PRIONOSPIO AND PARAPRIONOSPIO (POLYCHAETA: SPIONIDAE) FROM SOUTHERN AUSTRALIA

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Abstract


Eight new species of Prionospio are described from southern Australia: P. coerilla, P. kirrae, P. kulin, P. nirripa, P. pilkena, P. tatura, P. wambiri and P. yuriel. Prionospio steenstrupi Malmgren is removed from the Australian fauna and P. dubia Day is recorded from Australia for the first time. A key is provided to all species of Prionospio known from southern Australia. The type species of Paraprionospio Caullery, P. pinnata (Ehlers) is redescribed from the type material and a lectotype designated. All Australian records of Paraprionospio pinnata are referred to a new species, P. coora. The distribution of species of the Prionospio complex in south-eastern Australia is discussed and a distinct fauna is shown to be present on the continental shelf.

Introduction

During the years 1979–1983 the Museum of Victoria made a survey of the soft bottom benthos of Bass Strait (Wilson and Poore, 1987). In 1984 and 1985 additional collections were made from the continental shelf and coastal bays around Tasmania and further specimens have come to hand from inshore habitats in south-western Western Australia. This paper reports on the dominant group of spionid polychaetes from these collections, the Prionospio complex of genera.

Material and methods

Sources for material examined in this study are as follows. Stations occupied during the Bass Strait Survey are numbered in 2 series: BSS and S05/84 are the prefixes used and full data for these stations were given by Wilson and Poore (1987). PPBES prefixes refer to Port Phillip Bay Environmental Study stations (Poore, 1986), and TAS station numbers refer to inshore collections from Tasmania, full locality details for which are given in the Appendix. Station numbers prefixed by HT refer to the list of localities given by Hutchings and Turvey (1984: Table 1). Width measurements given in the species descriptions refer to the post-branchial body width (excluding parapodia, at about setiger 10) measured with an eyepiece scale on a stereomicroscope. Width measurements are used for selecting maximum and minimum size specimens among the material examined.

Materials examined here are deposited in the following institutions: Australian Museum, Sydney (AM); British Museum (Natural History), London (BMNH); National Museum of Wales, Cardiff (NMW); Museum of Victoria, Melbourne (NMV); Tasmanian Museum, Hobart (TM); United States National Museum, Smithsonian Institution, Washington (USNM).

I have given new species names derived from Australian aboriginal words; all are to be treated as indeclinable. Species are treated in alphabetical order within each genus.

Systematics

The Prionospio complex comprises a group of genera which have historically been treated together. The form of the prostomium, peristomium, anterior parapodia and branchiae (which are concentrated on anterior segments) are broadly similar throughout the complex. However there is no character which could define the Prionospio complex as a monophyletic taxon within the Spionidae. Most keys distinguish Prionospio complex genera by the absence of character states present in other genera (e.g. Blake and Kudenov, 1978; Fauchald, 1977). Within the Prionospio complex, genera are distinguished on the basis of the degree of fusion of setiger 1 with the peristomium, the form and arrangement of branchiae, and the form of the pygidium and anal cirri (Table 1).

Blake and Kudenov (1975) included Paraprinospio Caullery, 1914, Orthoprinospio
### Table 1. Comparison of characters in *Prionospio* and related genera.

<table>
<thead>
<tr>
<th>Genus [source of data]</th>
<th>Peristomium</th>
<th>Setiger 1</th>
<th>Branchiae</th>
<th>Dorsal ridges or collars</th>
<th>Hooded hooks</th>
<th>Pygidium</th>
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<tr>
<td><em>Apropionospio</em> [Maciolek, 1985]</td>
<td>reduced, lateral wings absent</td>
<td>reduced, fused to peristomium</td>
<td>commence setiger 2, 4 pairs: 1-3 apinnate, 4 pinnate with plate-like pinnules</td>
<td>absent or with dorsal crest on setiger 7</td>
<td>present in notopodia and neuropodia, secondary hood lappets</td>
<td>1 long dorsomedial cirrus and 2 lateral lappets</td>
</tr>
<tr>
<td><em>Aurospio</em> [Maciolek, 1981a]</td>
<td>reduced, lateral wings absent</td>
<td>reduced, fused to peristomium</td>
<td>commence setiger 3, 2 pairs, both apinnate, partly fused to notopodial lamellae</td>
<td>absent</td>
<td>present in notopodia and neuropodia, secondary hood lappets</td>
<td>1 long dorsomedial cirrus and 2 lateral lappets</td>
</tr>
<tr>
<td><em>Laubieriellus</em> [Maciolek, 1981b]</td>
<td>reduced, without lateral wings</td>
<td>reduced, partly fused to peristomium</td>
<td>commence setiger 2, 4 pairs, all apinnate</td>
<td>absent</td>
<td>present in neuropodia only, secondary hood lappets</td>
<td>1 short dorsomedial cirrus and 2 lateral lappets</td>
</tr>
<tr>
<td><em>Orthopionospio</em> [Blake &amp; Kudennov, 1978]</td>
<td>enlarged, with moderate wings</td>
<td>well-developed, free from peristomium</td>
<td>commence setiger 1, 18-22 pairs, all apinnate</td>
<td>absent</td>
<td>present in notopodia and neuropodia, secondary hood lappets</td>
<td>1 ventral lobe and 4 small lateral papillae</td>
</tr>
<tr>
<td><em>Parapionospio</em> [Yokoyama &amp; Tamai, 1981; this paper]</td>
<td>enlarged, with prominent wings</td>
<td>well-developed, free from peristomium</td>
<td>commence setiger 1, 3 pairs, all apinnate, with plate-like pinnules</td>
<td>prominent ridge across setiger 1</td>
<td>present in notopodia and neuropodia, with conspicuous secondary hood lappets</td>
<td>1 long dorsomedial cirrus and usually 2 short lateral lappets</td>
</tr>
<tr>
<td><em>Prionospio</em> [Maciolek, 1985; this paper]</td>
<td>reduced, with or without lateral wings</td>
<td>reduced, fused to peristomium</td>
<td>commence setiger 2 or 3, 3-40 pairs, apinnate or with digitiform pinniae, or both</td>
<td>membranous dorsal crests may be present on some post-branchial setigers</td>
<td>present in notopodia and neuropodia, secondary hood lappets</td>
<td>1 long dorsomedial cirrus and 2 lateral lappets</td>
</tr>
<tr>
<td><em>Streblospio</em> [Blake &amp; Kudennov, 1978]</td>
<td>enlarged, with low lateral wings</td>
<td>reduced, fused to peristomium</td>
<td>1 pair only, on setiger 1, apinnate</td>
<td>low ridge across setiger 1, prominent collar across setiger 2</td>
<td>present in notopodia and neuropodia, secondary hood conspicuous</td>
<td>2 rounded lobes, appendages absent</td>
</tr>
</tbody>
</table>
Blake and Kudenov, 1978, Streblospio Webster, 1879 and Prionospio Malmgren, 1867 in the Prionospio complex with Aquilaspio Foster, 1971, Minuspio Foster, 1971 and Prionospio sensu stricto being treated as subgenera of Prionospio sensu lato. Maciolek (1981a, b) added 2 new genera, Antarospio and Laubierillius, to the complex to accommodate species from deep water in the north and south Atlantic Ocean. A recent revision by Maciolek (1985) accepted Blake and Kudenov’s arrangement of genera and subgenera but resurrected and redefined Apo- prionospio Foster, 1971. Aquilaspio, Minuspio and Prionospio sensu stricto as used by Maciolek are artificial groupings of species (Maciolek, 1985) and I have therefore preferred to dispense with subgenera. All taxa elsewhere treated as species of Aquilaspio and Minuspio are here referred to Prionospio. Maciolek’s (1985) arrangement of subgenera can however be recognised in the artificial key to Australian species of Prionospio provided below.

Three genera, Prionospio, Paraprionospio and Orthopronospio, are known to occur in Australia and can be distinguished using the characters given in Table 1. Orthopronospio contains a single species, O. cirriformis Blake and Kudenov, 1978, which occurs in areas of reduced salinity and was not encountered in this study. Australian material of the remaining 2 genera is treated below.

Discussion

Numerous extensive benthic collections from southern and south-eastern Australia have now provided material for taxonomic study (Poore et al., 1975; Blake and Kudenov, 1978; Hutchings and Turvey, 1984; Poore, 1986; Wilson and Poore, 1987; appendix to this paper), and the taxonomy and species distribution patterns of the Prionospio complex in southern, and especially south-eastern Australia, must now be considered moderately well known. In the absence of a phylogenetic classification of the Prionospio complex it is not possible to attempt a biogeographic analysis, but a summary of the diversity and degree of endemism of the southern Australian fauna is useful. (The following discussion is restricted to Australian waters south of 26°S; northern waters remain poorly known.)

Of the 20 species in the Prionospio complex now known from southern Australia, 17 are endemic; only Prionospio aucklandica Augener, 1923 (known also from New Zealand), P. dubia Day, 1961 (also from South Africa) and P. chlersi Fauvel, 1928 (also from the Mediterranean, North Atlantic and Indo-Pacific) occur outside the region. Nine new species and one new record (P. dubia) are added to the Australian fauna in this paper. The additions result from the discovery of a distinct fauna on the continental shelf of Bass Strait (see below), and the resolution of several species complexes: Australian records of P. stenunstruapi are assigned to P. coorilla sp. nov., P. dubia, P. kudia sp. nov. and P. multiseriata Hutchings and Rainer, 1979, and the species is removed from the Australian fauna. Records of Prionospio cirrifera Wirén, 1883 from southern Australia have been referred to three new species (P. tauta, P. wambiri and P. yurieh), and records of Paraprionospio pinnata (Ehlers, 1901) from southern Australia are referred to Paraprionospio coora sp. nov. It is unlikely that either Prionospio cirrifera or Paraprionospio pinnata occur in Australia.

There are distinct differences between the faunas of the continental shelf and inshore waters (including the major embayments of Port Phillip Bay and Western Port in south-eastern Australia). Six species (Orthopronospio cirrifirma Blake and Kudenov, 1978, Prionospio aucklandica, P. multipinnulata Blake and Kudenov, 1978, P. pauципinnulata Blake and Kudenov, 1978, P. tauta and P. yurieh) occur only in inshore waters and are most common in shallow muddy sediments or in seagrass communities in Port Phillip Bay and Western Port. Orthopronospio cirrifirma and P. tauta are restricted to estuarine conditions. No species in the Prionospio complex occurs in the deep muddy basin of Port Phillip Bay or near the entrance. Outside the bays, a distinct fauna is present; five species (Prionospio dubia, P. kudia sp. nov., P. nittripu sp. nov., P. pilkema sp. nov. and Paraprionospio coora sp. nov.) occur only on the continental shelf; most of these species are recorded from both muddy and well-sorted carbonate sediments. Of the 13 species now known from southern Australia (Victoria and Tasmania, where both inshore and shelf communities have been well sampled) only two, Prionospio kirrae sp. nov. and P. wambiri sp. nov., occur widely in both inshore waters and on the continental shelf.

Prionospio Malmgren, 1867

Prionospio Malmgren, 1867: 201.

Diagnosis. Prostomium with anterior margin incised or rounded, without frontal horns.
caruncle variously developed. Peristomium fused in varying amounts with setiger 1 often forming low lateral wings. Branchiae pinnate, apinnate, or both pinnate and apinnate. Branchiae present on a series of consecutive anterior setigers commencing at setigers 2 or (rarely) 3. Between 3 and 13 pairs of branchiae usually present, or up to 39 pairs in one species: *P. polybranchiata* Fauvel, 1929. Anterior setae all capillaries, hooded hooks in posterior noto- and neuropodia; hooks bi- to multidentate, inferior sabre setae present in all species except *P. perkinsi* Maciolek, 1985. Pygidium with 1 long medial cirrus and 2 short ventrolateral cirri or lappets.

