Acta Oceanol. Sin., 2018, Vol. 37, No. 10, P. 145–147
DOI: 10.1007/s13131-018-1312-3
http://www.hyxb.org.cn
E-mail: hyxbe@263.net

A new record of *Auchenoplax* Ehlers, 1887 (Polychaeta: Ampharetidae) from the East China Sea

SUI Jixing[1, 2], LI Xinzheng[1, 2, 3, 4*]

[1] Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China

[2] Center for Ocean Mega-Science, Chinese Academy of Sciences, Qingdao 266071, China

[3] University of Chinese Academy of Sciences, Beijing 100049, China

[4] Laboratory for Marine Biology and Biotechnology, Pilot National Laboratory for Marine Science and Technology (Qingdao), Qingdao 266237, China

Received 29 June 2017; accepted 10 February 2018

Abstract

A new record of the ampharetid genus *Auchenoplax*, *A. worsfoldi* Jirkov and Leontovich, 2013, is reported and described from the East China Sea. The specimens agree well with the original description of *Auchenoplax worsfoldi* with two pairs of branchiae, two thoracic uncinigers with enlarged neuropodia and 12 abdominal uncinigerous segments. The present specimens have long and filiform branchiae extending to thoracic chaetiger 9, which was not included in the original description. This is the first record of this species in Chinese waters.

Key words: polychaete, *Auchenoplax*, taxonomy, East China Sea

Citation: Sui Jixing, Li Xinzheng. 2018. A new record of *Auchenoplax* Ehlers, 1887 (Polychaeta: Ampharetidae) from the East China Sea. Acta Oceanologica Sinica, 37(10): 145–147, doi: 10.1007/s13131-018-1312-3

1 Introduction

Ampharetids are small to medium-sized, tubiculous worms which have a worldwide marine distribution from the intertidal to the deep sea (Jirkov, 2011). Ampharetidae comprises approximately 230 species distributed among 62 genera, 34 of them monotypic (Read, 2017). The genus *Auchenoplax*, erected by Ehlers (1887) for *Auchenoplax crinita*, is characterized by two pairs of branchiae and modified (enlarged and moved ventrally) neuropodia of first two thoracic uncinigers. Jirkov and Leontovich (2013) rechecked the holotype of *Auchenoplax crinita* and amended the generic diagnosis, including the new observation that the thorax of *Auchenoplax crinita* is sharply subdivided into two regions. The genus currently includes four valid species: *A. andamana* Holthe, 2002 in Thailand; *A. crinita* Ehlers, 1887 in the Caribbean; *A. mesos* Hutchings, 1977 in Australia and *A. worsfoldi* Jirkov and Leontovich, 2013 in the Bay of Biscay. *Auchenoplax rullieri* Holthe, 1986 was considered an invalid species because of the brief description (Jirkov and Leontovich, 2013).

While sorting materials of Ampharetidae deposited in the Marine Biological Museum of the Chinese Academy of Sciences (MBMCAS), some *Auchenoplax* specimens were found and identified as *A. worsfoldi*. This is the first record of this species in Chinese waters.

2 Materials and methods

Most materials were collected from the East China Sea (ECS) during the "National Comprehensive Oceanography Survey" (NCOS, 1958–1960) and the "Investigation of Oil Pollution in the East China Sea" (1975–1976). All the materials were deposited in MBMCAS. The specimens were examined and photographed with Nikon AZ100 stereomicroscope and KYKY-2800B scanning electron microscope (SEM). Specimens examined by SEM were critical-point dried, coated with gold, and observed with a secondary electron detector.

3 Systematics

Family Ampharetidae Malmgren, 1866

Genus *Auchenoplax* Ehlers, 1887

Type species: *Auchenoplax crinita* Ehlers, 1887

Generic diagnosis (amended by Jirkov and Leontovich, 2013)

Prostomium without dorsal glandular ridges. Buccal tentacles smooth with a groove along one side. Two pairs of branchiae. Thorax distinctly subdivided into two regions: anterior segments (up to thoracic chaetiger 9) several times shorter than those of posterior ones. Neuropodia of thoracic unciniger 1 and/or 2 enlarged and displaced ventrally. Notopodia of posterior thoracic unciniger slightly displaced and connected by more or less developed transverse dorsal ridges.

