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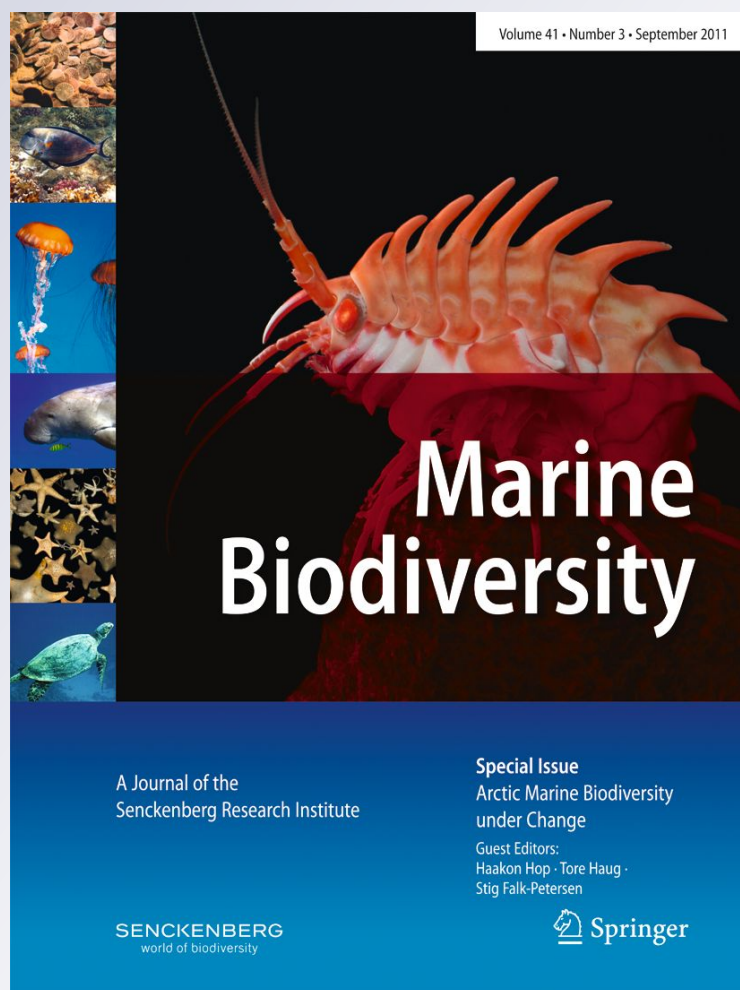
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**Marine Biodiversity**

ISSN 1867-1616

Mar Biodiv

DOI 10.1007/s12526-012-0117-4



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# Remarks on some scale worms (Polychaeta, Polynoidae) from the Southwest Atlantic with notes on the genus *Eucranta* Malmgren, 1866, and description of a new *Harmothoe* species

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Received: 10 October 2011 / Revised: 21 February 2012 / Accepted: 21 February 2012  
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**Abstract** In a collection of polychaetes from the Southwest Atlantic, off the Argentinian coast, ten scale worm species of the family Polynoidae were found. The following nine species are already known to science and their synonymy, diagnostic characters, and distribution are given together with remarks on taxonomy and geographical distribution: *Eucranta mollis* (McIntosh, 1876), *Eucranta notialis* Monroe, 1936, *Harmothoe exanthema* (Grube, 1858), *Harmothoe magellanica* (McIntosh, 1885), *Polyeunoa laevis* McIntosh, 1885, *Halosydna patagonica* Kinberg, 1856, *Halosydnella australis* (Kinberg, 1856), *Lepidasthenia esbelta* Amaral and Nonato, 1982 and *Showapolyne marmorata* (Hartmann-Schröder, 1965) n. comb. Additionally, a new *Harmothoe* species was discovered and is described in detail. Differentiating characters of the new species and *Harmothoe ciliata* Monroe, 1936 from the Magellan region are discussed. Since two species of *Eucranta* Malmgren, 1866 out of four known worldwide occur in the Southwest Atlantic and since the genus has never been revised in the past, we discuss the distinguishing characters of the species and present a synoptic table. Furthermore, we raise two subspecies to species level, i.e. *Eucranta villosa notialis* Monroe, 1936 to *E. notialis* Monroe, 1936 and *Harmothoe brevipalpa ciliata* Monroe, 1936 to *H. ciliata* Monroe, 1936. Two new junior synonyms are also

recognised: *Harmothoe fimbriata* Hartmann-Schröder, 1965 is referred to *H. ciliata* Monroe, 1936 and *Halosydna brasiliensis* Kinberg, 1857 to *Halosydnella australis* (Kinberg, 1856). An identification key is given to all species found in the considered area.

**Keywords** Polynoidae · Taxonomy · New species · Biogeography · Southwest Atlantic.

## Introduction

The polynoids studied herein have been collected in the Southwest Atlantic between Chuy at the border between Uruguay and Brazil (33° 44' S) and Caleta Carolina, Argentine Patagonia (45°S) (Fig. 1). For those species which are already known we present and discuss the synonymy and diagnostic characters. Two of these belong to the genus *Eucranta* Malmgren, 1866 which has never been revised to date. Together with the new *Harmothoe* species, we describe and figure them in detail and discuss their distinguishing characters. Additionally, we give a synoptic table for all known *Eucranta* species and an identification key for all species considered herein.

For most species recorded, the geographical range is considerably extended. Depending on the distance from the coast, the specimens either belong to the Argentine or the Magellanic Province. In the coastal and shelf areas of the Southwest Atlantic, Boschi (2000) and Balech and Ehrlich (2008) generally recognize two distinct broad domains, warm and cold temperate, usually known as the Argentine and the Magellanic Provinces. For intertidal and nearshore habitats, the transition occurs in the North Patagonic Gulfs (San Matías, San José, Nuevo)

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**Fig. 1** Investigated area in the Southwest Atlantic

and the Valdés Peninsula, between 41° and 43°S (Fig. 1). Deeper areas of the shelf are under the influence of the cold Falkland/Malvinas current, which runs offshore from south to north, along the shelfbreak. The boundary between the two provinces is displaced to deeper waters towards the north. Off Uruguay (where the range of elements of Magellanic affinities vanishes), it is located on the outer shelf.

This is the first detailed account of polynoid species from northern Argentine waters. Compared to the findings of Amaral and Nonato (1982) who describe 19 species from the warmer Brazilian waters and Orensanz (1976) who lists 35 species for the Magellan area, the ten species reported here probably represent only a part of the total polynoid fauna of the northern Argentine waters. At the moment any further conclusions on the total diversity and distribution of polynoids in the Southwest Atlantic can not be drawn, since the taxonomy of this scale worm family is rather confused and needs to be revised.

## Materials and methods

The collection investigated here was put together by one of us (J.M.O.) mainly in the 1970s and originates from field trips and expeditions to various parts of the Southwest Atlantic off Argentina. Specimens are deposited in the Senckenberg Museum Frankfurt, Germany (SMF), the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (MACN), and the Museo Nacional de Historia Natural, Montevideo, Uruguay (MNHNM). Type material for comparison has been sent on loan by the Natural History Museum, London, UK (BMNH), the Naturhistoriska Riksmuseet, Stockholm, Sweden (SMNH), and the Zoologisches Institut und Museum der Universität Hamburg, Germany (ZMH).

In the 'Material examined' sections, complete specimens (spms.) are indicated by 'cs', while 'af', 'mf', and 'pf' refer to anterior, middle, and posterior fragments, respectively.

Specimens were studied using a stereomicroscope and a compound microscope equipped with Nomarski interference contrast. Drawings were made using a camera lucida. In figures of anterior ends, the anteriormost elytra were either missing or removed. Description of elytral characters is based on anterior elytra if not indicated otherwise, because tubercles tend to disappear or be less prominent in posterior elytra.

Measurements: length (L) is measured from the anterior margin of the prostomium to the posterior border of the last segment (pharynx not included, if everted), width (W) is taken at the widest segment, including parapodia but excluding chaetae.

Information regarding distribution and habitat is based on the examined material and the references given in the respective synonymy list.

## Systematics

### Polynoinae Kinberg, 1856

#### *Eucranta* Malmgren, 1866, emended

*Type species* *Eucranta villosa* Malmgren, 1866.

**Diagnosis** Body dorsoventrally flattened, short, with less than 50 segments; dorsum more or less covered by elytra or short tail region uncovered. Fifteen pairs of elytra on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32. Prostomium with distinct cephalic peaks and three antennae; lateral antennae inserted ventrally to median antenna. Position of anterior pair of eyes variable, posterior pair

dorsal near hind margin. Parapodia with elongate acicular lobes with both acicula penetrating epidermis; neuropodia with a supra-acicular process. Notochaetae stout with distinct rows of spines and blunt tip. Neurochaetae more numerous and more slender; with distinct rows of spines distally; at least some neurochaetae tapering to slender forceps-like, split tip, others stouter, with falcate, unidentate or bidentate tip with secondary tooth.

**Remarks** Currently four species of *Eucranta* are recognised worldwide, i.e. *Eucranta villosa* Malmgren, 1866, *E. mollis* (McIntosh, 1876), *E. anoculata* (Moore, 1910) and *E. notialis* Monro, 1936 (Table 1). *Eucranta mollis* and *E. notialis* are present in our material and described here. *Eucranta villosa* is widely distributed in the Arctic and North Atlantic (Pettibone 1963), but not in the South Atlantic, and *E. anoculata* is so far only known from bathyal depths off California in the Pacific (Fauchald and Hancock 1981).

#### *Eucranta mollis* (McIntosh, 1876)

Fig. 2a–k

*Eupolynoe mollis* McIntosh, 1876: 319; McIntosh (1879): 259, pl. 15 figs. 5–9.