**Type species.** *Prionospio steenstrupi* Malmgren, 1867, by monotypy.

**Remarks.** The above diagnosis is essentially that of Maciolek, 1985, except that the description of branchiae has been expanded slightly to include *P. ockelmanni* Pleijel, 1985, and *P. pilkena* sp. nov. The most recent major work is the revision by Maciolek (1985), which includes a redescription of the type species.

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**Key to species of Prionospio known from southern Australia (south of 26°S)**

This key excludes 3 species recorded from north-western Australia by Hartmann-Schröder (1979, 1981): *Prionospio fallax* Söderström, 1920; *P. lanceolata* Hartmann-Schröder, 1979 and *Prionospio sexoculata* Augener, 1918.

1. Four pairs of branchiae, at least one pair of which have digitiform pinnae ........................................ 2
   — Three to 12 pairs of branchiae, all apinnate (branchiae may have fine lateral cilia; subgenus *Minuspio* sensu Maciolek, 1985) .......................................... 15
2. Three or 4 pairs of branchiae, all with digitiform pinnae (subgenus *Aquilaspio* sensu Maciolek, 1985) .............. 3
   — Both pinnate and apinnate branchiae present (subgenus *Prionospio* sensu Maciolek, 1985) ................... 5
3. Three pairs of pinnate branchiae on setigers 2–4 ....... *P. aucklandica*
   — Four pairs of pinnate branchiae on setigers 2–5 .......... 4
4. Neuropodial lamella of setiger 1 rounded in shape; neuropodial hooded hooks appear at setigers 17–22 ............... *P. multipinnulata*
   — Neuropodia of setiger 1 inflated, pyramidal in shape; neuropodial hooded hooks appear at setigers 8–12 ........... *P. pyramidalis*<sup>x</sup>
5. First 3 pairs of branchiae apinnate, fourth pair pinnate; hooded hooks with one pair of apical teeth .................. 6
   — Branchiae otherwise; hooded hooks with 4 or more pairs of apical teeth ........................................... 7
6. Dorsal crest on setiger 7 ..................................... *P. tridentata*<sup>x</sup>
   — Dorsal crest on setiger 11 .............................. *P. kirrae* sp. nov.
7. First pair of branchiae pinnate, second to fourth pairs apinnate; interparapodial pouches present from between setigers 2 and 3  *P. ehlersi*<sup>x</sup>
   — Either third of fourth pairs of branchiae pinnate; interparapodial pouches (if present) do not appear until at least setigers 8 and 9 .... 8
8. First and third pairs of branchiae pinnate, second and fourth pairs apinnate; dorsal crests on setigers 7 and 8 only .......... *P. paucipinnulata*<sup>x</sup>
   — First and fourth pairs of branchiae pinnate, second and third pairs apinnate; dorsal crest either completely absent or present on 6 or more setigers .............................................. 9
9. Dorsal crests absent; neuropodial sabre setae first present at setigers 12–18 ........................................... 10
   — Dorsal crests present; sabre setae appear at setigers 10–11 .......... 11
10. Sabre setae appear at setigers 12–14, usually 13  ...... *P. coorilla* sp. nov.
   — Sabre setae appear at setigers 15–20, usually 17–19 ........ *P. dubia*
11. Sabre setae appear at setiger 11; dorsal crests present on setigers 11-18
   — Sabre setae appear at setiger 10; dorsal crest present before setiger 11
   — Dorsal crests present setigers 7-20 at least
   — Dorsal crests otherwise
   — Dorsal crests present setigers 7-30; caruncle extends back to setiger 4
   — Dorsal crests present setigers 7-20; caruncle extends back to setiger 2
   — Dorsal crests present on setiger 5 and setigers 9-13; notopodial hooded hooks present from setigers 35-40
   — Dorsal crests present setigers 10-30; notopodial hooded hooks appear setigers 22-36
   — 3 pairs of apinate branchiae present on setigers 3-6
   — At least 6 pairs of apinate branchiae commencing at setiger 2
   — Prostomium narrow anteriorly, broadest posteriorly; longest branchiae (on setigers 3-5) 4-5 times notopodial length
   — Prostomium at anterior margin or at median region; longest branchiae (on setiger 2) 2 times notopodial length
   — Sabre setae present from setigers 10-12, notopodial hooded hooks present from setigers 13-15; neuropodia of setiger 2 without ventral projection
   — Sabre setae present from setigers 14-16 (rarely setigers 11-12 in very small worms), notopodial hooded hooks present from setigers 16-20 (rarely 14); neuropodia of setiger 2 with prominent ventral projection

× denotes species not recorded in this study

**Prionospio aucklandica** Augener, 1923


**Material examined.** Western Australia: Normalup. "sample 3", coll. J. Shaw, NMV F53897, 4 specimens.

Victoria: Port Phillip Bay, PPBES Stn 944, NMV G3097, 7 specimens.

New South Wales: Botany Bay, Towra Pt, New South Wales Fisheries Stn 335, NMV G3143, 7 specimens.

**Remarks.** The material examined here agrees closely with the detailed description of Hutchings and Turvey (1984). Sabre setae appear at setiger 10 in all specimens, neuropodial hooded hooks appear at setigers 18-19 in eastern Australian specimens and at setigers 19-22 in Western Australian specimens (all specimens of similar size range, from 0.3 to 0.45 mm postbranchial width, excluding parapodia). Notopodial hooded hooks also appear earlier in specimens from eastern Australia (setigers 27-30) than in Western Australian material (notopodial hooks from setigers 31-36).

Blake and Kudenov (1978) reported that a dorsal crest was present on setiger 7; re-examination of their material shows that this was an error and that no dorsal crests are present in *P. aucklandica*. Augener (1923) made no mention of dorsal crests and Hutchings and Turvey (1984) noted the absence of dorsal crests in their material. This is the first record of *P. aucklandica* from Western Australia.

**Distribution.** Southern Australia from southwestern Western Australia to Botany Bay. New South Wales.

**Prionospio coorilla** sp. nov.

**Figures 1–8**

*Prionospio* sp. 5 Poore et al., 1975: 59.

**Material examined.** 67 specimens, size range 45 setigers. 10 mm long, 0.25 mm wide (entire specimen) to 21 setigers. 5 mm long, 0.5 mm wide (anterior fragment).

Holotype: entire specimen, 62 setigers, 10 mm long, 0.5 mm wide. NMV F52633. Central Bass Strait, 6 km SE of Stanley, Tasmania, 40°48.8'S, 145°22'E, 22 m, fine sand. Smith-McIntyre Grab, 4 Nov 1980. M. Gomon et al. (Stn BSS-G 114).
Figures 1–8. *Prionospio coorilla*: 1, dorsal view, holotype NMV F52633; 2–5, paratype NMV F52636: 2, setiger 2 parapodium; 3, setiger 4 parapodium; 4, setiger 5 parapodium; 5, setiger 9 parapodium; 6–8, holotype: 6, sabre seta, setiger 19; 7, neuropodial hooded hook, setiger 19; 8, notopodial hooded hook, posterior setiger, holotype. All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 1); 0.1 mm (Figs 2–5); 0.02 mm (Figs 6–8).

Paratypes: Central Bass Strait, type locality: NMV F52634–52637, 4 paratypes. Central Bass Strait, 25 km S of Aireys Inlet, 38°44.6'S, 144°9.0'E, 77 m, fine sand, Smith-McIntyre Grab, 19 Nov 1981, R. Wilson et al. (Stn BSS-G 182) AM W203947, 3 paratypes; NMW.Z.1989.116.1, 4 paratypes; USNM 122745, 3 paratypes; NMV F52638-52639, 2 paratypes.

Other material: Southern Ocean: Stn S05/84/54, NMV F50447, 1 specimen.

Tasmania: Stn TAS 28, NMV F50474, 3 specimens.

Bass Strait: Stn BSS 49, NMV F52640, 1 specimen; Stn BSS-G 68, NMV F52641, 1; Stn BSS-G 112, NMV F50319, 14; Stn BSS-G 113, NMV F52642, 2; Stn BSS-G 115, NMV F52643, 3; Stn BSS-G 115, NMV F50320, 16; Stn BSS-G 117, NMV F52644, 7; Stn BSS-G 163, NMV F52645, 6; Stn BSS-G 165, NMV F52646, 2; Stn BSS-S 165, NMV F52647, 1; Stn BSS-G 181, 2; Stn BSS-G 184, NMV F52649, 1.

Victoria: Port Phillip Bay: PPBES Stn 938, NMV G3192, 1; PPBES Stn 946, NMV G3194, 1; PPBES Stn 965, NMV G3195, 1; PPBES Stn 978, NMV G3196, 1 (*Prionospio* sp. 5 of Poore et al., 1975; material identified as *P. steenstrupi* by Blake and Kudnov, but not published).

Description. Prostomium with rounded anterior margin, extending posteriorly as narrow caruncle to anterior margin of setiger 2 (Fig. 1). Nuchal organ present on either side of caruncle. Two pairs of red eyes, posterior pair larger, comma shaped; anterior pair much smaller and indistinct (or absent in some specimens). First setiger fused to peristomium, forming lateral wings which partially enclose prostomium. First setiger with nato- and neurosetae and reduced parapodial lobes. Four pairs of branchiae on
setigers 2–5. First pair of branchiae about 3–4 times as long as notopodial lobe, densely covered with long digitiform pinnae on posterior surfaces; bare on anterior surfaces and on extreme distal region. Branchiae 2 and 3 stout, triangular, about as long as notopodial lobes, apinnate but with strongly ciliated lateral margins. Fourth pair of branchiae about 1.5 to 2 times as long as branchiae 2 and 3, densely covered with long digitiform pinnae on posterior surface, bare anteriorly and distally. Notopodia asymmetrical triangular-lanceolate, largest on setigers 2–4, reducing to low rounded lobes by about setigers 12–15 and further reducing posteriorly. Neuropodia anteriorly asymmetrical ovoid lobes, largest and with small ventrally directed process on setiger 2, reducing posteriorly to low semicircular lobes similar to, but smaller than, notopodia by about setiger 20 (Figs 2–5). Dorsal crests and interparapodial pouches absent.

Setae anteriorly granulate capillaries, arranged in 3 rows in notopodia and 2 rows in neuropodia. Capillaries most common in anterior 15–18 setigers, thereafter losing granulations, becoming fewer and longer; capillaries of posterior setigers up to twice as long as body diameter. Sabre setae appear in ventral neuropodial positions at setigers 12–14, usually 13 (sabre setae from setiger 13 in holotype). Sabre setae number 1 or occasionally 2 per parapodium, granulated, sheath not visible (Fig. 6). Neuropodial hooded hooks, with 3–4 pairs of small teeth in 2 rows above the main fang (Fig. 7), appear at setigers 15–18 (setiger 18 in holotype). Hooded hooks usually number 5–6 per neuropodium. Notopodial hooded hooks, similar to neuropodial hooded hooks but with longer shafts (Fig. 8), one or 2 per notopodium, appear at setiger 50 in holotype, at setiger 42 in the only other specimen with notopodial hooks (paratype NMV F52634). Pygidium with a single short threadlike anal cirrus, lateral lobes absent.

Remarks. Prionospio coorilla is allied to P. steenstrupi and related species compared in Table 3 of Maciolek (1985: 375, species 1–12). Including P. coorilla, P. kulina sp. nov. and P. nirripa sp. nov. described here, 15 species are now included in this group. Prionospio coorilla is most similar to P. dubia from southern Africa and Bass Strait (see description below) but can be readily distinguished on the basis of the earlier appearance of neuropodial sabre setae and hooded hooks in P. coorilla. Prionospio coorilla also has a narrower prostomium.

