

## Occurrence of *Branchiomaldane simplex* (Polychaeta, Arenicolidae) from Hokkaido, Japan

By

Minoru IMAJIMA

Department of Zoology, National Science Museum, Tokyo

**Abstract** *Branchiomaldane simplex* (family Arenicolidae) was collected from a *Zostera* bed in the intertidal zone, Erimo, Hokkaido. The body is slender and cylindrical with 48 setigers in the largest individual. Branchiae are mostly single, digitate filaments, but some are bifid. Each dorsal setal fascicle has two types of capillary setae and each neuropod has one type of uncini; uncini are examined by SEM.

IMAJIMA and HARTMAN (1964) described three species or subspecies of Arenicolidae from Japan: *Arenicola brasiliensis* NONATO, 1958, *Abarenicola pacifica* HEALY et WELLS, 1959, and *A. vagabunda oceanica* HEALY et WELLS, 1959. In 1970, eight individuals of *Branchiomaldane simplex* (BERKELEY et BERKELEY, 1932) were collected from Erimo, Hokkaido (Fig. 1).

This species was described from the west coast of Vancouver Island, British Columbia, by BERKELEY and BERKELEY (1932), as *Protocapitella simplex*. It was placed in the family Capitellidae because of a strong resemblance in general body size and segmentation, and a more superficial similarity in the structure of the setae and uncini. HARTMAN (1947) noted wide departures from other capitellid features, particularly the presence of both hooks and capillary setae on all setigers. Both BERKELEY and BERKELEY (1950) and HARTMAN and REISH (1950) synonymized *P. simplex* with the aberrant arenicolid *Branchiomaldane vincenti* LANGERHANS, 1881. *Branchiomaldane* was revised by FOURNIER and BARRIE (1987) and *B. simplex* shown to be a valid species.

The author wishes to express his thanks to Judith A. FOURNIER, National Museums of Canada, Ottawa, Ontario for critically reading the manuscript.

*Branchiomaldane* LANGERHANS, 1881

*Branchiomaldane simplex* (BERKELEY et BERKELEY, 1932)

(Figs. 2 a–m; 3 a, b)

*Protocapitella simplex* BERKELEY et BERKELEY, 1932, pp. 669–670, figs. 1–3; HARTMAN, 1947, pp. 440–441, pl. 57, figs. 3–4.

*Branchiomaldane vincenti*: BERKELEY & BERKELEY, 1950, p. 60; 1952, pp. 99–100, figs. 203–205 (not LANGERHANS, 1881).

*Branchiomaldane simplex*: FOURNIER & BARRIE, 1987, pp. 101–103, fig. 2 a–f.

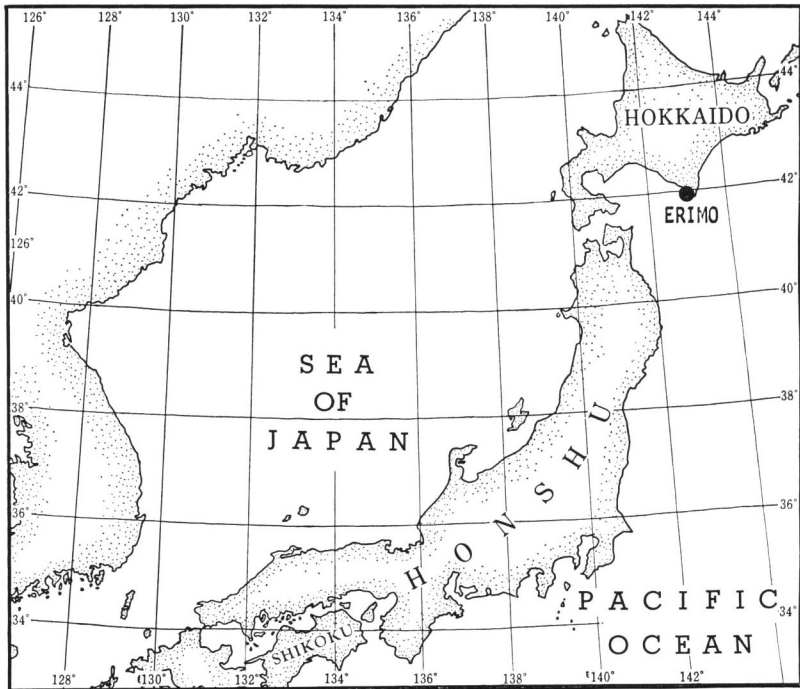


Fig. 1. Map of Japan, showing locality mentioned in the text.

