

Two New Species of *Cossura* (Polychaeta, Cossuridae) from Western Japan

By

Kyoichi TAMAI

Nansei Regional Fisheries Research Laboratory, Kochi, Japan.

(Communicated by Minoru IMAJIMA)

Abstract Two new species of the genus *Cossura* from western Japan are described under the names of *C. lepida* and *C. duplex*. *C. lepida* closely resembles *C. pygodactilata* JONES, 1956 in the form of the pygidium; however, *C. lepida* differs from the latter in the number of peristomial segments and uniramous segments. *C. duplex* is unique in having biannulated anterior segments, three short anal cirri and flattened neurosetae with abrupt tapered tips.

The cossurids are small, fragile and threadlike worms. They are characterized in having a long, median tentacle on the dorsum of the anterior setiger. The family Cossuridae includes about 15 species belonging to two genera, *Cossura* WEBSTER et BENEDICT, 1887 and *Cossurella* HARTMAN, 1974. *Cossurella* is distinguished from *Cossura* in having an acicular spine in the noto- and neuropodia of the posterior body. *Heterocossura* WU and CHEN, 1977 was synonymized with *Cossurella* by GARDINER and WILSON (1977).

Cossura coasta KITAMORI, 1960 is the only cossurid species reported from the Japanese coast. In the present study, two new species of the genus *Cossura* are added to the Japanese fauna; they are clearly distinguished from *C. coasta* in the form of pygidium.

I would like to thank Dr. M. IMAJIMA, National Science Museum, Tokyo for his help in the survey of literature and his critical review of the manuscript and to Dr. T. MIURA, Ocean Research Institute, University of Tokyo for his useful advice and critical review of the manuscript. I also would like to thank Dr. K. FAUCHALD, National Museum of Natural History, Smithsonian Institution for his help in the survey of literature and to Dr. H. TAKANO, Tokai Regional Fisheries Research Laboratory for his advice on the zoological nomenclature.

Holotype specimens are deposited in the National Science Museum (NSMT), Tokyo, and paratype specimens are deposited in the National Science Museum, Tokyo, the United States National Museum of Natural History (USNM), Washington, D. C. and the British Museum of Natural History (ZB), London.

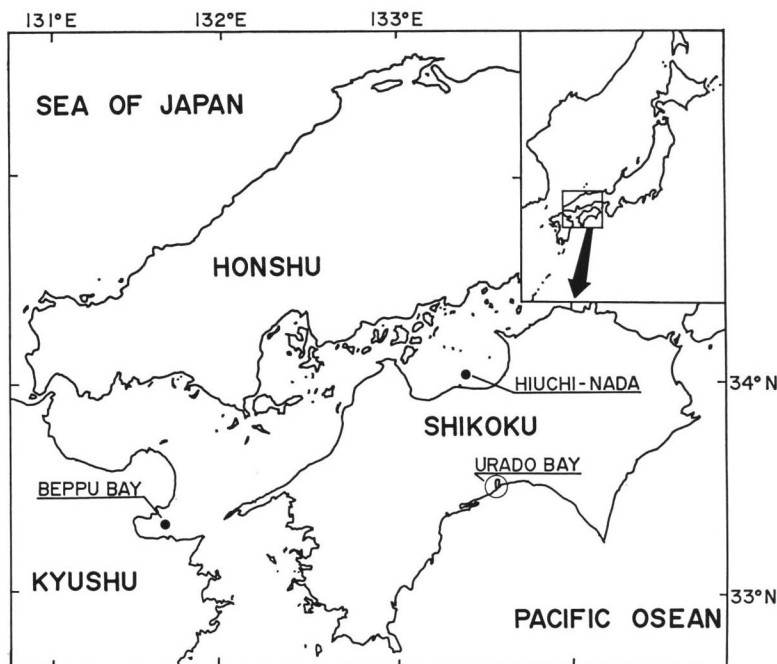


Fig. 1. Map of the sampling areas.

Family Cossuridae DAY, 1963

Genus *Cossura* WEBSTER et BENEDICT, 1887

Cossura lepida sp. nov.

(Fig. 2 a-n)

Material examined. Beppu Bay, Kyushu, 2m, muddy sand, Ekman-Birge grab, July 19, 1978 (holotype and 14 paratypes); Beppu Bay, 7–8 m, mud, Smith-McIntyre grab, Nov. 29, 1977 and Sept. 26, 1978; Urado Bay, Shikoku, 4–10 m, mud, Ekman-Birge grab, June 11, Sept. 2 and Dec. 18, 1985; Hiuchi-nada, Seto Inland Sea, 16–21 m, mud, Smith-McIntyre grab, May 27–28, 1979 and June 12, 1980.