Etymology. The specific name coorilla is derived from an Australian aboriginal word meaning "south".

Distribution. South-eastern Australia, from the continental shelf of Bass Strait and Tasmania, and Port Phillip Bay, Victoria.

**Prionospio dubia** Day, 1961

Figures 9–15


Australia. Southern Ocean: Stn SO5/84/01, NMV F50453, 1 specimen; Stn S05/84/64, NMV F50449, 6.

Tasmania: Stn TAS 30, NMV F50478, 2 specimens.

Bass Strait: Stn BSS 66, NMV F50318, 2 specimens; Stn BSS-G 117, NMV F52650, 4; Stn BSS-G 155, NMV F52651, 9; Stn BSS-G 156, NMV F52652, 2; Stn BSS-G 156, NMV F52653, 2; Stn BSS-G 156, NMV F52654, 3; Stn BSS-G 163, NMV F50321, 1; Stn BSS-G 165, NMV F52655, 7; Stn BSS-G 167, NMV F52656, 2; Stn BSS-S 167, NMV F53164, 1; Stn BSS-S 194, NMV F53165, 1; Stn BSS-S 209, NMV F53166, 1, 112 km S of Lakes Entrance, 14°24′24″S, 139°00′00″E, 99 m, sand, May 1969, Esso Gipps Stn 20, C. Phipps, 1 of 2 specimens in AM W13012 (other specimen indeterminable; part of material identified as *P. steenstrupi* by Blake and Kudenov, 1978).

Description. (based on South African specimens) Size range of material 50 setigers, 11 mm long, 0.4 mm wide to 26 setigers, 7.5 mm long, 0.7 mm wide (anterior fragments). Prostomium narrow and rounded anteriorly, extending posteriorly as narrow high caruncle extending back to anterior margin of setiger 2. Eyes visible only in largest specimen as a pair of faint red pigmented spots. Peristomium fused to setiger 1 and forming lateral wings which are more prominent on larger specimens. Prominent nuchal organs on either side of the caruncle (Fig. 9). Palps lost from all specimens. Four pairs of branchiae on setigers 2–5, first pair (intact on one specimen only) 4–5 times as long as notopodial lobe, densely covered with long digitiform pinnae on the anterior surfaces, anteriorly bare but faintly annulate. Branchiae 2 and 3 equal to or slightly
longer than notopodial lobes, stout triangles, apinnate but with ciliated lateral margins. Fourth pair of branchiae equal to or slightly longer than branchiae 2 and 3, densely covered with long digitiform pinnae on posterior surfaces, anterior surfaces bare. Dorsal crests and interparapodial pouches absent. Notopodia elongate asymmetrical triangular lanceolate lobes, largest on setigers 2–4, reducing to low rounded lobes by about setiger 15 and becoming further reduced posteriorly. Neuropodia smaller than notopodia, asymmetrical ovoid lobes over setigers 2–4, subsequently becoming symmetrical and approximately semi-circular, reducing in size posteriorly and becoming low rounded lobes by setiger 20, similar to, but smaller than, notopodium (Figs 10–13). Setae of anterior setigers granulate capillaries, 3 rows in notopodia and 2 rows in neuropodia; capillaries most numerous on anterior 15 setigers, thereafter becoming fewer and longer (up to twice the body diameter).

Stout sabre setae (Fig. 14) appear in ventral neuropodial positions at setigers 17–20, usually setigers 18 or 19, and number 1 or 2 per parapodium. Neuropodial hooded hooks (6–8 per parapodium) appear at setigers 18 or 19, usually on same or next setiger to appearance of sabre setae. Neuropodial hooded hooks with 3–4 pairs of small teeth in 2 rows above the main fang (Fig. 15). Notopodial hooded hooks absent from all specimens, the longest of which are anterior fragments of 46 and 50 setigers (Day, 1961 reported the appearance of notopodial hooded hooks at setiger 49). Pygidium unknown.

Additional notes on Australian material. (39 anterior fragments, size range 26 setigers, 4 mm long, 0.25 mm wide to 39 setigers, 11.5 mm long, 0.6 mm wide): The specimens from southeastern Australia agree in every respect with the above description of South African material. A single small specimen (75 mm long for 40 setigers, 0.3 mm wide) has notopodial hooded hooks from setiger 35; these differ from neuropodial hooks only in having a longer shaft. Larger specimens of 39 and 41 setigers have no notopodial hooks. Pygidium unknown.

Remarks. The above description agrees closely with the original description of Day (1961) but
differs from that of Maciolek (1985), notably in the positions at which neuropodial sabre setae and hooded hooks appear. According to Maciolek sabre setae should be present from setigers 13–16 and hooded hooks from setigers 15–19, whereas the material examined has setigers 17–20 and hooded hooks from 18–19. Maciolek (1985: figs 2a, b) show the prostomium to be truncate and broader anteriorly than that figured here and the first pair of branchiae are shorter than in the South African and southern Australian specimens. Maciolek’s list of material examined includes specimens from widespread localities (Atlantic coast of North America, Surinam, Mediterranean, Canary Islands and Bay of Biscay, Sweden; encompassing a depth range of 85 to 2379 m) in addition to the South African material. In view of the above discrepancies it seems likely that Maciolek’s material and descriptions may confuse one or more additional species with *P. dubia* and I regard her widespread records as requiring verification. The Australian material is however indistinguishable from the South African specimens both qualitatively and quantitatively (in respect of the distribution of setae) and these specimens are therefore identified as *P. dubia* and represent the first record of that species from Australian waters.

**Distribution.** South Africa and south-eastern Australia, shelf and upper slope depths, 37 to 630 m.

**Prionospio kirrae** sp. nov.

**Figures 16–23**

**Material examined:** 42 specimens, anterior fragments, size range 18 setigers, 2.5 mm long, 0.3 mm wide to 36 setigers, 13 mm long, 0.5 mm wide.

Holotype: anterior fragment, 36 setigers, 13 mm long, 0.5 mm wide, NMV F50366. Western Bass Strait, 10 km WNW of Cape Otway, 39°49.0’S, 143°24.0’E, 56 m, fine sand, Smith-McIntyre Grab, 20 Nov 1981, G. Poore et al. (Stn BSS-G 184).

Paratypes: Western Bass Strait, type locality: NMV F50367–50372, 6 specimens; AM W203948, 2; NMV.Z.1989.116.2, 2; USNM 122746, 2.

Other material: Tasmania: off entrance to Little Swanport, 10 m, sand, Van Veen Grab, 8 Jun 1977, A.J. Dartnall, TM K1009, 3; off Hellfire Bluff, S of Cape Bernier, 12 m, sand, Van Veen Grab, 7 Jul 1977, A.J. Dartnall, TM K1008, 2; Lagoon Bay, Forester Peninsula, 16 m, sand, Van Veen Grab, A.J. Dartnall, TM K1007, 1.

Western Bass Strait: Stn BSS 49, NMV F50373–50374, 19 specimens; Stn BSS-G 111, NMV F50375, 12; Stn BSS-S 121, NMV F50376, 1.

**Comparative material of other taxa:** *Prionospio tridentata*. New South Wales: Towra Pt, Botany Bay, April 1973, 1 specimen, NMV G2844; 2, NMV G2845 (part of material of Blake and Kudenov, 1978).

**Description.** Prostomium with anterior margin indented and with deep dorsal groove extending back to a point between the first pair of eyes (Fig. 16). Two pairs of eyes, small red points, anterior pair more widely separated. Eyes faint to invisible in holotype and several other specimens. Caruncle attached to dorsal margin, extending back to posterior margin of setiger 2. Peristomium fused to setiger 1, lateral wings absent. Four pairs of branchiae on setigers 2–5. Apinnate branchiae on setigers 2–4, about equal in length to neuropodial lobes; first pair slender, cirriform, pairs 2 and 3 more stout, triangular, with fine marginal cilia. Fourth pair of branchiae about 3 times as long as anterior branchiae, densely pinnae on anterior surfaces, smooth on posterior surfaces and basally. Setiger 1 well developed, with notosetae, neurosetae and small parapodial lobes. Notopodia consisting of triangular lamellae folded dorsally around notosetae on setigers 2–10, largest over setigers 2–7, decreasing posteriorly. Notopodia of setiger 11 unite to form high dorsal crest (Fig. 16). Notopodia of setiger 12 consist of an ovoid postsetal lobe extending partly onto the dorsal but not forming a continuous dorsal crest. Notopodia similar on all posterior setigers, reducing in size and becoming semi-circular in shape by about setiger 15. Neuropodia lancolate lobes throughout, reducing gradually in size posteriorly but not changing significantly in shape posteriorly (Figs 17–20). Low pre-setal neuropodial ridge present throughout (to at least setiger 36) but becoming very small on posterior setigers.

**Notosetae of setiger 1** single bundles of capillaries, setigers 2 to about 15 with posterior row of granulate unilimbate capillaries and 1–2 anterior rows of shorter simple capillaries, reducing to a single row of granulate capillaries at about setiger 16. Granulate sheathed sabre setae (Fig. 21), one or two per setiger, in ventral neuropodial positions from setiger 10 or 11 (setiger 11 in holotype). Hooded hooks, with 2 apical teeth above main fang (Figs 22–23), appear in neuropodia at setiger 20 in holotype, at setiger 19 to 21 in most specimens or as early as setiger 17 in small worms. Only one specimen, paratype NMV F50369, has notopodial hooded hooks (from setiger 18) but this worm is regenerating new posterior setigers from setiger 16 and is undoubtedly atypical. All other specimens...
Figures 16–23. *Prionospio kirrae*, holotype NMV F50366: 16, dorsal view; 17, setiger 2 parapodium; 18, setiger 4 parapodium; 19, setiger 5 parapodium; 20, setiger 10 parapodium; 21, sabre seta, setiger 20; 22, neuropodial hooded hook, setiger 36, frontal view; 23, same, lateral view.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 16); 0.2 mm (Figs 17–20); 0.02 mm (Figs 21–23).

are anterior fragments of up to 36 setigers and all lack notopodial hooded hooks. Paratype NMV F50369, regenerating posteriorly, is the only specimen with a pygidium: it is typical for the genus with a long medial cirrus and a pair of lateral lappets.

Remarks. *Prionospio kirrae* sp. nov. belongs to the *P. caspersi* group of species which are characterised by having the first three pairs of branchiae apinnate, the fourth pair pinnate and hooded hooks with only 1 or 2 apical teeth. This group of species was placed in the new genus *Apoprionospio* by Foster (1969) but this approach has not been generally followed by other workers (e.g. Blake and Kudenov, 1978). *Apoprionospio* was redefined by Maciolek (1985) and the *P. caspersi* species group was returned to *Prionospio*. The four previously known species of the *P. caspersi* group were compared in Table 3 of Maciolek (1985: 375, species 18–21). *Prionospio kirrae* most closely resem-
bles *Prionospio* Blake and Kudnov, 1978 in possessing hooded hooks with 2 apical teeth but can be distinguished from that species by having a prominent dorsal crest on setiger 11 and by having the fourth pair of branchiæ pinnate on the anterior surfaces (*P. tridentata* has a dorsal crest on setiger 7 and has the fourth pair of branchiæ pinnate on the posterior surfaces). *Prionospio tridentata* is widespread in New South Wales (Blake and Kudnov, 1978; Huchings and Murray, 1984) whereas *P. kirrae* occurs in western Bass Strait. Despite extensive sampling *P. kirrae* has not been collected from eastern Bass Strait.