*Material examined.* Erimo, Hokkaido, from *Zostera* bed of intertidal zone, coll. July, 1970 (8 specimens) by M. IMAJIMA.

*Description.* The body slender and cylindrical. The largest specimen measures 17 mm in length and about 0.7 mm in width at the anterior part; it consists of 48 setigers.

The prostomium broadly conical with four embedded eyes in trapezoidal arrangement (Fig. 2 a); eyes visible when lobe is depressed slightly. Buccal segment (peristomium) well-developed. Segment 1 asetigerous, similar in length to following segments. Each subsequent setiger bearing lateral fascicles of notopodial capillary setae and neuropodial uncini. Nephridia small, conical, present on setigers 5 and 6 below (ventral to) the uncini (Fig. 2 b, c).

Branchiae are first present on setigers 23 to 28 and continue to setigers 44 to 48 posteriorly. They are mostly single, digitate filaments arising from the non-setigerous ring of each segment (Fig. 2 f); all specimens have 1-3 segments bearing two filaments.

The notopodial fascicle has two types of capillary setae; straight and relatively stout with fine hairs distally (Fig. 2 g), and more slender and slightly geniculate with short hairs (Fig. 2 h). Uncini are arranged in a single row; the first setiger has 2 (Fig. 2 d), the second has 4, increasing to 9 in setiger 20 (Fig. 2 e), then gradually

