

## A New Species of Onuphidae (Polychaeta) from Enoshima, Central Japan

By

**Minoru IMAJIMA**

Department of Zoology, National Science Museum, Tokyo

**Abstract** A new species of *Kinbergonuphis* of Onuphidae is described from Enoshima, Central Japan, under the name of *K. enoshimaensis*. The genus *Kinbergonuphis* is newly recorded from Japanese waters. The species is mainly characterized in having hooded, bidentate, pseudocompound hooks in first 7 to 8 setigers.

Enoshima is a small island, about 4 km in circumference, situated in the northwest corner of Sagami Bay, Central Japan. The island is joined to the mainland by a bridge.

The material on which this study is based, comes from a survey of polychaetes in the sandy shore under the bridge to Enoshima (Fig. 1); the sediments consist of coarse sand, and the material was collected by shovel.

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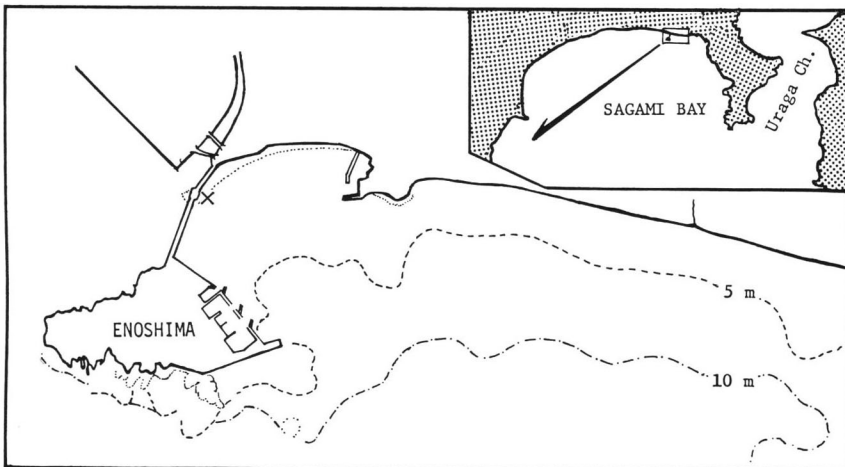


Fig. 1. Map of Enoshima showing the station (X) where material was collected.

Genus *Kinbergonuphis* FAUCHALD, 1982*Kinbergonuphis enoshimaensis* sp. nov.

(Fig. 2 a-t)

