List of Amphipod Type Specimens Relocated in the Collection of the National Museum of Nature and Science, Tsukuba, Japan

Hiroshi Morino

Department of Zoology, National Museum of Nature and Science, 4–1–1 Amakubo, Tsukuba, Ibaraki 305–0005, Japan E-mail: morino631@gmail.com

(Received 21 January 2019; accepted 27 March 2019)

Abstract Type specimens of amphipod crustaceans, originally deposited in the collection of the Department of Biology, Ibaraki University, Japan, were recently transferred to the National Museum of Nature and Science, Tsukuba. The details of each type are compiled with the newly allotted register numbers, to help locate these types in future studies.

Key words: Amphipoda, Ibaraki University, type specimens

Introduction

Amphipod specimens collected, or donated from colleagues, and studied by the author had been deposited in the collection of the Department of Biology, Ibaraki University, Japan. In accordance with his move from the University to the National Museum of Nature and Science, Tsukuba, most of these specimens including types were transferred to the Museum. In this paper, the detail information on these type specimens with register numbers allotted from the Museum (NSMT-Cr-) are compiled for each species. The non-type specimens treated in the "Material Examined" in pertinent papers are also included, noted as "Additional specimens examined". For specimens other than treated here, consult the depository data base of the Museum.

Family Anisogammaridae Bousfield, 1977 *Jesogammarus paucisetulosus* Morino, 1984

Holotype: NSMT-Cr 25892 (Morino number F1263-1), male 7.7 mm; body in a tube, parts on 11 slides; Bunkyo, Mito, Ibaraki Prefecture, Japan (36°24′19″N, 140°26′37″E); 6 Jun. 1983; H. Morino collect. Allotype: NSMT-Cr 25893

(F1263-2), ovigerous female 6.5 mm; body in a tube, parts on 6 slides; other data as holotype. Paratype: NSMT-Cr 25894 (F1263-3), male 8.3 mm, body in a tube, parts on 5 slides; other data as holotype.

Additional specimens examined: NSMT-Cr 25896 (F25-1), male 8.8 mm; body in a tube, parts on 10 slides; Yunohira, Kuji-gun, Ibaraki Prefecture, Japan (ca 36°43′N, ca140°31′E); 11 Apr. 1978; H. Morino collect. NSMT-Cr 25897 (F25-2), ovigerous female 7.7 mm; body in a tube, parts on 9 slides; other data as the preceding specimen. NSMT-Cr 25901 (F8-1), male 9.0 mm; body in a tube, parts on 10 slides; Ajigaura, Katsuta (now Hitachi-naka), Ibaraki Prefecture, Japan (36°24′36″N, 140°36′3″E); 8 Aug. 1977; T. Imamura coll. NSMT-Cr 25899 (F12-1); male 9.0 mm, body in a tube, parts on 2 slides; locality as the preceding specimen; 19 Sept. 1983; H. Morino collect.

Jesogammarus (Jesogammarus) spinopalpus Morino, 1985

Holotype: NSMT-Cr 25905 (F104-3), male 12.0 mm; body in a tube, parts on 8 slides; Mizuhara-suohzaki, Lake Kitaura, Ibaraki Prefecture,

40 H. Morino

Japan (35°58′50″N, 140°35′20″E); 6 Mar. 1984; H. Morino collect. Allotype: NSMT-Cr 25906 (F104-4), ovigerous female 12.0 mm; body in a tube, parts on 8 slides; other data as holotype.

Additional specimens examined: NSMT-Cr 25907 (F104-1), male 13.0 mm; body in a tube, parts on 8 slides; other data as holotype. NSMT-Cr 25908 (F104-2), ovigerous female 10.9 mm; body in a tube, parts on 7 slides; other data as holotype. NSMT-Cr 25909 (F103-1), male 14.0 mm; body in a tube, pats on 7 slides; Mizudori-no-numa pond (Institute for Nature Study, National Museum of Nature and Science), Meguro, Tokyo, Japan (35°38′13″N, 139°43′4″E); 9 Mar. 1984; H. Morino collect. NSMT-Cr 25910 (F103-2), ovigerous female 14.4 mm; body in a tube, parts on 10 slides; other data as the preceding specimen.

