

REDESCRIPTION OF THE GENUS *NAUPHANTA* KINBERG, 1865 (POLYCHAETA: EUNICIDAE)

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Abstract.—The genus *Nauphanta*, described to contain the species *novaeae-hollandiae* (as *novae Hollandiae*) and *corallina*, is now considered a synonym of *Marphysa*. Examination of the types has demonstrated that the two species do not belong to the same genus. *Nauphanta novaehollandiae* has simple, capillary setae and series of large, flat, thin fan-shaped setae arranged in a row on the anterior face of far posterior parapodia and lacks compound setae. *Nauphanta corallina* is a member of *Marphysa* in that it has compound falcigers in addition to simple setae and has true pectinate setae mixed with the limbate setae in the dorsal fascicle. *Nauphanta* is here defined in relation to *Marphysa*. *Eunice mossambica* Peters, 1854, is newly referred to *Nauphanta*.

During a revision of species described in the genus *Eunice* (Polychaeta: Eunicidae) a review of material deposited in the Zoologisches Museum, Berlin and the British Museum (Natural History) led to the recognition that the species currently known as *Marphysa mossambica*, including the specimens originally described as *Nauphanta novae Hollandiae*, could not be comfortably contained in the genus to which it is currently referred. Furthermore, the presence of a highly characteristic fan-shaped seta in posterior setigers appears to have been overlooked by most authors (but see Crossland 1903). Both positionally and in terms of structure, these setae do not appear to be homologous with the pectinate setae usually present in eunicids and onuphids. The presence of a unique kind of seta, in addition to the total absence of any kinds of compound setae, forms the justification for recognizing *Nauphanta* as a distinct genus. The two described taxa appear to differ sufficiently, so they are here recognized as distinct species.

Nauphanta Kinberg, 1865 (emended)

Diagnosis.—Prostomium frontally bilobed with 5 occipitally placed antennae.

Peristomium separated into 2 rings distinct on all sides of body; peristomial cirri absent. Maxillae with Mx III forming part of distal arc with left Mx IV and V (seen in *N. mossambica* only). Branchiae from setiger 30 or not until setiger 49. Pre- and postsetal lobes continuous around the dorsal edge of the neuropodium. Ventral cirri tapering in all setigers. Notopodial cirri short and tapering, without articulations. Acicula and subacicular hooks light to dark brown. Pectinate setae and all compound setae absent. Most setae slender, narrowly limbate smooth setae present in thick fascicles. Expanded, flat fan-shaped setae present in row on anterior face of posterior parapodia. Each fan-shaped seta with or without thickened edge and numerous (up to 50) very short, trim teeth along edge.

Type species.—*Nauphanta novaehollandiae* Kinberg, 1865:564.

Discussion.—The structure and distribution of the fan-shaped setae on the anterior face of the posterior neuropodia are unique in the order Eunicida. Another characterizing feature is the total absence of compound setae of any kind; other eunicids have compound setae, either falcigers or spinigers, present prominently in their parapodia.

