

Three new species of acotylean polyclads (Platyhelminthes) from Queensland, Australia, with the erection of a new genus

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Citation: Beveridge, I. 2018. Three new species of acotylean polyclads (Platyhelminthes) from Queensland, Australia, with the erection of a new genus. *Memoirs of the Queensland Museum – Nature* 61:143-153. Brisbane. ISSN 2204-1478 (Online) ISSN 0070-8835 (Print). Accepted 5 June 2018 First published online 22 November 2018.

<https://doi.org/10.17082/j.2204-1478.61.2018.2017-12>

LSID: urn:lsid:zoobank.org:pub:F2C7A194-0E15-44D2-B891-8A6A4046CB86

ABSTRACT

Three new acotylean polyclads are described from the littoral zone in Queensland. *Amyris bulbosa* sp. nov. (Notoplanidae Faubel, 1983) is distinguished from congeners in possessing a prominent vagina bulbosa. *Emprostropharynx heroniensis* sp. nov. (Stylochoplanidae Faubel, 1983) differs from related species in lacking sub-marginal eyes and tentacles, in the anterior position of the cerebral eyes, and possessing few ruffles in the pharynx and uterine vesicles. *Zygantrella queenslandensis* gen. nov., sp. nov. is erected as a monotypic genus within the Ilyplanidae Faubel, 1983 differing from confamilial genera in lacking a prostate but possessing a common gonopore and a penis stylet. □ new genera, new species, Polycladida, Platyhelminthes.

Compared with other regions of Australia, the polyclad fauna of the coasts of Queensland has arguably been better studied, with particular emphasis in recent publications being devoted to the highly diverse and colourful cotylean fauna found on the Great Barrier Reef (Newman & Cannon 1994a, b, 1997a, 2002). Nevertheless, given the likely high diversity of the polyclad fauna of the region, it is clear that many species remain to be described, particularly the less colourful representatives of the littoral acotylean fauna, for which there are relatively few recent reports (Beveridge 2000; Beveridge & Cribb 2000; Jennings & Newman 1996a, b; Newman & Cannon 1997b). The current report includes the description of three new species of acotylean polyclads from the littoral zone of the coasts of Queensland.

MATERIALS AND METHODS

Polyclads were collected from under rocks at low tide and were fixed following the method of Newman and Cannon (1995) in which worms were coaxed onto filter paper in seawater and then placed on a block of frozen 10% formalin in seawater and left for 24 hours to harden. Polyclads were photographed immediately following fixation and photographs have been deposited with the type specimens. Specimens were then transferred to 70% ethanol for storage. For examination, specimens were dehydrated in an ethanol series, cleared in methyl salicylate and mounted on slides in Canada balsam. The genital regions of representative specimens were excised using a scalpel blade, embedded in wax and serial sections cut at a thickness of 5 µm. Sections were stained with haematoxylin and eosin. Drawings were made using a drawing tube attached to an Olympus BH2

microscope. Measurements were made using an ocular micrometer and are presented in millimetres as the range followed by the mean and the number of specimens measured in parentheses. All specimens have been deposited in the Queensland Museum, Brisbane (QM) including colour images (Kodachrome slides) of each species.

Two differing taxonomic systems for the classification of the Polycladida are currently available, that of Faubel (1983) based primarily on the structure and position of the prostatic vesicle, following Bock (1913) and that of Prudhoe (1985) based primarily on the types and distribution of eyes, following Poche (1926). In considering the taxonomic position of each of the species described herein, their position in both taxonomic systems is discussed as following the two differing taxonomic systems can lead to differing results.

