

Two New Species of *Nothria* (Polychaeta, Onuphidae) from off Sanriku, Northeastern Honshu, Japan

By

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Abstract Two new species of the onuphid polychaete genus *Nothria* are described from off Sanriku, northeastern Honshu, Japan. The specimens were collected from depths of 560 and 1,642-1,659 meters. *Nothria grossa* sp. nov. is characterized by having simple, falcate spines in the first 2 setigers, and *N. abyssala* sp. nov. is characterized by lacking eyes and having simple, falcate spines in the first 2 setigers.

A benthic biological survey was conducted off Sanriku by the R. V. *Tansei Maru* of the Ocean Research Institute, University of Tokyo, in August, 1985 (cruise KT-85-11). The material on which this study is based was collected by a 3 m beam trawl in waters 560 m and 1,642-1,659 m deep.

Two species of *Nothria*, *N. conchylega* (SARS, 1835) from Sagami and Onagawa Bays and *N. otsuchiensis* IMAJIMA, 1986 from Otsuchi Bay, have been previously known from Japanese waters. In the present study two new species of *Nothria* are added to the Japanese fauna. The bulk of the collection is deposited in the National Science Museum, Tokyo.

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Nothria grossa sp. nov.

(Figs. 2 a-y, 3 a-e)

Material examined. Off Sanriku, st. SR 15, 39°12.8'N, 142°16.0'E-39°13.9'N, 142°16.4'E, in 562 m, KT-85-11 (holotype and 22 paratypes).

Description. All of the specimens collected are anterior fragments. The largest is the holotype, which is 24 mm in length, and about 4.5 mm in width including parapodia at setiger 12; it consists of 45 setigers.

The body is dorso-ventrally flattened. The anterior dorsum is pigmented, with a transverse, brown stripe across the anterior half of each segment (Fig. 2 a, b).

The prostomium is subtriangular with a rounded tip and has a pair of ovate frontal palps. Of the five antennae, the outer lateral antennae reach the median part of setiger

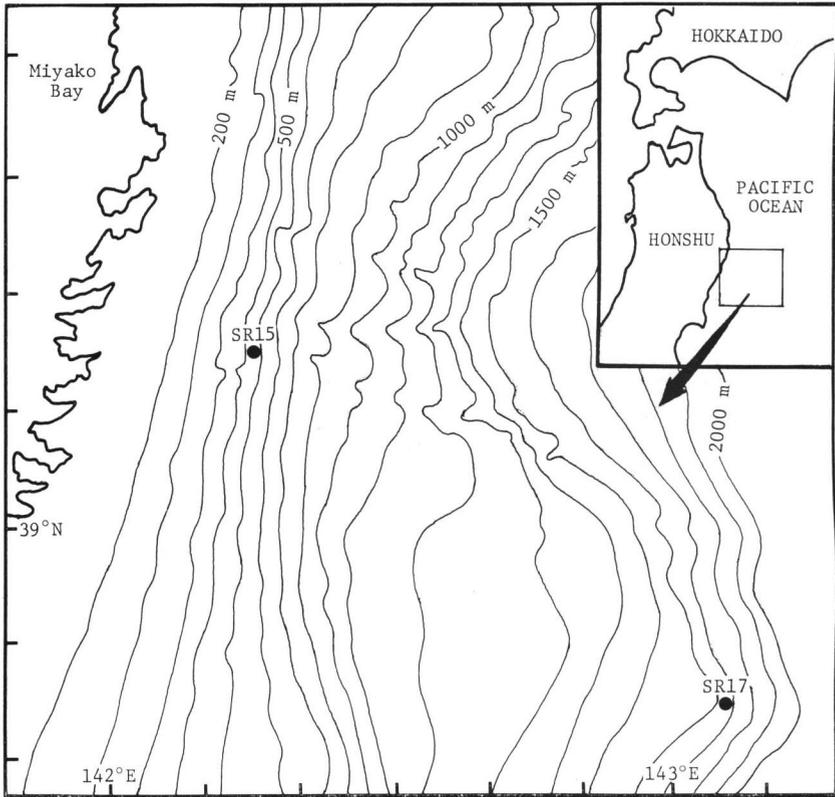


Fig. 1. Location and topography of the sampling stations, northeastern Honshu.