Description. The holotype is a complete female and measures 12 mm long and 0.25 mm wide, consisting of 64 setigers. The prostomium is conical, without appendages or eyes, followed by two achaetous peristomial segments. The first parapodium is uniramous and others are biramous. A long, median tentacle is inserted near the posterior margin of setiger 2 (Fig. 2 a).

Setae are all simple capillaries which are slightly flattened and marginally covered with fine hairs; those of first 10 to 12 setigers arise from the anterior margin of each segment (Fig. 2 a) and are arranged in two vertical rows (Fig. 2 d). In these anterior

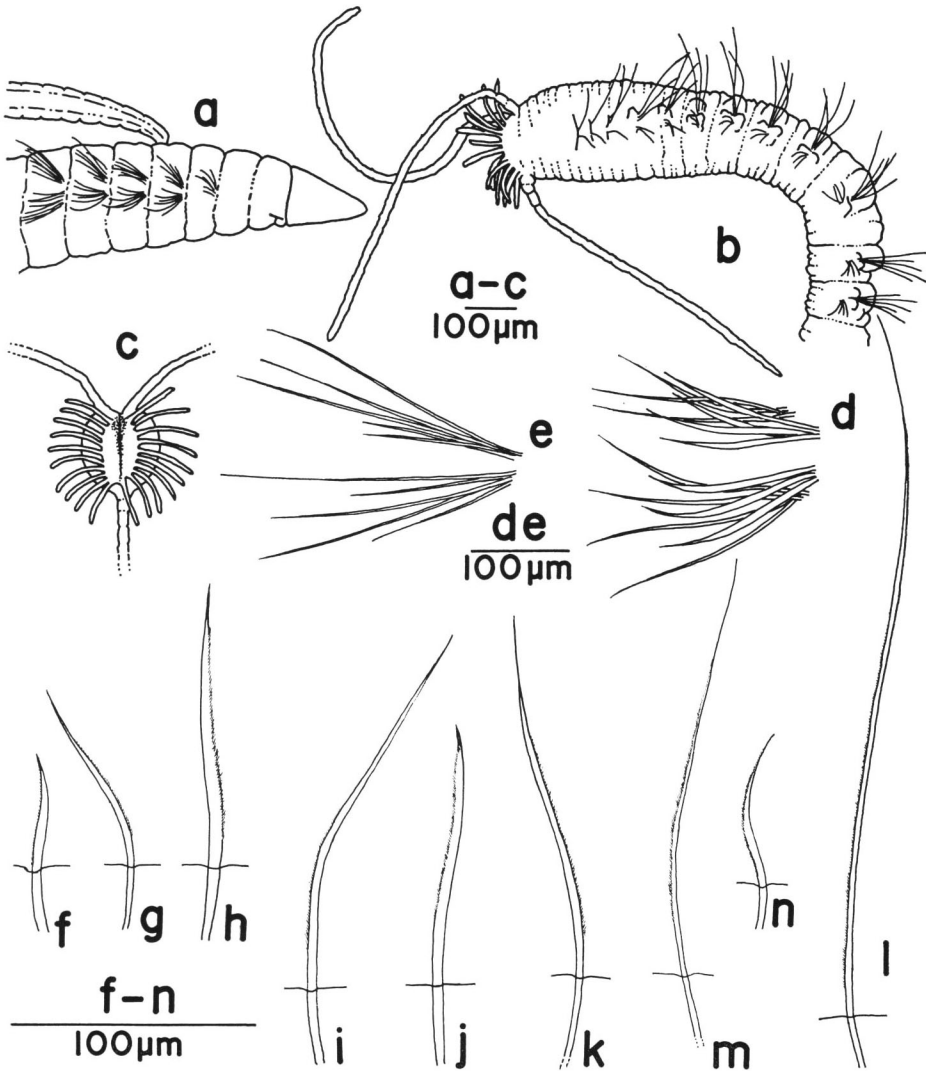


Fig. 2. *Cossura lepida* sp. nov. a, Anterior end, in lateral view; b, posterior end, in lateral view; c, pygidium, in posterior view; d, setiger 5, in anterior view; e, setiger 25; f, g, seta from setiger 1; h, seta in notopodial anterior row from setiger 5; i, capillary seta in notopodial posterior row from setiger 5; j, seta in neuropodial anterior row from setiger 5; k, capillary seta in neuropodial posterior row from setiger 5; l, notopodial capillary seta from setiger 19; m, notopodial capillary seta from the posterior setiger; n, neuropodial capillary seta from the posterior setiger.