Jesogammarus (Jesogammarus) hinumensis Morino, 1993

Holotype: NSMT-Cr 25913 (F101-3), male 15.6 mm; body in a tube, parts on 6 slides; Kohyama, Lake Hinuma, Ibaraki Prefecture, Japan (36°17′34″N, 140°32′3″E); 3 Mar. 1984; H. Morino collect. Allotype: NSMT-Cr 25912 (F101-2), ovigerous female 14.4 mm; body in a tube, parts on 6 slides; other data as holotype. Paratypes: NSMT-Cr 25911 (F101-1), male 17.4 mm, body in a tube, parts on 5 slides; other data as holotype. NSMT-Cr 25914 (F101-4), ovigerous female 15.2 mm; body in a tube, parts on 6 slides; other data as holotype.

Additional specimens examined: NSMT-Cr 25916 (F188-1), male 16.0 mm; body in a tube, parts on 3 slides; estuary of Yokokawa River, a tributary of Natui River, Iwaki, Fukushima Prefecture, Japan (37°3′38″N, 140°58′24″E); 10 Jan. 1987; H. Morino and M. Kyono collect. NSMT-Cr 25917 (F188-2), ovigerous female 12.5 mm; body in a tube, parts on 3 slides; other data as the preceding specimen. NSMT-Cr 25919 (F189-1), male 14.5 mm; body in a tube, parts on 3 slides; estuary of Ohkita River, Kita-ibaraki, Ibaraki Prefecture, Japan (36°47′32″N, 140°45′5″E); 10

Jan. 1987; H. Morino and M. Kyono collect. NSMT-Cr 25920 (F189-2), ovigerous female 13.0 mm; body in a tube, parts on 3 slides; other data as the preceding specimen. NSMT-Cr 25922 (F412-1), male 16.0 mm; body in a tube, parts on 2 slides; estuary of Unosumai River, Kamaishi, Iwate Prefecture, Japan (39°19'44"N, 141°53'40"E); 23 Apr. 1991; H. Morino collect. NSMT-Cr 25923 (F412-2), ovigerous female 13.5 mm; body in a tube, parts on 3 slides; other data as the preceding specimen. NSMT-Cr 25925 (F413-1), male 16.0 mm; body in a tube, parts on 3 slides; estuary of Orikasa River, Yamadacho, Iwate Prefecture, Japan (39°26′53"N, 141°57′25″E); 23 Apr. 1991; H. Morino collect. NSMT-Cr 25926 (F413-2), female 13.5 mm; body in a tube, parts on 3 slides; other data as the preceding specimen. NSMT-Cr 25928 (F537-1), male 12.5 mm; body in a tube, parts on 2 slides; Lake Minatsuki, Mikata-gun, Fukui Prefecture, Japan: H. Kusano collect. NSMT-Cr 25929 F537-2), ovigerous female 12.0 mm; body in a tube, parts on 2 slides; other data as the preceding specimen. NSMT-Cr 25931 (F542-1), male 10.8 mm; body in a tube, parts on 3 slides; estuary of Kuwano River (Sumiyoshi-bashi), Ananshi, Tokushima Prefecture, Japan (33°55′51″N, 134°40′19″E); 3 Dec. 1991; Y. Furuya collect.

Jesogammarus (Jesogammarus) hokurikuensis Morino, 1985

Holotype: NSMT-Cr 25937 (F1-1), male 12.0 mm; body in a tube, parts on 13 slides; Omori (Shimizu-cho), Niu-gun, Fukui Prefecture, Japan (ca 36°1′N, ca 136°8′E); 26 Sept. 1983; H. Morino collect. Allotype: NSMT-Cr 25940 (F121), ovigerous female 10.2 mm; body in a tube, parts on 12 slides; locality as holotype, 12 May 1984; H. Miyamoto collect.

Additional specimen examined: NSMT-Cr 25938 (F1-2), immature (not sexed) 10.5 mm; body parts on 13 slides; other data as holotype.

Jesogammarus (Annanogammarus) naritai Morino, 1985

Holotype: NSMT-Cr 25968 (F99-1), male 9.0 mm; body in a tube, parts on 11 slides; Sugaura, Lake Biwa, Shiga Prefecture, Japan (ca 35°27′N, ca 136°8′E); 25 Jan. 1984; T. Narita collect. Allotype: NSMT-Cr 25969 (F99-2), ovigerous female 9.5 mm; body in a tube, parts on 7 slides; other data as holotype.

Additional specimen examined (part): NSMT-Cr 25970 (F99-3), male 8.8 mm; body in a tube, parts on 2 slides; other data as holotype.