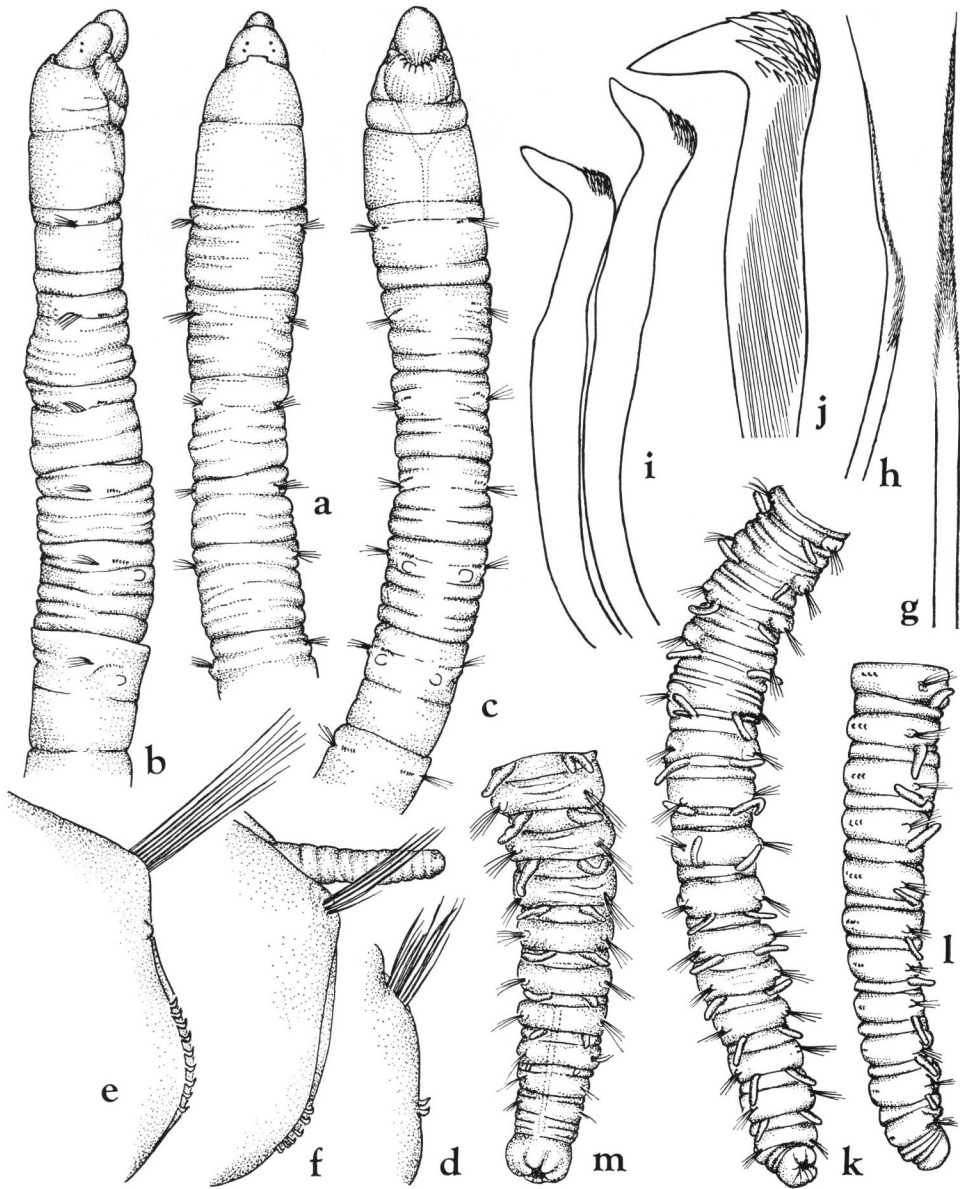


Fig. 2. *Branchiomaldane simplex* (BERKELEY et BERKELEY). a-c, Anterior ends, in dorsal (a), lateral (b) and ventral (c) views,  $\times 22$ ; d, 1st parapodium, in anterior view,  $\times 88$ ; e, 20th parapodium, in anterior view,  $\times 88$ ; f, 30th parapodium, in anterior view,  $\times 88$ ; g, straight capillary seta from 15th parapodium,  $\times 640$ ; h, genuiculate capillary seta from same parapodium,  $\times 640$ ; i, uncini from 5th parapodium,  $\times 900$ ; j, uncinus from median parapodium,  $\times 1,740$ ; k, l, posterior ends, in dorsal (k) and lateral (l) views,  $\times 22$ ; m, posterior end of another specimen, in dorsal view,  $\times 40$ .

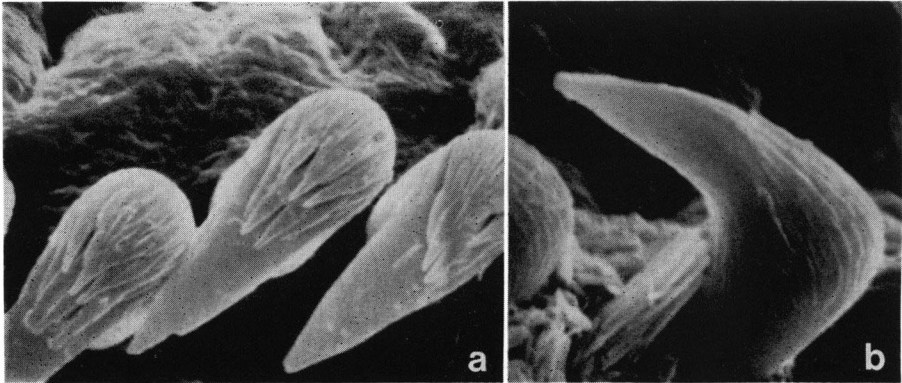


Fig. 3. Uncini from median parapodium of *Branchiomaldane simplex* by SEM, in apical (a) and lateral (b) views,  $\times 5,250$ .

decreasing in number posteriorly. The beak terminates in a long fang surmounted by a crest comprised of 6–7 alternating rows of teeth (Fig. 2 i). The first such row has 2–4 large teeth; those of subsequent rows become progressively smaller and more numerous (Figs. 2 j; 3 a, b). The base of the shaft is slightly recurved.

The body gradually tapering posteriorly. Last 3 pre-anal segments aseptigerous. Pygidium a rounded lobe with central aperture, no appendages (Fig. 2 k–m).

*Occurrence:* West coast of North America, Vancouver Island to California; Japan (Hokkaido).

#### Literature Cited

- BERKELEY, E., & C. BERKELEY, 1932. Some Capitellidae (Polychaeta) from the N. E. Pacific: With a description of a new genus. *Proc. zool. Soc. London*, **1932**: 669–675.
- & ——— 1950. Notes on Polychaeta from the coast of western Canada. IV. Polychaeta Sedentaria. *Annls. Mag. nat. Hist.*, (12), **3**: 50–69.
- & ——— 1952. Annelida. Polychaeta Sedentaria. *Can. Pac. Fauna*, **9 b** (2): 1–139.
- FOURNIER, J. A., & J. BARRIE, 1987. Revisionary commentary on *Branchiomaldane* (Polychaeta: Arenicolidae) with description of a new species from Labrador. *Bull. biol. Soc. Wash.*, (7): 97–107.
- HARTMAN, O., 1947. Polychaetous annelids. Part 7. Capitellidae. *Allan Hancock Pac. Exped.*, **10**: 391–481.
- & D. REISH, 1950. The marine annelids of Oregon. *Oregon State Monographs, Zool.*, (6): 1–64.
- IMAJIMA, M., & O. HARTMAN, 1964. The polychaetous annelids of Japan. *Occ. Pap. Allan Hancock Fdn.*, **26**: 1–452.