Auchenoplax worsfoldi Jirkov and Leontovich, 2013 (Figs 1 and 2)

Type material. MBM190036, ECS (30°25′35″N, 125°00′00″E), 64 m, sand and mud, September 19, 1976, collector (col.) Tang and Xu; MBM190037, 3 specimens (spec.), ECS, 60 m, sand and mud, September 10, 1976, col. Tang and Xu; MBM190038, 3 spec., ECS, 64 m, sand and mud, September 19, 1976, col. Tang and Xu; MBM001817, 1 spec., ECS (30°00′00″N, 123°30′00″E), 57 m, sand and mud, Febtember 2, 1959; MBM190039, 2 spec., ECS, 60 m, sand and mud, September 20, 1976, col. Tang and Xu; MBM190040, 3 spec., ECS, 63 m, sand and mud, September 19,

Foundation item: The National Natural Science Foundation of China under contract No. 31872194; the Scientific and Technological Innovation Project financially supported by the Pilot National Laboratory for Marine Science and Technology (Qingdao) under contract No. 2015ASKJ01.

*Corresponding author, E-mail: lixzh@qdio.ac.cn

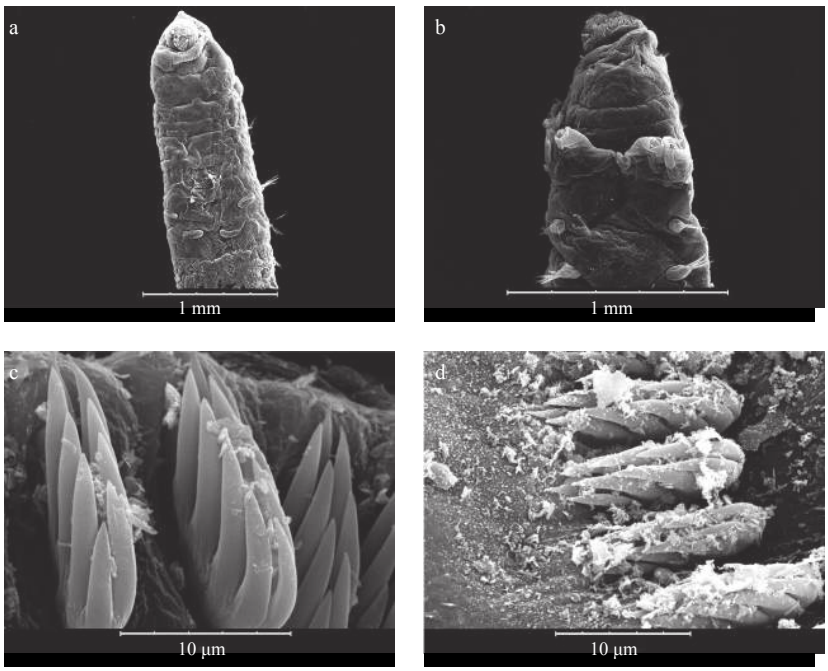

Fig. 1. *Auchenoplax worsfoldi* Jirkov and Leontovich, 2013. MBM190039 (a, c and d); MBM190040 (b). a. Anterior end, dorsal view; b. anterior end, ventral view; c. thoracic uncinus; and d. abdominal uncinus.

