
Genera Branchiosyllis, Eurysyllis, Karroonsyllis,
Parasphaerosyllis, Plakosyllis, Rhopalosyllis,
Tetrapalpia n.gen., and Xenosyllis

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ABSTRACT. Large collections of Syllidae (Polychaeta) from around Australia, housed at the Australian Museum (Sydney), have been examined and identified. Australian material from the Hamburgische Zoologische Museum der Universität, Hamburg, Germany was also examined, as well as some specimens lodged in other museums. All known Australian species of the subfamily Syllinae (Syllidae) belonging to the genera Branchiosyllis Ehlers, 1887 (9 species); Eurysyllis Ehlers, 1864 (1 species); Karroonsyllis San Martín & López, 2003 (1 species); Parasphaerosyllis Monro, 1937 (1 species); Plakosyllis Hartmann-Schröder, 1956 (1 species); Rhopalosyllis Augener, 1913 (1 species), Tetrapalpia n.gen. (1 species), and Xenosyllis Marion & Bobretzky, 1875 (2 species), are described and figured. Some were examined using the Scanning Electron Microscope to illustrate characters and methods of reproduction in this subfamily. Since there are numerous genera and species of Syllinae, the results will be presented in a series of several papers treating different genera. Keys to genera of Australian Syllinae will be provided in the final paper. Keys to species level are provided for genera having more than one Australian representative. Six new species are described: Branchiosyllis baringabooreen, B. orbiniiformis, B. carmenroldanae, B. thylacea, Xenosyllis moloch, and X. scabroides. A new genus, Tetrapalpia is described for the species Opisthosyllis dorsoaciculata. The genus Xenosyllis is described for the first time from Australia, as well as Branchiosyllis oculata Ehlers, 1887, and B. maculata (Imajima, 1966). A discussion of the reproduction and systematics of the subfamily is given.


This is the third monograph contributing to our study of the Australian Syllidae, based on the large collections housed in the Australian Museum from all around Australia, but primarily from Western Australia and New South Wales, and revision of material collected and described by Hartmann-Schröder in her series of papers on Australian polychaetes (1979–1991). This paper also summarizes published material of San Martín (2002, 2005), San Martín & López (2003), San
Martín & Hutchings (2006), and San Martín et al. (2007). A general introduction to the family Syllidae in Australian waters is given by San Martín (2005) in his revision of the subfamily Exogoninae. In this paper, all species belonging to the Syllinae genera Branchiosyllis, Euryssyllis, Karroonsyllis, Parasphaerosyllis, Plakosyllis, Rhopalosyllis, Tetrapalpia n.gen., and Xenosyllis, are described and figured, and keys to species are provided. Comments are given on those genera of Syllinae not treated in this paper. Subsequent papers will deal with other genera of Syllinae and Autolytinae.

The subfamily Syllinae is attributed to Grube (1850), who erected the family Syllidae. Langerhans (1879), used the term Tribe Syllideae, for the genera Syllis Lamarcq, 1818; Opisthosyllis Langerhans, 1879; Pronosyllis (sic for Pionosyllis Malmgren, 1867), Opisthodonta Langerhans, 1879; Xenosyllis Marion & Bobretzky, 1875; Syllides Örsted, 1845; Eusyllis Malmgren, 1867; Odontosyllis Claparède, 1864; and Amblyosyllis Grube, 1857. Subsequently, Malaquin (1893) removed Pionosyllis, Opisthodonta, Syllides, Eusyllis, Odontosyllis, and Amblyosyllis and placed them in the subfamily Eusyllinae. Faevul (1923) included Euryssyllis in the Syllinae, and Perkins (1981) proposed the same for Plakosyllis, and described Dentatisyllis Perkins, 1981. Fauvel (1923) included additional genera in the subfamily Syllinae: Haplosyllides Augener, 1922; Branchiosyllis, Paraperatosyllis Hartmann-Schröder, 1960; Pseudosyllides Augener, 1927; Geminosyllis Imajima, 1966; Haplosyllis Langerhans, 1879; Parasphaerosyllis, Paratyposyllis Hartmann-Schröder, 1960; Ehlersia Langerhans, 1881; and Typosyllis Langerhans, 1879. San Martín (1984, 1992, 2003) considered Typosyllis and Ehlersia as synonyms of Syllis; and in (2003), proposed the name Inermosyllis to replace Pseudosyllides, as it is a homonym for Pseudosyllides Czerniavsky, 1882.

Recently, Glasby & Watson (2001) described another genus of Syllinae: Alcyonosyllis, and earlier, Hartmann-Schröder (1990) described another new genus for Australia: Parahaplosyllis. San Martín & López (2003) described Karroonsyllis from Western Australia. Currently, 18 genera are considered as belonging to the subfamily Syllinae: Alcyonosyllis, Branchiosyllis, Dentatisyllis, Euryssyllis, Geminosyllis, Haplosyllides, Haplosyllis, Inermosyllis, Karroonsyllis, Nuchalosyllis, Opisthosyllis, Parahaplosyllis, Parasphaerosyllis, Plakosyllis, Syllis, Trypanosyllis, and Xenosyllis. Rhopalosyllis was previously considered as belonging to the Eusyllinae, but is considered here as belonging to Syllinae, as it has articulated cirri and reproductive genitalia. Paraperatosyllis, Paratyposyllis, and Reductotyposyllis are not considered as valid genera, based on studies of the type material by the first author. Paraperatosyllis sexoculata (HZM P-14728) is a damaged specimen of Trypanosyllis; Paratyposyllis paurocirrata (HZM P-14729) are two recently metamorphosed specimens of Syllis; Reductotyposyllis attaculocirrata (HZM P-14768) is a regenerating posterior end of a species of Syllis. In this paper, we erect a new genus, Tetrapalpia for a single species, Opisthosyllis dorsoaicaulata Hartmann-Schröder, 1991, which has a unique character distinguishing it from all other genera, namely palps divided longitudinally by a furrow, appearing as having four palps instead of the typical two. Currently 12 of the genera regarded as belonging to the subfamily Syllinae are known to occur in Australia.

Additional new genera from Australia will be described in subsequent papers.

The subfamily Syllinae is more or less homogeneous, characterized by having articulated appendages, free or partially fused palps, and undergoing schizogamic scissiparous reproduction; but some genera have morphological characters more typical of the subfamily Eusyllinae, such as the presence of smooth, unarticulated antennae, tentacular and dorsal cirri (e.g., Alcyonosyllis, Haplosyllides) or of the Exogoninae, such as having fused palps and a single pair of tentacular cirri (Karroonsyllis). While these latter genera have morphological characters characteristic of other subfamilies they undergo schizogamic scissiparous reproduction which, probably is the major character for defining the subfamily Syllinae (Garwood, 1991; San Martín, 1984, 2003; Glasby, 2000). There are different kinds of stolons; for description of these see San Martín, 2003. For some genera their method of reproduction is unknown and therefore their subfamilial affiliation is unclear, and highlights the need for a major revision of the family Syllidae.

Like most syllids, Syllinae are dorsally arched, convex, ventrally flat or even concave, but some genera (Trypanosyllis, Euryssyllis, Plakosyllis, Rhopalosyllis, Xenosyllis, and some species of Branchiosyllis) have dorsoventrally flattened, ribbon-like bodies, and one species of Branchiosyllis described in this paper, is laterally compressed. Size range of the subfamily Syllinae varies from medium to large (see San Martín & Hutchings, 2006, for definitions of these terms). They occur in a similar range of habitats as members of other subfamilies, but are especially common on hard bottoms (see San Martín, 2003). Typically they are less fragile than the Eusyllinae, and complete, well preserved specimens necessary for detailed studies are common in museum collections. Some Syllinae are brightly coloured, with dorsal stripes. Some species of Branchiosyllis, and Opisthosyllis and all the known species of Rhopalosyllis and Xenosyllis have numerous dorsal and sometimes ventral epidermal papillae. The palps are fused, partially fused, or free from each other. Syllinae have three antennae that are typically long, extending beyond the palps. Four lensed eyes, and sometimes two additional eye spots are present, although especially the latter, may fade with time on preserved material. The peristomium has two pairs of tentacular cirri (except in a few genera in which only a single pair is present); the fronto-dorsal peristomial margin may be modified to form an occipital flap in some species of Opisthosyllis. Nuchal organs consist of two dorsolateral, densely ciliated grooves situated between the prostomium and peristomium. The pharynx is straight, typically with a conical tooth which is located either on the anterior margin, behind the anterior rim, or in the middle or posterior part of the pharynx; Inermosyllis San Martín, 2003, lacks a pharyngeal tooth, and Trypanosyllis, Geminosyllis Imajima, 1966, Euryssyllis, and some others, have a crown of teeth, referred to as a trepan, surrounding the pharyngeal opening.

Parapodia are uniramous, with dorsal and ventral cirri, present on all segments. Dorsal cirri typically are long, filiform, articulated. Members of the Syllinae reproduce by schizogamous scissiparity (Garwood, 1991; Franke, 1999; San Martín, 2003), developing sexual stolons with capillary notochaetae used for swimming on all segments except the first one, which remains uniramous.
Material and methods

The material examined was mainly from the collections in the Australian Museum (AM), and was collected by many including: N. Coleman, G. Wilson, J. K. Lowry, R. T. Springthorpe, H. E. Stoddart, P. A. Hutchings, A. Murray, T. J. Ward, P. C. Young, and A. Jones. Australian material housed in the Zoologisches Museum of Hamburg (HZM), collected and identified by Hartmann-Schröder, has been re-examined and compared with Australian Museum material. The specimens are preserved in 70% ethanol after fixation in formalin.

Examinations were made using a compound microscope with interference contrast optics (Nomarsky). Drawings were made using a camera lucida drawing tube. Scanning Electron Microscope observations and photographs were made at the SIDI (Servicio Interdepartamental de Investigación) of the Universidad Autónoma de Madrid, Spain.

The width of specimens, excluding parapodia and chaetae, was measured at the proventricular level.