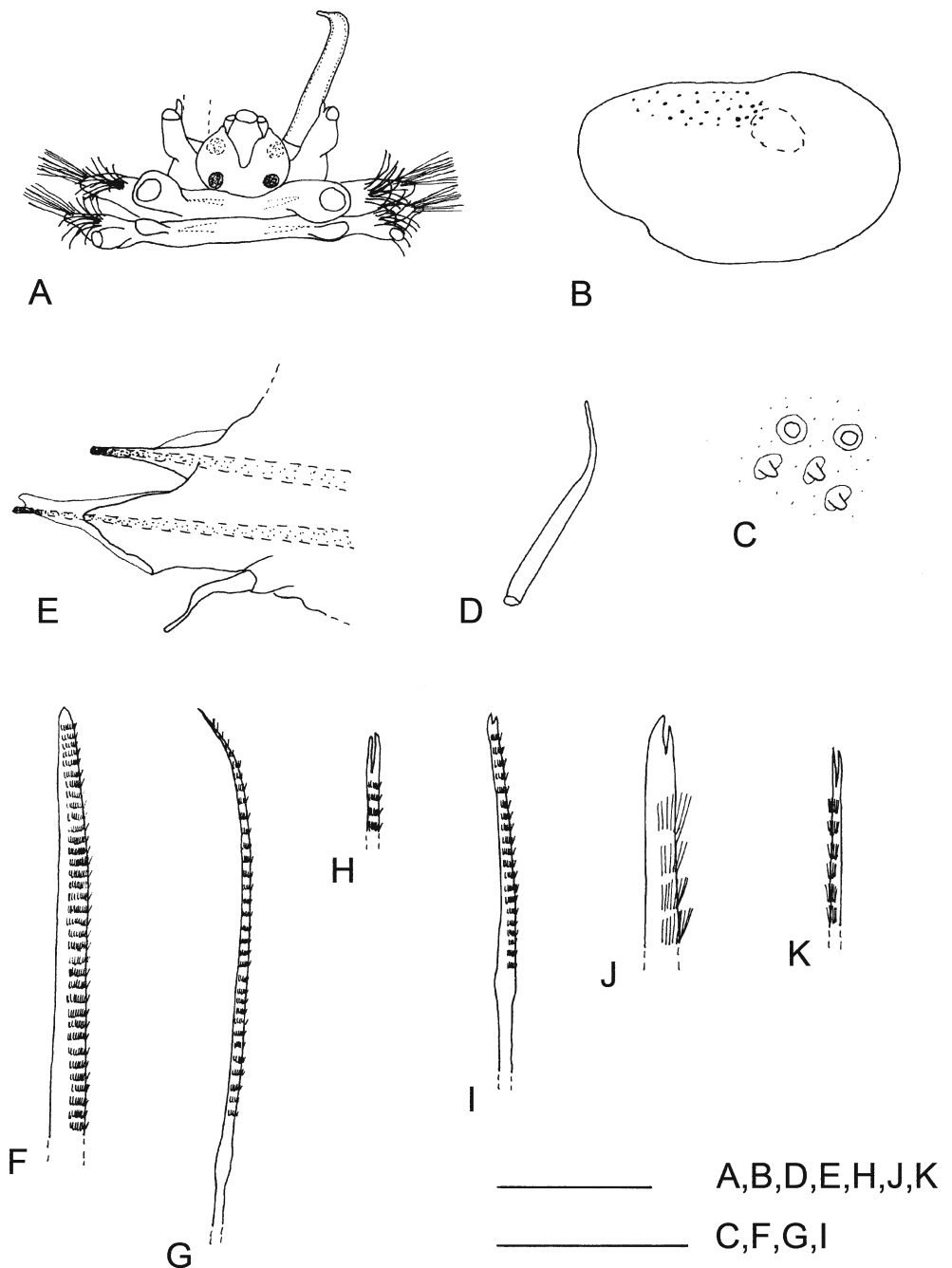
*Eucranta mollis*: Bergström (1916): 294 (as *Eucrantha mollis*, variant spelling); Monro (1936): 100; Hartman (1964): 19, pl. 4 figs. 5, 6; Orensanz (1976): 7; Hartman (1978): 131, figs. 4a–4e; Stiller (1996): 29, pl. 8.

**Material examined** 1 spm. (af, pf), SMF 19911, “Walther Herwig” 15, St. 401, E of Villa Gesell, 37°20'S, 54°40'W, 23 July 1966, 300 m, commensal with *Chaetopterus* sp.

**Table 1** Distinguishing characters and distribution of all known *Eucranta* species

Character and distribution/species	<i>Eucranta villosa</i> Malmgren, 1866	<i>Eucranta mollis</i> (McIntosh, 1876)	<i>Eucranta anoculata</i> (Moore, 1910)	<i>Eucranta notialis</i> Monro, 1936
Position of anterior eyes	In front of widest part of prostomium	Anteroventral beneath cephalic peaks	Absent	Dorsolateral at widest part of prostomium
Cephalic peaks	Small	Distinct	Small	Distinct
Elytral margin	With long papillae	Smooth	With short papillae	With long papillae
Elytral surface	Covered by conical, elongate microtubercles with simple or bifid tip	With patch of conical microtubercles near anterior margin	With patch of conical microtubercles near anterior margin	Covered by conical, elongate microtubercles with simple tip
Antennae and cirri	Papillate	Smooth	Papillate	Papillate
Neuropodial supra-acicular process	Very short	Short	Elongate, digitiform	Elongate, digitiform
Tips of neurochaetae	Upper forceps-like, middle and lower mostly unidentate, some middle bidentate	Upper forceps-like, middle and lower bidentate, some lowermost forceps-like	Mostly unidentate, some lower forceps-like	Upper forceps-like, middle and lower mostly unidentate, some middle bidentate
Distribution	Arctic and North Atlantic	Antarctic, Magellan, and Eastern South America regions	Off California, NE Pacific (bathyal)	Antarctic, Magellan, and Eastern South America regions
Reference	Pettibone (1963); this study	This study	Moore (1910); Fauchald and Hancock (1981)	This study

**Fig. 2** *Eucranta mollis* (McIntosh, 1876) (SMF 19911): **a** anterior end; styles of antennae and cirri and left palp missing; **b** right elytron from unknown segment; **c** microtubercles of same; **d** dorsal cirrus, free in vial; **e** left, elytrigerous parapodium from segment 13, posterior view; **f** distal half of long notochaeta; **g** distal part of upper, slender neurochaeta; **h** tip of same; **i** distal part of middle neurochaeta; **j** tip of same; **k** tip of lowermost neurochaeta. Scales (a, b, d) 2 mm, (c) 100  $\mu$ m, (e) 1 mm, (h, j, k) 50  $\mu$ m, (f, g, i) 250  $\mu$ m



(Fig. 2a–k). 3 spms. (1 cs, 2 af), BMNH 1971.244, Antarctic Expedition, Ross Sea, 74.5°S, 175.5°E, 300 fms, coll. 1839, don. Lords of the Admiralty [(selected as paralectotypes by M. Pettibone in 1971 but not published).

**Diagnosis** Anterior pair of eyes anteroventral beneath cephalic peaks. Cephalic peaks distinct. Elytral margin and surface smooth, except for patch of conical microtubercles near anterior margin. Cirri and antennae tapering, smooth. Neuropodial supra-acicular process short. Tip of upper neurochaetae slender, forceps-like, split and tip of middle and lower neurochaetae mostly bidentate, some lowermost forceps-like.

**Remarks** *Eucranta mollis* is easily distinguished from the other known *Eucranta* species (see Remarks section above) due to the position of its anterior pair of eyes (anteroventral beneath the cephalic peaks) and its more or less smooth elytra, except for a patch of microtubercles near the anterior margin (Fig. 2a–c; Table 1). Elytra of *E. anoculata* from the Northeast Pacific are similar with regard to the shape and distribution of their microtubercles, but here the elytral margin has some papillae. Moreover, *E. anoculata* shows no eyes at all (Table 1).

Differences with *E. notialis*, a second species present in our region and described below, are even more striking, with

elytra showing numerous microtubercles and long marginal papillae and the anterior pair of eyes situated dorsolaterally (Fig. 3a–c, Table 1).

**Measurements** Specimen figured (SMF 19911, Fig. 2a–k): cs in two fragments, length 27 mm, width 6 mm for 39 segments.

**Distribution** Formerly known from the Antarctic and Magellan regions (Stiller 1996), now also confirmed for the continental slope off the northern coast of Argentina. In 38–900 m depth; specimen found here commensal with *Chaetopterus* sp.

**Fig. 3** *Eucranta notialis* **Monro, 1936** (SMF 19912, a–g): **a** anterior end; styles of dorsal cirri and left palp missing, eye pigment faded; **b** left second elytron from segment 4; **c** detail of posterior margin of same; **d** left, cirriferous parapodium from segment 10, posterior view, style of dorsal cirrus missing; **e** tip of slender, upper neurochaeta; **f** tip of middle, bidentate neurochaeta; **g** tip of middle, unidentate neurochaeta. *Eucranta villosa* **Malmgren, 1866** (SMF 18379, h–j): **h** anterior end; style of median antenna missing; **i** detail of outer lateral margin of second elytron; **j** right, elytrigerous parapodium from segment 15, posterior view. Scales (a, b, j) 1 mm, (c, e, f, g) 100 μm, (d) 500 μm, (h) 2 mm, (i) 250 μm

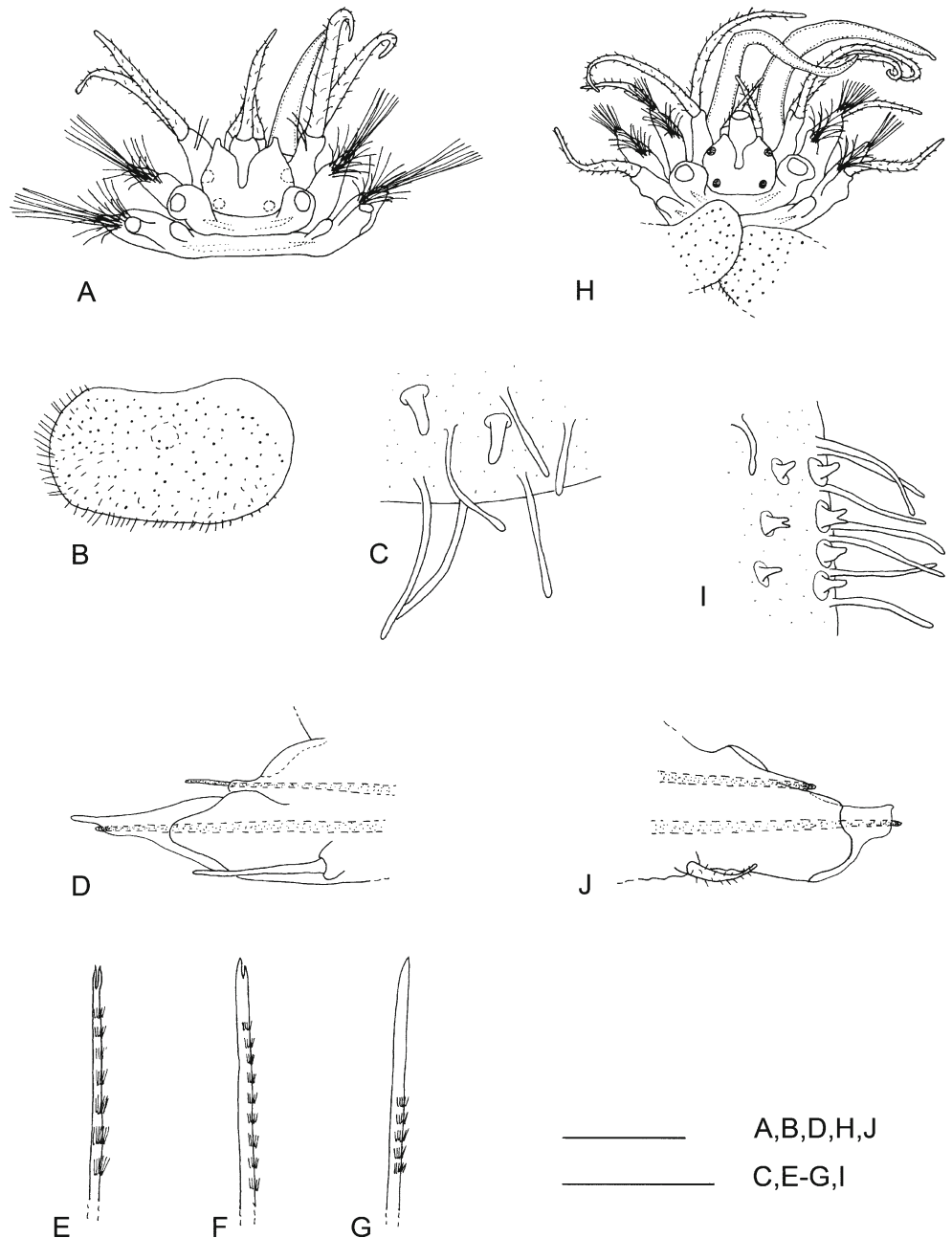
***Eucranta notialis* Monro, 1936**

Fig. 3a–g

*Eucranta villosa notialis* Monro, 1936: 101, fig. 11a–h; Hartman (1964): 20, pl. 4 figs. 7, 8; Orensanz (1976): 7.