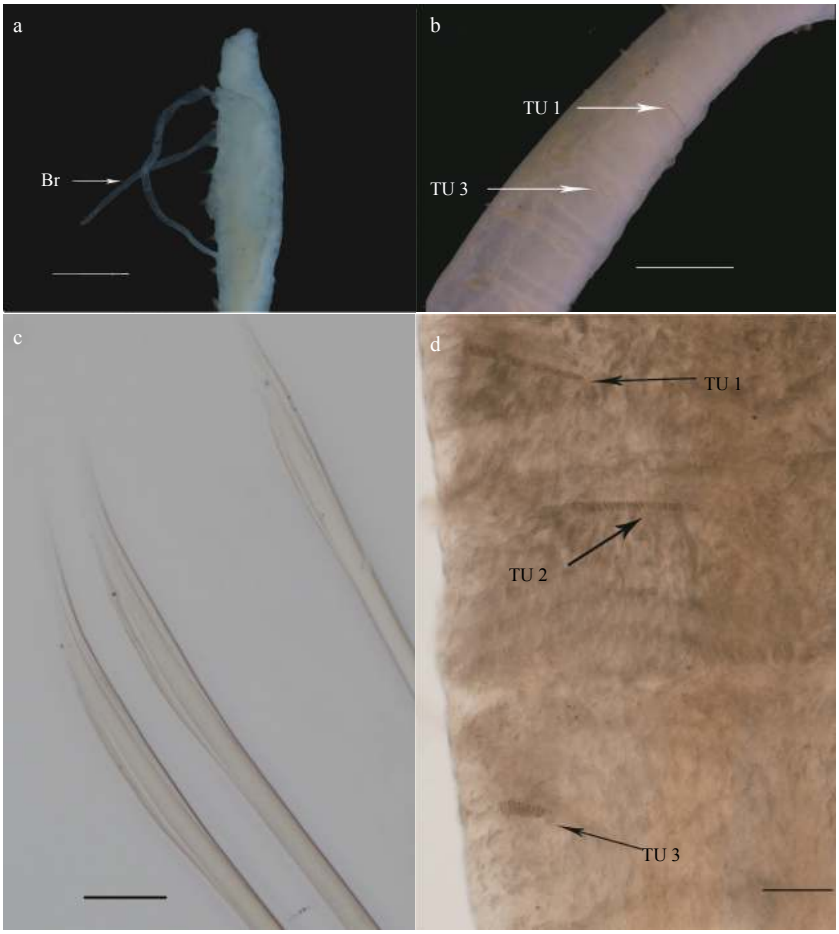

Fig. 2. *Auchenoplax worsfoldi* Jirkov and Leontovich, 2013. MBM190036 (a and c); MBM190037 (b and d). a. Anterior end, lateral view; and b. thoracic segments, lateral view. Br represents branchiae and TU thoracic uciniger. Scale bars: 1 mm (a and b), 200 μm (c) and 100 μm (d).

1976, col. Tang and Qi; MBM190041, 7 spec., ECS, 60 m, sand and mud, September 19, 1976, col. Tang and Xu; MBM190042, 1 spec., ECS, 60 m, sand and mud, June 21, 1976, col. Tang and Xu; MBM001850, 1 spec., ECS (30°30′00″N, 123°30′00″E), 61 m, sand and mud, April 8, 1959.

Description. MBM190036. Specimen complete, about 24 mm long, 1 mm wide without chaetae. Thorax and abdomen well defined. Tube made of sand with some embedded shell fragments. Colour in alcohol pale yellow.

Prostomium acute, triangular, fused with peristomium, without dorsal longitudinal ridges or transverse nuchal grooves (Fig. 1a). Buccal tentacles few, smooth, with narrow vertical grooves. Eye spots absent. First segment achaetous. Paleae and post branchial hooks absent. Two pairs of branchiae in close lateral groups widely apart, base of inner pair branchiae connected by high dermal fold, forming high transverse ridge ventrally (Fig. 1b). Branchiae long, filiform, reaching back to thoracic chaetiger 9 (Fig. 2a). Innermost branchiae originating from Segment II, outermost branchiae originating from Segment III.

Notopodia begin on Segment III, present in 14 segments. Notopodia well-developed, conical, bearing bundle of winged capillary chaetae (Fig. 2c). Notopodia and capillaries of third to fifth segments increasing gradually in size. Neuropodial uncini begin on third chaetiger and present in 12 thoracic segments. Thorax sharply subdivided into two regions. Segments of anterior region (up to thoracic chaetiger 9) several times shorter than those of posterior region. First row of uncini slightly displaced ventrally but second row almost mid-ventral in position. Neuropodia of first two thoracic uncinigers enlarged. Rows of uncini in these two segments approximately 3 times as long as those in other thoracic chaetigers (Figs 2b, d).

Neuropodia of thoracic uncinigers and first two abdominal uncinigers tori, without dorsal cirrus; neuropodia of other abdominal uncinigerous pinnules. Continuous ventral shields present to approximately thoracic unciniger 7. Elevated or modified notopodia absent. 12 abdominal uncinigerous segments, without rudimentary notopodia. All uncini with two rows of 4–5 teeth (Figs 1c, d). Pygidium with pair of lobes.

Distribution. Bay of Biscay; probably other reports from East Atlantic: west Africa (Fauvel, 1932; Kirkergaard, 1959; Intès and Le Loeuff, 1977, 1984), Meditteranean (Laubier, 1966; Cocito et al., 1990) and Atlantic Iberian Peninsula (Gil and Sardà, 1999; Parapar and Moreira, 2009) also belong to this species (Jirkov, 2011); East China Sea (7–103 m).

Variation. The specimens are very slim (less than 1 mm) and long (up to 32 mm). One specimen remains two branchiae in one side, long, filiform, reaching back to thoracic chaetiger 9. Branchiae of the other specimens are lost. Rows of uncini on TU1 and TU2 approximately 3–4 times as long as those in the posterior thoracic chaetigers.