Information about aboriginal words for the names of several new taxa was obtained from Endacott (1973). The order of descriptions, both for genera and for species in each genus, is alphabetical.

Some structures difficult to see under light microscope such as eyespots, are described only when they were observed on the specimens. While nuchal organs are present on all syllids, they are not always clearly visible, species descriptions reflect this.

Specimen size categories given in the text are: small (< 5 mm in length), medium (5–10 mm in length) and large (> 10 mm in length). Typically in syllids the length of chaetal blades within a fascicle decreases from dorsal to ventral (dorsoventral gradation); and also the shape and length of the blades within a fascicle decreases from dorsal to ventral (> 10 mm in length). Typically in syllids the length of chaetal structures characteristic of the genus, is alphabetical.

Remarks. Branchiosyllis on the basis of the few previously described species, was previously divided into two groups. One group, including B. oculata, B. pacifica Rioja, 1941, and B. lamellifera Verrill, 1900, is characterized by having dorsoventrally flattened bodies and branchiae, all chaetae claw-shaped falcigers (rotated 180°), and lacking normal falcigers (not rotated) (see Ehlers, 1887; Rioja, 1941; and Verrill, 1900). The other group has cylindrical bodies, lack branchiae, and both normal falcigers and claw-shaped falcigers are present from midbody segments onwards. This latter group consists of the B. exilis complex; and B. lorenae San Martín & Bone, 1999 and we have added the following species: Syllis fuscusuturata Monro, 1933, and Syllis (Typosyllis) plessisi Rullier, 1972 (see Monro, 1933; Rullier, 1972), both considered as synonyms of B. exilis (Licher, 1999), as well as Typosyllis bathialis Kirkegaard, 1995; Typosyllis salina Hartmann-Schröder, 1959 (questionable); T. maculata Imajima, 1966; and Syllis (Typosyllis) verruculosa Augener, 1913 (see Kirkegaard, 1995; Hartmann-Schröder, 1959; Imajima, 1966; Augener, 1913), transferred by Licher (1999) to Branchiosyllis. Branchiosyllis abranchiata Hartmann-Schröder, 1965, from Samoa/Tutuila, is a small specimen (see Hartmann-Schröder, 1965), probably a juvenile which may represent B. exilis; based on a re-examination of the type specimen (HZM P-14574).

One species, B. diazi Rioja, 1958, has an intermediate position between the two groups, in that it has branchiae, dorsoventrally flattened body as in the first group, and both normal falcigers and claw-shaped falcigers in posterior parapodia as in the second group as does B. haringbooreen n.sp. Specimens of B. roldanae n.sp., have few chaetae present and are attributed to Branchiosyllis based on the chaetal structure of these few chaetae. This study reveals that the two groups of Branchiosyllis are not well defined and relationships within the genus must be re-evaluated.

The species Syllis (Typosyllis) cirropunctata is transferred to the genus Branchiosyllis because of the presence of the compound chaetae characteristic of the genus, and it is close to B. exilis.
Key to Australian species of Branchiosyllis

1 Body laterally compressed ................................................................. B. orbiniiformis n.sp.
   — Body dorsoventrally flattened or cylindrical ........................................ 2

2 Body dorsoventrally flattened .............................................................. 3
   — Body cylindrical ............................................................................... 4

3 Body uniformly dark or with transversal dark bands (sometimes without colour pattern). All chaetae claw-shaped falcigers. Dome-shaped branchiae on parapodial lobes ................................................................. B. orbiniiformis n.sp.
   — Body with distinctive black and white pigmentation. Chaetal fascicle with some normal falcigers and claw-shaped falcigers. Branchiae absent .................................................... B. baringabooreen n.sp.

4 Body papillated ...................................................................................... B. verruculosa
   — Body smooth ....................................................................................... 5

5 Large specimens with few chaetae (not broken). Dorsal band of segmental glands, opening with minute pores (SEM) .......... B. carmenroldanae n.sp.
   — Parapodia with numerous chaetae on all individuals. Dorsal bands of segmental glands absent ......................................................... 6

6 Segments with distinct complete transverse black band ....................... B. thylacine n.sp.
   — Without colour pattern or, if present, forming incomplete bands ...................... 7

7 Without distinct colour pattern ................................................................ B. exilis
   — With colour pattern, especially distinct dark spots on some articles of dorsal cirri ................................................................. 8

8 Compound chaetae of posterior parapodia, all claw-shaped falcigers (Fig. 6E–F), shafts angular, with subdistal spurs .......... B. cirropunctata n.comb.
   — Compound chaetae of posterior parapodia, of 2 kinds, claw-shaped and unmodified falcigers (Fig. 9F), shafts angular without subdistal spurs ................................................................. Branchiosyllis maculata

Branchiosyllis baringabooreen n.sp.


Description. Body ovate, large, strongly dorsoventrally flattened (Figs 1A, 2A); prostomium and peristomium slightly pigmented, chaetiger 1 more pigmented than chaetigers 2 and 3, subsequent segments alternating between one strongly pigmented with dark nearly black dorsal cirri, followed by a less pigmented segment and dorsal cirri (Fig. 1A). One dorsal oval spot on dorsum of each segment, except for those most anterior. Holotype 12 mm long, 1.5 mm maximum width, with 75 chaetigers; largest specimen 16 mm long, 1.8 mm wide, with 95 chaetigers. Prostomium relatively small, ovate (Figs 1A, 2A); 4 small eyes in open trapezoidal arrangement, almost vertically aligned. Antennae inserted near anterior margin of prostomium, all similar in length, slightly shorter than combined length of prostomial and palps, with about 10 articles. Palps large, slightly ventrally folded. Nuchal organs not observed. Peristomium slightly shorter than subsequent segments; dorsal tentacular cirri longer than antennae, with about 13 articles; ventral tentacular cirri similar in length to antennae, with 7–8 articles. Following segments gradually increasing in width (Figs 1A, 2A) until midbody, then becoming progressively narrower posteriorly. Cirrophores well developed (Figs 1B, 2B), with single basal black spot. Dorsal cirri spindle-shaped, with distinct, rectangular articles, distal one conical; alternating irregularly; long dorsal cirri, with 16–18 articles, and short cirri, 10–11 articles; all dorsal cirri shorter than body width. Parapodia blunt, without branchiae (Fig. 1B). Ventral cirri digitiform, shorter than parapodial lobes. Typically 4 compound chaetae per parapodium, all similar (Fig. 1C), 3 dorsal ones with claw-shaped, blades rotated 180°, 47–50 µm long, and one ventral with strongly hooked blade, about 33 µm long; some parapodia with only 2–4 falcigers, all claw-shaped (Figs 2C–E); all blades smooth and unidentate; shafts thick. Parapodia with 2 straight, slender aciculae, one distally pointed, other with slightly oblique tip (Fig. 1D). Pharynx relatively slender, through 7–8 segments; pharyngeal tooth small, anteriorly located (Fig. 1A). Proventricle proportionally slender, through 5–6 segments, with 33–35 muscle cell rows. Pygidium small, with 2 anal cirri similar to dorsal cirri but shorter. Some specimens with acephalous sexual stolons.
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Fig. 1. Branchiosyllis baringabooreen n.sp.: (A), anterior end, dorsal view; (B), midbody-posterior parapodium; (C), midbody chaetae; (D), posterior aciculae. A–D: AM W30088 (holotype). Scales A,B: 0.18 mm; C,D: 20µm.

Remarks. Branchiosyllis baringabooreen n.sp., is characterized by having the combination of a flattened body, with a distinctive black and white colour pattern, lacking branchiae on the parapodial lobes, and in the distribution of falcigers, three of them claw-like with blades rotated 180° and one unmodified. On some parapodia, all falcigers are claw-shaped. This colour pattern is not found in any other species of Branchiosyllis.

Etymology. The specific name is derived from two aboriginal words; Baringa, meaning light, and Booreen, meaning dark, in reference to the distinctive colour pattern of this species.

Habitat. Intertidal to shallow subtidal in sand and in amongst coral rubble.

Distribution. Australia (North Western Australia).

Branchiosyllis carmenroldanae n.sp.

Figs 3A–D, 4A–F


Description. Holotype 30 mm long, 0.4 mm wide, with 106 chaetigers, plus an attached asexual stolon, 1.3 mm long, with 15 chaetigers. Body cylindrical dorsally (Figs 3A, 4A), long and slender, white in alcohol; dermal glands forming broad row of dots on dorsum, white in direct light, black in transmitted light (Fig. 3A), absent on anterior segments, and numerous after proventricles level; numerous minute papillae and pores visible under SEM (Fig. 4C,D). Prostomium rounded; 4 eyes on open trap-zoidal arrangement. Median antenna slightly longer than combined length of prostomium and palps, inserted on middle of prostomium, with about 18–22 articles. Palps slightly shorter than prostomium (Figs 3A, 4B). Nuchal organs not observed. Peristomium shorter than subsequent segments, with small anterior lobe (Figs 3A, 4B); dorsal tentacular cirri longer than median antenna, with about 15 articles, ventral ones shorter than dorsal tentacular cirri, with 9–10 articles. Dorsal cirri spindle-shaped, provided with distinct cirrophores, and short, indistinct articles (Figs 3A, 4A,B,E). Dorsal cirri of chaetiger 1 long, with 50–55 articles (Fig. 3A); subsequent dorsal cirri alternating long and short, long with up to 47, and short, with 35 articles in midbody segments. Parapodial lobes distally bilobed, prechaetal and postchaetal lobes rounded (Fig. 3B), postchaetal lobes larger than anterior ones (Fig. 4E). Ventral cirri digitiform, similar in length to parapodial lobes. Parapodia usually without obvious chaetae (Fig. 4E), with 1–2 short chaetae in few parapodia of some specimens; in some cases minute, difficult to see chaetae embedded in parapodial lobes (Fig. 3B). Blades of chaetae when present falcigerous, undentate (Figs 3C, 4F); in some anterior segments, one falciger has a normal blade and another has a curved, claw-shaped blade; on midbody and posterior segments, two claw-shaped falcigers, may be present. Anterior parapodia each with 2–3 unequal, relatively thick aciculae, slightly oblique at tip (Fig. 4E); from midbody onwards, solitary acicula, thick, and distally oblique (Fig. 3D). Pharynx through about 6 segments; pharyngeal tooth anteriorly located (Fig. 3A), surrounded by crown of 10 soft papillae. Proventricles similar in length to pharynx, present through 6 segments, with about 50 muscle cell rows. Pygidium small, with 2 anal cirri similar to dorsal cirri.