**Type material** *Eucranta villosa notialis* Monro, 1936: 1 spm. (af), holotype, BMNH 1936.2.8.492, Discovery Expedition, “William Scoresby” St. WS 788 (1), off E coast of Patagonia, N of Falkland/Malvinas, 45°07'S, 64°54'W, 13 December 1931, 82–88 m, grey mud and sand.

*Eucranta villosa* Malmgren, 1866: 2 spms., syntypes, SMNH-Type-2378, Sweden, Bohuslän, Koster, 218–237 m, 58°57'N, 11°05'E, coll. S. Lovén (comparative material).



*Eupolynoe occidentalis* McIntosh, 1874: 1 spm. (only fragments of parapodia and pharynx), holotype, BMNH 1921.5.1.557, between Cape Rosier and Cape Gaspé, Gulf of St. Lawrence, Canada, 110 fms. (junior synonym of *Eucranta villosa* Malmgren, 1866, cf. Bergström 1916).

*Additional material Eucranta notialis*: 1 spm. (af), SMF 19912, SAO II-71, St. 133, San Matías Gulf, 42°03'S, 64°26'W, 1971, 150 m (Fig. 3a–g).

*Eucranta villosa*: 1 spm. (cs), SMF 18379, Akvaplan-Niva 2003 St. 10-5, Barents Sea, Goliat Gas field, 71°24.248' N, 22°19.139'E, 392 m, 16 June 2003, don. A.V. Sikorski (Fig. 3h–j).

**Diagnosis** Anterior pair of eyes dorsolateral at widest part of prostomium. Cephalic peaks distinct. Elytral surface covered by conical, elongate microtubercles with simple tip, margin and adjacent surface with numerous long papillae. Cirri and antennae tapering, papillate. Neuropodial supra-acicular process elongate, digitiform. Tip of upper neurochaetae forceps-like, split and tip of middle and lower neurochaetae mostly unidentate, some middle bidentate.

**Remarks** We raise Monro's (1936) subspecies *Eucranta villosa notialis* to species level, since in our opinion the differences from the stem species *E. villosa* Malmgren, 1866 from the northern hemisphere are sufficient. As noted by Monro (1936), *E. notialis* shows some bidentate neurochaetae in addition to those with forceps-like and unidentate tip as described for *E. villosa* so far (Fig. 3e–g). Curiously, we also found very few bidentates occurring in *E. villosa*, but there are other differences as confirmed by our investigation of the material cited above and partly also described by Pettibone (1963): in *E. villosa*, cephalic peaks are much smaller than in *E. notialis*, the anterior eyes are situated in front of the widest part of the prostomium in *E. villosa*, while those of *E. notialis* lie at the widest part, tips of elytral microtubercles in *E. villosa* are simple or bifid, in contrast to those of *E. notialis* which are all simple, and the neuropodial supra-acicular process is rather short in *E. villosa* and elongate, digitiform in *E. notialis*. (see Fig. 3a–j; Table 1).

Regarding the differences between *E. notialis* to *E. mollis*, see Remarks related to the latter species above (Figs. 2a–k and 3a–g; Table 1).

**Measurements** *Eucranta notialis*, specimen figured (SMF 19912, Fig. 3a–g): length 6 mm, width 3 mm for 13 segments (af). *Eucranta villosa*, specimen figured (SMF 18379, Fig. 3h–j): length 28 mm, width 8 mm for 39 segments (cs).

**Distribution** Known from the Antarctic and Magellan regions (Hartman 1964, Orensanz 1976), now also confirmed

for the the southwestern Atlantic up to San Matías Gulf. In 82–150 m depth.

### ***Harmothoe* Kinberg, 1856**

*Type species Harmothoe spinosa* Kinberg, 1856 (revised by Barnich et al. 2006).

**Diagnosis** Body dorsoventrally flattened, short, with up to about 50 segments; dorsum more or less covered by elytra or short tail region uncovered. Fifteen pairs of elytra on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32. Prostomium with distinct cephalic peaks and three antennae; lateral antennae inserted ventrally to median antenna. Position of anterior pair of eyes variable, posterior pair situated dorsally near hind margin. Parapodia with elongate acicular lobes with noto- and neuroacicula penetrating epidermis; neuropodia with a supra-acicular process. Notochaetae stout with distinct rows of spines and blunt tip. Neurochaetae more numerous and usually more slender; with distinct rows of spines distally and tips falcate or straight, either all bidentate with a subdistal secondary tooth or some bi- and some unidentate.

### ***Harmothoe madrynensis* n.sp.**

Fig. 4a–i

*Type material* 2 syntypes (1 cs, 1 af, 1 pf), SMF 19913, Puerto Madryn, Playa Mimosa, intertidal, 7 October 2005, coll. G. Escati. (Both specimens were originally placed in the same vial and, except for the posterior fragment, they lost all their elytra during fixation. Since the elytra are now free in the vial and the specimens differ only slightly in size, it was not possible to attribute the elytra to the respective specimens and designate a holo- and a paratype.)

**Diagnosis** Anterior eyes anteroventral beneath cephalic peaks. Elytral margin and adjacent surface papillate, papillae rather long at outer lateral margin and shorter at posterior margin; surface covered by conical microtubercles. Neuropodial supra-acicular process long, digitiform.

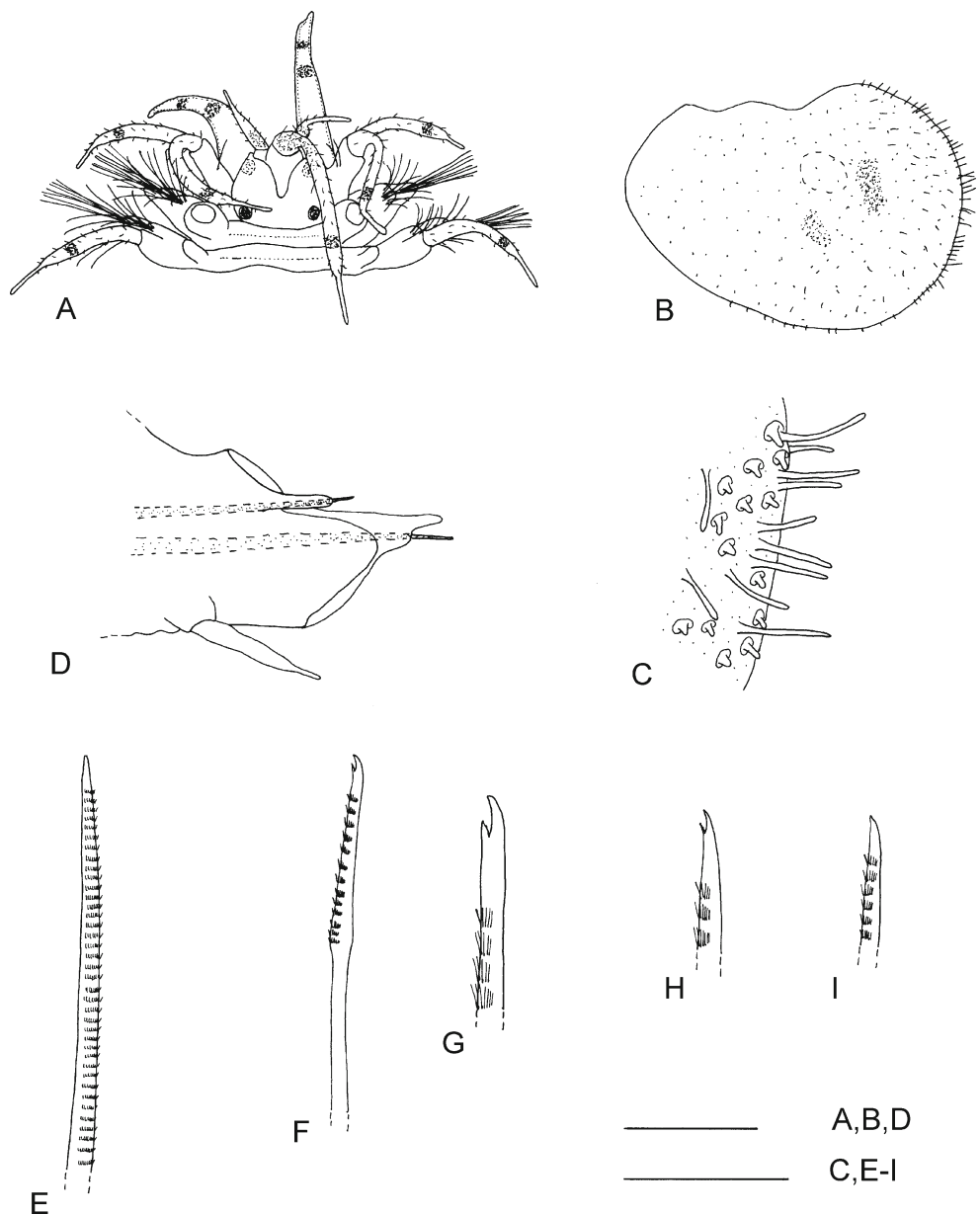
**Description** Description (based on free elytron and on complete syntype for characters of anterior end and parapodia).

Body with 38 segments. At the anterior end (Fig. 4a), prostomium bilobed, with distinct cephalic peaks; ceratophore of median antenna in anterior notch, lateral antennae inserted ventrally, styles of antennae papillate, abruptly tapering subdistally; anterior pair of eyes situated anteroventrally beneath cephalic peaks, posterior pair dorsally near hind margin of prostomium; palps papillate, tapering.