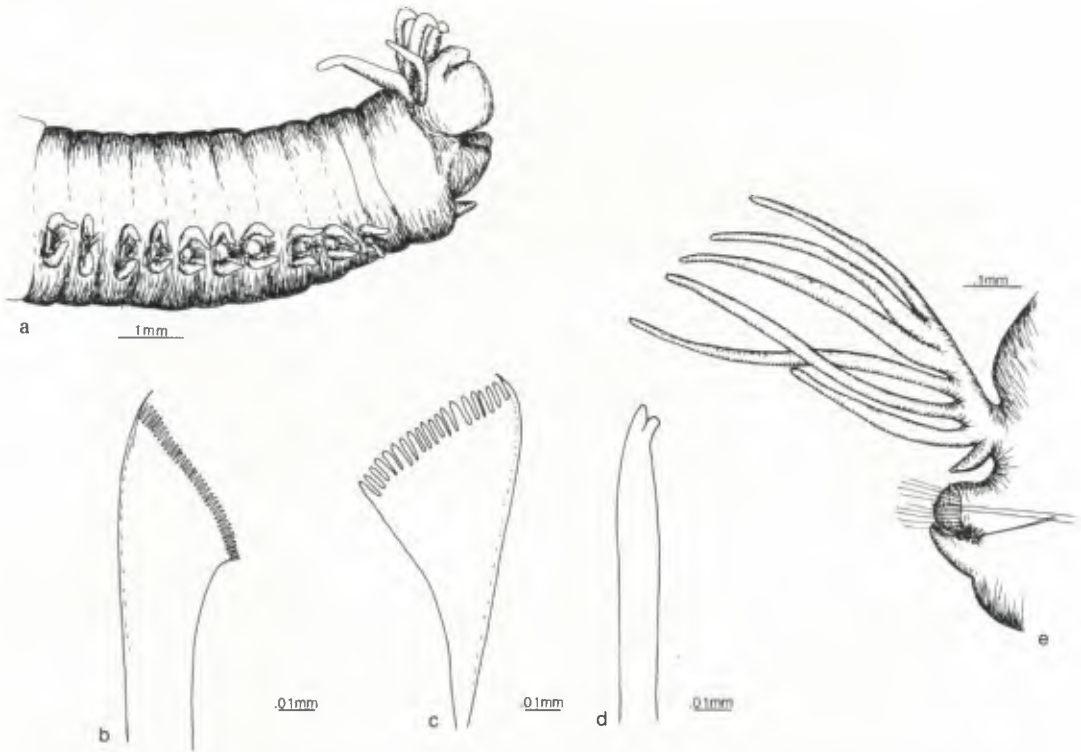


Fig. 1. *Nauphanta mossambica*, lectotype: a, Anterior end, lateral view; b, Fan-seta, setiger 186; c, Fan-seta, setiger 175; d, Subacicular hook, setiger 175; e, Parapodium 175, frontal view.

Nauphanta novaehollandiae is here considered the type species of the genus since it was listed first in Kinberg's description of the genus.

The type specimen of *Nauphanta coralina* was examined; it is a member of *Marphysa* in that it has compound, bidentate falcigers in thick fascicles in anterior setigers and has typical pectinate setae mixed in with the simple, limbate setae in the dorsal fascicles; the type will be described in a forthcoming review of the members of *Marphysa*.

Nauphanta mossambica
(Peters, 1854) (emended)

Fig. 1

Eunice mossambica Peters, 1854:612.

Marphysa mossambica.—Gravier, 1900: 267–270, pl. 14, figs. 89–90, text figs. 137–

139.—Crossland, 1903:139–140, pl. 15, figs. 7–10.—Day, 1967:395, fig. 17.5.i–m.

Material examined.—Lectotype and 6 paralectotypes, ZMB 47, 4005 and F2046, Moçambique, coll. Peters. The lectotype was selected from F2046. In addition, one slide with 2 parapodia marked type, BM(NH) ZB. 1984.70.

Description.—Lectotype a complete specimen (now in 2 pieces) consisting of 420 setigers, 300 mm long, and 10 mm wide at widest. Length through setiger 10, 10 mm. Head and first 10 setigers of body basically cylindrical, but from about setiger 10, body widening rapidly and becoming dorsoventrally flattened so that parapodia carried near edges of body which becomes lens-shaped in cross-section; body retaining this shape through most of its length, but becoming increasingly flattened towards far posterior

end. Width decreasing rapidly near posterior end, giving appearance of a beaver tail.

Prostomium (Fig. 1a) frontally truncate, separated into 2 diverging, but shallowly separated halves. A pair of faint eyes present between bases of outer and inner lateral antennae. Antennae tapering lacking articulations except for very short basal ceratophore; outer lateral antennae reaching second peristomial ring; inner lateral antennae reaching setiger 2, median antenna reaching setiger 3. Peristomium cylindrical divided into 2 rings of which anterior ring making up about $\frac{2}{3}$ of total length of peristomium. Separation between 2 rings distinct on all sides of body. Peristomial cirri absent.

Maxillary formula: 1+1, 5-7+5-7, 4-7+0, 4-5+8-9 and 1+1. Mx VI absent; Mx III forming arc with distal jaw pieces on left side.

Branchiae present from setiger 41 in lectotype, from setigers 37-49 in paralectotypes. Where best developed, branchiae consisting of long, slender filaments attached to a tapering branchial stem held erect over dorsum. Maximum of 6 filaments present. Last 20-25 segments abranchiate in complete specimens.

Neuropodial acicular lobes (Fig. 1e) rounded in all setigers; pre- and postsetal lobes continuous around dorsal edge of neuropodium, forming a collar from which setae emerge. This collar lower and obliquely cut away on anterior face. Ventral cirri short, thick, tapering in all setigers; no inflated basal region present. Notopodial cirri smaller than ventral cirri, which they otherwise resemble in shape. Especially in branched region, notopodial cirri forming short, conical process at base of branchiae.