Remarks. Branchiosyllis carmenroldanae n.sp., is characterized by having a thin, slender body, with a broad band of dots on each segment, spindle-shaped cirri, with indistinct
articles, thick aciculae, bilobed parapodial lobes, and especially by the lack of chaetae. All material examined is in good condition. Most parapodia lack chaetae or if they are present, they are minute, embedded in the parapodial lobe. Smaller specimens have some parapodia with chaetae or only shafts. Specimens of other species of Syllidae found in the same sample have numerous chaetae, so we consider that the near complete absence of chaetae is a valid character for this species and not the result of damage during collection. We believe that the chaetae are lost as the individual grows.

**Habitat.** Found on dead plates of *Acropora* sp., covered in coralline algae, 8 m.

**Distribution.** Australia (Central Western Australia).

**Etymology.** The species is named after Dr Carmen Roldán, friend and colleague, and who was the professor of the first author (GSM) in the University Complutense of Madrid.
**Branchiosyllis carmenroldanae** n.sp.: (A), anterior end, dorsal view; (B), compound chaetae, anterior parapodium; (C), midbody parapodial lobe, dorsal view, with 2 aciculae and 2 internal chaetae; (D), posterior acicula. A–D: AM W30118 (holotype).

**Branchiosyllis cirropunctata** (Michel, 1909), n.comb.

Figs 2F, 5A–F, 6A–F, 8A


**Material examined.** Western Australia: Goss Passage, Beacon Island, 28°25’30″S 113°47′E, dead plates of *Acropora* sp. covered in coralline algae, 8 m, coll. P.A. Hutchings, 19 May 1994, 2 specimens on SEM stub (AM W30091); NE entrance to Goss Passage, Beacon Island, 28°25’30″S 113°47′E, dead plate-like *Acropora* sp. covered in coralline algae, 8 m, coll. P.A. Hutchings, 25 May 1994, 1 (AM W30092); Goss Passage, Beacon Island, 28°25’30″S 113°47′E, dead coral branching substrate covered in coralline algae, 10 m, coll. P.A. Hutchings, 18 May 1994, 2 specimens on SEM stub (AM W30093); Outer Koombana Bay, 33°18’46″S 115°38’58″E, 9.4 m, coll. L.J. B. Laurenson for Bunbury Ballast Water Project, 27 Mar. 1993, 1 (AM W21993). South Australia: Pondalowie and Marion Bays, Yorke Peninsula, 35°14’S 136°50′E, *Caulerpa* sp. & green algae washings, 3 m, coll. I. Loch, 22 Feb. 1985, 1 (AM W30094).

**Description.** Largest specimen examined 30 mm long, 0.13 mm wide, with 84, plus a few regenerating posterior chaetigers. Body cylindrical (Fig. 6A). Dorsum with single transverse, narrow band of black pigment, black spots on numerous articles of dorsal cirri (Fig. 5A). Prostomium rounded; 4 eyes in open trapezoidal arrangement, almost in line. Length of median antenna similar or slightly shorter than combined length of prostomium and palps, inserted between posterior eyes, with about 27–30 articles; lateral antennae inserted on anterior margin of prostomium, shorter than median antenna, with about 18–22 articles. Palps similar in length to prostomium or slightly longer. Nuchal organs not observed. Peristomium shorter than subsequent segments, with small anterior lobe (Fig. 2F); dorsal tentacular cirri longer than median antenna, with about 15 articles, ventral ones shorter than dorsal tentacular cirri, with 9–10 articles. Dorsal cirri with distinct cirrophores (Figs 4B, 5A). Dorsal cirri of chaetiger 1 long, with 50–55 articles; subsequent dorsal cirri alternating long and short, with up to 47 and 35 articles respectively on midbody. Parapodial lobes distally bilobed, prechaetal and postchaetal lobes digitiform, similar in length and shape, posterior one slightly wider (Figs 5A, 6B). Ventral cirri digitiform, similar in length to parapodial lobes. Typically 9–10 compound heterogomph chaetae on anterior parapodia, blades falcigerous, slightly bidentate, smooth on margin (Fig. 5B), all similar, with slender shafts, blades 20 µm; on posterior parapodia, shafts becoming larger, with more marked angular shafts on ventral chaetae, marginally smooth, unidentate (Figs 5D, 6C, 8A). Posterior parapodia with blades of some (1–2) ventral falcigers rotated 180°, becoming claw-shaped, with short shafts; remaining 5–6 falcigers with thick shafts and pronounced subdistal spur (below point of articulation) with blade and hooked blades, unidentate or slightly bidentate (Fig. 6D, E), 37–33 µm long. Most posterior parapodia with only claw-shaped falcigers, shafts enlarged,
with pronounced protruberances below point of articulation with blade (Figs 4F, 5F). Anterior parapodia each with 3–4 slender aciculae, all straight, pointed (Fig. 5C); from midbody onwards, number of aciculae per parapodium decreasing to 2 in each posterior parapodium, of different sizes, slightly obliquely expanded at tips (Fig. 5E). Pharynx through 6–7 segments; pharyngeal tooth located anteriorly, surrounded by crown of 10 soft papillae. Proventricle similar in length to pharynx, through 6 segments, with 40–42 muscle cell rows, and distinct mid-dorsal line. Pygidium small, with 2 anal cirri similar to dorsal cirri. Some specimens with attached acephalous stolon, small, short, only 8–10 chaetigers.

**Remarks.** *Branchiosyllis maculata* (Imajima, 1966) and *B. cirropunctata*, are similar in body size, shape and colour pattern. However, the former has posterior parapodia with claw-shaped falcigers and unmodified, normal, unidentate falcigers, and shafts with small subdistal spurs below the point of articulation (Fig. 13A,B). *Branchiosyllis cirropunctata*, has claw-shaped falcigers only on far posterior segments, and they have large subdistal spurs on the head of the shaft (Fig. 6F).

San Martín (2003) and Licher (1999) erroneously considered *Syllis cirropunctata* as a synonym of *Branchiosyllis exilis* (Gravier, 1900), based on specimens from the Spanish Mediterranean, as they share a similar colour pattern; but...
these specimens lack falcigers with the head of the shaft with protruberances; we now consider them as distinct species.

**Habitat.** Shallow water associated with algae.

**Distribution.** Mediterranean, Central Pacific, Indian Ocean, Australia (Central and South Western Australia and South Australia).

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**Branchiosyllis cirropunctata** (Michel, 1909)

Figs 5, 7A–F, 8B–F, 10A–B

**Branchiosyllis exilis** (Gravier, 1900)

Figs 7A–F, 8B–F, 10A–B

*Syllis (Typosyllis) exilis* Gravier, 1900: 160, figs 28–30.—Augener, 1913: 192.

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Branchiosyllis uncinigera Harlock & Laubier, 1966: 18, figs 1–3.


Syllis (Typosyllis) fuscosuturata Augener, 1922: 43.

Syllis fuscosuturata Monro, 1933: 32, text-fig. 14.

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Fig. 7. *Branchiosyllis exilis* (Gravier, 1900): (A), anterior end, dorsal view; (B), acicula and distal end of posterior parapodium; (C), anterior chaetae; (D), anterior aciculae; (E), midbody chaetae; (F), posterior chaetae. A–F: AM W30097. Scales A: 0.18 mm; B–F: 20 μm.

Prostomium oval to pentagonal (Figs 7A, 8C); 4 eyes, arranged almost in a horizontal line. Median antenna slightly shorter than combined length of prostomium and palps, inserted between anterior pair of eyes, with 12 articles; lateral antennae inserted near anterior margin of prostomium, shorter than median antenna, with 10–12 articles. Palps about as long as prostomium. Nuchal organs as two ciliated pits between prostomium and peristomium. Peristomium shorter than subsequent segments (Figs 7A, 8C); dorsal tentacular cirri longer than median antenna, with about 22 articles, ventral tentacular cirri shorter than dorsal, with about 16 articles. Dorsal cirri of chaetiger 1 long, with about 26 articles; subsequent dorsal cirri alternating long and short, with 17–22 and 14–16 articles respectively. Parapodial lobes conical, distally bilobed; prechaetal and postchaetal lobes unequal in length with postchaetal lobe longest (Fig. 7B). Ventral cirri digitiform, shorter than parapodial lobes. 6–8 compound heterogomph chaetae on anterior parapodia, blades falcigerous, bidentate (Figs 7C, 8D), with marginal short spines, upper blades 22–23 μm, lower ones 15 μm, changing progressively along body, with some blades becoming unidentate and marginally smooth; from midbody onwards some chaetal blades rotated 180°, becoming claw-shaped; number of claw-shaped falcigers increasing and unmodified falcigers decreasing posteriorly (Figs 7E, 8E, F, 10A); posterior parapodia with 4–5 claw-shaped falcigers, differing in size, with larger ones ventrally (Figs 7F, 10B). Anterior parapodia with 2 slender aciculae, 1 straight and 1 with tip slightly oblique (Figs 7D, 8D); from midbody posteriorly, single acicula in each parapodium, thicker than anterior ones, with tip slightly deflected (Fig. 7B). Pharynx through 5–6 segments; pharyngeal tooth located anteriorly (Fig. 7A). Proventricle longer than pharynx, through 7–8 segments, with 27–30 muscle cell rows. Pygidium small, with 2 anal cirri similar in shape and length to dorsal cirri.