Jesogammarus (Annanogammarus) fluvialis Morino, 1985

Holotype: NSMT-Cr 25977 (F110-1), male 8.9 mm; body in a tube, parts in 7 slides; Samegai (Experimental Fisheries Station), Shiga Prefecture, Japan (ca 35°18′N, ca 131°19′E); 29 Mar. 1984; H. Morino collect. Allotype: NSMT-Cr 25980 (F110-4), ovigerous female 7.2 mm; body in a tube, parts on 7 slides; other data as holotype.

Additional specimens examined: NSMT-Cr 25978 (F110-2), male 8.5 mm; body in a tube, parts on 7 slides; other data as holotype. NSMT-Cr 25979 (F110-3), male 8.8 mm; body in a tube, parts on 9 slides; other data as holotype. NSMT-Cr 25982 (F89-1), male 9.2 mm; body in a tube, parts on 9 slides; Inukami River, Kaide-ima cho, Shiga Prefecture (ca 35°15′N, ca 136°15′E); 6 Apr. 1974; T. Narita collect. NSMT-Cr 25983 (F89-2), female 9.5 mm; body in a tube, parts on 8 slides; other data as the preceding specimen. NSMT-Cr 25984 (F89-3), male 9.1 mm; body in a tube, parts on 7 slides; other data as the preceding specimen.

Jesogammarus (Annanogammarus) suwaensis Morino, 1986

Holotype: NSMT-Cr 25989 (F171-1), male 12.1 mm; body in a tube, parts on 5 slides; Lake Suwa, Nagano Prefecture, Japan (ca 36°03'N, ca

138°05′E); 14 Dec. 1985; H. Morino collect. Allotype: NSMT-Cr 25990 (F171-2), ovigerous female 12.2 mm; body in a tube, parts on 4 slides; other data as holotype. Paratypes: NSMT-Cr 25991(F171-3), ovigerous female 11.4 mm; body in a tube, parts on 4 slides; other data as holotype. NSMT-Cr 25992 (F171-4), male 11.4 mm; body in a tube, parts on 2 slides; other data as holotype. NSMT-Cr 25994 (F96-1), male 10.0 mm; body in a tube, parts on 7 slides; locality as holotype; 18 May 1977; M. Nishino collect. NSMT-Cr 25995 (F96-2), male; body in a tube, parts on 1 slide; other data as the preceding specimen.

Family Gammaridae Leach, 1814 Gammarus jacksoni Morino and Whitman, 1995

Holotype: NSMT-Cr 26023 (1-1), male 12.0 mm, body in a tube; Pryamoy Spring, Annanyevka River basin, Khasanskiy district, Rrimorye, Russia; 18 Jul. 1993; J. S. Whitman collect. Allotype: NSMT-Cr 26024 (1-2), ovigerous female 12.0 mm, body in a tube; other data as holotype.

Additional specimens examined: NSMT-Cr 26025 (1-3), 7 males and 5 females in a bottle; other data as holotype. NSMT-Cr 26026 (2-3), 6 males and 5 females in a bottle; Khabaniy Spring, Annanevka River basin, Khasanskiy district, Rrimorye, Russia; other data as holotype.

Family Melitidae Bousfield, 1973 Victoriopisa ryukyuensis Morino, 1991

Holotype: NSMT-Cr 26003 (F421-1), ovigerous female 9.9 mm; body in a tube, parts on 2 slides; Awase, Okinawa Prefecture, Japan; 26 May 1990; Sh. Shokita collect. Allotype: NSMT-Cr 26004 (F421-2), male 11.0 mm; body in a tube, parts on 2 slides; other data as holotype. Paratype: NSMT-Cr 26005 (F421-3), male 8.0 mm; body in a tube, parts on 1 slide; other data as holotype.

42 H. Morino

Family Paracalliopiidae Barnard and Karaman, 1982

Paracalliope dichotomus Morino, 1991

Holotype: NSMT-Cr 26008 (F423-2), male 2.5 mm; boy in a tube; Shiokawa Salty Spring, Motobu Peninsula, Okinawa Prefecture, Japan (26°36′58″N, 127°53′42″E); 25 Aug. 1978; H. Morino collect. Paratypes: NSMT-Cr 26007 (F423-1), male 2.3 mm; body in a tube; other data as holotype. NSMT-Cr 26009 (F423-3), male 2.2 mm; body in a tube; other data as holotype.