Tentaculophores inserted laterally to prostomium, each with one or two notochaetae and a dorsal and ventral tentacular cirrus; styles of cirri papillate, abruptly tapering



**Fig. 4** *Harmothoe madrynsis* n. sp. (syntype, SMF 19913, cs): **a** anterior end; **b** right elytron from unknown segment, free in vial; **c** detail of outer lateral margin; **d** right, elytrigerous parapodium from segment 13, posterior view; **e** distal half of long notochaeta; **f** distal part of middle neurochaeta; **g** tip of same; **h** tip of upper neurochaeta; **i** tip of lower neurochaeta. Scales (**a**, **b**) 1 mm, (**c**, **e**, **f**) 250  $\mu$ m, (**d**) 1 mm, (**g**–**i**) 100  $\mu$ m



subdistally. Second segment with first pair of elytra, biramous parapodia, and long buccal cirri. Following segments with tapering, short, smooth ventral cirri.

Fifteen pairs of elytra, covering dorsum, on segments 2, 4, 5, 7, then on every second segment to 23, 26, 29, 32, last six segments cirriferous; elytral margin and adjacent surface papillate, papillae rather long at outer lateral margin and shorter at posterior margin; surface covered by conical microtubercles; elytra usually with mottled pigmentation (Fig. 4b, c). Cirriferous segments with distinct dorsal tubercles; dorsal cirri with cylindrical cirrophore, style papillate, abruptly tapering subdistally.

Parapodia biramous; notopodia with elongate acicular lobe; neuropodia with elongate prechaetal acicular lobe with long, digitiform supra-acicular process; neuropodial postchaetal lobe

shorter than prechaetal lobe, rounded; tips of noto- and neuroacicula penetrating epidermis (Fig. 4d). Notochaetae slightly stouter than neurochaetae, with distinct rows of spines and blunt tip (Fig. 4e); neurochaetae with distinct rows of spines, mostly bidentate with distinct secondary tooth, some lower neurochaetae unidentate. (Fig. 4f–i).

**Measurements** 2 syntypes (SMF 19913): cs: L 14 mm, W 4 mm for 38 segments (all elytra lost; Fig. 4a, d–i); af: L 12 mm, W 5 mm for 21 segments (all elytra lost); pf: L 5.5 mm, W 4 mm for 16 segments (22nd to 37th segment, few elytra attached).

**Etymology** The species is named after its type locality: Puerto Madryn, Argentina.

**Remarks** Due to the position of its anterior pair of eyes, *Harmothoe madrynensis* n. sp. is easy to differentiate from other *Harmothoe* species so far known from the Southwest Atlantic (see below). Among the *Harmothoe* species having anterior eyes situated anteroventrally, the new species is reminiscent of *H. grisea* Ehrenberg and Grube in Grube, 1869 which is widely distributed in the Indian and Pacific Oceans. But *H. grisea* is clearly differing by the following characters: shorter and fewer elytral papillae in general and the shorter supra-acicular process in the neuropodia (see also Wehe 2006 and Barnich and Fiege 2009, remarks related to *H. imbricata* (Linnaeus, 1767)).

Elytra of *H. madrynensis* n. sp. are reminiscent of those of *H. ciliata* Monro, 1936 from the Magellan Strait, but the main difference is the position of the anterior eyes which are distinctly dorsolateral in *H. ciliata* and not anteroventral as in *H. madrynensis* n. sp. (for further details especially on synonymy of *H. ciliata*, see below.)

**Distribution** Currently known only from the type locality Puerto Madryn in the Nuevo Gulf, Argentina. Intertidal.

#### ***Harmothoe ciliata* Monro, 1936**

*Harmothoe brevipalpa ciliata* Monro, 1936: 87, fig. 6.

*Harmothoe impar*: Monro (1939): 98 [not *Harmothoe impar* (Johnston, 1839)].

*Harmothoe impar ciliata*: Hartman (1964): 31, pl. 7 fig. 2.

*Harmothoe fimbriata* Hartmann-Schröder, 1965: 64, figs. 8–12 (new synonymy).

**Type material** *Harmothoe brevipalpa ciliata*: holotype, BMNH 1936.2.8.120, Discovery Expedition, “William Scoresby” St. 583, Magellan Strait, 53°39'S, 70°54'30"W, 2 May 1931, 14–78 m, sand and stones.

*Harmothoe fimbriata*: holotype, ZMH P-13984, Exp. Mar Chile I, St. 75, Isla Mocha (S Chile), 38°15.9'S 73°33' W, 11 March 1960, 26 m, black sand.

**Diagnosis** Anterior eyes dorsolateral at widest part of prostomium. Elytral margin and adjacent surface with long papillae, becoming shorter at posterior margin; surface with conical microtubercles mainly in anterior half, scattered in posterior half. Neuropodial supra-acicular process long, digitiform.

**Remarks** This species is currently known from the Magellan region and western South America, but was not present in our material. Since we had to check the respective types for comparison with *H. madrynensis* n. sp. described above, we include here the diagnostic characters and the synonymy list.

Originally, Monro (1936) described this species as a subspecies of *H. brevipalpa* Bergström, 1916; later, he

attributed it to *H. impar* (Johnston, 1939) and was followed by several authors, among them Hartman (1964). But *H. impar* is a Northeast Atlantic species with very typical elytral characters (i.e. globose to conical microtubercles on the surface, row of conical macro-tubercles near the posterior margin, and tubercles often grouped on mounds, giving surface a reticulate appearance; see revision by Barnich and Fiege 2009). As shown by Barnich et al. (2006), *H. brevipalpa* is a junior synonym of *H. magellanica* and differs distinctly from *H. ciliata* by its elytra with only few, short papillae. Thus, we consider Monro's subspecies a valid *Harmothoe* and raise it here to species level.

In the same context we checked also the holotype of *H. fimbriata* Hartmann-Schröder, 1965 and consider this a junior synonym of *H. ciliata*.

#### ***Harmothoe exanthema* (Grube, 1858)**

*Polynoe exanthema* Grube, 1858: 46.

*Harmothoe exanthema*: Bergström (1916): 287, pl. 3 fig. 5; Monro (1936): 85; Hartman (1964): 28, pl. 7 fig. 7; Barnich et al. (2006): 40, fig. 2.

*Harmothoe exanthema bergströmi* Monro (1936): 85, fig. 4a–c.

*Lagisca globulosa* Hartmann-Schröder, 1962: 62, figs. 9–15.

(for extended synonymy see revision by Barnich et al. 2006).

**Material examined** 1 spm., SMF 19914, SAO V, St. 6, scallop fishing ground, NW of San Matías Gulf, 3 km off El Camino, 18 m, dredged, 28 February 1973, coll. J. Orensanz. 2 spms., MACN-In 39407, SANJO I, St. ,A', San José Gulf, E of Isla de Pájaros, limestone platform, intertidal. 1 spm. (af), SMF 19915, SANJO II, dredge haul 5, San José Gulf, E of Tehuelche, 3 miles offshore, 47 m, coll. J. Orensanz et al., 11 May 1976. 2 spms (af), SMF 19916, SAO V, St. 236, 40°53'S, San Matías Gulf, off El Buque, 20 m, shell debris, 6 March 1979. 1 spm., SMF 19917, SANJO II, San José Gulf, dredge haul 3, off San Román, 60 m, on cerianthid tubes, 11 May 1976, coll. J. Orensanz et al.

**Diagnosis** Anterior eyes dorsolateral at widest part of prostomium. Elytral margin with scattered, digitiform papillae; elytral surface with conical microtubercles; near outer lateral and posterior margin pyriform to globose macro-tubercles with or without distal papilla.

**Distribution** According to Barnich et al. (2006), presence confirmed for western South America and the Magellan region, now also known from southeastern South America, northwards to San Matías Gulf. In 14 to 100 m depth.

***Harmothoe magellanica* (McIntosh, 1885)**

*Lagisca magellanica* McIntosh, 1885: 82, pl. 13 fig. 5, pl. 18 figs. 3, 4, pl. 7A figs. 1, 2.

*Harmothoe magellanica*: Bergström (1916): 280, pl. 4 figs. 1–3; Barnich et al. (2006): 52, figs. 6, 7.

*Harmothoe brevipalpa* Bergström, 1916: 277, pl. 2 fig. 1, pl. 4 figs. 4–7; Monro (1936): 86, fig. 5.

*Harmothoe impar notialis* Monro, 1930: 58, figs. 13a–d; Hartman (1964): 31, pl. 7 figs. 9–10.

(for extended synonymy see revision by Barnich et al. 2006).

**Material examined** 1 spm., SMF 19918, SAO V, St. 6, scallop fishing ground, NW of San Matías Gulf, 3 km off El Camino, 18 m, dredged, 28 February 1973, coll. J. Orensanz. 1 spm., SMF 19919, Alte Saldanha, St. 2287, 38°05'S, 56°50'W, 43 m. 1 spm., SMF 19920, SANJO I, St. A, San José Gulf, Islote Notable, intertidal, sand flat. 7 spms., MACN-In 39408, SAO I-71, St. 47, San Matías Gulf, 41°23'S 65°01'W, 1971, 36 m, sandy and muddy substrate. 3 spms., SMF 19921, Mejillón I, St. 5; 37°40'S, 56°36'W, 55 m, hard substrate, mussel beds. 1 spm. (af), SMF 19922, SANJO II, dredge haul 5, San José Gulf, E of Tehuelche, 3 miles offshore, 47 m, coll. J. Orensanz et al., 11 May 1976. 4 spms., SMF 19923, off Faro Querandí, mussel beds, 4 January 1968, coll. Penchaszadeh. 11 spms., MACN-In 39409, “Hero”, St. 15, 37°37'S, 56°17'W, 70–80 m. 11 spms., SMF 19924, “Goyena” II, St. 12, 38°03.9'S, 57°22'W, rough sand and mussel debris. 1 spm. (af), SMF 19925, SAO II-71, St. 122, San Matías Gulf, 41°33'S 64°01'W, 1971, 70 m. 1 spm., SMF 19926, SAO II-71, St. 133, San Matías Gulf, 42°03'S, 64°26'W, 1971, 150 m. 5 spms., SMF 19927, “Walther Herwig”, St. 399, 37°51'S, 55°10'W, 250 m. 2 spms., SMF 19928, N end of Riacho Jabalí, Bahía San Blas, Puerto de Pescadores, upper subtidal, rocks with *Codium* over muddy substrate, 6 October 1968, coll. J. Orensanz. 4 spms., SMF 19929, Mar del Plata, St. 1, 38°S, 57°27.5'W, 18.3 m, mud. 8 spms., SMF 19930, Mejillón I, St. 27, 37°33'S, 56°24'W, 51 m, mussel beds. 2 spms., SMF 19931, A. Knipovich, St. 1059, 35°25.9'S, 59°27.9'W, 72–80 m. 5 spms., SMF 19932, SAO I-71, San Matías Gulf, between Bajo Oliveira and el Sótano, 1971, 15–25 m. 1 spm. (af), SMF 19933, SAO II-71, St. 125, San Matías Gulf, 41°42'S 64°52'W, 1971, 70 m. 1 spm., SMF 19934, off Mar del Plata, Sample VI, mussel beds, coll. Ringuelet and Menni. 9 spms., SMF 19935, SAO II-71, St. 110, San Matías Gulf, 41°13'S, 64°59'W, 1971, 90 m. 7 spms., SMF 19936, “A. Knipovich”, St. 1054, 35°56.5'S, 54°17.7'W, 58–65 m, grey sand. 3 spms., SMF 19937, SAO I-71, St. 17, San Matías Gulf, 1971. 2 spms., SMF 19938, SAO II-71, St. 106, San Matías Gulf, 41°03'S, 64°53'W, 1971, 98 m. 1 spm., SMF 19939, SAO II-71, St. 117, San Matías Gulf, 41°23'S, 64°57'W, 1971, 77 m. 2 spms., SMF 19940, SAO V, St. 231, 40°53'