1, the inner lateral antennae reach setiger 7, and the median antenna reaches setiger 10. The ceratophores are short and have 3 to 4 distinct articles. There are two pairs of eyes; a pair of minute eyespots is present near the bases of the outer lateral antennae. The other pair is much larger and is ventral to the inner lateral antennae. A pair of cirri is attached to the peristomium; each is slender and slightly shorter than the prostomium.

The first two parapodia are greatly enlarged and project forward, but the first parapodia do not extend beyond the anterior margin of the prostomium. The first parapodium has a large auricular presetal lobe and a digitate postsetal lobe; on the holotype the postsetal lobe does not project past the anterior end of the presetal lobe. The dorsal cirrus is digitiform and is distinctly longer than the presetal lobe. The ventral cirrus is club-shaped with a rounded anterior end, and is about two-thirds as long as the dorsal cirrus (Fig. 2 c). One paratype shows some variation, with the postsetal lobe of the first parapodium extending beyond the anterior end of the presetal lobe. In addition, the ventral cirrus is more slender than those of the holotype (Fig. 2 d-f). In the second parapodia the presetal lobe becomes smaller than those

of the first parapodia, but a digitate postsetal lobe projects beyond the presetal lobe. The ventral cirrus is similar to those of setiger 1 (Fig. 2 g). In the third and fourth parapodia the presetal lobes become smaller than those of the second parapodia; the ventral cirri of the third parapodia are transitional, and the following ones are replaced by glandular pads (Fig. 2 h, i). Postsetal lobes are present in the first 18 setigers as a distinct digitiform lobe; thereafter they gradually decrease to a small size.

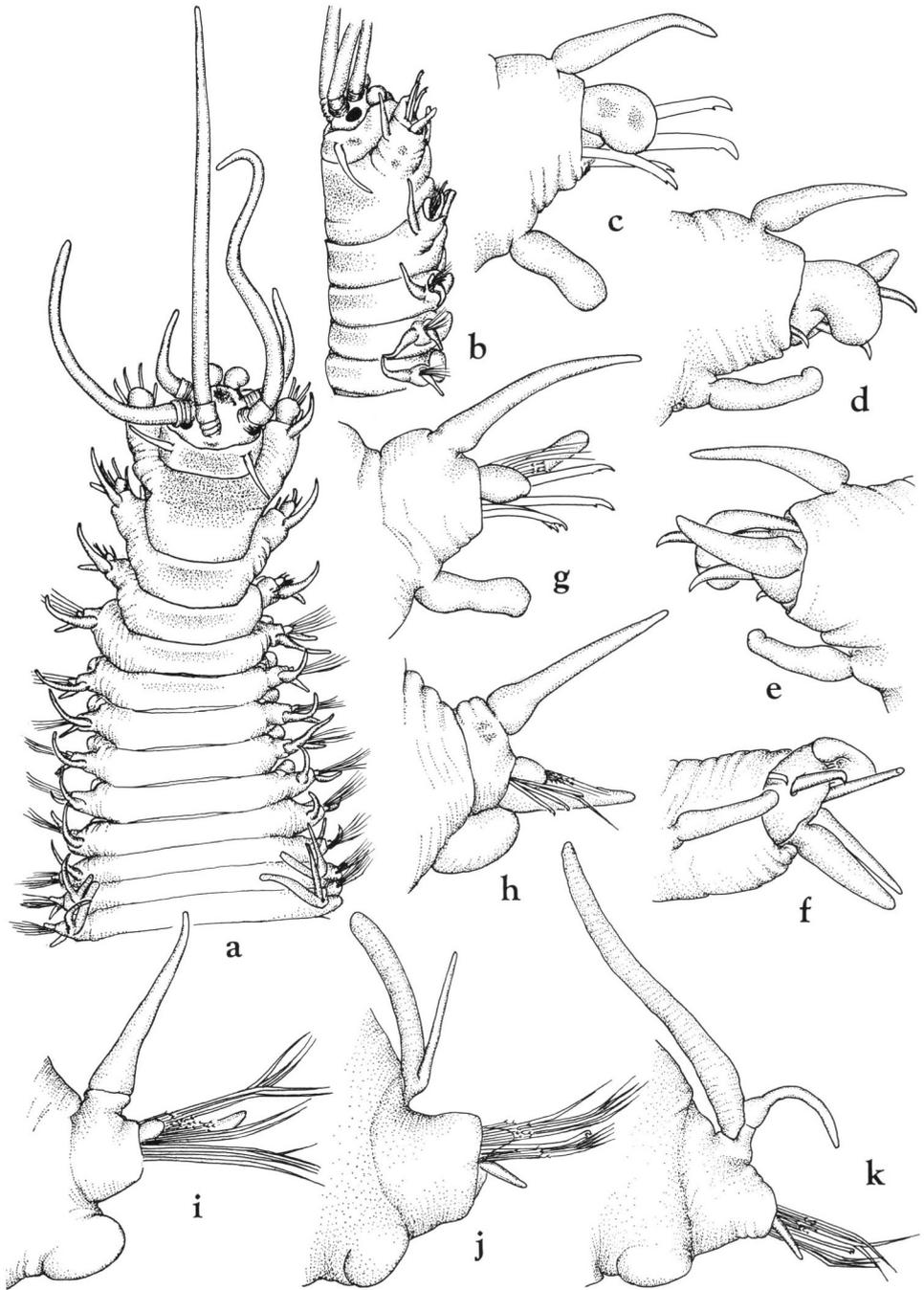
Strap-like branchiae are present from setiger 11 and continue to the posterior end of the fragment as a single filament. They are well developed (Fig. 2 j, k).