**Remarks.** *Branchiosyllis exilis* belongs to the group of species having a cylindrical body, lacking branchiae,
and having both normal (unmodified) and claw-shaped falcigers. This group consists of *Branchiosyllis verruculosa*, described below, *Branchiosyllis lorenae* San Martín & Bone, 1999, from the Caribbean Sea (San Martín & Bone, 1999), *Branchiosyllis salina* (Hartmann-Schröder, 1959) (questionable), *B. maculata* (Imajima, 1966), and *B. bathyalis* (Kirkegaard, 1995) (see Licher, 1999). *Branchiosyllis exilis* can be distinguished from these species by the structure of the falcigers. Some of these species have only one claw-shaped falciger in posterior parapodia, and others have both normal falcigers and claw-shaped falcigers in posterior parapodia. Syntypes of *Syllis fuscusutorata* Augener, 1922, differ from Australian specimens of *B. exilis* in having longer dorsal cirri, and distally hooked shafts, but it is certainly a member of *Branchiosyllis*. A detailed revision of the entire *B. exilis* complex is needed.

**Habitat.** Found in shallow depths to 244 m in amongst coral rubble and algae.

**Distribution.** Circumtropical, warmer areas of the Mediterranean Sea, Australia (North and central Western Australia, South Australia, New South Wales, Northern Territory).
Branchiosyllis maculata (Imajima, 1966)

**Figs 9A–G, 10C–F, 11A–F, 13A,B**

*Typosyllis maculata* Imajima, 1966: 277, text-fig. 59 a–m.  


**Description.** Largest specimen examined 11 mm long, 0.6 mm wide, with 62 chaetigers, plus an attached stolon, 0.7 mm long, with 10 chaetigers. Body cylindrical dorsally (Figs 9A, 10C). Dorsum of posterior segments with single transverse narrow band of black pigment, black spots on numerous articles of dorsal cirri; antennae, tentacular cirri and dorsal cirri of anterior segments typically without or with few spots (Fig. 9A); segments posterior to proventricular segments with some articles of dorsal cirri partially or totally black, usually 2–3 articles without pigment alternating with 1 pigmented; ventrum with scattered, black dots. Prostomium rounded; 4 eyes in open trapezoidal arrangement, almost in line (Fig. 9A). Median antenna similar in length or slightly shorter than combined length of prostomium and palps, inserted between posterior eyes, with about 27 articles. Lateral antennae inserted on anterior margin of prostomium, shorter than median antenna, with 18–22 articles. Palps similar in length to prostomium or slightly longer. Nuchal organs not
observed. Peristomium shorter than subsequent segments, with small anterior lobe (Figs 9A, 10D); dorsal tentacular cirri longer than median antenna, with about 15 articles, ventral ones shorter than dorsal tentacular cirri, with 9–10 articles. Dorsal cirri provided with distinct cirrophores. Dorsal cirri of chaetiger 1 long, with 50–55 articles; subsequent dorsal cirri alternating (Fig. 10D) long and short, with up to 47 and 35 articles respectively at midbody (Figs 9A, 10E). Parapodial lobes distally bilobed, prechaetal and postchaetal lobes digitiform (Figs 9A, 11D,E), unequal in length and shape. Ventral cirri digitiform, similar in length to parapodial lobes. Anterior parapodia with 9–10 compound heterogomph falcigers, bidentate (Figs 9B, 11B,C), with short spines on margin, blades 41–42 µm above, 26 µm below. In more posterior parapodia, shafts developing larger protruberances (Figs 11E, 13A,B), more marked on ventral than dorsal chaetae, with short, smooth margin, unidentate. In posterior parapodia (Fig. 9F,G), blade of ventralmost 3–4 falcigers rotated 180°, becoming claw-shaped, with distinctly shorter shafts than those of normal straight falcigers; remaining 5–6 falcigers with shafts with short subdistal spurs and hooked blades, unidentate or slightly bidentate (Fig. 11F), about 30–35 µm long. Anterior parapodia each with 3–4 slender aciculae, all straight, pointed (Fig. 9C) except

Fig. 10. SEM of Branchiosyllis cirropunctata (Michel, 1900): (A), midbody chaetal fascicle; (B), posterior chaetal fascicle. SEM of Branchiosyllis maculata (Imajima, 1966): (C), complete specimen, dorsal view, with stolon; (D), anterior end, dorsal view; (E), midbody, dorsal view; (F), stolon, dorsal view. A–B: AM W30093, C–F: AM W30111.
one slightly oblique at tip; from midbody posteriorly, number of aciculae per parapodium decreasing to 2 (Fig. 9E), one straight, pointed, slightly protruding from parapodial lobes, other slightly oblique at tip (Fig. 11E). Pharynx through 6–7 segments; pharyngeal tooth located anteriorly (Fig. 9A), surrounded by crown of 10 soft papillae. Proventricle similar in length to pharynx, present through 6 segments, with 40–42 muscle cell rows, and distinct mid-dorsal line. Pygidium small, with 2 anal cirri similar in length to dorsal cirri. Some specimens with attached acephalous stolon, small, short, with 8–10 chaetigers (Figs 10F, 11A).

**Remarks.** The claw-shaped falcigerous chaetae, typical of the genus *Branchiosyllis*, are difficult to observe in dorsal view, since they have short shafts, and in other views they may appear absent. This species is very similar to *B. cirropunctata* but the latter has all the posterior chaetae claw-shaped, with stouter subdistal spurs on shafts.

**Habitat.** Intertidal to shallow depths, in amongst coral rubble and algae.

**Distribution.** Japan (southern), Australia (Central Western Australia).
Branchiosyllis oculata Ehlers, 1887

Figs 12A–E, 13C–F, 15A


Additional material examined. Branchiosyllis oculata NFMN 6745, 1 syntype, Key West, Florida, USA. Branchiosyllis pacifica australis HZM P-16474 (holotype), and HZM P-16475 (1 paratype), Exmouth, Tantabiddy Creek, Western Australia.

Description. Body long, strongly dorsoventrally flattened, ribbon-like (Figs 12A, 13C,D), longest examined specimen about 100 mm long, 0.8 mm wide, with 92 chaetigers plus developing sexual acaecalous stolon of 11 chaetigers. Some specimens dark brown, with lighter areas, others colourless in alcohol. Prostomium oval, 4 small eyes in open trapezoidal arrangement. Antennae inserted near anterior margin of prostomium (Figs 12A, 13D), proportionally short, with about 14 articles, all similar in length. Palps similar in length to prostomium. Nuchal organs not observed. Peristomium shorter than subsequent segments; dorsal tentacular cirri distinctly longer than antennae, with about 26 articles; ventral tentacular cirri about 2/3 length of dorsal ones, with about 14 articles (Figs 12A, 13D). Parapodia elongate, distally bilobed, with prechaetal lobe longer than postchaetal lobe (Figs 12B,C, 13E); rounded, dome-shaped branchia dorsally located on parapodial lobe (Figs 12B,C, 13E,F, arrows), with granular appearance. Dorsal cirri with distinct, usually dark cirrophores (Fig. 12B), and 20–23 articles on midbody, alternating in length, but all shorter than body width. Ventral cirri digitiform, elongated, inserted near middle of parapodial lobe. All compound falcigers claw-shaped, with smooth, unidentate blades of varying sizes on each parapodium (Figs 12D, 13E, 15A); anterior parapodia with 4–6 compound chaetae, decreasing to 3 on midbody and posterior parapodia. Anterior parapodia with 2 aciculae, from proventricular segments onwards solitary acicula, straight, distally pointed (Fig. 12B,E), protruding from parapodial lobes (Figs 13E, 15A). Pharynx through about 6 segments; pharyngeal tooth on anterior margin. Proventriculus rectangular, through 6–7 segments, with 26–30 muscle cell rows. Pygidium small, with 2 anal cirri similar to dorsal cirri.
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Fig. 13. SEM of *Branchiosyllis maculata* (Imajima, 1966): (A), ventral midbody chaetae and emerging aciculae; (B), ventral chaeta, midbody. SEM of *Branchiosyllis oculata* Ehlers, 1887: (C), complete specimen, dorsal view; (D), anterior end, dorsal view; (E), midbody parapodia, dorsal view; (F), detail of branchia. A–B: AM W30111; C–F: AM W30114.

**Remarks.** *Branchiosyllis oculata* is the type species of the genus, and was described from material collected in Florida, and has been widely reported from the Gulf of México and Caribbean region, from Cuba to Venezuela. The specimens from Western Australia agree with the description of this species and resemble the syntypes and specimens from Cuba and Venezuela, which have been examined, although the branchiae are smaller and less distinct in Australian specimens. This species belongs to the group of species with branchiae and all claw-shaped falcigers, with blades rotated 180°. *Branchiosyllis pacifica* Rioja, 1941, known from the Pacific coast of America, between México and Panamá also belongs to this group (see Rioja, 1941, Capa et al., 2001 a); in this species, the branchiae are better developed being either bi- or tri-lobed than in the type species. *Branchiosyllis pacifica australis* Hartmann-Schröder, 1981, described from Western Australia agrees with *Branchiosyllis oculata*, although the original description omitted mention of the presence of branchiae; however these are small and easily overlooked. Both, holotype and paratype of this subspecies are very small specimens, probably juveniles, and may lack branchiae or they are small and indistinct and we have therefore synonymized this subspecies with *Branchiosyllis oculata*.
**Habitat.** Shallow water in sand and coral rubble, algae and encrusting algae in surf zone.

**Distribution.** Gulf of México and Caribbean Sea, Australia (North Western Australia).

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**Branchiosyllis orbiniiformis** n.sp.