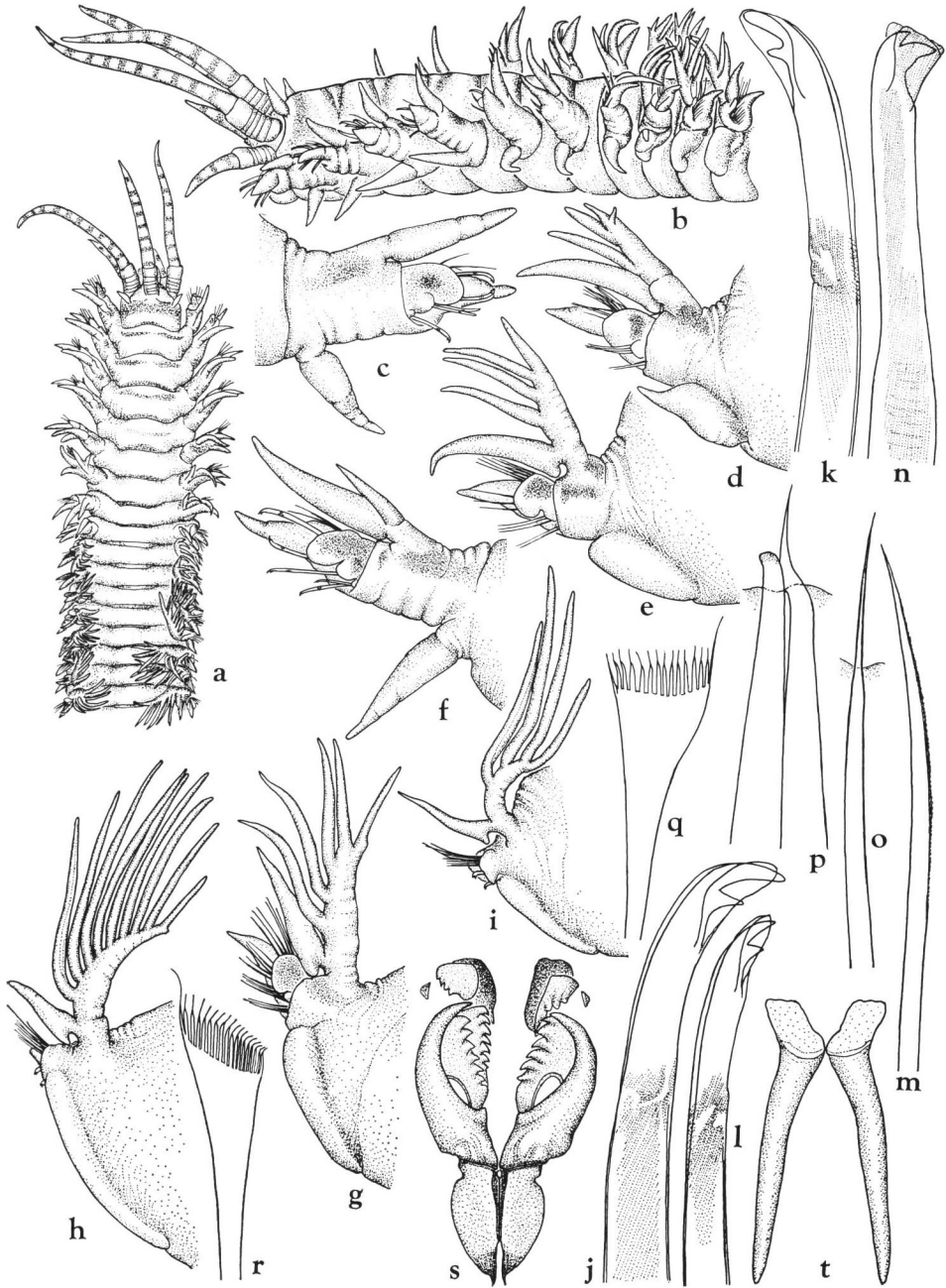
*Material examined.* Enoshima, central Japan, from sandy shore under the bridge by shovel, March 1968 (holotype and 1 paratype).

*Description.* Both specimens are anterior fragments; the holotype measures about 110 mm in length and 5 mm in width including parapodia for 170 setigers; the paratype is almost as large as the holotype. Each of the anterior segments has two brown transverse bands dorsally; the peristomium has a broad band across the anterior edge (Fig. 2 a).

The prostomium is narrowed anteriorly and has a pair of ovate frontal palps; it is about as long as the ceratophores of the antennae. Eyespots are not visible. Of the five antennae, the outer lateral antennae reach the posterior margin of the setiger 1; the ceratophores have 4 short articles and a longer distal article, and the styles are longer than the ceratophores. The inner lateral antennae reach setiger 5, with the ceratophores consisting of 5 short articles and one long distal article. The median antenna reaches setiger 4, with a ceratophore consisting of 5 short articles and one long distal article. The peristomial cirri arise from the anterior margin of the peristomium; they are shorter than the peristomium. All antennae have 3 to 10 distinct dark brown bands arranged regularly through the length (Fig. 2 b).

The first parapodia are directed forward. The presetal lobe has a low transverse fold; the distal part of the lobe is collar-shaped with dorsal and ventral margins. The acicular lobe is divided into three lobes; the distal one is larger than the others and is uniformly pigmented by dark brown. The lowest lobe is small and conical, and located in front of the anterior edge of the presetal lobe. The postsetal lobe is clavate and is shorter than the base of the parapodium. The dorsal cirrus is digitiform; it is longer than the postsetal lobe. The ventral cirrus is about as long as the postsetal lobe. The dorsal and ventral cirri are weakly annulated (Fig. 2 c). The following setigers are similar to the first, but ventral cirri are reduced (Fig. 2 d), and padlike from setiger 9 (Fig. 2 e). The postsetal lobes are distinct digitiform lobes anteriorly; they decrease gradually in size from about setiger 7, but can be recognized in about the first 50