The first and second parapodia each has 3 to 4 thick, simple falcate spines with a small secondary tooth; hoods of some falcate spines are detached (Fig. 2 l-o; 3 a). All spines are closely covered by minute, comb-like denticles except for the distal part (Fig. 3 c, d). Acicula usually number 4 and have pointed tips (Fig. 2 p). The second parapodia has also 4 slender, simple, pointed setae (Fig. 2 q) and about 30 pectinate setae. The pectinate seta is distally scoop-shaped, with about 25 teeth (Fig. 2 r; Fig. 3 e). The axis of the pectinate seta is closely denticulated with minute spinelets (Fig. 3 f). The third parapodium has 3 thick, bidentate, simple falcate spines (Fig. 2 s) and 1 bidentate, pseudocompound hook inferiorly (Fig. 2 t; 3 b); they have distinct hoods, and also comb-like denticles on the distal part. However, one paratype has only bidentate, pseudocompound hooks. From the fourth setiger all hooks are replaced by narrowly limbate capillary setae (Fig. 2 u). The more posterior limbate setae have a broader wing (Fig. 2 v). Intrafascicular hooks are present from setiger 13 and number one or two; each has a bent, bidentate end with hood (Fig. 2 w).

The maxillary formula is 1+1, 10+12, 11+0, 10+12 and 1+1 (Fig. 2 x). The whole jaw-apparatus is chitinized. The mandibles are distally pointed and have two

Table 1. Differences in certain morphological characters between *Nothria occidentalis*, *N. otsuchiensis* and *N. grossa*.

Character	<i>Nothria occidentalis</i>	<i>Nothria otsuchiensis</i>	<i>Nothria grossa</i>
Setae			
on setiger 1	bidentate simple falcate spines	bidentate simple falcate spines bidentate pseudo-compound hooks	bidentate simple falcate spines
on setiger 2	bidentate pseudo-compound hooks	bidentate simple falcate spines bidentate pseudo-compound hooks	bidentate simple falcate spines
on setiger 3	bidentate pseudo-compound hooks	bidentate pseudo-compound hooks	bidentate simple falcate spines bidentate pseudo-compound hooks
Intrafascicular hooks	first present from setiger 9	first present from setiger 10	first present from setiger 13
Branchiae	first present from setiger 8	first present from setiger 10	first present from setiger 11
Postsetal lobes on parapodia	occur to setiger 14	occur to setiger 14	occur to setiger 18