setigers, the anterior row of each ramus consists of 3 to 4 slightly short, flattened capillaries (Fig. 2 f, h, j), and the posterior row has 3 to 4 long, slender capillaries (Fig. 2 g, i, k). Posterior to setiger 14, the setae are positioned in the median part of

each segment, but not arranged in rows (Fig. 2 e), and there are 3 to 7 long, slender capillaries in each ramus (Fig. 2 l). In the far posterior region, the neuropodial capillaries (Fig. 2 n) become shorter than the notopodial ones (Fig. 2 m).

The pygidium has 3 long anal cirri; two of them are arranged dorsolaterally and the third one midventrally (Fig. 2 b, c). In addition to these cirri, about 20 finger-like cirri are arranged dorsoventrally on both sides of the anus (Fig. 2 c).

Remarks. *Cossura lepida* closely resembles *C. pygodactilata* JONES, 1956 from San Francisco Bay, California in the form of the pygidium. However, *C. lepida* differs from the latter in having two peristomial segments, instead of one, and also in having one uniramous segment, instead of six. *C. lepida* also resembles *C. soyeri* LAUBIER, 1963 from the Mediterranean Sea in the number of peristomial segments, the number of uniramous segments and the location of the median tentacle. But *C. lepida* can be distinguished from the latter in having about 20 slender pygidial cirri, instead of 4 small papillae as described by GARDINER and WILSON (1977).

Type series. Holotype, NSMT-Pol. H228; 6 paratypes, NSMT-Pol. P229; 4 paratypes, USNM 099034; 4 paratypes, ZB 1986. 34-37.

Type locality. Beppu Bay, Kyushu, Japan. Subtidal muddy sand bottom.

Distribution. Shallow (2-21 m) mud and muddy sand bottoms of enclosed bay in western Japan.

Etymology. The specific name is derived from Latin, and it refers to the small body of this species.

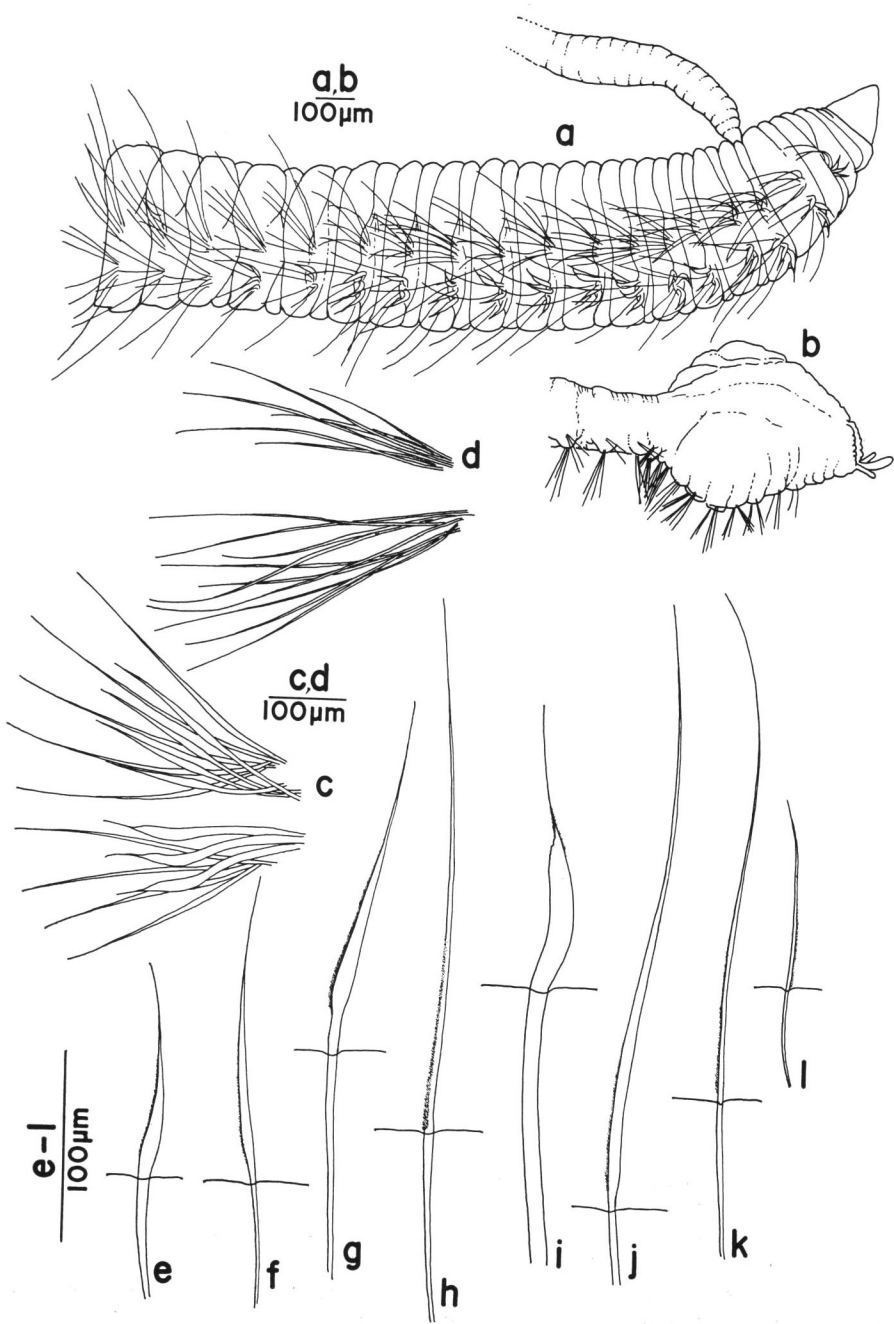
Cossura duplex sp. nov.