Figs 14A–C, 15B–F


**Description.** Body distinctly compressed laterally, with cirri and parapodia dorsally directed (Figs 14A, 15A–D); usually colourless, but some specimens with 1–2 dark spots on cirrophores; one specimen with black spots on dorsum as well. Holotype 3.6 mm long, 0.48 mm wide, with 38 chaetigers; longest paratype 5 mm long, with 57 chaetigers. Prostomium small, oval; 4 small eyes in open trapezoidal arrangement. Median antenna inserted in front of anterior eyes, with about 13–14 articles, slightly shorter than combined length of prostomium and palps; lateral antennae shorter than median antenna, with about 10 articles, inserted near anterior margin of prostomium. Nuchal organs not observed. Peristomium shorter than subsequent segments, dorsally reduced, covered by chaetiger 1; dorsal tentacular cirri longer than antennae, with about 17–19 articles; ventral tentacular cirri approximately half of length of dorsal ones, with about 8 articles. Parapodia directed dorsally, elongated, extending beyond dorsum (Figs 14A, 15A–D); in lateral view, dorsal cirri dorsally directed, longer than width of anterior segments, with about 11–16 articles, irregular in length, some segments with unequal dorsal cirri, becoming shorter from midbody (Fig. 14A). Parapodial lobes elongate, distally blunt, without branchiae (Fig. 15C,D). Ventral cirri distinctly short, papilliform (Fig. 14A). Aciculae strong basally, distally pointed (Figs 14A,C, 15E), supporting parapodial lobes dorsally directed; 2 aciculae in anterior parapodia, single in remaining segments. All parapodia with 3 compound falciger, blades unidentate, marginally smooth, claw-shaped, with blades turned 180° (Figs 14B, 15E,F); dorsal falcigers with slender shafts and short blades, becoming thicker ventrally, with larger blades. Pharynx through 6–7 segments; pharyngeal tooth anteriorly located (Fig. 14A). Proventricle barrel-shaped, through 6 segments, with 24–27 muscle cell rows. Pygidium small, with 2 anal cirri, similar to dorsal ones.

**Remarks.** *Branchiosyllis orbiniiformis* n.sp., is unique among all syllids in having a combination of distinctly laterally compressed body, with parapodia, chaetae and dorsal cirri all dorsally directed. Specimens of this species superficially look

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**Fig. 14. Branchiosyllis orbiniiformis** n.sp.: (A), complete specimen, lateral view; (B), midbody chaetae; (C), midbody acicula. A–C: AM W30115 (holotype). Scales A: 0.1 mm; B,C: 20 µm.
like a small orbiniid, but a more detailed examination reveals their familial association. The compound chaetae are typical of the genus *Branchiosyllis*.

**Etymology.** The specific name refers to the superficial resemblance between members of this species and members of the family Orbiniidae (Polychaeta).

**Habitat.** Occurs in 2–30 m, in dead coral substrate often heavily loaded with silt and *Sargassum*.

**Distribution.** Australia (North Western Australia).

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**Fig. 15.** SEM of *Branchiosyllis oculata* Ehlers, 1887: (A), chaetae and emerging acicula. SEM of *Branchiosyllis orbiniiformis* n.sp.: (B), complete specimen; (C), anterior end, laterodorsal view; (D), midbody, dorsal view; (E,F), anterior chaetae. A: AM W30114; B–F: AM W26512.

**Branchiosyllis thylacine n.sp.**

**Fig. 16A–G**

**Fig. 16. Branchiorhynche thylacine** n.sp.: (A), anterior end, dorsal view; (B), anterior chaetae; (C), midbody chaetae; (D), posterior chaetae; (E), midbody aciculae, with distal end of parapodial lobe; (F), anterior aciculae; (G), posterior acicula. A–G: AM W30120 (holotype). Scales A: 0.4 mm; B–G: 2 µm.

**Description.** Longest specimen examined 18 mm long, 1 mm wide, with 87 chaetigers, plus an attached stolon, 23 mm long, with 16 chaetigers; holotype 18 mm long, 1.52 mm wide, with about 100 chaetigers. Body cylindrical dorsally. Dorsum of each segment with single transverse band of black pigment, black spots on numerous articles of dorsal cirri (Fig. 16A); ventrum with scattered, black dots. Prostomium rectangular, slightly bilobed; 4 eyes on trapezoidal arrangement, with shallow transverse furrow and 2 anterior pigmented lines (Fig. 16A). Median antenna
slightly longer than combined length of prostomium and palps, inserted between posterior eyes, with 20–28 articles; lateral antennae inserted on anterior margin of prostomium, shorter than median antenna, with 13–18 articles. Palps similar in length to prostomium, wider basally, slightly bilobed. Nuchal organs not observed. Peristomium shorter than subsequent segments (Fig. 16A); dorsal tentacular cirri longer than median antenna, with 30–33 articles, ventral ones shorter than dorsal tentacular cirri, with 13–18 articles. Dorsal cirri with distinct, long cirrophore, pigmented black, often with single large black spot near cirrophore. Dorsal cirri of chaetiger 1 long, with 40–50 articles; subsequent dorsal cirri alternating long and short (Fig. 16A), with up to 40 and 30 articles respectively, 29–42 on midbody. Parapodial lobes distally bilobed, prechaetal and postchaetal lobes digitiform, dissimilar in length (Fig. 16A,E). Ventral cirri digitiform, shorter than parapodial lobes. Usually 3 compound heteromorph chaetae on anterior parapodia (occasionally up to 5), blades falcigerous, unidentate, with short spines on margin or totally smooth (Fig. 16B), blades 27–28 µm above, 21 µm below. In more posterior parapodia, shafts becoming larger, with marked subdistal spurs, especially on ventral chaetae (Fig. 16C); on far posterior parapodia, blades of ventralmost chaetae rotated 180°, becoming claw-shaped; remaining

Fig. 17. SEM of Branchiosyllis verruculosa (Augener, 1913): (A), complete specimen (2 pieces), dorsal view; (B), anterior end, dorsal view; (C), midbody, dorsal view; (D), midbody parapodium; (E), anterior chaetal fascicle; (F), midbody chaetal fascicle, with emergent acicula. A–F: AM W30130.
two falcigers with markedly larger shafts with subdistal spurs, and hooked blades (Fig. 16D), about 28–29 µm long. Anterior parapodia each with 3 slender aciculae (Fig. 16E), 1 straight and others slightly oblique at tip (Fig. 16F); from midbody posteriorly, number of aciculae per parapodium decreasing, posterior parapodia with single aciculum, slightly oblique at tip (Fig. 16G). Pharynx through about 7 segments; pharyngeal tooth located anteriorly, surrounded by crown of 10 soft papillae. Proventricle longer than pharynx, through 9 segments, with about 40–50 muscle cell rows. Pygidium small, with 2 anal cirri similar to dorsal cirri. Two specimens with attached accephalous stolon.

**Remarks.** Haswell (1886) described, a species with similar colour pattern from New South Wales, *Gnathosyllis zonata* Haswell, 1886, considered by Licher (1999), perhaps erroneously, as a synonym of *Syllis prolifera* Kronh, 1852. However, descriptions of Australian material of that species by Haswell (1886) and Augener (1913) differ from this new species in having distinctly bidentate chaetae and, apparently, lacking claw-shaped chaetae. Haswell’s original description was based on a single, incomplete specimen, so the posterior chaetae were not described; and he noted that up to 10 chaetae were present per parapodium, whereas our species has only five. The type of *G. zonata* cannot be located and is presumed lost.

**Etymology.** The species is named after the Tasmanian wolf, *Thylacinus cynocephalus*, a carnivorous marsupial, which also has stripes on its back. Used as a noun in apposition.

**Habitat.** Found in depths of 16–19 m in amongst sponges, ascidians or bryozoans.

**Distribution.** Australia (New South Wales).

*Branchiosyllis verruculosa* (Augener, 1913)

Figs 17A–F, 18A–F, 19A–D

*Syllis (Typosyllis) verruculosa* Augener, 1913: 203, text-fig. 24a–c, pl. 3, fig. 39.—Day & Hutchings, 1979: 104.

*Syllis verruculosa* Monro, 1939: 29, text-fig. 298.

*Branchiosyllis verruculosa* Licher, 1999: 274.—Aguado et al., 2008: 13, fig. 5.


Additional material examined. **Western Australia**: Shark Bay, 25°30’S 113°40’E, 3–8 m, ZMB5296; 7 syntypes; ZMB 5297, 4 syntypes.

**Description.** Longest specimen examined 19 mm long, 0.6 mm wide, with 78 chaetigers plus small sexual accephalous stolon of few chaetigers. Body cylindrical in dorsal view (Figs 17A, 18A). Dorsum with irregular black pigment, forming transverse bands on some anterior segments (Fig. 18A); most of specimens with few, scattered papillae present laterally on each segment, more densely distributed posterior to proventricle (Figs 17A–D, 18A); large specimens with distinct papillae from anterior segments onwards, and papillae also on ventrum. Prostomium oval, large (Figs 17B, 18A), 4 black eyes in open trapezoidal arrangement, anterior and posterior ones on each side nearly vertically aligned (Fig. 18A). Median antenna slightly shorter than combined length of prostomium and palps, inserted in front of line between anterior eyes, with 16–17 articles; lateral antennae inserted near anterior margin of prostomium, shorter than median antenna, with 14–16 articles. Palps similar in length to prostomium or shorter. Nuchal organs not observed. Peristomium shorter than subsequent segments (Figs 17B, 18A); dorsal tentacular cirri longer than median antenna, ventral ones shorter than dorsal tentacular cirri. Dorsal cirri of chaetiger 1 long, with about 37 articles; those of chaetigers 2 and 3 shorter, with about 15 and 19 articles respectively, dorsal cirri of chaetiger 4 long, with about 34 articles; remaining dorsal cirri alternating long and short, with 17–20 and 11–14 articles respectively. Parapodial lobes conical, distally bilobed, prechaetal and postchaetal lobes dissimilar (Fig. 18A). Ventral cirri digitiform, shorter than parapodal lobes. Anterior parapodia with 5–6 compound heterogomph chaetae, blades falcigerous, unidentate or minutely bidentate (Figs 17E, 18B), with short spines on margin on dorsal chaetae to smooth on ventral ones, blades 27 µm above, 17–18 µm below. In midbody, 5–6 compound chaetae per parapodium, similar to anterior ones, but shorter, hooked, and smooth (Figs 17F, 18D). Some blades becoming claw-shaped posteriorly, with blades rotated 180°; number of claw-shaped falcigers increasing and non-modified falcigers decreasing posteriorly (Fig. 19A,B); posterior parapodia with 4–5 claw-shaped falcigers, all similar or differing slightly in size (Figs 17C,D, 18E, 19C,D). Anterior parapodia each with 2 slender aciculae, 1 straight and other slightly oblique at tip (Fig. 18C); from midbody onwards, single acicula per parapodium, thicker than anterior ones, slightly oblique at tip (Fig. 18F), protruding from parapodal lobes (Fig. 17F). Pharynx through 5–6 segments; pharyngeal tooth located anteriorly (Fig. 18A). Proventricle similar in length to pharynx, through 5–7 segments, with about 30 muscle cell rows. Pygidium small, with 2 anal cirri similar to dorsal cirri.