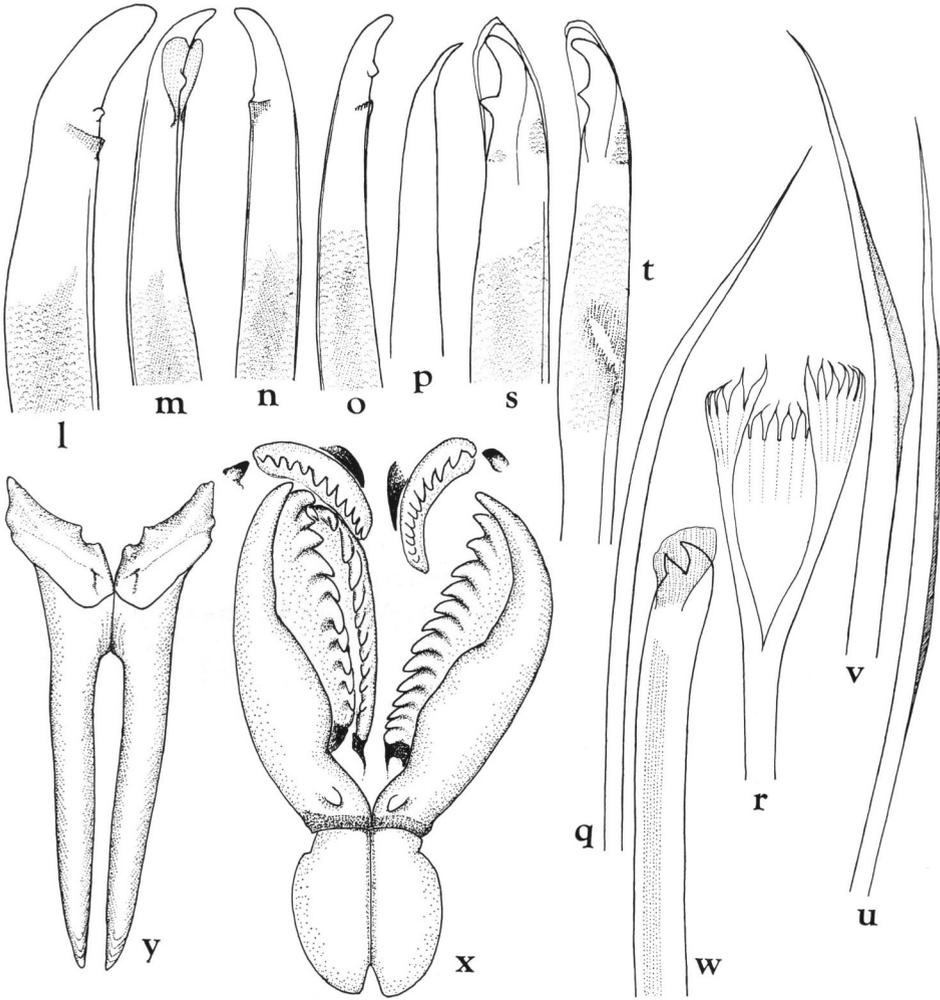


Fig. 2 (on pp. 4–5). *Nothria grossa* sp. nov. — a, Anterior end, in dorsal view, $\times 8$; b, the same, in lateral view, $\times 8$; c, first parapodium, in anterior view, $\times 36$; d–f, first parapodium of paratype, in anterior (d), posterior (e) and ventral (f) views, $\times 36$; g, second parapodium, in anterior view, $\times 36$; h, third parapodium, in anterior view, $\times 36$; i, fourth parapodium, in anterior view, $\times 36$; j, 15th parapodium, in posterior view, $\times 26$; k, 15th parapodium from paratype, in posterior view, $\times 26$; l, m, simple falcate spines from first parapodium, $\times 170$; n, o, simple falcate spines from second parapodium, $\times 170$; p, aciculum from first parapodium, $\times 170$; q, simple seta from second parapodium, $\times 170$; r, pectinate seta, $\times 840$; s, simple falcate spine from third parapodium, $\times 330$; t, pseudocompound hook from same parapodium, $\times 330$; u, limbate, capillary seta from fourth parapodium, $\times 170$; v, limbate, capillary seta from 15th parapodium, $\times 170$; w, intrafascicular hook, $\times 170$; x, maxillae, $\times 38$; y, mandibles, $\times 26$.

teeth on the anterior margin (Fig. 2 y).

The tubes have a tough, translucent inner lining and are densely covered with sand and mud.

Remarks. *Nothria grossa* differs from other species of *Nothria* in having simple falcate spines in the first 2 setigers. Related species, *Nothria occidentalis* FAUCHALD, 1968, from western Mexico and *N. otsuchiensis* IMAJIMA, 1986, from Japan have simple falcate spines on the first or second setiger. However, *N. grossa* can also be separated from them on distributional features of setae and branchiae in Table 1.

Type series. Holotype, NSMT-Pol. H 252; 22 paratypes, NSMT-Pol. P 253.

Distribution. Off northeastern Honshu, Japan.