*Etymology.* The specific name *kirrae* is derived from the name of an Australian aboriginal tribe whose territory encompassed the coastal region immediately west of Cape Otway, Victoria.

*Distribution.* Known only from western Bass Strait, from Cape Otway to north-western Tasmania. Sandy sediments, 29–84 m.

**Prionospio kulin** sp. nov.

*Prionospio steenstrupii.*—Blake and Kudnov, 1978: 213, fig. 20a (in part; not Malmgren, 1867).

*Material examined.* More than 400 specimens; size range 27 setigers, 5.5 mm long, 0.3 mm wide to 51 setigers, 20 mm long, 0.8 mm wide (anterior fragments).

Holotype: entire specimen, 58 setigers, 11 mm long, 0.5 mm wide at setiger 5, NMV F50377, Eastern Bass Strait, 112 km S of Lakes Entrance, 38°53.7’S, 147°55.2’E, 71 m, medium carbonate sand with 2% mud (sediment data from Smith-McIntyre Grab sample, same station), Agassiz trawl, 17 Nov 1981, G. Poore et al. (Stn BSS-T 171).


Other material: Tasmania: Pirates Bay, 7 Jun 1977, A.J. Dartnall, TM K1010.

Bass Strait: Erith Island, transect 3, algal washings, S.A. Shepherd, AM unreg.; Stn BSS 56, NMV F50393–50394, 8 specimens; Stn BSS-G 112, NMV F50395, 18; Stn BSS-S 165, NMV F50396, 7; Stns BSS-G 172, BSS-S 172, NMV F50397–50398, 14; Stns BSS-G 205, NMV F50399, 1. NMV unregistered, Stns BSS 48, 49, 64, 69, 108, 111, 115, 125, 156, 160, 193, 200, 202, 209 (a selection of material from over 60 stations).

New South Wales: North Head, Sydney, Shelf Benthic Survey, 32 m, 25 May 1972, AM W6505, 1 specimen (part of material identified as *P. steenstrupii* by Blake and Kudnov, 1978).

*Description.* Prostomium with anterior margin rounded, widest anteriorly, extending back as narrow caruncle back to posterior margin of setiger 2 (Fig. 24). Holotype with one pair of red comma shaped eyes, other material with 0–2 pairs of eyes. Peristomium fused to setiger 1, not forming lateral wings. Setiger 1 with notosetae, neurosetae and reduced parapodial lobes. Four pairs of branchiæ on setigers 2–5, branchiæ 1 and 4 up to 3 times as long as branchiæ 2 and 3. First pair of branchiæ with long pinnæ on posterior surfaces, bare distally. Pinnae apparently readily lost from the first pair of branchiæ: many specimens with only a few pinnæ and most larger specimens (0.6 mm wide and more) with no pinnæ visible on first pair of branchiæ (Fig. 25). Branchiæ 2 and 3 apinate, stout triangles similar in length to notopodial lobes. Fourth pair of branchiæ always with long pinnæ basally on the posterior surfaces. Notopodia largest over setigers 2–6, becoming lower, rounded from setiger 7 and reducing posteriorly to about setiger 35. Notopodia becoming elongate to triangular from about setiger 35 and on all subsequent setigers. Neuropodia largest over setigers 2–4, with prominent acuminate ventral process on setiger 2, becoming rounded and reducing in size posteriorly back to about setiger 40 (Figs 25–29), thereafter present as a triangular lobe. Notopodia unite to form prominent dorsal crest on setiger 7. Dorsal crests much lower on setiger 8 and posteriorly, present as low ridges back to setiger 20 in holotype or to setigers 17–21 in other material. Interparapodial pouches absent in type series but occur over some or all of setigers 9–13 in some non-type specimens.

Setae anteriorly biliminate granulate capillaries in notopodia and neuropodia, changing to smooth nonliminate capillaries between about setigers 10–15. Uniliminate granulate sabre setae (Fig. 30) appear in ventral neuropodial positions from setiger 10. Hooded hooks with 4–5 pairs of apical teeth above main fang (Figs 31–32) appear in neuropodia at setiger 19 and in notopodia at setiger 32 in holotype (hooded hooks first present earlier in smaller specimens, appearing in neuropodia at setigers 13–21 and in notopodia at setigers 21–39 in other material studied). Neuropodial hooded hooks with longer
Remarks. Prionospio kulin sp. nov. belongs to the *P. steenstrupi* group of species which are characterised by having the first and fourth pair of branchiae pinnate and hooded hooks with 4–6 pairs of apical teeth. The 12 previously known species of the *P. steenstrupi* group were compared in Table 3 of Maciolek (1985: 375, species 1–12). Three additional species in the *P. steenstrupi* group are described in this paper: *P. coorilla*, *P. kulin* and *P. nirripa* spp. nov. Prionospio kulin is most similar to *P. steenstrupi* as redescribed by Maciolek (1985) but can be distinguished from the latter species by the earlier appearance of notopodial hooded hooks (at
setigers 25–39, compared with at setigers 43–54 in \( P. \) steenstrupi; the shape of the prostomium, which is widest anteriorly and narrower at the level of the eyes in \( P. \) kulin but is equally wide at the level of the eyes in \( P. \) steenstrupi; and the absence of peristomial wings in \( P. \) kulin (\( P. \) steenstrupi has low peristomial wings). \( \textit{Prionospio kulin} \) is also characterised by the constancy of several other characters: dorsal crests are present over setigers 7 to 18–21 and sabre setae are always present from setiger 10 in \( P. \) kulin but both characters were reported by Maciolek (1985) to be more variable in \( P. \) steenstrupi. Among the Australian species of \( \textit{Prionospio} \), \( P. \) kulin is most similar to \( P. \) multieristata Hutchings and Rainer, 1979 but can be distinguished by the having a shorter caruncle (extending to setiger 2) and having dorsal crests limited to setigers 7–21 at most (\( P. \) multieristata has a caruncle extending to setiger 4 and dorsal crests on setigers 7–30).

The apparent case with which the pinnae are lost from the first pair of branchiae in \( P. \) kulin requires comment. Presence/absence of branchial pinnae is a major taxonomic character within genera in the \( \textit{Prionospio} \) complex and consistent absence of pinnae in any material under study would normally imply the presence of an additional species. However in this study no additional characters were found which would consistently separate specimens on the basis of presence/absence of first branchial pinnae. Even among those specimens which do possess pinnae on the first pair of branchiae, those pinnae are often fragile and few in number. Figure 33 shows that this variability appears to be size related and all material is thus referred to a single species. Branchial pinnae appear to be very readily shed in \( P. \) kulin and this character should be assessed cautiously in small or poorly preserved samples. (Such extreme fragility of branchial pinnae was not seen in any other species of \( \textit{Prionospio} \) examined in this study.)

\textbf{Etymology.} \( \textit{Prionospio kulin} \) is named for the four tribes of Australian aborigines from the

![Graph](image_url)

\textit{Figure 33. Prionospio kulin.} Graph of first setiger to bear neuropodial hooks versus maximum width (in mm, including parapodia). Open circles = specimens apparently lacking pinnae on first pair of branchiae, closed circles = specimens with pinnae first pair of branchiae.
Port Phillip region of Victoria; these tribes collectively called themselves the Kulin “nation”.

**Distribution.** *Prionospio kuln* is widespread in Bass Strait on a variety of sediments, 16–137 m, also known from a single record off North Head, Sydney, 32 m.

**Prionospio multicristata**
Hutchings and Rainer, 1979


*Prionospio malignem.*—Hutchings, 1974: 182 (not Clarapède, 1870).

**Material examined.** South Australia: Port Lincoln: HT Stn 11A, AM W194022, 1 specimen; HT Stn 13A, AM W194021, 2.


**Description.** Size range of material 48 setigers, 8 mm long, 0.5 mm wide to 69 setigers, 22 mm long, 1.0 mm wide (anterior fragments). Prostomium rounded anteriorly, extending back as narrow caruncle back to anterior margin of setiger 4. Two pairs of black eyes, posterior pair larger, comma shaped. Peristomium forming low lateral wings. Four pairs of branchiae: first and fourth pairs with long pinnae basally, bare distally, second and third pairs apinate, shorter and triangular. Neuropodial lamellae of setiger 2 produced ventrally into acuminate lobes. Low dorsal crests from setiger 7 to about setiger 30. Neuropodial sabre setae from setiger 10, hooded hooks from setigers 14–18; notopodial hooded hooks from setigers 27–40. Hooded hooks with 4–5 pairs of teeth above the main fang.

**Remarks.** I have re-examined Blake and Kudenov’s (1978) records of *Prionospio steenstrupi* from south-eastern Australia and compared this material with Maciolec’s (1985) redescriiption of *P. steenstrupi* (based on the syntype series). Most of Blake and Kudenov’s material was collected from the Wallis Lake estuary, New South Wales. These specimens (listed above) agree in every detail with the holotype and original description of *P. multicristata* Hutchings and Rainer and are thus referred to that species. *Prionospio multicristata* is distinguished from other Australian species of the genus by the long caruncle, the ventral neuropodial projection of setiger 2 and the dorsal crests on setigers 7–30. I have referred the remainder of Blake and Kudenov’s material of *P. steenstrupi* to *P. dubia* Day, 1961. *P. coorilla* sp. nov. and *P. kuln* sp. nov. (see above).

**Distribution.** Western Australia, South Australia, New South Wales and southern Queensland, mostly from estuaries (Hartmann-Schröder, 1982, 1984; Hutchings and Murray, 1984).

**Prionospio multipinnulata**
Blake and Kudenov, 1978


**Material examined.** Victoria: Port Phillip Bay, PPBES Stn 953, NMV G2836, holotype; PPBES Stn 953, NMV G2833-2835, 5 paratypes.

Tasmania: Fortescue Bay, Tasman Peninsula, 10 m, sand, 7 June 1977, Van Veen Grab, A.J. Dartnall, TM K1004, 11 specimens; Pirates Bay, Eaglehawk Neck, 8 m, sand, 7 June 1977, Van Veen Grab, A.J. Dartnall, TM K1005, 2; off Spring Beach, SE of Orford, 20 m, 9 June 1977, A.J. Dartnall, TM K1006, 3; Stn TAS 11, NMV F50471, 4; Stn TAS 18, NMV F50472, 30; Stn TAS 35, NMV F50465, 7; Stn TAS 36, NMV F50456, 2; Stn TAS 37, NMV F50460, 30; Stn TAS 38, NMV F50457, 1; Stn TAS 40, NMV F50461, 3; Stn TAS 41, NMV F50459, 2; Stn TAS 47, NMV F50458, 1; Stn TAS 48, NMV F50462, 1.

**Description.** Size range of material 49 setigers, 9 mm long, 0.4 mm wide to 115 setigers, 25 mm long, 0.7 mm wide (anterior fragments). Prostomium rounded anteriorly, extending as narrow caruncle to anterior margin of setiger 2. Setiger 1 well developed, fused to peristomium which forms low lateral wings. Four pairs of branchiae on setigers 2–5, each branchia with digitiform pinnules on the posterior surfaces. Dorsal crests absent or occasionally present as very low membranes (barely visible) from about setiger 10. Sabre setae in ventral neuropodial positions from setiger 10–11. Hooded hooks, with 4–5 pairs of teeth above main fang, appear in neuropodia from setiger 17–22, and in notopodia from setiger 26–30. Pygidium with long medial cirrus and pair of lateral lappets.
Remarks. The specimens examined here agree closely with the descriptions of Blake and Kudenchov (1978) and Hutchings and Turvey (1984), the only difference being that some specimens have more sparsely distributed branchial pinnules than in the type series.