**Remarks.** *Branchiosyllis verruculosa* is similar to *B. exilis*, but differs in having all chaetae unidentate or minutely bidentate anteriorly, and with some papillae present on the dorsum. This is the only species of the genus described with papillate dorsum. The studied material agrees well with the types and previous description as well as the Indonesian specimens.

**Habitat.** Occurs from intertidal to 33 m, under rocks intertidally or associated with dead coral substrate covered in coralline algae.
**Genus Eurysyllis Ehlers, 1864**

*Eurysyllis* Ehlers, 1864: 264.

**Diagnosis.** Body small, oval, elongated, strongly flattened dorsoventrally. Prostomium with 2 pairs of eyes, 3 antennae and 2 spherical palps. Antennae inserted on anterior margin of prostomium; palps inserted ventrally, fused to each other.

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**Distribution.** Australia (Central Western Australia, South Australia, Queensland), Indonesia.

**Eurysyllis tuberculata Ehlers, 1864**


Fig. 19. SEM of Branchiosyllis verruculosa (Augener, 1913): (A,B), mid-posterior chaetal fascicles; (C,D), posterior chaetae. SEM of Parasphaerosyllis indica Monro, 1937: (E), midbody, dorsal view; (F), reduced dorsal cirrus, midbody. A–D: AM W30130; E–F: AM W30153.

Fig. 20. *Eurysyllis tuberculata* Ehlers, 1864: (A), anterior end, dorsal view; (B), anterior end, ventral view; (C), compound chaetae; (D), ventral simple chaeta; (E), acicula. A–E: AM W30132. Scales A,B: 0.18 mm; C–E: 20 µm.


Additional material examined. *Eurysyllis tuberculata*. SPAIN: Mediterranean: Islas Columbretes, Castellón, 39°54′02″N 00°41′15″E, 47 m, 12 July 1994, 2 (MNCN 16.01/6553): Balearic Is. Punta Jova, W Mallorca, 39°38′50″N 02°25′13″E, 10 m, 24 June 1994, 9 (MNCN 16.01/6554); Cabo Pino, Málaga, 6 (MNCN 16.01/178); Atlantic Ocean, Banco de Galicia, 42°42′37″–42°43′00″N to 11°47′87″–11°45′78″E, 769–760 m, 28 June 1991, 1 (MNCN 16.01/6552).

Description. Longest specimen examined, 4.5 mm long, 0.35 mm wide, with 56 chaetigers plus stolon of about 20 chaetigers. Body ovate-elongated, dorsoventrally flattened, without colour markings. Dorsum of each segment provided with 4 rounded tubercles, sometimes distally pointed, forming 4 longitudinal rows of tubercles; peristomium with only 2 dorsal tubercles (Fig. 20A). Prostomium triangular; posterior eyes located dorsally near posterior margin of prostomium; anterior eyes located ventrally near anterior margin, eye spots also located ventrally, near palps. Three spherical, short antennae on anterior margin of prostomium; 2 dorsolateral lobes, sometimes difficult to see, close to lateral antennae, similar in size and shape to antennae (Fig. 20A). Palps ventrally folded, spherical, fused all along their length, with median groove (Fig. 20B). Nuchal organs not observed. Peristomium shorter than subsequent segments; dorsal tentacular cirri spherical, similar in size to antennae; ventral tentacular cirri smaller than dorsal ones, only visible ventrally. Segments numerous and short; cirrophores well developed; dorsal cirri with single article, spherical, small, similar in size and shape to antennae and tentacular cirri (Fig. 20A). Ventral cirri triangular. Compound chaetae heterogomph falcigers; shafts distally spinose, blades short, falcate, unidentate, with short spines on margin or almost smooth (Fig. 20C), about 10–11 µm long; anterior parapodia with 10–12 compound falcigers, decreasing posteriorly to 4–5. Dorsal simple chaetae absent. Ventral simple chaetae sigmoid, smooth, unidentate (Fig. 20D), present on most posterior parapodia. Acicula solitary, large, distally expanded, with distal, short tip (Fig. 20E). Pharynx slender, proportionally long, through 7–9 segments. Proventricle short, ovoid, through 3–4 segments, with about 16 muscle cell rows. Stolons with eyes located ventrally.

Remarks. There are only three other species recognized in this genus: *E. pacificum* (Hartman, 1954) from Marshall Is., *E. spicum* Kudenov & Harris, 1995, from California, USA, and *E. japonicum* Imajima, 2003, from Japan. *Eurysyllis spicum* and *E. japonicum* differ from *Eurysyllis tuberculata* in the shape of the aciculae and in details of the compound
chaetae (see Hartman, 1954; Kudenov & Harris, 1995; Imajima, 2003); *E. pacificum* needs revision, as it was poorly described, and it appears to be similar to *E. tuberculata*.

**Habitat.** Occurs from intertidal to 30 m, often associated with dead coral substrate, encrusted with algae or sponges.

**Distribution.** Australia (North and Central Western Australia, South Australia, Tasman Sea, New South Wales), Mediterranean, Red Sea, Eastern Atlantic from North Sea to Canary Islands and Western Atlantic from North Carolina (USA) to Gulf of México.

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**Genus Karroonsyllis**

*San Martín & López, 2003*


**Diagnosis.** Body small (in meiofaunal size range), slender, cylindrical, with numerous segments. Prostomium with 2 pairs of eyes and paired anterior ocular spots; 3 articulated antennae. Palps long and broad, fused along their entire length, except for terminal notch. Tentacular segment similar to following ones, with 1 pair of articulated tentacular cirri; nuchal organs as ciliated grooves in ventrolateral position. Segments without ciliary bands. Dorsal cirri on all segments, articulated, each with few articles. Parapodia each with...
several compound chaetae, and simple dorsal and ventral capillary chaetae on posterior parapodia. Two anal cirri, similar to dorsal cirri. Pharynx similar in length or longer than proventricle, with single dorsal, conical tooth and crown of soft papillae.

**Type species.** *Karroonsyllis exogoneformis* San Martín & López, 2003 by monotypy.

### Karroonsyllis exogoneformis

**San Martín & López, 2003**

Fig. 21A–I


**Description.** Body long and slender. Holotype complete, 6 mm long, 0.2 mm wide, with 48 chaetigers; without colour markings. Largest paratype 7 mm long, 0.23 mm wide, with 55 chaetigers, mid-body and posterior segments clearly defined by inter-segmental constrictions. Prostomium oval, only in having some dorsal cirri with a single, expanded, following ones; 1 pair of tentacular cirri, shorter than lateral antennae, with 3–4 articles. Dorsal cirri short and articulated, longer than parapodial lobes, with 2–5 articles, distal article typically longer and wider than others (Fig. 21A–D), slightly inflated. Parapodial lobes conical, distally rounded; ventral cirri digitiform, slightly longer than parapodial lobes (Fig. 21D). Anterior parapodia each with about 6 heterogomph compound chaetae; shaft heads smooth or with few slender spines. Chaetal blades distinctly bidentate, both teeth similar in size and shape, with coarse, moderately long spines along margin (Fig. 21E, I). Blade lengths decreasing progressively from 18 µm dorsally to 7.5 µm ventrally. Middle and posterior chaetigers also with about 6 heterogomph compound chaetae, blades with coarser serrations relative to chaetae of anterior parapodia, shafts with distinct spines. Blades of most dorsal compound chaetae distinctly longer than others, about 24 µm long, with distal tooth rounded and slightly expanded. Blades of other 5 compound chaetae show similar gradation to those of anterior parapodia. Dorsalmost chaetae with blades 15 µm long, with small subdistal tooth and larger, rounded distal one, ventralmost chaetae with blades 9 µm long, with both teeth robust and similar in size; distal one slightly more acute (Fig. 21I). Solitary dorsal simple chaetae from mid-body onwards, truncate, subdistal margin with several rows of coarse spines (Fig. 21F). Single ventral simple chaetae on posterior parapodia, slender, sigmoid, bidentate and smooth (Fig. 21G). Single acicula per parapodium, distally rounded, with hollow tip (Fig. 21H). Pharynx (Fig. 21A) through from segments 3–4 to 7–8, pharyngeal tooth large, near anterior rim, surrounded by crown of soft papillae. Proventricle shorter than pharynx, extending through 2 segments, with about 24 muscle cell rows. Pygidium triangular, distally rounded, with pair of anal cirri, similar in length and shape to dorsal cirri, with 2–3 articles (Fig. 21C).

**Habitat.** Occurs from 5–30 m in amongst dead coral rubble covered with coralline algae.

**Distribution.** Australia (Central Western Australia, New South Wales).

**Genus Parasphaerosyllis** Monro, 1937


**Diagnosis.** Body of medium to large size, with numerous segments. Prostomium with 3 antennae, 2 pairs of eyes, sometimes 1 pair of anterior eyespots, and 2 palps. Palps fused basally. Two pairs of tentacular cirri. Antennae, tentacular, anal, and anterior dorsal cirri distinctly articulate, from mid-body alternating long strongly articulated dorsal cirri with short, unarticulated, lemon-like shaped cirri. Pharynx similar in length or longer than proventricle, with tooth, located on anterior rim, surrounded by crown of soft papillae. Compound chaetae with falcigerous blades; dorsal and ventral simple capillary chaetae present. Ventral cirri ovate. Schizogamic reproduction by means of stolons.