Nothria abyssala sp. nov.

(Fig. 4 a-z)

Material examined. Off Sanriku, st. SR 17, 38°42.0'N, 143°01.6'E-38°40.6'N, 143°00.2'E, in 1,642-1,659 m, KT-85-11 (holotype and 10 paratypes).

Description. The complete holotype is 46 mm in length and about 4 mm in width including parapodia; it consists of 53 setigers.

The body is dorso-ventrally flattened. The pigmented stripes on the anterior dorsum are not distinct in preserved specimens.

The prostomium is subtriangular with a rounded tip and has a pair of ovate frontal palps. Of the five antennae, the outer lateral antennae reach setiger 2, the inner lateral antennae reach setiger 5, and the median antenna reaches setiger 7. The ceratophores are short and have 4 distinct articles. There are no eyes. A pair of cirri is attached to the peristomium; each is slender and shorter than the prostomium (Fig. 4 a, b).

The first two parapodia are greatly enlarged; the first parapodia reach to the anterior margin of the prostomium. Each of the first 3 parapodia has an auricular presetal lobe, with the first one larger than the others. Some presetal lobes of anterior parapodia are ventrally incurvated (Fig. 4 c) or broadly expanded (Fig. 4 d).

The first parapodia have a large auricular presetal lobe and a digitate postsetal lobe. The dorsal cirrus is slender and digitiform; the ventral cirrus is cirriform with a small notch at near the tip (Fig. 4 e, f).

In the second parapodia the auricular presetal lobe becomes smaller than those of the first parapodia, but the postsetal lobe is longer than the first one. The dorsal and ventral cirri are digitiform (Fig. 4 g, h). In the third parapodia the presetal lobe becomes even smaller, but larger than those of the fourth parapodium. The ventral cirrus is transitional (Fig. 4 i, j). The presetal lobe in the fourth parapodia is small and heart-shaped; it is as large as those of the following ones. The ventral cirrus is replaced by a glandular pad (Fig. 4 k, l). The postsetal lobe is digitiform; thereafter, it decreases in size, and disappears on setiger 19.

Strap-like branchiae are present from setiger 10 and continue throughout the body