Distribution. South Australia, Tasmania, Victoria, southern New South Wales. This is the first record of *P. multipinnulata* from Tasmania. Two small specimens close to *P. multipinnulata* were reported from Western Australia by Hartmann-Schröder (1984), but the material was too small to be confident of a specific identification.

**Prionospio nirripa** sp. nov.

**Material examined.** 250 specimens, size range 42 setigers, 12 mm long, 0.5 mm wide (entire specimen) to 61 setigers, 22 mm long, 0.9 mm wide (anterior fragment).

Holotype: anterior fragment, 28 setigers, 9 mm long, 0.9 mm wide, NMV F50359. Western Bass Strait, 27 km S of Cape Otway, 39°6.0′S, 143°35.8′E, 95 m, fine carbonate sand, Smith-McIntyre Grab, 31 Jan 1981, M. Gomon et al. (Stn BSS-G 118).

Paratypes: Western Bass Strait, type locality; NMV F50360–50361, 2 paratypes. Western Bass Strait, 30 km SSW of Cape Otway, 39°8.8′S, 143°24′E, 77 m, medium carbonate sand, Smith-McIntyre Grab, 8 Oct 1980, G. Poore (Stn BSS-G 56) USNM 122748, 4 paratypes; 65 km SSW of Cape Otway, 39°22′S, 143°10′E, 99 m, medium carbonate sand, pipe dredge, 10 Oct 1980, G. Poore (Stn BSS 71), AM W203950, 1 paratype; 30 km SW of Cape Otway, 39°01.1′S, 143°15.2′E, 84 m, medium sand, epibenthic sled, 31 Jan 1981, M. Gomon et al. (Stn BSS-S 121), AM W203951, 2 paratypes; 35 km W of Cape Otway, 38°50.0′S, 143°7.5′E, 69 m, medium carbonate sand, Smith McIntyre Grab, 20 Nov 1981, G. Poore et al. (Stn BSS-G 186), NMW.Z.1989.116.4, 3 paratypes.

Other material: Western Bass Strait: Stn BSS 55, NMV F50362, 3 specimens; Stn BSS-G 115, NMV F50363.1; Stn BSS-G 171, NMV F50364.7; Stn BSS-G 200, NMV F50365.4, NMV unregistered: Stns BSS 47, 49, 50, 51, 55, 56, 57, 60, 61, 71, 75, 76, 77, 78, 108, 112, 115, 118, 119, 120, 121, 162, 165, 163, 165, 168, 171, 172, 173, 175, 182, 185, 186, 188, 193, 197, 198, 200, 201, 202, 205, 206, 208, (total of 223 specimens).

Description. Prostomium broad anteriorly with shallow indentation in anterior margin (Fig. 34). Two pairs of red eyes, anterior pair more widely separated and more deeply embedded (indistinct in holotype and some other specimens), posterior pair distinct in all material. Prostomium produced posteriorly into a long narrow...
caruncle extending back to posterior margin of setiger 2, attached to dorsum throughout. Peristomium fused to setiger 1, lateral wings absent. Four pairs of branchiae on setigers 2–5. First pair of branchiae as long as or up to twice as long as notopodial lobes, with long digitiform pinnae on posterior surfaces, bare anteriorly and on extreme basal and distal regions. Branchiae 2 and 3 equal in length to notopodial lobes, stout triangular, apinnate but with ciliated lateral margins. Fourth pair of branchiae 2 to 4 times as long as branchiae 2 and 3, with long digitiform pinnae on posterior surfaces, bare anteriorly and on extreme basal region. Setiger 1 well developed, with small ovoid parapodial lobes and setae in noto- and neuropodia. Notopodia of setigers 2–9 triangular lamellae, largest on setigers 3–5. Notopodia of setiger 10 and subsequent setigers becoming sub-ovoid in shape and extending across dorsum as low continuous dorsal crest from setiger 10. Dorsal crest reducing posteriorly but still present (but membranous and difficult to see) at least as far back as setiger 30. Neuropodium of setiger 2 distinctive, with a ventrally produced triangular lobe (Fig. 35), neuropodia of setiger 3 and subsequent setigers trapezoid in shape, reducing in size on posterior setigers (Figs 35–38). Neuropodia with low prosetal ridge.

Notosetae of setiger 1 a single bundle of granulate unilimbate capillaries, setigers 2 to about 20 with anterior row of short, wide, biliminate granulate capillaries and posterior row of longer curved biliminate granulate capillaries. Posterior notosetae (from about setiger 15) unilimbate smooth capillaries. Neurosetae unipinnate and biliminate granulate capillaries anteriorly, granulate becoming less obvious on setae of posterior setigers; capillaries smooth and unilimbate from about setiger 15. One or two large granulate scabrate sabre setae (Fig. 39) in ventral neuropodial positions from setiger 10. Hooded hooks with 5–6 pairs of teeth above main fang (Fig. 40) appear in neuropodia at setiger 17 in holotype, at setigers 15–17 in most specimens or as early as setiger 14 in small worms. Hooded hooks identical to those in neuropodia appear in neuropodia from setigers 22–26 in small specimens (0.6 mm wide) or later at setiger 35–36 in specimens 1.0 mm wide. Pygidium typical for genus, with long medial cirrus and pair of lateral lappets.

Remarks. Prionospio nirripa belongs to the P. steenstrupi group of species which have the first and fourth pairs of branchiae pinnate and the second and third pairs apinnate. The P. steen-

strupi group now comprises 15 species, including three new species described in this paper (P. coorilla, P. kulin and P. nirripa). The 12 previously known species were compared in Table 3 of Maciolek (1985: 375, species 1–12). Prionospio nirripa most closely resembles P. multicristata Hutchings and Rainer, 1979 in the setigers at which sabre setae and hooded hooks appear and in the ventral triangular projection of the neuropodia of setiger 2. The two species differ in the position at which dorsal crests occur: P. multicristata has a high dorsal crest on setiger 7, decreasing regularly in height posteriorly to about setiger 30 whereas P. nirripa has low dorsal crests on setiger 10, decreasing posteriorly to at least setiger 30. Prionospio nirripa also has a shorter caruncle than P. multicristata and differs further in the arrangement of the pinnae on the first and fourth pairs of branchiae: the branchiae are densely pinnate basally in P. multicristata and bare distally whereas in P. nirripa the branchiae are bare or sparsely pinnate basally and densely pinnate on the medial and distal portion. Prionospio multicristata has been recorded from South Australia. New South Wales and Queensland, mostly from estuaries. Prionospio nirripa is known only from Bass Strait where it occurs widely on carbonate sediments, 21 to 99 m depth.

Etymology. The specific name nirripa is derived from an Australian aboriginal word meaning “the sea”.

Distribution. Widespread in eastern and western Bass Strait on a variety of sandy and muddy sediments, 21–99 m depth.

Prionospio pilkena sp. nov.

Figures 41–47

Material examined. 6 specimens, anterior fragments, size range 48 setigers, 10 mm long, 0.25 mm wide to 30 setigers, 4.5 mm long, 0.35 mm wide. Holotype: anterior fragment, 57 setigers, 15 mm long, 0.35 mm wide. NMV F50407. Western Bass Strait, 65 km SSW of Cape Otway, 39°21'S, 143°06'E, 101 m, medium carbonate sand, pipe dredge, 10 Oct 1980. G. Poore et al. (Stn BSS 70).

Paratypes: Western Bass Strait, type locality, NMV F50408, 1 paratype. Western Bass Strait, 15 km S of Cape Otway, 39°00'S, 143°32'E, 79 m, medium carbonate sand, naturalists dredge, 8 Oct 1980. G. Poore et al. (Stn BSS 50). NMV F50409, 1 paratype. Western Bass Strait, 62 km SW of Cape Otway, 39°18'S, 143°03'E, 113 m, coarse carbonate sand, Smith McIntyre Grab, 10 Oct 1980. G. Poore et al. (Stn BSS 69), AM W203952, 1 paratype. South-western Bass Strait, mid-point of strait separating Three Hummock
Island and Walker Island, NW Tasmania, 40°31'S, 144°56'E, 27 m, very coarse shell, Smith McIntyre Grab, 2 Nov 1980, P. Forsyth et al. (Stn BSS-G 109), USNM 122749, 1 paratype. Western Bass Strait, 30 km S of Warrnambool, 38°42.8'S, 142°35.6'E, 69 m, coarse sand, pipe dredge, 20 Nov 1981, R. Wilson et al. (Stn BSS 189), NMW.Z.1989.16.5, 1 paratype.

Description. Prostomium broadly rounded anteriorly, narrowing sharply in posterior third to form caruncle extending back to posterior margin of setiger 1 (Fig. 41). No nuchal organ or eyes visible. Peristomium fused to setiger 1, forming low lateral wings which partly enclose the posterior third of prostomium. Setiger 1 reduced, with few capillary noto- and neurosetae but without parapodial lamellae. Notopodia lanceolate lobes, longest over setigers 2-4, thereafter reducing quickly to low rounded lobes, very small and barely visible by about setiger 20. Neuropodia largest over setigers 2-4 (Figs 42-44), ovoid in shape and reducing in size posteriorly from setiger 3 becoming vestigial rounded lobes by about setiger 20. Three pairs of apinnate branchiae on setigers 3-5, digitiform to slightly lanceolate in form. First pair of branchiae with heavily ciliated margins (Fig. 43) and slightly longer than longest notopodial lobe, other branchiae about equal to notopodial lobe length. Branchiae absent from setiger 2 in all specimens; no branchial scars visible under either light or scanning electron microscopes. Dorsal crests and interparapodial pouches absent.

Notosetae and neurosetae all granulate uni- and biliminate capillaries in 2 rows anteriorly, reducing to a single row of smooth nonlimbate capillaries in each fascicle by setigers 15-20. Sabre setae appear in ventral neuropodial positions at setigers 15-16 (setiger 15 in holotype). Sabre setae anteriorly heavily granulate and strongly unilimbarate (Fig. 45), posteriorly (by about setiger 40) with finer granulae present.

Figures 41-47. Prionospio pilkena: 41, dorsal view, holotype NMV F50407; 42, setiger 2 parapodium, paratype NMV F50408; 43, setiger 3 parapodium, holotype; 44, setiger 9 parapodium, paratype NMV F50408; 45, sabre seta, setiger 16, holotype; 46, neuropodial hooded hook, setiger 51, holotype; 47, notopodial hooded hook, setiger 49, holotype.

All parapodia figured in anterior view. Scale bars represent; 0.5 mm (Fig. 41); 0.02 mm (Figs 45-47); 0.1 mm (Figs 42-44).
only over distal half. Hooded hooks with 4 pairs of small apical teeth above main fang (Fig. 46) appear in neuropodia at setigers 18–19 (setiger 18 in holotype). Notopodial hooded hooks (Fig. 47), with longer shafts but otherwise identical to neuropodial hooded hooks, appear in holotype at setiger 45, and at setiger 52 in other specimens to carry notopodial hooded hooks (paratype NMV F50408). Pygidium unknown.

Remarks. Prionospio pilkena is unusual among species in the Prionospio complex in lacking branchiae on setiger 2; only 3 other species share this character: Prionospio banyulensis Laubier, 1968, P. ockelmanni Pleijel, 1985 and Aurospio boreus Maciolck, 1981. The genus Aurospio Maciolek, 1981 was defined by Maciolek as having two pairs of apinnate branchiae on setigers 3 and 4, branchiae partly fused to the notopodia, and hooded hooks lacking secondary hood. Subsequently, Prionospio banyulensis Laubier, 1968 has been unquestionably referred to Aurospio by Maciolek (1985). Nevertheless, no other species of Prionospio shares the characters used to define Aurospio, and I prefer to retain Prionospio as a monotypic genus, containing A. banyulensis, until type material of all taxa can be examined.