SYSTEMATICS

Sub-order ACOTYLEA Lang, 1884

Family NOTOPLANIDAE
(Marcus, 1947 sub-family) Faubel, 1983

Genus *Amyris* Marcus & Marcus, 1968

Amyris bulbosa sp. nov.
(Figs 1-5, 17, 18)

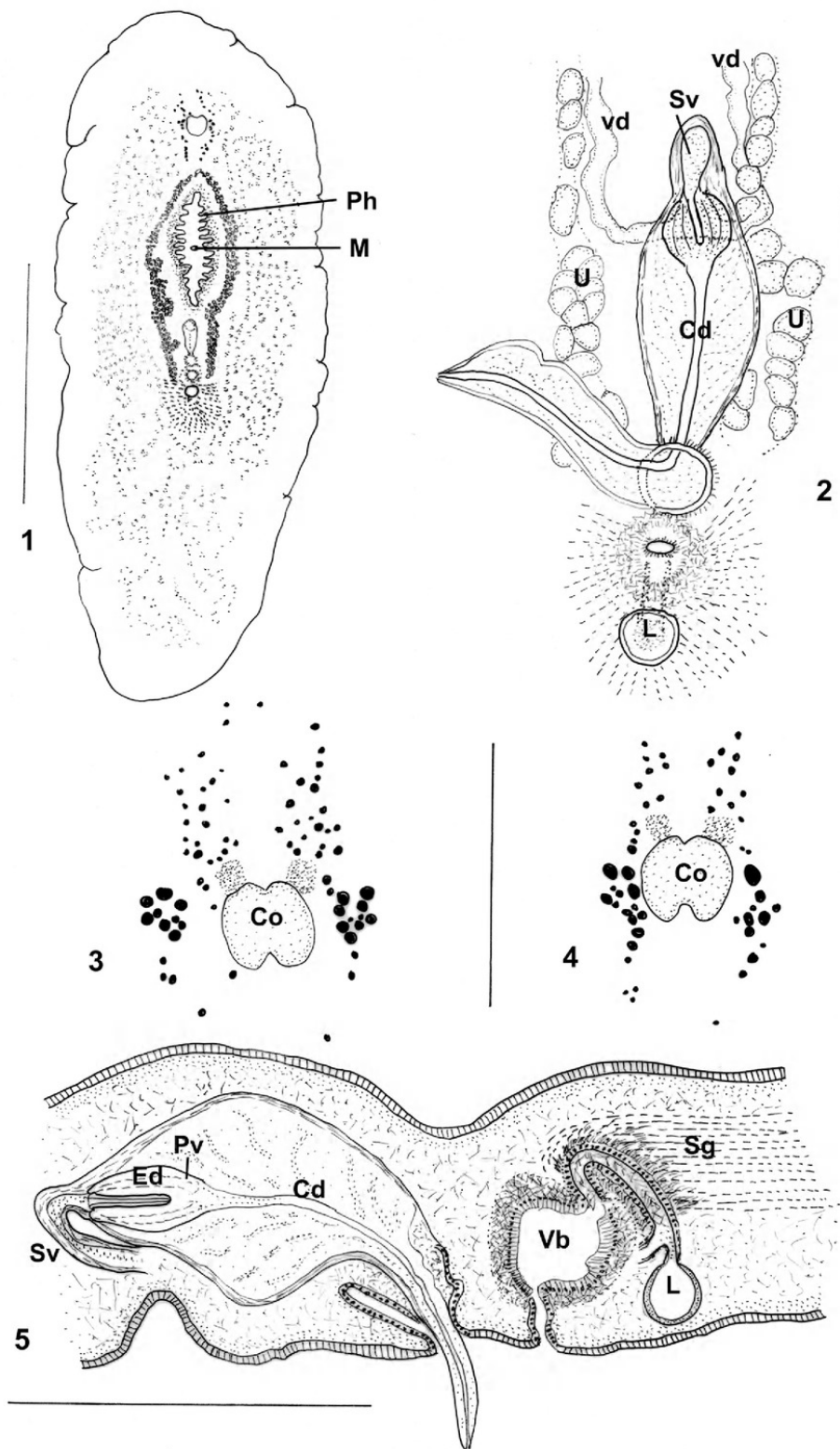
Material examined. Holotype, inter-tidal, under rocks, Rowe's Bay, Queensland (19° 16'S, 146° 49'E), coll. 1.vii.1994, whole mount (QM G235805); paratypes: 1 specimen, whole mount, same collection data (QM G235806); 1 specimen, whole mount, coll. 28.vi.1995 (QM G235807); 1 specimen, coll. 28.vi.1995, 17 serial sections and fragments as whole mount (QM G235809). Vouchers: 1 specimen, whole mount, Bowen, Qld, coll. 15.vi.1997 (QM G235810).