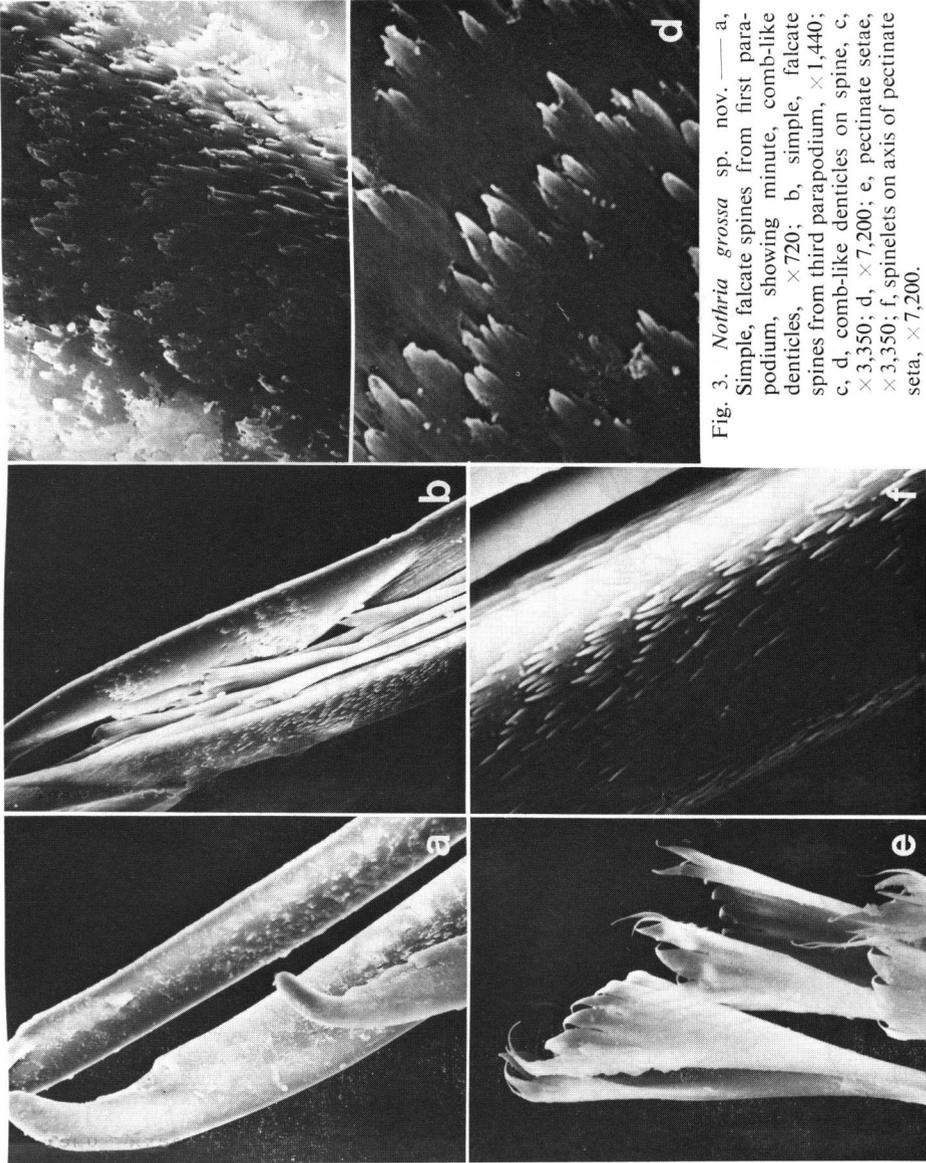
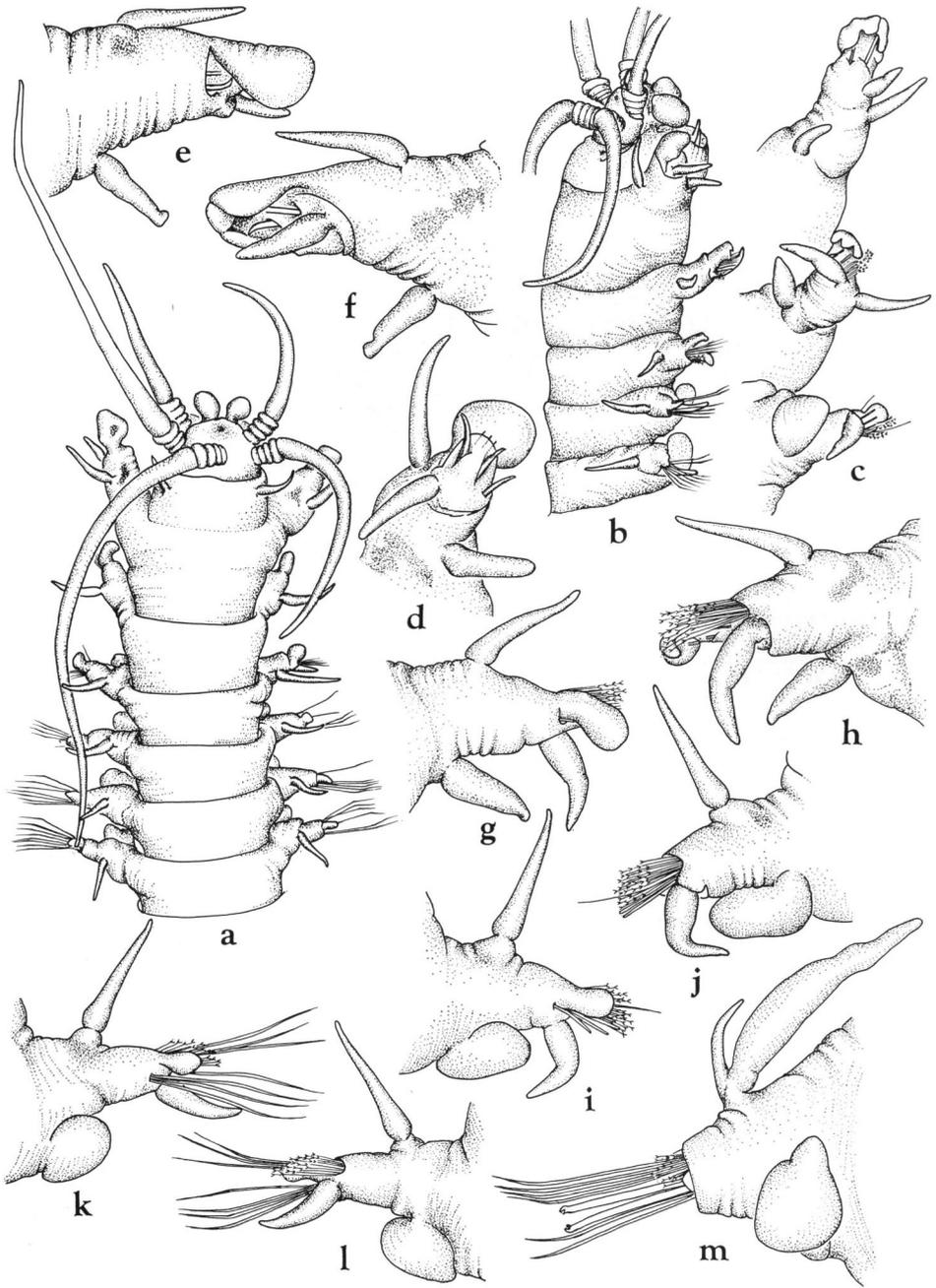