All parapodia having thick fascicles of slender, tapering, slightly limbate simple setae. Compound hooks or spinigers absent. Fan-shaped setae (Fig. 1b, c) present along anterior face of posterior parapodia; their exact distribution difficult to determine, but

not appearing to be present before setiger 100; where best developed these setae form a series of fans in a row, covering front of exposed neuropodial acicular lobe. Each fan-seta having long thickened superior edge, ending in short spine and oblique cutting edge with numerous, up to 50, short trim teeth. Fan-setae flat, nearly translucent, apart from thickened superior edge. Up to 10 of these setae may be present in parapodium. Towards posterior end, fan-setae shifting in position to dorsal edge of parapodium and decreasing in number so that perhaps only 1 or 2 present. Acicula straight, tapering to blunt tip and light brown to dark brown in color. Slender, bidentate subacicular hooks (Fig. 1d) present from setiger 70 in lectotype; from setigers 58-73 in paralectotypes. Occurrence of these hooks very scattered; several setigers may miss them, and hooks rarely present in two consecutive setigers. Each hook very slender, less than half thickness of acicula in same setiger; tapering towards tip. Both teeth directed distally; proximal tooth blunt, or rounded distally. Distal tooth longer than proximal tooth, tapering to sharp tip. Subacicular hooks light colored, usually a very light brown or dark yellow and distinctly lighter in color than acicula of same setiger.

Two parapodia from BM(NH) both lacking branchiae. Both having abruptly tapered notopodia and thick large ventral cirri. Neuropodia distally truncate, pre- and postsetal lobes low folds continuous around dorsal edge of neuropodium. One dark acicula present in one parapodium; the other having 3 similar, tapered, distally straight-tipped aciculae. In parapodium with 3 aciculae, all setae slender, tapering capillaries in 2 fascicles, one above and one below aciculae. Superior setae in both fascicles tapering more gently than those on lower edge of each fascicle. In parapodium with single acicula, most setae similar tapering capillaries, but on dorsal side of acicula, presumably on anterior face, a series of fan-shaped setae.

Remarks.—*Nauphanta mossambica* differs from the type species, *N. novaehollandiae*, as indicated below. The fan-shaped setae were first noticed for the species by Crossland (1903), but appear to have been overlooked by observers both before and after him.

Nauphanta novaehollandiae

Kinberg, 1865 (emended)

Fig. 2

Nauphanta novae Hollandiae Kinberg, 1865:564; 1910:43, pl. 16, fig. 23, 23B, C, F, G.

Nauphanta Novae-Hollandiae.—Augener, 1922:26 (see comment below).

Eunice (Marphysa) novae Hollandiae.—Grube, 1878:165–166.

Marphysa mossambica.—Day and Hutchings, 1979:117 (not Peters, 1854; see comment below).

Material examined.—Holotype, RM Type 432, Sydney Harbor, EUGENIE-Expedition, 1858.

Description.—Holotype a fragmented specimen that has been anteriorly dissected, consisting of a total of 117 setigers at this point, 89 mm long and 4 mm wide at widest, at about setiger 20. Anterior fragment consisting of prostomium, peristomium, and 10 setigers; next section of 37 setigers and may be directly in continuation of first section. Long, completely branchiated section of 64 setigers and some short fragments of 2–6 segments completing fragmentary material.

Prostomium anteriorly truncate; two halves well separated and diverging clearly. Antennae slender, tapering and lacking articulations, apart from short, ring-shaped ceratophore. Outer lateral antennae reaching second peristomial ring, inner lateral and median antennae reaching setiger 2, with median antenna being slightly longer than other antennae. No trace of eyes visible. Peristomium a short, truncated cone, with

anterior ring being about twice as long as posterior one; separation between two rings distinct on all sides, but especially clearly marked ventrally. Peristomial cirri absent.

Jaws had been dissected out and were partially present in vial. Maxillary formula appearing to be 1+1, 5+6, ?+0, ?+8, and ?+1. Distal part of left side entirely missing.

Branchiae present from setiger 30 and continuing to rest of specimen. First branchiated segment having single long filament, but other branchiae having short, sharply tapering branchial stems and up to 6 long, slender branchial filaments.