(Fig. 3 a-l)

Material examined. Beppu Bay, Kyushu, 8 m, mud, Smith-McIntyre grab, Nov. 29, 1977 (holotype and 41 paratypes); Urado Bay, Shikoku, 4-10 m, mud, Ekman-Birge grab, June 11, Sept. 2 and Dec. 18, 1985; Hiuchi-nada, Seto Inland Sea, 16 m, mud, Smith-McIntyre grab, May 27, 1979.

Description. The holotype is complete, but sexually indeterminate; it measures 22 mm long by 0.45 mm wide consisting of about 90 setigers. First 18 segments are biannulated. The prostomium is conical, without appendages or eyes, followed by two achaetous peristomial segments. The first parapodium is uniramous and all others are biramous. A long, median tentacle arises dorsally from the anterior margin of setiger 3 (Fig. 3 a).

Fig. 3. *Cossura duplex* sp. nov. a, Anterior end, in lateral view; b, posterior end, in dorsolateral view; c, setiger 9 in anterior view; d, setiger 22; e, f, seta from setiger 1; g, seta in notopodial anterior row from setiger 9; h, capillary seta in notopodial posterior row from setiger 9; i, flattened seta in neuropodial anterior row from setiger 9; j, capillary seta in neuropodial posterior row from setiger 9; k, notopodial capillary seta from setiger 22; l, notopodial capillary seta from the posterior setiger.



Setae are all simple, with fine hairs; those in first 13 to 14 setigers arise from the anterior margin of each segment (Fig. 3 a) in two vertical rows (Fig. 3 c). There are 5 to 8 setae in setiger 1; 2 to 4 of them are slightly short, flattened capillaries (Fig. 3 e) and the others are long, slender capillaries (Fig. 3 f). From setiger 2 to about setiger 15, the anterior row of notopodial fascicle consists of 3 to 4 slightly short, flattened capillaries (Fig. 3 g), and in neuropodia 2 to 3 short, flattened setae with abrupt tapered tips (Fig. 3 i). The posterior row in each ramus consists of 3 to 6 long, slender capillaries (Fig. 3 h, j). Posterior to about setiger 15, the setae arise from the middle of each segment (Fig. 3 a). The notosetae are still arranged in two rows but the neurosetae are arranged in a single row (Fig. 3 d). 4 to 10 long, slender capillaries are present in each ramus (Fig. 3 k). In the far posterior region, the setae all become slender capillaries (Fig. 3 l).

The pygidium has 3 short anal cirri located midventrally to the anus, of which the central one is a little larger and stouter than the two lateral ones (Fig. 3 b).