Prionospio pilkena is most similar to P. ockelmanni and P. banyulensis, however the new species can be readily distinguished by the form of the prostomium and caruncle. The prostomium of P. pilkena is narrow and elongate and the caruncle extends back to the posterior margin of setiger 2 whereas P. banyulensis and P. ockelmanni have prostomia which are broader and blunt anteriorly and caruncles which barely extend to the posterior limit of the first setiger. The distribution of setae also distinguish P. pilkena: sabre setae appear at setigers 15–16 in P. pilkena but are present from setiger 10 in P. banyulensis and P. ockelmanni, and neuropodial hooded hooks appear at setigers 18–19 in P. pilkena and at setiger 12 in P. banyulensis and P. ockelmanni. (Prionospio banyulensis and P. ockelmanni are similar in the arrangement of branchiae and setae and may be synonymous.) Prionospio pilkena is also similar to P. japonica Okuda, 1935 but differs in the structure of the sabre setae have an unusual long fine point in P. japonica (Okuda, 1935: fig. 1e) which is lacking in P. pilkena, in lacking branchiae on setiger 2, in the later appearance of sabre setae (at setigers 15-16 as against at setiger 10 in P. japonica) and the later appearance of notopodial hooded hooks (at setiger 45–52 as against at setiger 27 in P. japonica).

The absence of dorsal crests, the strongly reduced notopodia (except on setigers 3–5) and the presence of apinnate branchiae on setigers 3–5 only, readily distinguish P. pilkena from all other Australian species of Prionospio.

Etymology. The specific name"pilkena" is derived from an Australian aboriginal word meaning "different".

Distribution. Known only from six specimens from western Bass Strait, south-eastern Australia, 27–113 m, carbonate sediments.

Prionospio tatura sp. nov.

Figures 48–56

Prionospio (Minusio) cirrifera.—Blake and Kudenov, 1978: 222–224, Fig. 25a (in part, not Wirén, 1883).

Material examined. Over 200 specimens, size range 70 setigers, 7 mm long. 0.3 mm wide to 70 setigers, 9 mm long. 0.4 mm wide (entire worms).

Holotype: entire specimen, 70 setigers, 13 mm long. 0.3 mm wide, NMV F53898. Hobsons Bay and Yarra River. Port Phillip Bay, Victoria, 37°50'S, 144°53'E, about 8 m. Smith-Mclntyre Grab, 9–11 Mar 1971, G.Poore et al., Marine Studies Group (PPBES Stn 131).

Paratypes: Hobsons Bay and Yarra River, type locality. NMV F53899–53902, 20 paratypes; AM W203953, 10 paratypes; NMV.Z.1989.116.6, 10 paratypes; USNM 122750, 10 paratypes.

Other material: Western Australia: Normalup. J. Shaw. NMV F53903, 1 specimen.


Description. Prostomium widest at mid-point, broadly rounded anteriorly, produced posteriorly into narrow caruncle extending back to posterior margin of setiger 1 (Fig. 48). Paired nuchal organs surround caruncle. One or 2 pairs of red eyes, sometimes faint or absent. Peristomium partly fused to setiger 1, forming low lateral wings. Setiger 1 with small but distinct notopodial and neuropodial lobes, both with setae. Notopodia asymmetrical lanceolate lobes, largest on setigers 2–7, reducing to low rounded lobes by about setiger 12, then reducing further so as to be barely visible by setiger 20. Neuropodia irregular in shape, largest over anterior setigers, reduc-

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 48); 0.1 mm (Figs 49–53); 0.02 mm (Figs 54–56).

ing to low rounded lobes by setiger 12 (Figs 49–53). Six to 11 pairs of apinate branchiae from setiger 2 (9 pairs in holotype), posterior branchiae with ciliated margins. First pair of branchiae 2–3 times as long as notopodium, branchiae of subsequent setigers decreasing in length with posterior-most (and shortest) branchial pair less than twice as long as notopodia and about one third as long as first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Noto setae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to a single row by about setiger 15. Granulate sheathed sabre setae (Fig. 54) appear in neuropodia at setigers 9–12 (setiger 10 in holotype).
Hooded hooks with 4 pairs of small teeth above the main fang (Fig. 55) appear in neuropodia at setigers 13–17 (setiger 15 in holotype). Notopodial hooded hooks (Fig. 56), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 23–38 (setiger 33 in holotype). Pygidium with short median cirrus and pair of triangular lateral lappets.

Remarks. Among species of Prionospio with only apinate branchiae (summarised by Maciolek, 1985: Table 4) P. tatura is most similar to P. cirrifera Wirén, 1883 and P. multibranchiata Berkeley, 1927. Prionospio cirrifera was redescribed by Mackie (1984) and can be distinguished from P. tatura (and 2 related Australian species: P. wambiri and P. yuriel spp. nov., described below) by the shorter branchiae, the longer caruncle (extending to the posterior margin of setiger 2 in P. cirrifera) and the presence of dorsal crests on post-branchial setigers. Prionospio cirrifera also differs in having acuminate ventral prolongation of the neuropodial lamellae of setiger 2. Mackie (1984) also provided a description of P. multibranchiata based on material from Scotland, however subsequent examination of specimens from near the type locality (Vancouver Island, Canada) indicates that P. multibranchiata.—Mackie, 1984 is distinct from P. multibranchiata Berkeley, 1927 (A.S.Y. Mackie, pers. comm.). Prionospio multibranchiata.—Mackie, 1984 possesses a long caruncle and dorsal crests on post-branchial setigers which distinguish this species from P. tatura (and P. wambiri and P. yuriel). In addition, P. multibranchiata.—Mackie, 1984, the first appearance of neuropodial sabre setae and hooded hooks moves posteriorly with increasing size of the specimen; no such size related variation was observed in either P. tatura, P. wambiri or P. yuriel. Mackie's unpublished notes show that P. multibranchiata from Canada can be distinguished from all 3 Australian species on the basis of the shorter branchiae and the distribution of sabre setae and hooded hooks (A.S.Y. Mackie, pers. comm.). All southern Australian records of P. cirrifera examined here have been referred to P. tatura, P. wambiri and P. yuriel. Additional more northerly records of Prionospio cirrifera that are not reassessed here are Blake and Kudenov (1978), Hutchings and Rainer (1979) and Hutchings and Murray (1984) (material from New South Wales and Queensland). I have seen the Hawkesbury River material of Hutchings and Murray (1984); the specimens are in poor condition but appear to represent one or more undescribed species. Additional species might be expected to occur in northern Australia, however it is beyond the scope of this paper to treat the tropical and sub-tropical fauna. Such a study should in any case include more comprehensive collections from northern Australia than are currently available. It is unlikely that Prionospio cirrifera occurs in Australia.

Among Australian species, P. tatura is most similar to P. wambiri and P. yuriel. The three species can be distinguished using the characters given in Table 2.

Table 2. Comparison of three related Australian species of Prionospio.

<table>
<thead>
<tr>
<th>Species</th>
<th>pro stomium</th>
<th>branchiae</th>
<th>first setiger with neuropodial:</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. tatura</td>
<td>widest at mid-point</td>
<td>longest on setiger 2, decreasing in length posteriorly</td>
<td>9–12 13–17</td>
</tr>
<tr>
<td>P. wambiri</td>
<td>widest close to anterior margin</td>
<td>longest on setiger 2, decreasing in length posteriorly</td>
<td>14–16 16–21</td>
</tr>
<tr>
<td>P. yuriel</td>
<td>widest at posterior-most region</td>
<td>longest on setigers 4–5, decreasing in length on anterior and posterior setigers</td>
<td>11–13 14–19</td>
</tr>
</tbody>
</table>
**Etymology.** The specific name *tatura* is derived from an Australian aboriginal word meaning “small lagoon”.

**Distribution.** Estuarine localities in Western Australia and Victoria.

**Prionospio wambiri** sp. nov.

Figures 57–65

*Minuspio cirrifera.*—Hutchings and Murray, 1984: 59 (in part; not Wirén, 1883).

**Material examined.** 26 specimens, size range 35 setigers, 3.5 mm long, 0.3 mm wide (anterior fragment) to 81 setigers, 18 mm long, 0.9 mm wide (entire specimen).

Holotype: entire specimen, 88 setigers, 15 mm long, 0.8 mm wide, NMV F53904. Tasmania, Woodbridge, 43°9.5'S, 147°14.0'E, intertidal, fine muddy sand, hand spade, 28 Apr 1985, R. Wilson (Stn TAS 44).

Paratypes: Tasmania, type locality, NMV F53905-53906, 2 paratypes; AM W203954, 2 paratypes; USNM 122751, 2 paratypes. Tasmania, Dover Jetty, 43°19.0'S, 147°1.0'E, 1.5 m, muddy fine sand and Zostera, SCUBA airlift, 27 Apr 1985, R. Wilson (Stn TAS 40), NMW.Z.1989.116.7, 5 paratypes; NMV F53907, 26 paratypes.

Other material: Tasmania: Stn TAS 2, NMV F53908, 4 specimens; Stn TAS 4, NMVF53909, 2; Stn

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**Figures 57–65. Prionospio wambiri:** 57, dorsal view, holotype NMV F53904. 58–65, paratype NMV F53905: 58, setiger 2 parapodium; 59, setiger 3 parapodium; 60, setiger 4 parapodium; 61, setiger 9 parapodium; 62, setiger 13 parapodium; 63, sabre seta, setiger 26; 64, neuropodial hooded hook, setiger 26; 65, notopodial hooded hook, setiger 60.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 57); 0.1 mm (Figs 58–62); 0.02 mm (Figs 63–65).
TAS 11, NMV F53910, 1; Stn TAS 41, NMV F53911, 3; Stn TAS 47, NMV F53912, 1; Stn TAS 48, NMV F53913, 8; Stn TAS 51, NMV F53914, 3.
Bass Strait: Stn BSS-S 109, NMV F50400, 1; Stn BSS-S 117, NMV F50401, 1; Stn BSS-S 179, NMV F50402, 1; Stn BSS-S 212, NMV F50403-50404, 2.

Description. Prostomium widest close to anterior margin, narrower in mid-region and produced posteriorly into narrow caruncle which extends back to posterior margin of setiger 1 (Fig. 57). Paired nuchal organs surround caruncle. One pair of irregularly-shaped red eye spots present, sometimes with additional 1 or 2 pairs of smaller eye spots. Peristomium fused to setiger 1, forming low lateral wings. Setiger 1 with notoseatae, neurosetae and small notopodial and neuropodial lobes. Notopodia asymmetrical lanceolate lobes, largest on setigers 2-9, reducing posteriorly to low rounded lobes, barely visible by setiger 20. Neuropodia irregular in shape, largest over setigers 2-9, reducing to low rounded lobes by setiger 20 (Figs 56-62). Neuropodia of setiger 2 with ventrally directed process. Seven to 12 pairs of apininate branchiae from setiger 2 (9 pairs in holotype), all except anterior 1–2 pairs with ciliated margins. First pair of branchiae longest, 2-2.5 times as long as notopodia, branchiae of subsequent setigers decreasing regularly in length with posterior-most branchial pair 1.5–2 times as long as neuropodial lobe and about half as long as first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Notoseatae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to single rows by about setigers 15–20. Granulate limbate sabre setae (Fig. 63) appear in neuropodia at setigers 14–16 (setiger 15 in holotype). Neuropodial hooded hooks (Fig. 64) with 4 pairs of small teeth above the main fang appear at setigers 16–20 (setiger 17 in holotype). Neuropodial hooded hooks (Fig. 65), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 36–50 (setiger 41 in holotype). Pygidium with short median cirrus and pair of triangular lateral lappets.