Neuropodial acicular lobes (Fig. 2c) distally rounded in all setigers examined. First few parapodia very small, but increasing rapidly in size until by setiger 5, reaching roughly full size retained in remainder of fragment. Presetal lobes are low folds in all setigers, continuous on dorsal edge with somewhat higher postsetal lobes; latter follows outline of acicular lobes closely in anterior setigers, reduced to low fold in posterior setigers. Notopodial cirri taeniform and short in all setigers, becoming increasingly tapered in posterior setigers; distinctly shorter than branchial filaments in all branchiated setigers. Ventral cirri short and tapering in all setigers; indistinct basal swelling present along ventral edge of parapodia in median and posterior setigers.

Slender limbate setae present in all setigers in large numbers; those located along dorsal edge of parapodia slimmer than those emerging from anterior or posterior setal fold. Slender, light brown, bidentate subacicular hooks (Fig. 2b) present irregularly from setiger 44 to end of fragment. Each hook distally abruptly tapering to narrow, slightly bent head; both teeth projecting distally, proximal tooth slightly larger than distal one. Thick, tapering, straight-tipped brown aciculae present in all parapodia. Most parapodia having 2 aciculae. Compound setae and pectinate setae absent. Latter replaced by translucent, thin, flattened

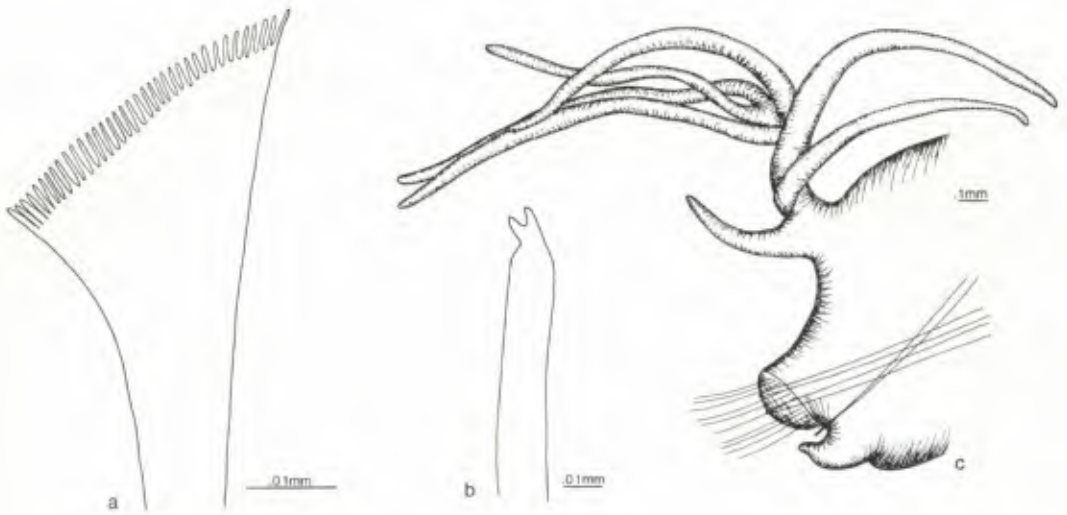


Fig. 2. *Nauphanta novaehollandiae*, holotype: a, Fan-seta, mid-posterior parapodium; b, Subacicular hook, mid-posterior parapodium; c, Mid-posterior parapodium, frontal view.

fan-setae (Fig. 2a) on anterior face of parapodia in branchial region; distribution of these setae cannot be accurately determined; but 2 or more of fan-setae present in each parapodium in largest of fragments. Each seta distally obliquely fan-shaped, having about 35 blunt-tipped teeth; marginal teeth not reinforced and no longer than other teeth in fan.

Remarks.—The history of this species has been rather complex. Described from Sydney Harbor, it was next reported from the Philippines by Grube (1878), and later synonymized with Peters' *mossambica* by Gravier (1900) and Crossland (1903) without re-examination of the type material. Augener (1922), while agreeing that the two names represented a single species, preferred to use Kinberg's name, since he preferred the more accurate description contained in Kinberg's original description over the one supplied by Peters. *Nauphanta mossambica* and *N. novaehollandiae* can be separated by the distribution of branchiae and subacicular hooks and by the shape of the latter. Branchiae are present from setiger 30 and subacicular hooks from setiger 44 in *N.*

novaehollandiae; branchiae are present from setiger 37 or later and subacicular hooks not until setiger 58 in *N. mossambica*. In a study of variability of these features in members of the family, Fauchald (in prep.) has demonstrated that with similarly sized specimens, as is the case here, these differences are sufficiently large to maintain the separation between the two taxa until detailed studies have been performed.

Without examination of the material, it is difficult to tell if Grube's material from the Philippines belong to the same species, or to a similar species.

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