Remarks. *Cossura duplex* resembles *C. coasta* KITAMORI, 1960 from the Seto Inland Sea, Japan, *C. chilensis* HARTMANN-SCHRÖDER, 1965 from Chile, *C. rostrata* FAUCHALD, 1972 and *C. brunnea* FAUCHALD, 1972 both from western Mexico in the number of peristomial segments, the number of uniramous segments and the location of the median tentacle. *C. duplex*, however, is uniquely characterized by the fact in having the biannulated anterior segments, 3 short anal cirri and flattened neurosetae with abrupt tapered tips.

Type series. Holotype, NSMT-Pol. H230; 20 paratypes, NSMT-Pol. P231; 11 paratypes, USNM 099033; 10 paratypes, ZB 1986. 38–47.

Type locality. Beppu Bay, Kyushu, Japan. Shallow mud bottom.

Distribution. Shallow (4–16 m) and mud bottom of enclosed bay in western Japan.

Etymology. The specific name is derived from Latin, and it refers to the biannulated body of this species.

Literature Cited

- BANSE, K., 1981. On some Cossuridae and Maldanidae (Polychaeta) from Washington and British Columbia. *Can. J. Fish. Aquat. Sci.*, **38**: 633–637.
- BERKELEY, E. & C. BERKELEY, 1956. Notes on Polychaeta from the east coast of Vancouver Island and from adjacent waters, with a description of a new species of *Aricidea*. *J. Fish. Res. Bd. Canada*, **13**: 541–546.
- DAY, J. H., 1967. A monograph on the Polychaeta of southern Africa. Part 2. Sedentaria. *Brit. Mus. (Nat. Hist.)*: 459–878.
- FAUCHALD, K., 1972. Benthic polychaetous annelids from deep water off western Mexico and adjacent areas in the eastern Pacific Ocean. *Allan Hancock Monogr. mar. biol.*, **7**: 1–575.
- GARDINER, S. L. & W. H. WILSON, 1977. New records of polychaete annelids from North Carolina with the description of a new species of *Sphaerosyllis* (Syllidae). *J. Elisha Mitchell Sci. Soc.*, **93**: 159–172.
- HARTMAN, O., 1955. Endemism in the North Pacific Ocean, with emphasis on the distribution of

- marine annelids, and description of new or little known species. Essays in the Natural Sciences in Honor of Captain Allan Hancock, 39–60.
- 1959. Catalogue of the polychaetous annelids of the world, Part II. *Allan Hancock Found. Occas. Pap.*, **23**: 355–628.
- 1969. Atlas of the sedentariate polychaetous annelids from California. Allan Hancock Found., Univ. South Calif., Los Angeles, 1–812.
- 1974. Polychaetous annelids of the Indian Ocean including an account of species collected by members of the International Indian Ocean Expeditions, 1963–'64 and a catalogue and bibliography of the species from India. *J. mar. biol. Ass. Ind.*, **16**: 191–252.
- HARTMANN-SCHRÖDER, G., 1962. Zweiter Beitrag zur Polychaetenfauna von Peru. *Kieler Meeresforschungen*, **18**: 109–147.
- 1965. Zur Kenntnis des Sublitorals der chilenischen Küste unter besonderer Berücksichtigung der Polychaeten und Ostracoden. (Mit Bemerkungen über den Einfluss sauerstoffarmer Strömungen auf die Besiedlung von marinen Sedimenten). *Mitt. Hamburg. Zool. Mus. Inst.*, Suppl., **62**: 59–305.
- JONES, M. L., 1956. *Cossura pygodactylata*, a new annelid from San Francisco Bay (Polychaeta: Cirratulidae). *J. Washington Acad. Sci.*, **46**: 127–130.
- KITAMORI, R., 1960. Two new species of cirratulid and Nephtydidae (Annelida: Polychaeta). *Bull. Jap. Soc. Sci. Fish.*, **26**: 1082–1085.
- LAUBIER, L., 1963. Découverte du genre *Cossura* (polychète, Cossuridae) en Méditerranée: *Cossura soyeri* sp. n.. *Vie Milieu*, **14**: 833–842.
- REISH, D. J., 1958. Description of a new species of *Cossura* (Annelida: Polychaeta) from the Mississippi Delta. *J. Washington Acad. Sci.*, **48**: 53–55.
- WEBSTER, H. E. & J. E. BENEDICT, 1887. The Annelida Chaetopoda from Eastport, Maine. *U. S. Fish. Comm., Rpt. for 1885*: 707–755.
- WU, B. & M. CHEN, 1977. *Heterocossura*, a new genus of the Cossuridae (Polychaeta: Sedentaria). *Acta zool. sin.*, **23**: 97–101.