S, San Matías Gulf, off Baja Oliveira, 19 m, coarse sand, boulders, shells, 5 March 1973. 1 spm., SMF 19941, SAO V, St. 213, 40°54'S, San Matías Gulf, off Primer Camino, 28 m, 2 March 1973. 1 spm., SMF 19942, SAO II-71, 1st hake haul, San Matías Gulf, 1971. 1 spm., SMF 19943, SAO I-71, St. 46, San Matías Gulf, 41°27'S, 64°57'30"W, 1971, 36 m, gravel. 2 spms., SMF 19944, “Walther Herwig” 15, St. 391, E of Miramar, 38°51'S, 55°22'W, 21 July 1966, 400 m. 2 spms., SMF 19945, SAO I-71, St. 53, San Matías Gulf, 41°S, 65°06'W, 1971, 38 m, mud and shell debris. 5 spms., SMF 19946, “Hero”, St. 15, 37°37'S, 56°17'W, 70–80 m. 1 spm., SMF 19947, SAO V, St. 203, San Matías Gulf, 41°04'S, 20–21 m, fine sand, 28 February 1973. 6 spms., SMF 19948, Mar del Plata IV, St. 66, 38°21'S, 57°40'W, 43 m, limestone and fine to medium sand. 4 spms., SMF 19949, SAO I-71, St. 20, San Matías Gulf, 40°54'S, 64°48'30"W, 1971, 36.5 m, fine sand. 1 spm. (af), SMF 19950, off Mar del Plata, Sample II, mussel beds, coll. Ringuelet and Menni. 3 spms. (juv.), SMF 19951, “Atlantis II” -60, St. 284, off Uruguay, lower shelf. 1 spm., SMF 19952, SAO II-71, St. 111, San Matías Gulf, 41°08'S, 64°53'W, 1971, 111 m. 1 spm., SMF 19953, SAO I-71, St. 48, San Matías Gulf, 41°20'S, 65°03'W, 1971, 36 m. 1 spm., SMF 19954, SAO II-71, St. 110, San Matías Gulf, 41°13'S, 64°59'W, 1971, 90 m.

**Diagnosis** Anterior eyes dorsolateral at widest part of prostomium. Outer lateral elytral margin and posterior half of surface with few digitiform papillae; anterior half of elytra covered with conical microtubercles, number of microtubercles and surface covered variable (papillae and microtubercles missing in posterior elytra).

**Remarks** Widely distributed in the Antarctic, Sub-antarctic and Magellan regions (Barnich et al. 2006), now presence also confirmed in the southwest Atlantic, northwards to off Uruguay. In 0–728 m depth.

***Polyeunoa* McIntosh, 1885**

**Type species** *Polyeunoa laevis* McIntosh, 1885.

**Diagnosis** Body long, with numerous segments (up to 100). Elytra at least 15 pairs, on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32, with or without additional, sporadically and irregularly arranged pairs of elytra. Prostomium with cephalic peaks distinct, poorly developed, or absent; with three antennae; lateral antennae with ceratophores inserted ventrally; two pairs of eyes, anterior pair dorsolateral at widest part of prostomium, posterior pair dorsal near hind margin of prostomium. Parapodia with well-developed, digitiform notopodial acicular lobe and prominent, conical neuropodial acicular lobe; tips of noto- and neuroacicula penetrating epidermis; neuropodia with

rather short, rounded supra-acicular process. Notochaetae stout, with distinct rows of spines and blunt tip; neurochaetae with distinct rows of spines distally and uni- or bidentate tip.

***Polyeunoa laevis* McIntosh, 1885**

*Polyeunoa laevis* McIntosh, 1885: 76, pl. 12 fig. 2, pl. 20 fig. 8, pl. 7A figs. 12, 13; Bergström (1916): 288, pl. 3 fig. 7; Hartman (1964): 42, figs. 5–7; Pettibone (1969): 46, fig. 1; Orensanz (1976): 11.

*Enipo rhombigera* Ehlers, 1908: 47, pl. 4 figs. 1–12.

*Polyeunoa rhombigera*: Hartman (1967): 39.

*Polynoe thouarellicola* Hartmann-Schröder, 1989: 207, figs. 1–11.

(for extended synonymy see Pettibone (1969) and Stiller (1996)).

**Material examined** 2 spms., SMF 19955, “Walter Herwig” 15, St. 234, E Santa Vitória do Palmar, 35°14'S 52°28'W, 12 June 1966, 200 m. 21 spms., SMF 19956, “Walther Herwig” 15, St. 245, E Mar de Ajó, 36°49'S, 54°02'W, 14 June 1966, 600 m, associated with octocorals. 2 spms., MACN-In 39410, “Walther Herwig” 15, St. 245, E Mar de Ajó, 36°49'S, 54°02'W, 14 June 1966, 600 m, associated with octocorals. 1 spm., SMF 19957, “Walther Herwig” 15, St. 340, S Falkland/Malvinas Islands, 53°47'S, 58°46'W, 1 July 1966, 165 m. 1 spm., SMF 20035, “Walther Herwig” 15, St. 246, E Mar de Ajó, 36°48'S, 54°03'W, 14 June 1966, 500 m. 1 spm. (mf), SMF 19958, “Walther Herwig” 15, St. 306, E Comodoro Rivadavia, 45°46'S, 60°19'W, 25 June 1966, 200 m.

**Diagnosis** Prostomium with cephalic peaks present or absent. Elytra 15 pairs or more, nearly covering dorsum in anterior body region, becoming smaller more posteriorly; usually smooth, occasionally anterior elytra with few scattered marginal papillae or some microtubercles near anterior margin.

**Remarks** As noted already by a number of authors, like Bergström (1916), Pettibone (1969), or Stiller (1996), *Polyeunoa laevis* is a very variable species, especially with regard to its number and insertion of elytra and presence or absence of cephalic peaks. A revision of the genus based on morphological and molecular methods is necessary to verify the validity of several other species within the genus, but this is beyond the scope of the present paper.

**Distribution** Widely distributed in the Antarctic, Subantarctic, Magellan and South African regions (Stiller 1996), presence now also confirmed for the southwestern Atlantic, northwards to off Buenos Aires. In 35–2,450 m depth; often associated with octocorals.

**Lepidonotinae Willey, 1902**

***Halosydna* Kinberg, 1856**

*Type species Halosydna patagonica* Kinberg, 1856.

**Diagnosis** Body flattened dorsoventrally, short, with about 36 segments. Elytra 18 pairs on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 28, 30, 31, 33. Prostomium with three antennae; lateral antennae inserted terminally, ceratophores fused to prostomium; two pairs of eyes, anterior pair dorsolateral on widest part of prostomium, posterior pair dorsal near hind margin of prostomium. Parapodia with elongate acicular lobes with both acicula penetrating epidermis. Notochaetae more slender than neurochaetae, with numerous rows of spines, short ones with blunt tip, long ones tapering to capillary or slender tip; neurochaetae stout, falcate, with numerous rows of spines distally, tips uni- and/or bidentate.

***Halosydna patagonica* Kinberg, 1856**

*Halosydna patagonica* Kinberg, 1856: 385; Kinberg (1857): pl. 5 fig. 23; Kinberg (1858): 17; Hartman (1938): 109; Rioja (1946): 39; Hartman (1949): 16, pl. 2 figs. 15–18.; Orensanz (1976): 5.

**Material examined** 1 spm. (cs), MACN-In 20955, “FV Maneco”, 39°18'S, 56°00'W, 60–70 fms, 1932, coll. A. Pozzi. 13 spms. (cs and juv.), SMF 19959, “Goyena II”, St. 12, 38°03.9'S, 57°22'W, rough sand with shells.

**Diagnosis** Elytra with distinct papillae at outer lateral margin, posterior margin smooth; surface covered by conical microtubercles, conical macrotubercles present in posterior half.

**Remarks** The main distinguishing characters of the genera *Halosydna* Kinberg, 1856 and *Halosydnella* Hartman, 1938 are the number of segments and elytra respectively. Adult specimens of *Halosydna* have only up to 36 segments and 18 pairs of elytra, while those of *Halosydnella* are characterized by 45 segments and 20–24 pairs of elytra. In the region considered here, misidentification of specimens of *Halosydna patagonica* Kinberg, 1856 and *Halosydnella australis* (Kinberg, 1856) might occur, especially in juveniles of the latter with fewer than 19 pairs of elytra or in anterior fragments for example.

**Distribution** Widely distributed, from along the coasts of western South America (northwards to Iquique, Chile), Magellan and Sub-antarctic regions (Orensanz 1976); southwestern Atlantic northwards to off Mar del Plata. In 0–127 m depth.

***Halosydnella* Hartman, 1938**

*Type species Halosydna australis* Kinberg, 1856.

**Diagnosis** Body flattened dorsoventrally, elongate, with about 45 segments. Elytra 20–24 pairs on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 28, 30, 31, and on every 2nd or 3rd more posteriorly. Prostomium with three antennae; lateral antennae inserted terminally, ceratophores fused to prostomium; two pairs of eyes, anterior pair dorso-lateral on widest part of prostomium, posterior pair dorsal near hind margin of prostomium. Parapodia with elongate acicular lobes with both acicula penetrating epidermis. Notochaetae more slender than neurochaetae, with numerous rows of spines, short ones with blunt tip, long ones tapering to capillary or slender tip; neurochaetae stout, falcate, with numerous rows of spines distally, tips uni- and/or bidentate.

***Halosydnella australis* (Kinberg, 1856)**

*Halosydna australis* Kinberg, 1856: 385; Kinberg (1857); pl. 5 fig. 21; Kinberg (1858): 16.

*Halosydnella australis*: Hartman (1938): 110; Hartman (1949): 21, pl. 2 figs. 6–9; Rioja (1946): 41; Amaral and Nonato (1982): 21.