**Type species:** *Parasphaerosyllis indica* Monro, 1937, by monotypy.

**Remarks.** *Parasphaerosyllis* is similar to *Syllis*, differing only in having some dorsal cirri with a single, expanded,
lens-like shaped article. Five species are known: *P. indica*, the type species of the genus, has been reported widely from tropical waters; *P. uschakovi* (Chlebovitsch, 1959), from Kurile Islands, Russia; *P. ezoensis* Imajima & Hartman, 1964 and *P. setoensis* Imajima, 1966, both from Japan; and finally *P. malimalii* Capa et al., 2001, from the Pacific coast of Panamá (see Capa et al., 2001b, for a general discussion of the species of the genus).
articulated, long, alternating irregularly in length; from level of proventricle to posterior part of body, dorsal cirri alternating long and articulated, with 25–40 articles, and short cirri, lemon-like shaped, unarticulated cirri, provided with distinct cirrophore, and dark, fibrilar inclusions (Fig. 22A). Lemon-like shaped cirri with some dorsal pores (Fig. 19E,F, arrows). Parapodia dorsally slightly bilobed (Fig. 22A,C). Ventral cirri digitiform, shorter than parapodial lobes. Compound chaetae, heterogomph falcigers; shafts distally with thin spines; blades bidentate, both teeth similar, with spines on margin (Figs 22B, 24A,B); anterior parapodia with 7 compound chaetae, number decreasing posteriorly, 5 from midbody onwards; dorsoventral gradation in length of blades, 20 μm long above, about 16 μm long below; blades of anterior chaetae longer. Capillary simple chaeta on posterior parapodia, distally curved, blunt, unidentate, with few small subdistal spines (Fig. 22D). Single ventral simple capillary chaeta present on posteriormost parapodia, bidentate, both teeth similar, with few subdistal, thin spines (Fig. 22E). Acicula solitary, slender, with oblique tip (Fig. 22C). Pharynx through about 8 segments; pharyngeal tooth located anteriorly. Proventricle rectangular, through 7–8 segments, with 26–30 muscle cell rows.

Remarks. The senior author has examined material from the Canary Islands, Cape Verde Islands, Cuba, Panamá (Pacific), México (Pacific), and all are similar, however with such a wide distribution, molecular studies would be useful to confirm the identity of each of these disjunct populations.

Habitat. Occurs from intertidal to shallow depths on algae, dead coral substrate and coralline algae.

Distribution. Circumtropical to temperate waters, Australia (North and Central Western Australia, Victoria, New South Wales, Queensland).
Genus Plakosyllis Hartmann-Schröder, 1956

Plakosyllis Hartmann-Schröder, 1956: 87.

Diagnosis. Body small, oval, elongated, dorsoventrally flattened. Prostomium with 2 pairs of eyes, 3 antennae and 2 spherical palps. Antennae inserted on anterior margin of prostomium; palps inserted ventrally, not fused. Dorsum without tubercles. Two pairs of tentacular cirri. Antennae, tentacular and dorsal cirri not articulated, spherical. Ventral cirri triangular, with numerous minute pores. Two anal cirri similar to dorsal cirri. Compound chaetae are short falcigers. Pharynx similar in length or longer than proventricle, with anterior dorsal tooth, surrounded by crown of about 10 soft papillae. Proventricle short. Schizogamic reproduction by means of Tetraglene stolons provided with 2 pairs of eyes inserted ventrolaterally. (For illustration of Tetraglene stolons of Plakosyllis brevipes which lack antennae, see San Martín (2003, fig. 4D)).

Type species: Plakosyllis brevipes Hartmann-Schröder, 1956, by monotypy.

Remarks. This genus is closely related to Eurysyllis, differing in the absence of dorsal tubercles and fused palps. Two species of this genus are known, P. brevipes and P. quadrioculata Perkins, 1981; the former has been reported as being circumtropical as well as occurring in subtropical waters of south Western Australia (Hartmann-Schröder, 1982) and this study expands its known distribution within Australia. The other species has been reported only from the Gulf of México and the Caribbean.

Plakosyllis brevipes Hartmann-Schröder, 1956

Figs 23A–D, 24C,D


Eurysyllis brevipes Gidholm, 1962: 250, fig. 1.


New South Wales: 100 m NW of Julian Rocks, Byron Bay, 28°36'48"S 153°37'48"E, sponge with 11–14 muscle cell rows. Pharynx short, slender, through 4–5 segments; pharyngeal tooth located on anterior margin (Fig. 23A). Trepan not seen on examined specimens, but described by Perkins (1981) as having 10 small teeth surrounding anterior border of pharynx. Proventricle short, barrel-shaped, with 11–14 muscle cell rows. Pygidium incised, with 2 anal cirri similar to dorsal cirri but smaller and oval. Some specimens with attached developing stolons (Fig. 24C).

Habitat. Occurs intertidally to 60 m depth, interstitially in coarse sand, on algae, sponges, and rhizomes of seagrasses.

Distribution. Mediterranean Sea, NE and NW Atlantic Ocean, Red Sea, Indian Ocean, New Caledonia, Australia (Western Australia, New South Wales).

Genus Rhopalosyllis Augener, 1913

Rhopalosyllis Augener, 1913: 245.

Diagnosis. Body long, robust, cylindrical, with numerous segments; most posterior segments achaetous. Body covered with numerous small papillae, present on prostomium, parapodia and anal cirri, both dorsally and ventrally. Prostomium with 4 eyes and 3 antennae, present on prostomium, parapodia and anal cirri, both dorsally and ventrally. Prostomium with 4 eyes and 3 antennae, present on prostomium, parapodia and anal cirri, both dorsally and ventrally. Peristomium short, oval to spindle-shaped, rough, covered by papillae. Ventral cirri conical. Compound chaetae heterogomph; on posterior segments some chaetae with fused shafts and blades, forming thick, bidentate hooks; dorsal and ventral simple chaetae present on most posterior parapodia. Pharynx and proventricle short; pharyngeal tooth long and slender. Reproduction by stolons.

Remarks. The genus consists of a single species, known only from Western Australia.

Type species: Rhopalosyllis hamulifera Augener, 1913, by monotypy.
**Rhopalosyllis hamulifera** Augener, 1913

Figs 25A–F, 26A–M

*Rhopalosyllis hamulifera* Augener, 1913: 245–247, Pl. III, Figs 24, 25, Text-Fig. 36 a-c.


**Description.** Body long, cylindrical, broad anteriorly, tapered posteriorly (Fig. 25B), 8.2 mm long, 0.36 mm wide, 0.40 mm maximum width at mid-body, with 82 chaetigers, plus 6–7 achaetous segments. Numerous small papillae covering dorsal and ventral surfaces, antennae, tentacular, dorsal, ventral, and anal cirri, as well as parapodial lobes (Fig. 25A–F). Prostomium oval, with 4 small eyes in open trapezoidal arrangement. Antennae thick, rough, short, shorter than combined length of prostomium and palps, oval; lateral antennae inserted on anterior margin, median antenna inserted just behind anterior margin of prostomium (Fig. 25A). Palps large, broad, ventrally folded (Fig. 25A,C,E).
Nuchal organs not observed. Peristomium dorsally reduced, covered by fold of chaetiger 1; tentacular cirri similar to antennae, ventral ones smaller than dorsal tentacular cirri. Dorsal cirri similar in shape to antennae and tentacular cirri, each with terminal button, covered with tufts of long cilia (Fig. 25D); some papillae of dorsal cirri also provided with tufts of cilia. Parapodia with 1 pre-chaetal and 2 post-chaetal terminal papillae; ventral cirri conical, shorter than parapodial lobes (Fig. 25D). Parapodia of first 3 chaetigers with about 10 compound, heterogomph chaetae, with short shafts and small, bidentate, short blades (Fig. 26A), both teeth similar in size, 6–7 µm long. Subsequent anterior parapodia with...
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Fig. 26. *Rhopalosyllis hamulifera* Augener, 1913: (A), most anterior compound chaetae; (B), superior chaetae, anterior parapodium; (C), inferior compound chaeta, anterior parapodium; (D), anterior aciculae; (E), midbody superior compound chaetae; (F), midbody inferior chaetae; (G), dorsal simple chaeta; (H), ventral simple chaeta; (I), midbody aciculae; (J), posterior superior compound chaetae; (K), inferior posterior chaeta; (L), posterior acicula. A–L: AM W26740. Scale: 20 μm.

about 5 compound, heterogomph chaetae with long, slender shafts, and thin, bidentate, smooth blades (Fig. 26B), about 12 μm long, plus 2 compound chaetae with enlarged shafts, bidentate blades, about 12 μm long, partially fused to shafts, most ventrally located (Fig. 26C); ventral chaetae becoming totally fused on posterior parapodia, forming large bidentate hooks (Fig. 26F), and remaining chaetae similar to those present on anterior chaetigers (Fig. 26E). About 5 compound chaetae on posterior parapodia, similar to those present on anterior and mid-body parapodia (Fig. 26J), and single, thick hook (Fig. 26K). Dorsal and ventral simple chaetae present on most posterior parapodia. Dorsal simple chaetae slender, needle-shaped (Fig. 26G); ventral simple chaetae thick, strongly bidentate, thinner than compound chaetae (Fig. 26H). Anterior and midbody parapodia with 2 slender aciculae, 1 straight, other slightly bent (Fig. 26D,I,M); single acicula in posterior parapodia. Pharynx wide, extending through 3 segments; pharyngeal tooth long and slender, ½ length of pharynx (Fig. 25A,E), may be difficult to see. Proventricle short, small, through 3 segments, with about 15 muscle cell rows. Pygidium rectangular, with 2 oval to conical anal cirri (Fig. 25B). One specimen examined is a female with oocytes in posterior segments.

**Remarks.** The examined specimens agree well with the original description but the antennae and dorsal cirri are proportionally shorter and wider. The type material has apparently smooth antennae and dorsal cirri, but under higher magnification they can be seen to be articulated with 12–14 articles, densely covered by papillae, some of them with one distal cilium. One syntype (HZM V-7963) is developing a sexual stolon.