Fig. 3. *Nothria grossa* sp. nov. — a, Simple, falcate spines from first parapodium, showing minute, comb-like denticles, $\times 720$; b, simple, falcate spines from third parapodium, $\times 1,440$; c, d, comb-like denticles on spine, c, $\times 3,350$; d, $\times 7,200$; e, pectinate setae, $\times 3,350$; f, spinelets on axis of pectinate seta, $\times 7,200$.



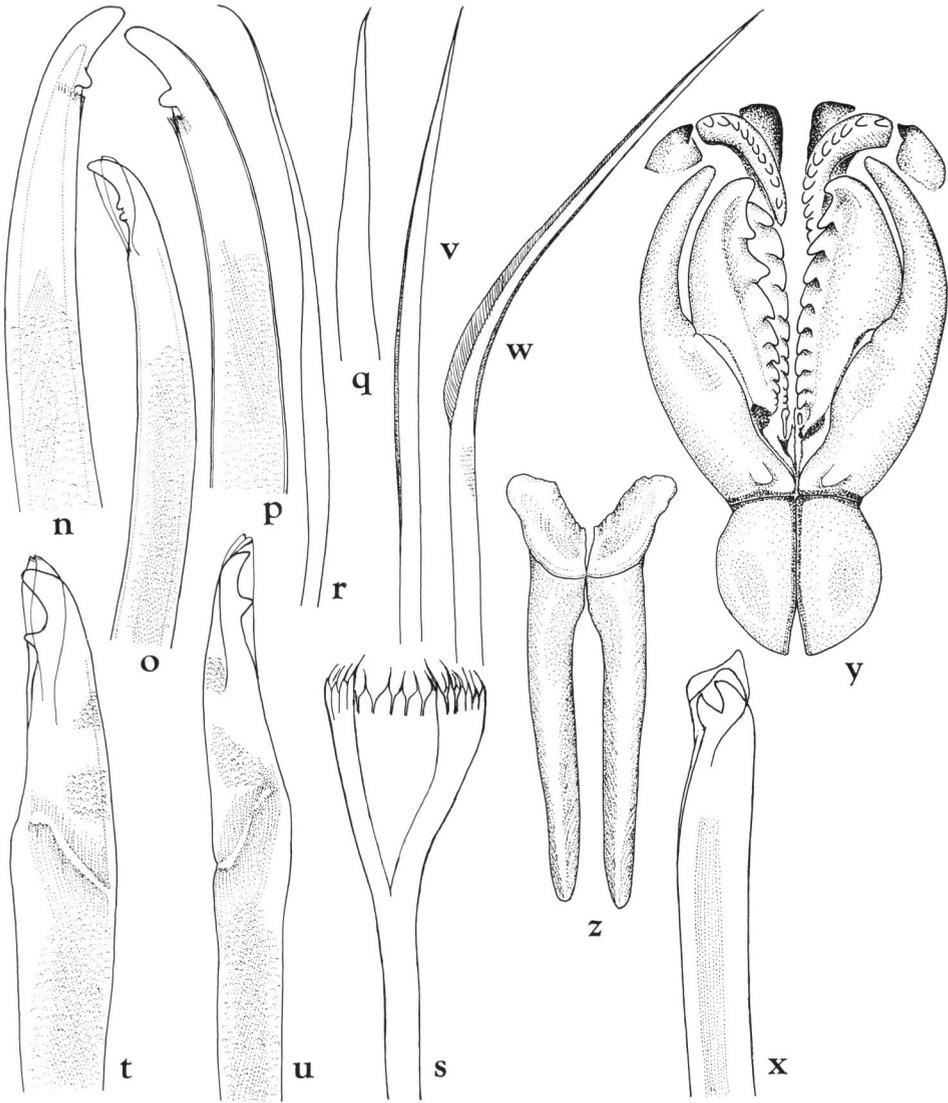


Fig. 4 (on pp. 8–9). *Nothria abyssala* sp. nov. — a, Anterior end, in dorsal view, $\times 8$; b, the same, in lateral view, $\times 8$; c, parapodia of first 3 setigers, in ventral view, $\times 15$; d, first parapodium from paratype, in ventral view, $\times 19$; e, f, first parapodia, in anterior(e) and posterior(f) views, $\times 25$; g, h, second parapodia, in anterior(g) and posterior(h) views, $\times 25$; i, j, third parapodia, in anterior(i) and posterior(j) views, $\times 25$; k, l, fourth parapodia, in anterior(k) and posterior(l) views, $\times 25$; m, 20th parapodia, in posterior view, $\times 25$; n, o, simple falcate spines from first parapodium, $\times 170$; p, simple falcate spine from second parapodium, $\times 170$; q, aciculum, $\times 170$; r, simple seta from second parapodium, $\times 170$; s, pectinate seta, $\times 840$; t, u, bidentate, pseudocompound hooks from third parapodium, $\times 330$; v, limbate, capillary seta from third parapodium, $\times 170$; w, limbate, capillary seta from 20th parapodium, $\times 170$; x, intrafascicular hook, $\times 170$; y, maxillae, $\times 30$; z, mandibles, $\times 20$.

except for the last three parapodia (Fig. 4 m).

The first and second parapodia each has 3 to 4 thick, simple falcate spines with one or two small secondary teeth; hoods of some falcate spines are detached. All spines have minute comb-like denticles on their surface except for the distal part (Fig. 4 n-p). Acicula usually number 3 and have pointed tips (Fig. 4 q). Each of the second parapodia also has 2 slender, simple capillary setae (Fig. 4 r) and