*Halosydna brasiliensis* Kinberg, 1857: pl. 5 fig. 22; Kinberg (1858): 16 (new synonymy).

*Halosydnella brasiliensis*: Hartman (1938): 111; Hartman (1949): 20, pl. 1 figs. 10, 11; Amaral and Nonato (1982): 21, figs. 53–60.

*Halosydna grisea* Treadwell, 1929: 1, figs. 1–6.

*Halosydnella grisea*: Hartman (1938): 111, fig. 36 d, e.

? *Halosydna glabra*: Amaral and Nonato (1982): 21, figs. 51, 52.

**Material examined** 1 spm. (juv.), SMF 19971, Mejillón I, St. 5, 37°40'S, 56°28'W, 55 m, hard ground, mussel beds. 1 spm. (cs), SMF 19972, San Antonio Oeste, scallop fishing grounds, 18 February 1970, coll. Olivier. 5 spms. (cs), SMF 19973, Mar Chiquita, Punta Ondina, on *Ficopomatus* reef, 22 September 1968, coll. J. Orensanz. 1 spm. (cs), SMF 19974, "A. Knipovich", St. 1071, 34°22.9'S, 52°37.2'W, 36–42 m. 2 spms., SMF 19975, Santa Clara del Mar, intertidal limestones, January 1965, coll. J. Orensanz. 1 spm. (juv.), SMF 19976, Puerto Ingeniero White, iron dock, 28 September 1968, coll. Valentinuzzi. 2 spms., SMF 19977, Mar del Plata, inner harbour, 3 m, 16 August 1965, coll. Bulla. 2 spms. (juv.), SMF 19978, Mar del Plata, Club Nautico, 19 January 1968, coll. Malacalza. 1 spm. (cs), MACN-In 39411, SAO V, St. 208, San Matías Gulf, 40°56' S, 2 km off El Camino, 11 m, on rocky substrate, 2 March 1973. 2 spms., SMF 19979, Santa Clara de Mar, March 1965, coll. J. Orensanz. 2 spms., SMF 19980, Campaña Camaronera Sur 1969, St. 67, 39°27'S, 61°04'W, 24 m, 20 March 1969, coll. M.A. Scelzo. 1 spm. (cs), SMF 19981, SAO III-72, St.

1047, San Matías Gulf, near Isote Lobos, 1972. 40 spms., SMF 19982, Riacho Jabalí, Bahía San Blas, bridge pilons, between dead oysters, 4 October 1968, coll. J. Orensanz. 9 spms., SMF 19983, Mar del Plata, between Playa Grande and Playa Chica, rocky intertidal, February 1965, coll. Olivier et al. Numerous spms., SMF 19984, Santa Clara del Mar, lower intertidal, with coralline algae, 18 January 1968, coll. J. Orensanz. 1 spm. (af), SMF 19985, SAO III-72, St. 1058, San Matías Gulf, 2500 mN of Fuerte Argentino, 1972. About 20 spms., MACN-In 39412, "Goyena II", St. 12, 38°03.9'S, 57°22'W, rough sand with shells. 1 spm. (cs), SMF 19986, SAO III-72, St. 1052, 12 km N of St. 1051 (Pto. Ortiz), San Matías Gulf, 1972. 1 spm. (cs), SMF 19987, Los Pocitos, under rocks covered by mud, upper intertidal, 21 April 1970, coll. J. Orensanz. 3 spms. (juv.), SMF 19988, Miramar, lower intertidal to upper subtidal, with coralline algae and sertulariid hydrozoans, 5–6 July 1969, coll. J. Orensanz and Estivariz. 2 spms., SMF 19989, Mar del Plata, Cabo Corrientes, lower intertidal, 24 January 1968, coll. J. Orensanz. 4 spms., SMF 19990, Santa Clara del Mar, middle intertidal, 12 April 1967, coll. J. Orensanz. 12 spms., SMF 19991, Puerto Ingeniero White, 28 September 1968, coll. Valentinuzzi. 2 spms., SMF 19992, "Goyena II", St. 12, 38°03.9'S, 57°22'W, rough sand with shells. 1 spm. (af), SMF 19993, Mar Chiquita Lagoon, Playa Rusa, on *Ficopomatus* reef, 5 March 1969, coll. J. Orensanz and Estivariz. 1 spm., SMF 19994, off Faro Querandí, mussel bed, 4 January 1968, coll. Penchaszadeh. 17 spms., SMF 19995, Puerto Ingeniero White, Bahía Blanca, 5 October 1956. 1 spm. (af), SMF 19996, Camaronera Sur 1969, St. 67, 39°27'S, 62°04'W, 24 m, 20 March 1969. 1 spm. (af), SMF 19997, SAO III-72, St. 1083, San Matías Gulf, Banco Reparo, 1972, lower intertidal. 4 spms., SMF 19998, SAO III-72, St. 1055, San Matías Gulf, 4 km N of Fuerte Argentino, 1972. 5 spms., SMF 19999, Santa Elena, Frentemar, lower intertidal, 23 December 1968, coll. J. Orensanz. 7 spms., SMF 20000, Miramar, lower intertidal to upper infralittoral, 6 July 1967, coralline algae with *Sertularia*. 2 spms. (cs), SMF 20001, Uruguay, Fortaleza de Santa Teresa, 29 October 1970, coll. J. Orensanz. 7 spms., SMF 20002, Mar del Plata, between Playa Grande and Playa Chica, tidal pool with *Brachidontes*, coralline algae and *Bryopsis*, 22 May 1967, coll. J. Orensanz. 1 spm., SMF 20003, SAO III-72, St. 1054, San Matías Gulf, 2.5 km N of Fuerte Argentino, 1972. 9 spms., SMF 20004, Santa Clara, middle intertidal, 12 April 1967, coll. J. Orensanz. 2 spms., SMF 20005, Santa Clara, intertidal, March 1965, coll. J. Orensanz. 1 spm., SMF 20006, Mar del Plata, inner harbour, LEMT experimental raft, 24 August 1967, coll. Bastida. 5 spms., SMF 20007, Uruguay, Isla Gorriti, 11 January 1969, coll. Amaro. 1 spm., SMF 20008, SAO III-72, St. 1064, San Matías Gulf, between Los Chañares and Las Grutas, among coloured stones, 1972. 3 spms., SMF 20009, SAO III-72, St. 1001, San Matías Gulf, Puerto Lobos, 1972, middle intertidal, between leaves of

*Ulva*. 2 spms., SMF 20010, Mar del Plata, coll. Dantert. 2 spms., SMF 20011, Mar del Plata, Playa Grande, tide pool with *Brachidontes*, algae and abundant sediment, 22 May 1967. 4 spms., SMF 20012, NE of Isla Jabalí, upper subtidal, together with *Codium* sp., Rhodophyta and oysters, 20 September 1970, coll. Orensanz et al. 1 spm., SMF 20013, Puerto Ingeniero White, 12 September 1968, coll. Valentinuzzi. 1 spm. (af), SMF 20014, San José Gulf, El Riacho, intertidal musselbed, December 2005, coll. J. Orensanz. 1 spm., SMF 20015, Mar del Plata, Cabo Corrientes, January 1969, coll. Risso-Dominguez. 1 spm. (af), SMF 20016, SAO III-72, between St. 1041 and 1042, San Matías Gulf, between Puesto Ortiz and 12 km N of Puesto Ortiz, 1972, rough sand and shells. 16 spms., SMF 20017, Mar del Plata, Cabo Corrientes, 15 January 1962, Exp. MLP. 5 spms., SMF 20018, Mar del Plata, between Playa Blanca and Playa Chica, intertidal, Transección V, February 1965. 4 spms., SMF 20029, Mar del Plata, between Playa Grande and Playa Chica, intertidal, Transección V, February 1965. 1 spm., SMF 20019, Mar del Plata, Escollera Norte, 31 January 1969, coll. J. Orensanz. 1 spm., MNHN I. 1171, "Hero", St. 13, 34°20'S, 53°45'W, near Valizas, 2 miles off the coast, 15 m, 21 July 1972, shells and rocks. 10 spms., SMF 20020, Puerto Ingeniero White, iron dock, 21 July 1968. 10 spms., SMF 20021, Frentemar, in *Polydora* community, 7 May 1967. 1 spm., MNHN I.1157, "Hero", St. 17, 33°55'S, 53°28'W, Chuy, 2 miles off Isla Verde, 22 July 1972, 11 m, sand. 4 spms., SMF 20022, Santa Clara del Mar, intertidal, between *Brachidontes*, 20 January 1966, coll. J. Orensanz. 1 spm., SMF 20023, Mar de Cobo, lower intertidal, limestone with *Bryopsis*, 12 October 1968, coll. J. Orensanz and Estivariz. 4 spms., SMF 20024, Uruguay, La Pedrera, 30 October 1970, coll. J. Orensanz. 1 spm., SMF 20025, Mar del Plata, Playa Chica, intertidal, 13 March 1968, coll. J. Orensanz. 1 spm. (af), SMF 20026, SAO V, St. 236, San Matías Gulf, 40°53'S, off El Buque, 20 m, shells, 6 March 1973. 1 spm., SMF 20027, Mar del Plata, between Playa Grande and Playa Chica, tide pool I, with *Brachidontes*, *Bryopsis*, and sand, 15 January 1965, coll. J. Orensanz. 2 spms., SMF 20028, Puerto Galván, old YPF dock, 22 October 1967, coll. Valentinuzzi. 2 spms., MNHN I. XXXX, Uruguay, La Paloma Rocha, December 1943, coll. F. Mañé-Garzón.

**Diagnosis** Anterior elytra with few, short marginal papillae at outer lateral margin, disappearing in middle and posterior elytra. Anterior elytra with conical microtubercles mostly near margins, and with conical macrotubercles centrally; in middle and posterior elytra microtubercles becoming smaller, more flattened, limited to stripe along anterior half of surface, macrotubercles disappearing.

#### Remarks

- 1) In contrast to Hartman (1938 and 1949) who considered *H. australis* (Kinberg, 1856) and *H. brasiliensis*

(Kinberg, 1857) distinct, the study of our material revealed that the description of elytra of *H. australis* by Kinberg (1856) and Hartman (1949) corresponds to characters found in the anterior elytra of our specimens, while the characters for *H. brasiliensis* are found in elytra from the middle and posterior body region in our specimens. Hartman (1949) might not have been aware of this fact, since, as she stated, the holotype of *H. brasiliensis* is not in very good condition.