**Habitat.** Occurs intertidally and in shallow depths, in amongst dead coral rubble and algae.

**Distribution.** Australia (North Western Australia).

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*Genus Tetrapalpia n.gen.*


**Diagnosis.** Body of medium size, dorsally cylindrical, with numerous segments. Prostomium with 4 eyes and, sometimes, a pair of eyespots, 3 antennae and 2 palps. Palps free, with distinct gap between them; each palp bilobed with lobes fused for most of their length. Two pairs of tentacular cirri. Antennae, tentacular, anal, and dorsal cirri distinctly articulated. Parapodia bi-lobed. Ventral cirri triangular. Compound chaetae with short falcigerous blades; capillary chaetae present. Pharynx shorter than proventricle; tooth inserted just behind from anterior margin of pharynx. Reproduction by means of stolons.

**Type species.** *Opisthosyllis dorsoaciculata* Hartmann-Schröder, 1991 by subsequent designation.

**Remarks.** The single known species of the genus, only known from the type-locality in Queensland, was originally described as belonging to the genus *Opisthosyllis* Langerhans, 1879; however, this species differs in several characters from other species in this genus. The pharyngeal tooth is located just behind the opening of the pharynx, which is shorter than the proventricle; in *Opisthosyllis* the pharynx is longer than the proventricle and the tooth is located posteriorly. *Tetrapalpia* is unusual in having palps free to their bases; each palp bilobed, with the lobes fused for most of their length; so that it appears as if four palps are present. This palpal configuration is unique within the family Syllidae.

**Etymology.** The generic name derives from the Latin *Tetra*, meaning four, in reference to the appearance of having four palps present rather than the two typical for the family.
**Tetrapalpia dorsoaciculata**
(Hartmann-Schröder, 1991) n.comb.

Fig. 27A–G


**Description.** Based on Hartmann-Schröder (1991), and our own re examination of the types. Body of medium size, long and slender, holotype 5.6 mm long (*fide* Hartmann-Schröder, 1991), 0.3 mm wide, with 62 chaetigers, with developing sexual stolon of 10 chaetigers, dorsally cylindrical. Prostomium oval to pentagonal, wider than long, with 4 eyes and, sometimes pair of eyespots. Median antenna inserted on middle of prostomium (Fig. 27B), with 25 articles; lateral antennae with 13 articles. Palps free from each other, with longitudinal groove, appearing bilobed (Fig. 27A). Nuchal organs not observed. Two pairs of tentacular
cirri; dorsal tentacular cirri with 33 articles, ventral ones with 12. Antennae, tentacular, anal, and dorsal cirri articulated, fragile, slender (Fig. 27A). Parapodia bi-lobed (Fig. 27C,D). Ventral cirri triangular (Fig. 27C). Compound chaetae with short falcigerous, unidentate blades (Fig. 27E,D); anterior parapodia with 10 chaetae, decreasing to 8 on midbody and 4–6 on posterior parapodia; dorsal capillary chaetae on posterior parapod, slender, unidentate (Fig. 27D); ventral simple chaetae sigmoid, unidentate, smooth (Fig. 27D,F); present on posterior parapodia. Aciculae solitary, slender, distally knobbed (Fig. 27G). Pharynx shorter than proventricle, though 3–4 segments (Fig. 27A,B); tooth located just behind anterior opening of pharynx. Proventricule through 3 segments, with 17–19 muscle cell rows.

Remarks. This species and this new genus is characterized by each palp being incompletely divided by a furrow or groove. This character is only visible when antennae are detached as on the some of the paratypes and were overlooked in the original description which explains why they were placed in the wrong genus originally.

Habitat. Occurs in shallow water, interstitially in coralline sand.

Distribution. Australia (Heron Island, Queensland).

Genus Xenosyllis Marion & Bobretzky, 1875

Xenosyllis Marion & Bobretzky, 1875: 26.

Diagnosis. Body of medium size, elongated, dorsoventrally flattened, convex dorsally, with numerous, short segments. Prostomium with 4 eyes, 3 antennae and 2 palps. Palps free from each other, ventrally located. Prostomium and lateral margins of each segment with papillae; dorsally provided with longitudinal striations. Tentacular segment reduced, dorsally with distinct medial, marginally papillated lobe. Antennae, tentacular, anal, and dorsal cirri short, articulated, covered by papillae. Pharynx long, unarmored. Proventricule short. Compound chaetae with falcigerous blades; capillary simple chaetae also present. Two anal cirri.

Type species: Syllis scabra Ehlers, 1864 by monotypy.

Remarks. Prior to this study the genus was known only from the type species from the Mediterranean Sea and North Atlantic. Two new species have been found, Xenosyllis moloch and Xenosyllis scabroides. The genus has not previously been recorded from Australia.

Key to Australian species of Xenosyllis

1. Body flattened, with numerous longitudinal crests (more than 30 on midbody segments). Antennae and dorsal cirri apparently without longitudinal crests (but visible under the SEM). Palps not visible dorsally. Chaetae within a fascicle with distinct dorsoventral gradation in length of blades ........................................... X. moloch n.sp.

—— Body flattened, with fewer longitudinal crests on dorsum (less than 30 on midbody segments). Antennae and dorsal cirri with distinct longitudinal crests. Palps dorsally visible. Chaetae within a fascicle with blades of similar length ........................................... X. scabroides n.sp.
solitary, thick, protruding from parapodial lobes (Figs 29F, 30A, arrows), slightly oblique at tip especially in posterior parapodia, (Fig. 28D). Capillary dorsal and ventral simple chaetae absent. Pharynx slender, unarmed. Proventricle almost spherical, through 4–5 segments, with about 15 muscle cell rows. Pygidium small, slightly bilobed, with 2 short anal cirri.

**Remarks.** *Xenosyllis moloch* differs from *Xenosyllis scabra* by having a broader body, with conspicuous longitudinal dorsal crests and anterior spines each with a distal pore on each segment, palps more ventrally placed, antennae and dorsal cirri without distinct longitudinal crests, and all compound chaetae bidentate; in contrast *X. scabra* has a much more slender body, segments with fewer crests, none of which end in spines; palps visible dorsally, antennae and dorsal cirri have distinct longitudinal crests, and ventromost compound chaetae with unidentate blades.

**Habitat.** Occurs at depths of 244 m.

**Distribution.** Australia (Tasman Sea).

**Etymology.** The species is named after the generic name of an Australian lizard, the Thorny Devil, because of the superficial appearance to that species, *Moloch horridus*.

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**Xenosyllis scabroides** n.sp.

Figs 30E,F, 31A–E, 32A–F, 33A,B


**Description.** Longest examined specimen 3.7 mm long, 0.25 mm wide, with 45 chaetigers. Body flattened (Figs 30E, 31A), ribbon-like, slightly convex dorsally. Some specimens with pink cirri. Prostomium, cirrophores and cirri covered with numerous papillae (Figs 30F, 31A, 32A–C); dorsum provided with longitudinally arranged papillae and crests (Figs 30F, 31A, 32A,B). Prostomium slightly bilobed, provided with numerous papillae (Figs 30F, 31A); 4 large subdermal eyes (Fig. 31A). Antennae originating on anterior margin, at same level; median antenna with about 8 articles; lateral antennae with about 7 articles. Dorsal cirri and antennae provided with distinct crests (Figs 30F, 31A,B). Dorsal cirri slightly longer than antennae; dorsal tentacular cirri with about 7 articles; ventral tentacular cirri inserted lateroventrally (Fig. 32A), with 4–5 articles. Dorsal cirri and antennae provided with distinct crests (Figs 30F, 31A,B, 32A–C). Dorsal cirri short, inserted on distinct, strongly papillated cirrophores, with 7–9 articles; usually distal article of cirri and antennae slightly longer than others (Fig. 31A). Parapodia elongated, pointed. Ventral cirri triangular,
Xenosyllis scabroides n.sp., is very similar to Xenosyllis scabra (Ehlers, 1864), it differs mainly in having all chaetae bidentate, whereas X. scabra also has unidentate, hooked compound chaetae in posterior parapodia (see San Martín, 2003, figs 167H, 168H). Campoy (1982) described X. scabra from different areas of the Iberian Peninsula and he commented that there were differences among specimens
from different samples, some of them having all compound chaetae bidentate and others having the ventrmost ones unidentate, suggesting the possibility that several species were involved. All Australian specimens have bidentate compound chaetae bidentate only, with none corresponding to the typical *X. scabra* from European seas, so we consider that the Australian specimens belong to a new species. Reports of *X. scabra* from beyond the type locality should be examined as they may represent other species of the genus. *Xenosyllis scabroides* differs from *X. moloch* in the development of longitudinal crests on the antennae and dorsal cirri, and the number of these crests on mid body segments, with *X. moloch* having more than 30 present whereas *X. scabroides* has less than 30 present. In addition *X. scabroides* occurs in 8–30 m and *X. moloch* in depths of 244 m.

**Habitat.** Occurs in shallow water associated with coral rubble.

**Distribution.** Australia (North and Central Western Australia, Queensland).

**Etymology.** The species is named *scabroides* because of its similarity to the type species of the genus, *Xenosyllis scabra*. 

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<td>SEM of <em>Xenosyllis moloch</em> n.sp.: (A) posterior parapodia; (B), midbody chaetal fascicle; (C), middle chaeta; (D), superior and inferior chaetae. SEM of <em>Xenosyllis scabroides</em> n.sp.: (E), complete specimen, dorsal view; (F), anterior end, dorsal view. A–D: AM W30160; E–F: AM W30167.</td>
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Fig. 32. SEM of *Xenosyllis scabroides* n.sp.: (A), detail of anterior end; (B), posterior end, dorsal view; (C), midbody dorsal cirri; (D), superior compound chaetae; (E), middle compound chaetae; (F), posterior chaetal fascicle. A–F: AM W30167 (paratype).


Grube, A.E., 1857. Annulata Örstediana. Eumeratio Annulatorum, quae in itinere per Indian occidentalem et Americam centralem
Fig. 33. SEM of *Xenosyllis scabroides* n.sp.: (A) inferior compound and ventral simple chaetae, posterior parapodium; (F), ventral simple chaeta, posterior parapodium. A–B: AM W30167 (paratype).