about 30 pectinate setae. The pectinate seta is distally scoop-shaped and has about 20 teeth (Fig. 4 s); the axis is closely covered by minute spinelets. The third parapodium has 4 thick, bidentate pseudocompound hooks with distinct hoods (Fig. 4 t, u), 1 capillary seta (Fig. 4 v) and about 40 pectinate setae. From the fourth setiger all hooks are replaced by limbate capillary setae. The more posterior limbate setae have a well-developed wing (Fig. 4 w). Intrafascicular hooks are first present from setiger 13; each has a bent, bidentate end with hood (Fig. 4 x). Usually 2 hooks are present in a parapodium. The twentieth parapodium has 7 limbate, capillary setae, 15 pectinate setae and 2 intrafascicular hooks.

The maxillary formula is 1+1, 9+10, 9+0, 10+11, and 1+1 (Fig. 4 y). The whole jaw-apparatus is chitinized; the mandibles are distally rounded (Fig. 4 z).

The pygidium has one pair of long anal cirri.

The tubes have a tough, translucent inner lining and are densely covered with sand.

Remarks. *Nothria abyssala* resembles *N. anoculate* ORENSANZ, 1974, from shallow water off Argentina, by the lack of eyes. However, *N. abyssala* is distinguished from *N. anoculate* by the following characteristics: (1) the postsetal lobes of parapodia are present to setiger 18, instead of setiger 8-12, (2) the first two parapodia have simple, falcate spines, instead of the first three parapodia have pseudocompound hooks, (3) the maxillary formula is 1+1, 9+10, 9+0, 10+11, and 1+1, instead of 1+1, 7-8+9, 7+0, 7+9, and 1+1. *Nothria abyssala* closely resembles *N. grossa* from the same area, in the character of the hooks of the first three parapodia. However, *N. abyssala* can be distinguished from *N. grossa* in the lack of eyes, the features of the maxillae, the length of the antennae, and the structure at the anterior parapodia.

Type series. Holotype, NSMT-Pol. H 254; 10 paratypes, NSMT-Pol. P 255.

Distribution. Off northeastern Honshu, Japan.

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