Remarks. Four species have been reported in the genus *Auchenoplax*. Our specimens agree with the description of *Auchenoplax worsfoldi* with two pairs of branchiae, two thoracic uncinigers with enlarged neuropodia and 12 abdominal uncinigerous segments. However, the original description did not mention the characteristic of the branchiae. The present specimens have long and filiform branchiae extending to thoracic chaetiger 9. The type specimens of *Auchenoplax worsfoldi* were collected from the Aquitaine Basin, Bay of Biscay (110 m). This is the first record of this species in the East China Sea. A key to all species of *Auchenoplax* is provided below.

Key to *Auchenoplax* species

1. Two modified neuropodia on thorax.....2
– One modified neuropodia.....3
2. 14 abdominal uncinigers..... *A. crinita* Ehlers, 1887
– 12 abdominal uncinigers..... *A. worsfoldi* Jirkov and Leontovich, 2013
3. First neuropodia modified..... *A. andamana* Holthe, 2002
– Second neuropodia modified..... *A. mesos* Hutchings, 1977

Acknowledgments

The authors thank I. A. Jirkov (Department of Hydrobiology, Biological Faculty, Moscow State University, Moscow, Russia) for providing us important references, Liu Wei, Kou Qi and Gan Zhibin (IOCAS) for their help with photography, and the managers of the MBMCAS for their help with specimens sorting.

References

Cocito S, Fanucci S, Niccolai I, et al. 1990. Relationships between trophic organization of benthic communities and organic matter content in Tyrrhenian Sea sediments. Hydrobiologia, 207: 53–70

Ehlers E. 1887. Reports on the results of dredging, under the direction of L. F. Pourtalès, during the years 1868–1870, and of Alexander Agassiz, in the Gulf of Mexico (1877–78), and in the Caribbean Sea (1878–79), in the U.S. Coast Survey steamer "Blake", Lieut-Com. C. D. Sigsbee, U.S.N. and Commander J. R. Bartlett, U.S.N., commanding. XXXI. Report on the Annelids. Memoirs of the Museum of Comparative Zoology at Harvard College, 15: 1–335

Fauvel P. 1932. Annélides Polychètes provenant des campagnes de l'Hirondelie Ⅱ (1911–1915). Resultats des campagnes scientifiques accompiles sur son yacht par Albert Ier Prince Souverain de Monaco, 85: 1–50

Gil J, Sardà R. 1999. New records of Annelida Polychaeta for the Portuguese fauna (with comments on some already known species). Arquivos do Museu Bocage, 3(19): 287–336

Holthe T. 1986. Evolution, systematics, and distribution of the Polychaeta Terebellomorpha, with a catalogue of the taxa and a bibliography. Gunneria, 55: 1–236

Holthe T. 2002. One new genus and three new species of the Ampharetidae (Polychaeta: Terebellidae) from the BIOSHELF Project. Phuket Marine Biological Center Special Publication, 24: 343–351

Hutchings P. 1977. Terebelliform Polychaeta of the families Ampharetidae, Terebellidae and Trichobranchidae from Australia, chiefly from Moreton Bay, Queensland. Records of the Australian Museum, 31(1): 1–38

Intès A, Le Loeuff P. 1977. Les annélids polychètes de Côte d'Ivoire: II. Polychètes sedentaires-compterend systématique. Cah. O. R. S. T. O. M., ser. Océanographie, 15(3): 267–321

Intès A, Le Loeuff P. 1984. Les annélids polychètes de Côte d'Ivoire. Océanographie Tropicale, 19: 3–24

Jirkov I A. 2011. Discussion of taxonomic characters and classification of Ampharetidae (Polychaeta). Italian Journal of Zoology, 78: 78–94

Jirkov I A, Leontovitch M K. 2013. Identification keys for Terebellomorpha (Polychaeta) of the eastern Atlantic and the North Polar basin. Invertebrate Zoology, 10(2): 217–243

Kirkergaard J B. 1959. The polychaeta of West Africa: Part I. Sedentary species. Atlantide Report, 5: 7–117

Laubier L. 1966. Decouverte d'une annélid polychète nouvelle en Mediterranée Occidentale: Auchenoplax crinite Ehlers, 1887. Documents Faunistiques et Écologiques. Vie et Milieu, 17: 438–440

Parapar J, Moreira J. 2009. Polychaeta of the "DIVA-Artabria I" project (cruise 2002) in the continental shelf and upper slope off Galicia (NW Spain). Cahiers De Biologie Marine, 50: 57–78

Read G. 2017. Ampharetidae Malmgren, 1866. In: Read G, Fauchald K, eds. World Polychaeta database. World Register of Marine Species. http://www.marinespecies.org/aphia.php?p=taxdetails&id981 [2017–04–24]