Remarks. Prionospio wambiri is most similar to P. tatura and P. yuriel. All three species can be distinguished using the characters given in Table 2. Further comments comparing these three Australian species with related Northern Hemisphere taxa are provided in the Remarks section of the account of P. tatura.

Etymology. The specific name wambiri is derived from an Australian aboriginal word meaning “sea coast”.

Distribution. Tasmania, Bass Strait and Jervis Bay, New South Wales, from a variety of sediments, intertidal to 55 m depth.

Prionospio yuriel sp. nov.

Figures 66–74

Prionospio (Minuspio) cirrifera.—Blake and Kudenov, 1978: 222–224, Fig 25a (in part, not Wirén, 1883).

Minuspio cirrifera.—Hutchings and Turvey, 1984: 11 (not Wirén, 1883).—Hutchings and Murray, 1984: 59 (not Wirén, 1883; in part, material from Botany Bay).

Material examined. Over 1200 specimens, size range 30 setigers, 5 mm long, 0.2 mm wide (entire worm), to 34 setigers, 0.5 mm wide, 9 mm long (anterior fragment).

Holotype: anterior fragment, 43 setigers, 8 mm long, 0.3 mm wide, NMV F53915. Victoria, Port Phillip Bay, 9 km E of Portarlington, 38°7.0'S, 144°44.7'E, 4 m, sand, venturi sampler, 16 Nov 1971, Fisheries and Wildlife Department (PPBES Stn 945) (part of material of Blake and Kudenov, 1978).

Paratypes: Victoria, Port Phillip Bay, type locality, NMV F53916–53918, NMV G3150, 41 paratypes; AM W203955, 4 paratypes; NMW.Z.1989.16907-16910, 6 paratypes; USNM 22752, 6 paratypes (part of material of Blake and Kudenov, 1978).

Other material: South Australia: Streaky Bay, HT Stn 02B, AM W19302, 1 specimen (material of Hutchings and Turvey, 1984). Bass Strait: Stn BSS-G 49, NMV F50405, 1 specimen; Stn BSS-G 197, NMV F50406, 1.

Victoria: Port Phillip Bay: PPBES Stn 128, NMV G3155, over 1000 specimens; PPBES Stn 131, NMV G3156, 1; PPBES Stn 901, NMV G3146, 93 specimens; PPBES Stn 913, NMV G3147, 2; PPBES Stn 921, NMV G3148, 9; PPBES Stn 932, NMV G3149, 3; PPBES Stn 952, NMV F53919, 5; PPBES Stn 962, NMV G3152, 1; PPBES Stn 978, NMV G3153; PPBES Stn 983, NMV G3154, 4 (part of material of Blake and Kudenov, 1978).

New South Wales: Towra Point, Botany Bay, Zostera, 2 m, 17 Apr 1973, New South Wales Fisheries, AM W16907-16910, 12 specimens (part of material of Hutchings and Murray, 1984).

Description. Prostomium narrow and elongate anteriorly, broadest at posterior-most third, produced posteriorly into narrow caruncle extending to posterior margin of setiger 1 (Fig. 66). Paired nuchal organs surround the caruncle.

One pair of faint red eye spots present in some specimens posterior to widest part of pro- stomium. Peristomium separate from setiger 1, forming low lateral wings. Setiger 1 with both
Figures 66–74. Prionospio yuriel: 66–73, paratype NMV F53916; 66, dorsal view; 67, setiger 2 parapodium; 68, setiger 3 parapodium; 69, setiger 4 parapodium; 70, setiger 9 parapodium; 71, setiger 13 parapodium; 72, sabre seta, setiger 25; 73, neuropodial hooded hook, setiger 25; 74, notopodial hooded hook, setiger 43, holotype NMV F53915.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 66); 0.1 mm (Figs 67–71); 0.02 mm (Figs 72–74).

notosetae and neurosetae, without obvious parapodial lobes. Notopodia asymmetrical lanceolate lobes, largest on setigers 2–5, reducing posteriorly to symmetrical rounded lobes with median protuberances by setiger 12. Notopodia further reduced to low circular lobes by setiger 20, barely visible by setiger 30. Neuropodia largest on setigers 2–4; setigers 2 and 4 with conspicuous dorsally directed lobes (Figs 67, 69).

Neuropodia of setigers 3, 5 and subsequent setigers symmetrical semicircular lobes reducing in size posteriorly to low lobes by setiger 12, barely visible by setiger 30 (Figs 68, 70, 71). Six to 9 pairs of apinate branchiae from setiger 2 (6 pairs in holotype), basal region of branchiae with ciliated margins. Branchiae of setiger 2 about 4 times notopodial length, increasing in length to maximum at setigers 4–5 where branchiae meas-
ure up to 1.5 times length of first pair of branchiae. Branchiae then decrease in length posteriorly, last pair equal to or slightly shorter than first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Noto setae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to single rows by about setigers 15–20. Granulate limbate sabre setae (Fig. 72) appear in neuropodia at setigers 11–13 (setiger 11 in holotype). Hooded hooks, with 4–5 pairs of small teeth above main fang (Fig. 73), appear in neuropodia at setigers 14–19 (setiger 17 in holotype). Notopodial hooded hooks (Fig. 74), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 34–42 (setiger 42 in holotype). Pygidium with long median cirrus and pair of very small lateral lappets.

Remarks. Prionospio Yuriel is most likely to be confused with the two Australian species described above, P. tatura and P. wambiri; all three species can be distinguished using the characters given in Table 2. Further comments comparing these three Australian species with related Northern Hemisphere taxa are provided in the Remarks section of the account of P. tatura.

I have examined Hutchings and Murray’s (1984) material identified as P. cirrifer. The specimens from Botany Bay, New South Wales are referable to P. Yuriel. The specimens from the Hawkesbury River, New South Wales are generally in too poor condition to be confident of their identity, however the distribution of sabre setae and hooded hooks indicates that P. Yuriel and another (possibly undescribed) species may be present in the Hawkesbury.

Etymology. The specific name Yuriel is derived from an Australian aboriginal word meaning “coastal bay”.

Distribution. Inshore waters of South Australia, Victoria and New South Wales from a variety of soft sediments; two records from the continental shelf of Bass Strait 46 and 81 m.

Paraprionospio Caullery, 1914

Diagnosis. Prostomium elongate to spindle-shaped, lacking posterior caruncle. Peristomium fused with achaetous first segment, forming large lateral wings enclosing prostomium. Setiger 1 well developed, distinct from preceding segment. Three pairs of branchiae, from setiger 1, all with flat flabellate or bifoliate pinules. Distinct transverse dorsal ridge between branchial bases on setiger 1. Hooded hooks with conspicuous striated secondary internal hood.

Type species. Prionospio pinnata Ehlers, 1901, subsequent designation by Caullery, 1914.

Remarks. Yokoyama and Tamai (1981) described 4 “forms” of Paraprionospio and recognised many new characters but stopped short of formally describing any new species. The type species is redescribed below from the syntypes with reference to the new characters used by Yokoyama and Tamai.

Paraprionospio coora sp. nov.

Figures 75–83


Material examined. 46 specimens, size range 48 setigers, 8 mm long, 0.4 mm wide (entire specimen) to 37 setigers, 19 mm long, 1.6 mm wide (anterior fragment).

Holotype: entire specimen, 71 setigers, 20 mm long, 0.8 mm wide at setiger 5, NMV F50424. Central Bass Strait, 90 km N of Wynyard, 40°10.9’S, 145°44.3’E, 75 m, sand-silt-clay, Smith-McIntyre Grab, 13 Nov 1981, G. Poore et al. (Stn BSS-G 157).

Paratypes: Central Bass Strait, type locality: NMV F50425, 1 paratype. Central Bass Strait, 90 km S of Tidal River, Wilsons Promontory, 39°49.5’S, 146°18.5’E, 82 m, sand-silt-clay, Smith-McIntyre Grab, 13 Nov 1981, G. Poore et al. (Stn BSS-G 158), AM W203956, 1 paratype. Eastern Bass Strait, 60 km E of North Point, Flinders Island, 39°44.8’S, 148°40.6’E, 124 m, clayey sand, Smith-McIntyre Grab, G. Poore et al. (Stn BSS-G 167), USNM 122753, 2 paratypes; NMW.Z.1948.116.9, 2 paratypes; AM W203957, 2 paratypes; NMV F50426–50430, 5 paratypes.

Other material: Tasmania: Stn TAS 6, NMV F50470, 1 specimen; Stn TAS 30, NMV F50476; Stn TAS 32, NMV F50481, 1.

Bass Strait: Stn BSS-G 115, NMV F50431, 3 specimens; Stn BSS-S 115, NMV F50421, 7; Stn BSS-S 155, NMV F50432, 1; Stn BSS-G 159, NMV F50433, 1; Stn
PRIONOSPIO AND PARAPRIONOSPIO (POLYCHAETA) FROM AUSTRALIA
Anterior notosetae and neurosetae all faintly granulate, unilimbate and bilimbate capillaries. Hooded hooks, one or two granulate unilimbate sabre setae and smooth nonlimbate capillaries appear in neuropodia from setiger 9. Many sabre setae with sharp bend near tip (Fig. 81). Smooth nonlimbate capillaries completely replace granulate limbate capillary neurosetae by about setiger 13. Granulate limbate capillary notosetae persist for several setigers more than in neuropodia but replaced by smooth nonlimbate capillaries by about setiger 24. All neuropodial hooded hooks with 2 pairs of teeth above main fang and distinctly striate secondary internal hoods (Fig. 82). Notopodial hooded hooks, with long straight shafts (Fig. 83), appear at setigers 38–41 (setiger 41 in holotype). Interparapodial pouches in most specimens, appearing between setigers 8/9 for variable number of setigers: to about setiger 13/14 on specimens less than 0.9 mm wide (including parapodia) or to about setiger 20/21 in larger specimens (up to 1.6 mm wide) and to setiger 17/18 in holotype. Dorsum of setigers 13–18 with transverse series of about 13–15 lighter coloured slightly raised ridges, 2 or 3 ridges per setiger. Dorsum otherwise smooth and without transparent areas of cuticle. No ventral bilobed flap on setiger 8. Pygidium with long median cirrus and pair of lateral cirri which may be extremely fine and difficult to see in some specimens.

Remarks. Paraprionospio coora sp. nov. appears to be very close to Paraprionospio Form C1 described by Yokoyama and Tamai (1981) from Japan, but has hooded hooks with two rather than three pairs of apical teeth. Paraprionospio coora also has a series of transverse dorsal ridges over setigers 13–15; Yokoyama and Tamai made no mention of this character but noted that “The anterior segments are faintly annulated and bear two ciliated bands on the dorsum.”

Etymology. The specific name coora is not meant to be descriptive; it is derived from an Australian aboriginal word meaning “blue gum tree”.

Distribution. Known from Tasmania, central and eastern Bass Strait, and from the continental shelf off Sydney, New South Wales. Collected from a variety of sediment types, 6 to 124 m.

Paraprionospio pinnata (Ehlers, 1901)

Figures 84–93

Prionospio pinnata Ehlers, 1901: 163–164.
Figures 84–93. *Paraprionospio pinnata*: 84–89, lectotype HZM 5814: 84, dorsal view, prostomium; 85, dorso-lateral view; 86, setiger 2 parapodium; 87, setiger 9 parapodium; 88, setiger 33 parapodium; 89, median branchial lamella; 90, sabre seta, setiger 15, paralectotype HZM 5814. 91–93, lecotype: 91, neuropodial hooded hook, setiger 9, oblique view; 92, neuropodial hooded hook, setiger 33, lateral view; 93, notopodial hooded hook, setiger 33, lateral view.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Figs 84, 86–88); 1.0 mm (Figs 85, 89); 0.1 mm (Fig. 90); 0.02 mm (Figs 91–93).
Material examined. Chilie: Talcahuano Talcahano, 5 fathoms [9.5 m], 4 May 1893, W. Michaelsen. HZM V5814, 5 syntypes, consisting of 5 anterior fragments and 7 middle and posterior fragments. Size range of anterior fragments: 24 setigers, 10 mm long, 2.0 mm maximum width (at setiger 5, including parapodia) to 35 setigers, 16 mm long, 2.0 mm wide.