Fig. 2. *Kinbergonuphis enoshimaensis* sp. nov. a, Anterior end, dorsal view,  $\times 3.5$ ; b, the same, lateral view,  $\times 6$ ; c, first parapodium (left), ventral view,  $\times 16$ ; d, eighth parapodium (right), ventral view,  $\times 16$ ; e, ninth parapodium, ventral view,  $\times 16$ ; f, sixth parapodium, ventral view,  $\times 16$ ; g, 13th parapodium, ventral view,  $\times 16$ ; h, 50th parapodium, ventral view,  $\times 16$ ; i, 150th parapodium, ventral view,  $\times 16$ ; j, superior pseudocompound hook from first parapodium,  $\times 176$ ; k, superior pseudocompound hook from sixth parapodium,  $\times 176$ ; l, inferior pseudocompound hook from same parapodium,  $\times 176$ ; m, simple seta from eighth parapodium,  $\times 88$ ; n, subacicular hook,  $\times 176$ ; o, aciculum from eighth parapodium,  $\times 140$ ; p, acicula from 50th parapodium,  $\times 140$ ; q, r, pectinate setae,  $\times 470$ ; s, maxillae,  $\times 17$ ; t, mandibles,  $\times 17$ .



setigers, as a short conical lobe.

Branchiae are first present from setiger 6 as a single, short filament (Fig. 2 f). The number of branchial filaments is 4 in setiger 8 (Fig. 2 d), 5 in setiger 13 (Fig. 2 g) and maximum number is 9 in setigers 40 to 70 (Fig. 2 h). The filaments are arranged as a series of lateral filaments on a main branchial stem in all setigers. Posteriorly, the filaments decrease in number, and number only 4 in setiger 170 (Fig. 2 i).

Pseudocompound hooks are all bidentate with short hoods, they occur in the first 7 setigers in the holotype and in the first 8 setigers in the paratype. These hooks arise from three parts of the acicular lobe; hooks from the superior position (Fig. 2 j, k) are thicker than the inferior ones (Fig. 2 l). Simple setae (Fig. 2 m) are present in all setigers. Bidentate subacicular hooks (Fig. 2 n) are present from setiger 29. Acicula usually number 5 in a parapodium; they taper distally to fine points in the anterior parapodia (Fig. 2 o), but posteriorly they become thick, with geniculated fine points or obtuse ends (Fig. 2 p). Pectinate setae are present from setiger 7; they are distally more or less oblique, with 15 to 17 fine teeth (Fig. 2 q, r).

The maxillary formula is 1+1, 7+6, 7+0, 4+3 and 1+1 (Fig. 2 s). The whole jaw-apparatus is unumber and has thin, calcified distal plates (Fig. 2 t).

*Remarks.* *Kinbergonuphis enoshimaensis* resembles *K. investigatoris* (FAUVEL, 1932) from Arabian Sea and *K. geminata* (FAUCHALD, 1980) from Gulf of Mexico off Belize, in having branchial filaments in the pectinate arrangement and also bidentate pseudocompound hooks partly. However, the three species can be distinguished as Table 1.

*Type series.* Holotype, NSMT-Pol. H 226; 1 paratype, NSMT-Pol. P 227.

*Distribution.* Central Japan.

Table 1. Comparison of characters of *Kinbergonuphis investigatoris*, *K. geminata* and *K. enoshimaensis*.

Character	<i>K. investigatoris</i>	<i>K. geminata</i>	<i>K. enoshimaensis</i>
<b>Antennae:</b>			
Inner lateral reach setigers	15	6	5
Median reaches setigers	7	6	4
Number of rings	?	10	4-5
<b>Branchiae:</b>			
First present from setiger	5-6	6	6
Maximum number of filaments	10	8-9	9
Cirriiform ventral cirri reach setiger	6-7	9	8
<b>Pseudocompound hooks:</b>			
First present from setiger	5-6	7	7-8
Number of teeth	2-3	2-3	2
<b>Subacicular hooks first present from setiger</b>			
	?	24	28
<b>Pectinate setae:</b>			
First present from setiger	?	2	7
Number of teeth	?	8-12	15-17

**Literature Cited**

- FAUVEL, P., 1932. Annelida polychaeta of the Indian Museum, Calcutta. *Mem. Ind. Mus.*, **12**: 1-262, 9 pls.
- FAUCHALD, K., 1980. Onuphidae (Polychaeta) from Belize, Central America, with notes on related taxa. *Proc. Biol. Soc. Wash.*, **93**: 797-829.
- 1982. Revision of *Onuphis*, *Nothria*, and *Paradiopatra* (Polychaeta: Onuphidae) based upon type material. *Smithson. Contrib. Zool.*, (356): 1-109.