- 2) Regarding *Halosydna grisea* Treadwell, 1929, Hartman (1938) had already suspected the synonymy with *Halosydnella australis*. Rioja (1946) followed Hartman and considered *H. grisea* a junior synonym of *H. australis*, and finally Pettibone (personal communication to J.M. Orensanz in 1967), having checked the respective types, confirmed this synonymy.
- 3) *Halosydna glabra* Hartman, 1939, originally described from the Pacific coast of Mexico, shows similar elytral characters to those described above for *Halosydnella australis*, but *H. glabra* has only 18 pairs of elytra. Amaral and Nonato (1982) also reported specimens of *H. glabra* from the Brazilian coast. Since we found that elytral characters of *H. australis* are subject to variability depending on their position on the animal, we tentatively consider the findings of *H. glabra* in Brazilian waters as juveniles of *H. australis*. The question whether the species *H. glabra* is still valid or must be considered a junior synonym of *H. australis* should be clarified in a revision of the two genera *Halosydna* and *Halosydnella*, which is beyond the scope of the present paper.

**Distribution** Southwest Atlantic between southeastern Brazil and San José Gulf (Argentina). The species represents the most frequent polynoid in our material. In 0–55 m; a frequent commensal of *Thelepus* sp. (Polychaeta, Terebellidae).

#### Lepidastheniinae Pettibone, 1989

##### *Lepidasthenia* Malmgren, 1867

*Type species* *Polynoe elegans* Grube, 1840.

**Diagnosis** Body cylindrical, long, with more than 50 segments and numerous pairs of elytra showing gradual reduction in size posteriorly. Elytra on segments 2, 4, 5, alternating to 23, then on every third to end of body. Prostomium with three antennae; lateral antennae inserted terminally, ceratophores distinct; two pairs of eyes, anterior pair dorsolateral on widest part of prostomium, posterior pair dorsal close behind anterior pair. Parapodia sub-biramous, without notochaetae; neuropodia elongate, deeply notched dorsally and ventrally; neuropodial lobes rounded; tips of noto- and neuroacicula not penetrating epidermis.

Neurochaetae stout, falcate, with distinct rows of spines and bi- and/or unidentate tip.

***Lepidasthenia esbelta* Amaral and Nonato, 1982**

*Lepidasthenia* nov. sp. in litt.: Milstein et al. (1976): 148.

*Lepidasthenia esbelta* Amaral and Nonato, 1982: 24, figs. 77–81; Scarabino (2006): 118.

**Material examined** 1 spm. (af), SMF 19960, SAO II-71, St. 54, San Matías Gulf, 40°54'S, 65°02'W, 1971, 13–15 m. 1 spm., SMF 19961, SAO III-72, St. 1042, San José Gulf, Isla de los Pájaros, 1972. 1 spm., SMF 19962, SAO III-72, St. 1118, Punta Mejillón, 1972. 2 spms., SMF 19963, Mar del Plata, between Playa Grande and Playa Chica, rocky intertidal, tide pool I, with coralline algae, 15 February 1965, coll. J. Orensanz. 2 spms., MACN-In 39413, SAO III-72, St. 1046, San José Gulf, Isla de los Pájaros, 1972. 2 spms., SMF 19964, Santa Clara del Mar, low intertidal, with coralline algae, 18 January 1968, coll. J. Orensanz. 1 spm., MNHNM I.1139, “Hero”, St. 19, 33°47'S, 53°23'W, near al Chuy, 10 m, 22 July 1972, mud and rocks. 3 spms., MACN-In 39414, “Pampero”, St. 42, 23 February 1967, on limestone coll. Boschi and Selzo. 7 spms., SMF 19965, Mar del Plata IV, St. 65, 38°23'S, 58°01'W, 25 m, 24 March 1964. 1 spm., SMF 19966, Caleta Sara, Chubut Province, intertidal, June 2004. 2 spms. (af), SMF 19967, “Goyena II”, St. 12, 38°03'S, 57° 22'W, mud and shells, *Phyllochaetopterus* community. 1 spm., SMF 19968, Mar del Plata, Playa Chica, rocky intertidal, 11 April 1968, coll. Risso-Dominguez.

**Diagnosis** First pair of elytra large, smooth, overlapping, the following reduced. Neuropodia without papillae ventrally. Neurochaetae bidentate, with distinct rows of spines and strong secondary tooth; in posterior neuropodia some unidentate, “giant” neurochaetae present.

Dorsum often with typical color pattern (distinct in well preserved material only): segments 1–5 mottled, segment 6 light (without pigmentation), segment 7 very dark, and then mottled on every second segment.

**Remarks** So far only known from the type locality, off Rio Grande do Sul (southern Brazil; Amaral and Nonato 1982); range extended here southward to Caleta Sara (44°54'S). In 0–25 m depth; often found as a commensal in the tubes of *Thelepus* sp. (Polychaeta, Terebellidae), sometimes together with *Halosydnella*.

***Showapolynoe* Imajima, 1997, emended**

**Type species** *Polynoe microsetosa* Izuka, 1912.

**Diagnosis** Body cylindrical, long, with more than 50 segments and numerous pairs of elytra covering dorsum. Elytra

on segments 2, 4, 5, alternating to 29, 30, alternating to 44, 45, then irregularly arranged. Prostomium with three antennae; lateral antennae inserted terminally, ceratophores distinct; two pairs of eyes, anterior pair dorsolateral on widest part of prostomium, posterior pair dorsal close behind anterior pair. Parapodia sub-biramous, with or without notochaetae; neuropodia elongate, deeply notched dorsally and ventrally; neuropodial lobes rounded; tips of noto- and neuroacicula not penetrating epidermis. Neurochaetae stout, falcate; with distinct rows of spines and two strong spines sub-distally; with bi- and/or unidentate tip.

**Remarks** Hartmann-Schröder (1965) originally described a new species as *Halosydna marmorata*, although the holotype (and only specimen available at that time) is an incomplete anterior fragment with only 26 segments. She discussed the possible affiliation of this species with other genera, among them *Lepidasthenia* Malmgren, 1867. Based on the study of additional material, Orensanz (1976) placed *H. marmorata* within *Lepidasthenia*, since his specimens showed more than 18 pairs of elytra and numerous segments. But, as confirmed by our material, elytra of *H. marmorata* are inserted on segments 2, 4, 5, alternating to 29, 30, alternating to 44, 45, and then irregularly arranged, which is typical for *Showapolynoe* Imajima, 1997. In contrast, elytra of *Lepidasthenia* are inserted on segments 2, 4, 5, alternating to 23, and then on every third to end of body (see also Pettibone 1989 and Barnich and Fiege 2004).

The generic diagnosis of *Showapolynoe* has to be emended only slightly in order to include *S. marmorata*: in *S. marmorata*, there are few notochaetae present and neurochaetae have a bi- or unidentate tip, while notochaetae are absent and neurochaetae are all unidentate in the type species of the genus *S. microsetosa* (Izuka, 1912) as described by Imajima (1997).

***Showapolynoe marmorata* (Hartmann-Schröder, 1965) n. comb.**

*Halosydna marmorata* Hartmann-Schröder, 1965: 78, figs. 23–26.

*Lepidametria gigas*: Monro (1936): 92, fig. 8a, b.

*Lepidasthenia ?gigas*: Hartman (1964): 39, pl. 11 figs. 6, 7.

*Lepidasthenia marmorata*: Orensanz (1976): 6.

**Material examined** 1 spm., MACN-In 39415, “Walther Herwig”, St. 451, 36°22'S, 53°39'W, SE Punta del Este (Uruguay), 2 August 1966, 160 m, commensal with a terebellid. 1 spm. (af), SMF 19969, Alte Saldanha, St. 2262, 36°24'S, 55°, 47 m. 1 spm., SMF 19970, “A. Knipovich”, St. 1058, 35°57'S, 53°32'W, 150–156 m.

**Diagnosis** Elytra large, mottled, covering dorsum (including in posterior segments); in anterior elytra surface

with few microtubercles near anterior margin, disappearing in more posterior elytra. Few notochaetae present, with distinct rows of spines, and tapering to fine tip. Neurochaetae with bi- or unidentate tip and with distinct rows of spines distally, uppermost row with a pair of strong spines.

**Remarks** Due to its mode of elytral insertion we move *Halosydna marmorata* Hartmann-Schröder, 1965 to the genus *Showapolynoe* Imajima, 1997 (see Remarks above); thus *S. marmorata* (Hartmann-Schröder, 1965) n. comb. becomes the second known species within *Showapolynoe*.

**Distribution** Known from western South America (Chiloé) and the Magellan region (Orensanz 1976), its occurrence now also confirmed for the southwest Atlantic, northwards to off Uruguay. In 14–174 m depth; one specimen found here commensal with a terebellid.

#### Key to the polynoid species covered herein

1. Lateral antennae inserted ventrally.....2
  - Lateral antennae inserted terminally .....8
2. Body long, with numerous segments (up to 100); 15 or more pairs of elytra.....*Polyeunoa laevis*
  - Body short, with up to 50 segments; 15 pairs of elytra.....3
3. At least some neurochaetae with forceps-like, split tip, others uni- and/or bidentate with stout secondary tooth.....4
  - Neurochaetae either all with bidentate tip with secondary tooth or some bi- and some unidentate.....5
4. Anterior pair of eyes anteroventral beneath cephalic peaks; elytral margin and surface smooth, except for patch of conical microtubercles near place of attachment of elytrephore.....*Eucranta mollis*
  - Anterior pair of eyes dorsolateral at widest part of prostomium; elytral margin and surface with numerous long papillae, surface covered by conical, elongate microtubercles.....*Eucranta notialis*
5. Elytral margin and surface with numerous long papillae, surface covered by conical microtubercles.....6
  - Elytra otherwise.....7
6. Anterior eyes anteroventral beneath cephalic peaks.....*Harmothoe madrynensis* n. sp.
  - Anterior eyes dorsolateral at widest part of prostomium .....*Harmothoe ciliata*\*
7. Elytra with conical microtubercles all over surface; near outer lateral and posterior margin pyriform to globose macro-tubercles with or without distal papilla.....*Harmothoe exanthema*
  - Elytra with conical microtubercles only in anterior half of elytra (number of microtubercles and surface covered variable, missing in posterior elytra); without macro-tubercles.....*Harmothoe magellanica*
8. Dorsal tubercles distinct; neuropodia with rather short pre- and postchaetal lobes, not deeply notched dorsally and ventrally.....9
  - Dorsal tubercles indistinct; neuropodia with elongate, pre- and postchaetal lobes, deeply notched dorsally and ventrally.....10
9. Body short, with about 36 segments. 18 pairs of elytra; elytra with marginal papillae, surface covered by conical microtubercles, conical macro-tubercles present in posterior half.....*Halosydna patagonica*
  - Body elongate, with about 45 segments. 20–24 pairs of elytra; anterior elytra with marginal papillae, conical microtubercles present mostly marginally, and conical macro-tubercles present centrally (in middle and posterior elytra papillae and macro-tubercles disappearing) .....*Halosydnella australis*
10. Body long, with more than 50 segments and numerous pairs of elytra showing gradual reduction in size posteriorly. Elytra on segments 2, 4, 5, alternating to 23, then on every third to end of body. Neurochaetae bidentate; in posterior neuropodia some “giant“, unidentate neurochaetae present .....*Lepidasthenia esbelta*
  - Body long, with more than 50 segments and numerous pairs of elytra covering dorsum even in posterior segments. Elytra on segments 2, 4, 5, alternating to 29, 30, alternating to 44, 45, then irregularly arranged. Neurochaetae bi- or unidentate, without giant neurochaetae in posterior segments.....*Showapolynoe marmorata*

(\*) Species known from the Magellan region and western South America, but not so far recorded from eastern South America (southwestern Atlantic), focus of this contribution.

