rounded postsetal lobe; notopodial presetal lobe and neuropodial postsetal lobe gradually reduced on posterior biramous (Fig. 2J-K).

Dorsal cirri on uniramous long digitiform, as long as neuropodial postsetal lobe; dorsal cirri on biramous relatively short, but slightly longer than notopodial presetal lobe; dorsal cirri on posterior biramous shorter than those of mid-biramous, as long as notopodial postsetal lobe (Fig. 2J-K).

Ventral cirri on uniramous long conical shaped, as long as neuropodial presetal lobe; ventral cirri on biramous sub-triangular shaped and as long as neuropodial postsetal lobe; ventral cirri on posterior biramous broadly conical shaped and slightly shorter than neuropodial presetal lobe (Fig. 2J-K).

Notosetae stout, hook shaped, with pointed hood distally (Fig. 2M).

Neurosetae compound spinigers with blades (Fig. 2J-K).

Remarks: *Glycinde bonhourei* was originally described from the Red Sea by Gravier (1904). This species had been regarded as *G. gurjanovae* or *G. nipponica* Imajima, 1967 from East Asia (Imajima 1967; Uschkov and Wu 1979). Böggemann (2005) revised the type materials of *G. gurjanovae* and *G. nipponica*, and suggested that these species were regarded as *G. bonhourei* based on the following characteristics: the area II-1 on proboscis has unidentate papillae bearing broad base; the area IV on proboscis bears the papillae of duct's foot-shaped with rounded teeth; the area V on proboscis possesses straightly conical papillae bearing slightly bifid tip; 4-16 micrognaths are appeared on the dorsal side (Korean materials have 5 or 6); all parapodia have one neuropodial presetal lobe; uniramous parapodia are present on 19-26 anterior segments (Korean materials show 24-26) (Imajima 1962; Uschkov and Wu 1979; Böggemann 2005). In this respect, Korean materials of the present study generally agree well with the description of *G. bonhourei* described by Böggemann (2005). On the other hand, Kore-

an materials of *G. bonhourei* show the minor differences as follows: Korean materials have only a pair of eyespots on the basal annulus of prostomium, while the materials described by Böggemann (2005) have a pair of eyespots each on both subdistal and basal annulus of the prostomium; Korean materials possess short and rounded dorsal cirri on the posterior segments, but the materials described by Böggemann (2005) possess slender and elongated ones.

Glycinde bonhourei is closely related to *G. kameruniana* Augener, 1918 reported from Cameroon in that the area II-1 on proboscis has unidentate papillae, the area V on proboscis possesses straightly conical papillae, and each parapodium has one neuropodial presetal lobe. However, *G. bonhourei* differs from *G. kameruniana* by the characteristic feature such that *G. bonhourei* has 4-16 dorsal micrognaths, while *G. kameruniana* has only four (Augener 1918; Böggemann 2005).

Habitat: This species was collected from the intertidal mud flat in the Yellow Sea of Korean waters.

World distribution: Korea, Japan, China (the Yellow Sea), Indian Ocean, the Red Sea, Mediterranean Sea, North Atlantic Ocean.

Deposition: NIBRIV0000307834.

Identifiers: Hyun Ki Choi, Seong Myeong Yoon.

ACKNOWLEDGEMENT

This work was supported by both research funds from Chosun University (2015) and the National Institute of Biological Resources (NIBR), the Ministry of Environment (MOE) of the Republic of Korea (NIBR NO. 2014-02-001).

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Received: 11 May 2015

Revised: 1 June 2015

Revision accepted: 1 June 2015