Redescription. The following redescription relates to the lectotype, designated here, consisting of the longest anterior fragment: 35 setigers, 16 mm long, 2.0 mm wide, a gravid female with many irregular eggs about 120 μm across the largest dimension. Any variation found in the 4 paralectotypes is given in brackets. Colour in alcohol pale yellow with no obvious patterns or markings. Body widest at setiger 5, anterior 10 setigers dorsoventrally flattened and ovoid in cross-section, thereafter roughly circular. Muscular gizzard faintly visible in one paralectotype, between about setigers 6–9. Prostomium truncate to slightly rounded anteriorly, projecting slightly beyond peristomium, continuing as narrow caruncle back to setiger 1 (Fig. 84). No eyes visible. Peristomium enclosing prostomium, with pair of prominent lateral wings without marginal papillae (Fig. 85). Palps missing from all specimens but 2 detached palps present in the vial; these are grooved on one surface and have a sheath enclosing the basal third to half of the palp. Setiger 1 with prominent dorsal crest at base of first pair of branchiae. Lectotype with single branchia intact on each of setigers 1–3 (other material with various combinations of branchiae intact but all specimens evidently originally possessed one pair of branchiae on each of setigers 1–3). Each pair of branchiae of approximately equal length, with densely packed bifoliate lamellae (Fig. 89) over most of the length of the branchiae, decreasing slightly in size distally, branchial shaft bare anteriorly and basally. First pair of branchiae without anterior basal accessory lamellae. Filament absent from base of third pair of branchiae. Notopodia anteriorly elongate triangular lobes, longest over setigers 2–4, reducing quickly in size posteriorly and becoming low rounded lobes back to about setiger 22, thereafter becoming lanceolate back to at least setiger 35. Neuropodia of setiger 1 lanceolate, becoming rounded and reduced over setigers 2–10; reduced to insignificant ridge by about setiger 22 (Figs 86–88). (Posterior fragments with lanceolate neuropodial lobes and virtually invisible neuropodial ridges.)

Noto setae and neurosetae anteriorly bilimbate capillaries, faintly granulate over the distal third, faintly striate basally. Capillaries changing to smooth nonlimbate capillaries between about setigers 10 and 15. Neuropodial hooded hooks, with 3 pairs of apical teeth above main fang and striate internal hood (Figs 91, 92), appear at setiger 9; notopodial hooded hooks (Fig. 93) appearing by about setiger 33. Sabre setae apparently broken or missing in lectotype and 3 paralectotypes; 2 sabre setae from single paralectotype (Fig. 90) long curved and granulate but without wings. First appearance of sabre setae could not be determined. Body without dorsal crests interparapodial pouches. Ventral bilobed flap on setiger 8 absent. Semi-transparent patches of dorsal cuticle on about setigers 21–35. Shallow ventral depression running longitudinally over anterior 20 setigers, becoming a deep ventral groove from about setiger 22 and posteriorly (deep groove continuing to pygidium in all posterior fragments). Four posterior fragments with intact pygidium, apparently having only single narrow cirri; no lateral cirri could be found.

Remarks. The above description was framed with particular respect to the new characters used by Yokoyama and Tamai (1981) in describing four new forms of Parapri onospio from Japan. Each of the new forms from Japan is distinct from P. pinnata. Form A of Yokoyama and Tamai is most similar to P. pinnata, but differs in the presence of a papilla on the posterior margins of the peristomial wings, a filament at the base of the third branchia, transverse dorsal crests on setigers 21–35 and lateral anal cirri. All of the above characters are absent in P. pinnata. Maciolek (1985) provided many references to P. pinnata and suggested a wide distribution, however her brief description made no mention of the new characters recognised by Yokoyama and Tamai and may not be synonymous with P. pinnata.

Distribution. The type locality is Chilie. Reported to be cosmopolitan (e.g. Maciolek, 1985) but all records require confirmation.

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References


Appendix

“TAS” station data

TAS 1, 43°11.0'S, 147°16.0'E, Tasmania, D’Entrecasteaux Channel, 2.5 km SE of Birches Bay, 10 m, no sediment retained, pipe dredge, 16 Apr 1985, R.S. Wilson.

TAS 2, 43°11.0'S, 147°16.0'E, Tasmania, D’Entrecasteaux Channel, 2.5 km SE of Birches Bay, 10 m, black mud, fine shell, pipe dredge, 16 Apr 1985, R.S. Wilson.

TAS 3, 43°11.0'S, 147°16.0'E, Tasmania, D’Entrecasteaux Channel, 2.5 km SE of Birches Bay, 8 m, no sediment retained, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 4, 43°11.0'S, 147°16.0'E, Tasmania, D’Entrecasteaux Channel, 2.5 km SE of Birches Bay, 8 m, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 5, 43°10.0'S, 147°17.0'E, Tasmania, Woodbridge, 200 m W of Kinghorn Point, 27 m, fine black mud and shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 6, 43°10.0’S, 147°16.0'E, Tasmania, D’Entrecasteaux Channel, 2 km ENE of Birches Bay, 17 m, clayey mud, little fine shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 7, 43°11.0'S, 147°15.0'E, Tasmania, D’Entrecasteaux Channel, 200 m E of Birches Bay, 10 m, fine black clay, no shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 8, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 1.5 m, sand and rubble, infauna, airlift, 19 Apr 1985, R.S. Wilson.

TAS 9, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 1.5 m, sand and rubble infauna, some red algae, airlift, 19 Apr 1985, R.S. Wilson.

TAS 10, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, epifauna, airlift, 19 Apr 1985, R.S. Wilson.

TAS 11, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, algal epifauna & rubble, airlift, 19 Apr 1985, R.S. Wilson.

TAS 12, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, algal turf from rocks, airlift, 19 Apr 1985, R.S. Wilson.

TAS 13, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near bateau, 0 m, scrapings, infauna from granite cobble, hand, 21 Apr 1985, R.S. Wilson.
TAS 14. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 0.1 m, *Zostera* and sediment, hand, 21 April 1985, R.S. Wilson.

TAS 15. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 0 m, sediment & bivalves from mussel, hand, 21 April 1985, R.S. Wilson.

TAS 16. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 1 m, *Zostera* sediment, airlift, 21 April 1985, R.S. Wilson.

TAS 17. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 1 m, adult *Epibranchedia* sp, airlift, 21 April 1985, R.S. Wilson.

TAS 18. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 0.5 m, *Zostera* sediment, airlift, 21 April 1985, R.S. Wilson.

TAS 19. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 0 m, sediment & bivalves from mussel, hand, 21 April 1985, R.S. Wilson.

TAS 20. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 2 m, fine silicious sand, airlift, 21 April 1985, R.S. Wilson.

TAS 21. 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boat ramp, 1 m, sediment from coraline algae, airlift, 21 April 1985, R.S. Wilson.

TAS 22. 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 15 m, sponge and *bryozoan* epifauna, airlift, 21 April 1985, R.S. Wilson.

TAS 23. 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 15 m, red algal turf, *epifauna*, airlift, 21 April 1985, R.S. Wilson.

TAS 24. 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 10 m, *bryozoan*, *algal epifauna*, airlift, 21 April 1985, R.S. Wilson.

TAS 25. 42°14.0'S, 148°15.0'E, Tasmania, Freycinet Peninsula, W of Weatherhead Point, 17 m, *Zostera* and *algal epifauna*, lip dredge, 22 April 1985, R.S. Wilson.

TAS 26. 42°11.0'S, 148°15.0'E, Tasmania, Freycinet Peninsula, 200 m E of Refuge Is, Promise Bay, 10 m, epifauna from sponge and worm spur, SCUBA, 22 April 1985, R.S. Wilson.

TAS 27. 42°35.0'S, 148°2.0'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, algal and drift holdfast epifauna, trawl, 23 April 1985, R.S. Wilson.

TAS 28. 42°35.0'S, 148°2.0'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, black mud, 23 April 1985, R.S. Wilson.

TAS 29. 42°34.0'S, 148°6.0'E, Tasmania, Maria Island, 2 km E of Cape Boulanger, 50 m, fine *bryozoa* and shell, WHOI ephenthic sled, 23 April 1985, R.S. Wilson.

TAS 30. 42°36.0'S, 148°10.0'E, Tasmania, Maria Island, E of Maria Island, 75 m, fine *bryozoa* and shell, WHOI ephenthic sled, 23 April 1985, R.S. Wilson.

TAS 31. 42°37.0'S, 148°12.5'E, Tasmania, Maria Island, 5 km NE Mistaken Cape, 100 m, fine muddy *bryozoa*, WHOI ephenthic sled, 23 April 1985, R.S. Wilson.

TAS 32. 42°33.0'S, 147°55.5'E, Tasmania, Spring Bay, 4.5 km S of Triabunna, 5 km NE Mistaken Cape, 15 m, black mud and some fine shell, WHOI ephenthic sled, 23 April 1985, R.S. Wilson.

TAS 33. 42°35.0'S, 148°2.50'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, 23 April 1985, R.S. Wilson.

TAS 34. 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, epifauna from *Zostera*, hand, 27 April 1985, R.S. Wilson.

TAS 35. 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, sediment from seagrass, hand, 27 April 1985, R.S. Wilson.

TAS 36. 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, epifauna from coraline algae turf, hand, 27 April 1985, R.S. Wilson.

TAS 37. 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, sediment from sand and cobble, hand, 27 April 1985, R.S. Wilson.

TAS 38. 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, epifauna from coraline algae turf, hand, 27 April 1985, R.S. Wilson.

TAS 39. 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 3 m, sediment and algae under *Zostera*, hand, 27 April 1985, R.S. Wilson.

TAS 40. 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1.5 m, muddy fine sand under *Zostera*, airlift, 27 April 1985, R.S. Wilson.

TAS 41. 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1.5 m, under rocks on fine sandy bottom, airlift, 27 April 1985, R.S. Wilson.

TAS 42. 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1 m, airlift, 27 April 1985, R.S. Wilson.

TAS 43. 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 3 m, *Zostera* epifauna, airlift, 27 April 1985, R.S. Wilson.

TAS 44. 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge, 200 m N of Marine Studies Centre, 0 m, fine muddy sand, hand, 28 April 1985, R.S. Wilson.

TAS 45. 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge, 200 m N of Marine Studies Centre, 0.1 m, under rocks and algal epifauna, hand, 28 April 1985, R.S. Wilson.

TAS 46. 43°14.0'S, 147°15.0'E, Tasmania, Gordon Jetty, 2 m, fine sand from rocks and algae, airlift, 28 April 1985, R.S. Wilson.
TAS 47, 43°14.0'S, 147°15.0'E, Tasmania, Gordon jetty, 1.5 m, fine sand from Zostera, airlift, 28 Apr 1985, R.S. Wilson.

TAS 48, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, fine silt, airlift, 28 Apr 1985, R.S. Wilson.

TAS 49, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, sponge and bryozoa from pier platform, airlift, 28 Apr 1985, R.S. Wilson.

TAS 50, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 0.5 m, silty red algal turf from rocks, airlift, 28 Apr 1985, R.S. Wilson.

TAS 51, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, silty shell, airlift, 28 Apr 1985, R.S. Wilson.