**Acknowledgements** Our sincere thanks go to Gaby Escati for collecting the type specimens of the new *Harmothoe* species and to the following curators for the loan of type and additional material from their respective collections: Angelika Brandt (Hamburg), Fabrizio Scarabino (Montevideo), Emma Sherlock (London), Elin Sigvaldadottir (Stockholm), and Alejandro Tablado (Buenos Aires). The manuscript benefited from the comments of two unknown reviewers.



## References

- Amaral AC, Nonato EF (1982) Anelídeos Poliquetos da Costa Brasileira. Aphroditidae e Polynoidae. CNPq. Brasília 3:1–46
- Balech E, Ehrlich MD (2008) Esquema biogeográfico del mar argentino. Rev Inv Des Pesq 19:45–75
- Barnich R, Fiege D (2004) Revision of the genus *Lepidastheniella* Monro, 1924 (Polychaeta: Polynoidae: Lepidastheniinae) with notes on the subfamily Lepidastheniinae and the description of a new species. J Nat Hist 38:863–876
- Barnich R, Fiege D (2009) Revision of the genus *Harmothoe* Kinberg, 1856 (Polychaeta: Polynoidae) in the Northeast Atlantic. Zootaxa 2104:1–76
- Barnich R, Fiege D, Micalletto G, Gambi MC (2006) Redescription of *Harmothoe spinosa* Kinberg, 1856 (Polychaeta, Polynoidae) and related species from Subantarctic and Antarctic waters, with the erection of a new genus. J Nat Hist 40(1–2):33–75
- Bergström E (1916) Die Polynoiden der schwedischen Südpolarexpedition 1901–1903. Zool Bidr Uppsala 4:269–304
- Boschi EE (2000) Species of decapod crustaceans and their distribution in the American marine zoogeographic provinces. Rev Inv Des Pesq 13:1–136
- Ehlers E (1908) Die bodensässigen Anneliden aus den Sammlungen der deutschen Tiefsee-Expedition. Wiss Ergebn Dt Tiefsee Exp 1898–1899(16):1–168
- Fauchald K, Hancock DR (1981) Deep-water polychaetes from a transect off central Oregon. A Hancock Monogr Mar Biol 11:1–73
- Grube E (1840) Actinien, Echinodermen und Würmer des Adriatischen- und Mittelmeers nach eigenen Sammlungen beschrieben. JH Bon, Königsberg:1–92
- Grube E (1858) Annulata Örstediana. Vid Medd naturhist Foren Kjöb 1856:44–62 [date imprinted 1856–1857, but published in 1858, cf. Wolff, Petersen (1991)]
- Grube E (1869) Beschreibungen neuer oder wenig bekannter von Hrn. Ehrenberg gesammelter Anneliden des rothen Meeres. Monatsber Königl Preuss Akad Wiss Berlin 1869:484–521 [imprinted date 1870, but published in 1869, cf. Zool Rec (1870)]
- Hartman O (1938) The types of the polychaete worms of the families Polynoidae and Polyodontidae in the United States National Museum and the description of a new genus. Proc US Nat Mus 86 (3046):107–134
- Hartman O (1939) Polychaetous annelids. Part I. Aphroditidae to Pisionidae. A Hancock Pac Exp 7(1):1–156
- Hartman O (1949) The marine annelids erected by Kinberg. With some notes on some other types in the Swedish State Museum. Ark Zool 42A(1):1–137
- Hartman O (1964) Polychaeta Errantia of Antarctica. Ant Res Ser 3:1–131
- Hartman O (1967) Polychaetous annelids collected by the USNS Eltanin and Staten Island cruises, chiefly from Antarctic seas. A Hancock Monogr Mar Biol 2:1–387
- Hartman O (1978) Polychaeta from the Weddell Sea Quadrant, Antarctica. Paper 4. Biology of the Antarctic Seas VI. Ant Res Ser 26:125–223
- Hartmann-Schröder G (1962) Teil II. Die Polychaeten des Eulitorals. In: Hartmann-Schröder G, Hartmann G, Zur Kenntnis des Eulitorals der chilenischen Pazifikküste und der argentinischen Küste Südpatagoniens unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Mitt Hamb Zool Mus Inst, suppl 60:57–167
- Hartmann-Schröder G (1965) Die Polychaeten des Sublitorals. In: Hartmann-Schröder G, Hartmann G, Zur Kenntnis des Sublitorals der chilenischen Küste unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Mitt Hamb Zool Mus Inst 62:59–305
- Hartmann-Schröder G (1989) *Polynoe thouarellicola* n.sp. aus der Antarktis, assoziiert mit Hornkorallen, und Wiederbeschreibung von *Polynoe antarctica* Kinberg, 1858 (Polychaeta, Polynoidae). Zool Anz 222(3/4):205–221
- Imajima M (1997) Polychaetous Annelids from Sagami Bay and Sagami Sea collected by the Emperor Showa of Japan and deposited at the Showa Memorial Institute, National Science Museum, Tokyo. Families Polynoidae and Acoetidae. Nat Sci Mus Monogr 13:1–131
- Izuka A (1912) The errantiate Polychaeta of Japan. J Coll Sci Imp Univ Tokyo 30(2):1–262
- Johnston G (1839) Miscellanea Zoologica. VI. On the British Aphroditaceae. Ann Mag Nat Hist 2(12):424–441
- Kinberg JGH (1856) Nya slägten och arter af Annelider. Öfv Kongl Vetensk Akad Förh 12(9–10):381–388 [read 1855, printed 1856].
- Kinberg JGH (1857) Annulater. Konglika svenska fregatten *Eugenies* resa omkring jorden under befäl af C.A. Virgin aren 1851–1853. Vet iakt Kon Oscar K Svensk Vetensk Akad Zool 1:1–8, pls. 1–8
- Kinberg JGH (1858) Annulater. Konglika svenska fregatten *Eugenies* resa omkring jorden under befäl af C.A. Virgin aren 1851–1853. Vet iakt Kon Oscar K. Svensk Vetensk Akad Zool 2:9–32
- Linnaeus C (1767) *Systema Naturae*. 12th edition. Holmiae Impensis Direct. Laur. Salvii 1(2):533–1327
- Malmgren AJ (1866) Nordiska Hafs-Annulata. Öfv Kongl Vetensk Akad Förh 1:51–110 [read 1865, printed 1866]
- Malmgren AJ (1867) Annulata polychaeta Spetsbergiae, Groenlandiae, Islandiae et Scandinaviae hactenus cognita. Öfv Kongl Vetensk Akad Förh 4:127–235
- McIntosh WC (1874) On the Annelida of the Gulf of St. Lawrence, Canada. Family 1. Euprosinidae to family 6. Sigalionidae. Ann Mag Nat Hist Ser 4 13:261–270
- McIntosh WC (1876) Descriptions of some new species of Annelida from Kerguelen's Island. Ann Mag Nat Hist Ser 4 17(100):318–323
- McIntosh WC (1879) Marine Annelida. An account of the petrological, botanical and zoological collections made in Kerguelen's Land and Rodriguez during the Transit of Venus expedition, carried out by the order of Her Majesty's Government in the years 1874–75. Eyre and Spottiswoode, London, 168:258–263
- McIntosh WC (1885) Report on the Annelida Polychaeta collected by H.M.S. Challenger during the years 1873–76. Challenger Rep Zool 12:1–554
- Milstein A, Juanicó M, Olazari J (1976) Algunas asociaciones bentónicas frente a las costas de Rocha, Uruguay. Resultados de la campaña del R/V "Hero", viaje 72-3A. Com Soc Malac Urug 4 (30):143–164
- Monro CCA (1930) Polychaete worms. Discovery Rep 2:1–222
- Monro CCA (1936) Polychaete worms II. Discovery Rep 12:59–198
- Monro CCA (1939) Part 4. Polychaeta. BANZ Ant Res Exp Rep ser B 4(4):87–156
- Moore JP (1910) The polychaetous annelids dredged by the U.S.S. "Albatross" off the coast of southern California in 1904, II. Polynoidae, Aphroditidae and Segaleonidae. Proc Acad Natur Sci Phil 62:328–402
- Orensanz JM (1976) Los anelidos poliquetos de la provincia biogeográfica Magallánica. I. Catálogo de las especies citadas hasta 1974. Laboratorio de comunidades bentónicas, gabinete abierto, Sta. Clara del mar, Contribución técnica 1:1–83
- Pettibone MH (1963) Marine polychaete worms of the New England region. 1. Aphroditidae through Trochochaetidae. US Nat Mus Bull 227(1):1–356
- Pettibone MH (1969) The genera *Polyeunoa* McIntosh, *Hololepidella* Willey, and three new genera (Polychaeta, Polynoidae). Proc Biol Soc Wash 82:43–62

- Pettibone MH (1989) A new species of *Benhamipolynoe* (Polychaeta: Polynoidae: Lepidastheniinae) from Australia, associated with the unattached stylasterid coral *Conopora adeta*. Proc Biol Soc Wash 102(2):300–304
- Rioja E (1946) Estudios de algunos poliquetos del Museo Argentino de Ciencias Naturales. Helminología 7. An Mus Argent Cienc Nat 42:39–58
- Scarabino F (2006) Faunística y taxonomía de invertebrados bentónicos marinos y estuarinos de la costa uruguaya. In: Menafrá R, Rodríguez-Gallego L, Scarabino F, Conde D (eds) Bases para la conservación y el manejo de la costa uruguaya. Vida Silv Urug 2006:113–142
- Stiller M (1996) Verbreitung und Lebensweise der Aphroditiden und Polynoiden (Polychaeta) im östlichen Weddellmeer und im Lazarevmeer (Antarktis). Ber Polarforsch 185:1–200
- Treadwell AL (1929) Two new species of polychaetous annelids from the Argentine coast. Proc US Nat Mus 75(26):1–5
- Wehe T (2006) Revision of the scale worms (Polychaeta, Aphroditoidae) occurring in the seas surrounding the Arabian Peninsula. Part I, Polynoidae. Fauna Arabia 22:23–197
- Willey A (1902) XII. Polychaeta. In: Report on the collections of natural history made in the Antarctic regions during the voyage of the "Southern Cross". Brit Mus Nat Hist 262–283