Family Platyischnopidae Barnard and Drummond. 1979

Indischnopus redangi Othman and Morino, 1993

Paratype: NSMT-Cr 26013 (AM44-1), male 3.5 mm; body in a tube, parts on 2 slides; Palau Redang, Malaysia (5°47.8′N, 103°1.6′E); 13 Mar. 1991; B. H. R. Othman collect. NSMT-Cr 26014 (AM44-2), 7 specimens in a tube; other data as paratype.

Family Ischyroceridae Stebbing, 1899 Jassa morinoi Conlan, 1990

Holotype: NSMT-Cr 26015 (C-33-1-1), male 5.6 mm, parts on 1 slide; Bansho-no-hana Point, Tanabe Bay, Wakayama Prefecture, Japan (ca 33°42′N, ca 135°20′E); 17 Mar. 1971; H. Morino collect. Allotype: NSMT-Cr 26016 (C-33-1-2), ovigerous female 5.8 mm, parts on 1 slide; other data as holotype. Paratypes: NSMT-Cr 26017 (C-33-1-3), male 3.9 mm, parts on 1 slide; other data as holotype. NSMT-Cr 26018 (C-33-1-4), male 4.7 mm, parts on 1 slide; other data as holotype.

Family Talitridae Rafinesque, 1815 *Talorchestia palawanensis* Morino and Miyamoto, 1988

Holotype: NSMT-Cr 26030 (T370-3), male 11.0 mm; body in a tube, parts on 3 slides; San

Pedro, Puerto Princesa, Palawan Island, the Philippines (ca 9°50'N, ca 118°50'E); 29 Apr. 1980; J. Kojima collect. Allotype: NSMT-Cr 26031 (T370-4), female 9.5 mm; body in a tube, parts on 2 slides; other data as holotype. Paratypes: NSMT-Cr 26028 (T370-1), male 9.4 mm; body in a tube, parts on 6 slides; other data as holotype. NSMT-Cr 26029 (T370-2), female 8.0 mm; body in a tube, parts on 4 slides; other data as holotype. NSMT-Cr 26032 (T587-1), male 13.6 mm; body in a tube, parts on 2 slides; Thursday Island, Queensland, Australia (ca 10°20'S, ca 142°E); 11 Nov. 1982; H. Mukai collect. NSMT-Cr 26033 (T587-2), female 9.7 mm; body in a tube, parts on 3 slides; other data as the preceding specimen.

Acknowledgement

The author deeply thanks Dr H. Komatsu of the National Museum of Science and Nature, Tsukuba, for assisting all processes in this relocation. Dr J. Lowry of the Australian Museum kindly read and improved an earlier draft of the manuscript, to whom the author is indebted much.

References

Conlan, K. E. 1990. Revision of the crustacean amphipod genus *Jassa* Leach (Corophioidea: Ischyroceridae). Canadian Journal of Zoology, 68: 2031–2075.

Morino, H. 1984. On a new freshwater species of Anisogammaridae (Gammaroidea: Amphipoda) from central Japan. Publications of Itako Hydrobiological Station, 1 (1): 17–23.

Morino, H. 1985. Revisional studies on *Jesogammarus-Annanogammarus* group (Amphipoda: Gammmaroidea) with descriptions of four new species from Japan. Publications of Itako Hydrobiological Station, 2 (1): 9–55.

Morino, H. 1986. A new species of the subgenus *Annanogammarus* (Amphipoda: Anisogammaridae) from Lake Suwa, Japan. Publications of Itako Hydrobiological Station, 3: 1–11.

Morino, H. 1991. Gammaridean amphipods (Crustacea) from brackish waters of Okinawa Island. Publications of Itako Hydrobiological Station, 5: 13–26.

Morino, H. 1993. A new species of the genus Jesogamma-

- *rus* (Amphipoda: Anisogammaridae) from brackish waters of Japan. Publications of Itako Hydrobiological Station, 6: 9–16.
- Morino, H. and H. Miyamoto 1988. Redefinition of *Tal-orchestia* (Amphipoda: Talitridae) with description of a new species from the tropical west Pacific. Journal of Crustacean Biology, 8(1): 91–98.
- Morino, H. and N. Whitman 1995. A new species of the
- genus *Gammarus* (Crustacea: Amphipoda) from freshwaters of Russian Far East. Publications of Itako Hydrobiological Station, 8: 27–36.
- Othman, B. H. R. and H. Morino 1996. A new species of the genus *Indischnopus* from Malaysia (Crustacea, Amphipoda, Platyischnopidae). Bollettino del Museo civico di Storia naturale di Verona, 20: 105–115.