Description. Elongate polyclads (Fig.1), tapering posteriorly, 11–19 long, 3–7 wide; immature specimen 11 long, 3 wide; specimen with eggs just beginning to appear in uteri 15 long, 4 wide; fully gravid specimen with involution of male genitalia 19 long, 7 wide; dorsal surface light fawn in colour with darker brown speckles; speckles concentrated to either side of midline,

not extending to body margin. Tentacles lacking. Marginal eyes lacking; cerebral eyes present, c. 60 in number arranged in 2 elongate groups; divisible in some specimens into larger tentacular eyes, arranged in 2 clusters either side of cerebral organ, distinct from cerebral eyes (Fig. 3); otherwise, larger eyes forming part of continuous band with cerebral eyes (Fig. 4). Cerebral organ bilobed in dorso-ventral view, 0.32–0.40 (0.36, n=4) × 0.29–0.34 (0.32, n=4), 1.9–4.0 (2.4, n=4) from anterior margin. Pharynx situated in anterior half of body, immediately posterior to cerebral organ; pharynx 1.85–3.95 (3.00, n=4) long, plicate with c. 12 ruffles on either side; mouth in middle of pharynx; intestinal branches divaricate, non-anastomosing.

Male gonopore 1.1–1.9 (1.5, n=2) posterior to pharynx; unarmed cirrus elongate, projecting through gonopore in each specimen (Fig. 2); large sac with thin muscular walls 0.70–0.92 (0.81, n=2) long by 0.48–0.55 (0.52, n=2) wide, encloses prostatic vesicle and duct of cirrus, with skeins of muscle fibres running from duct to internal wall of sac (Figs 5, 17). Prostatic vesicle ovoid, 0.20–0.25 (0.23, n=2) long, 0.20 (n=2) wide (Fig. 5); ejaculatory duct projects into prostatic vesicle; interior of prostate divided into longitudinal chambers; prominent muscular seminal vesicle, 0.25–0.35 (0.30, n=2) long, 0.16–0.20 (0.18, n=2) in dorso-ventral view, runs ventrally and posteriorly from prostatic vesicle, giving rise to paired lateral vasa deferentia which run initially laterally then anteriorly (Fig. 2).

Female gonopore immediately posterior to that of male; female atrium leads to spherical vagina bulbosa, 0.37–0.44 (0.40, n=3) in diameter; wall of vagina bulbosa very thick, muscular (Figs 5, 18); epithelium composed of elongate cells with basal nuclei and foamy, faintly eosinophilic distal cytoplasm; shell duct arises from dorsal pole of vagina bulbosa, runs posteriorly and then ventrally to origin of uterine canals; shell duct with thick muscular wall, ciliated internally; surrounded by cement (or shell) glands; uterine canals run laterally and ventrally, apposed anterior to pharynx; duct of Lang's vesicle short; Lang's vesicle diminutive,



FIGS. 1-5: *Amyris bulbosa* sp. nov. 1, entire polyclad; 2, ventral view of terminal genitalia; 3, cerebral organ and eyes showing distinct clusters of tentacular eyes; 4, cerebral organ with tentacular eyes merged with cerebral eyes; 5, longitudinal section through terminal genitalia. Scale bars: Fig. 1, 10 mm; Figs. 2-5, 1 mm. Legend: Cd, duct of cirrus; Co, cerebral organ; Ed, ejaculatory duct; L, Lang's vesicle; M, mouth; Ph, pharynx; Pv, prostatic vesicle; Sg, shell glands; Sv, seminal vesicle; U, uterus; Vb, vagina bulbosa; vd, vas deferens.

spherical, 0.13–1.16 (0.15, $n=4$) in diameter. Cement or shell glands radiate posteriorly and postero-laterally from shell duct.

Remarks. Using the taxonomic system of Prudhoe (1985), the species described above belongs in the Gnesiocerotidae Marcus & Marcus, 1966 due to the lack of marginal eyes, the presence of a cirrus and the interpolated prostatic organ. The lack of tentacles, the presence of a seminal receptacle and the smooth cirrus, place the species in the genus *Amyris* Marcus & Marcus, 1968.

The taxonomic system of Faubel (1983) places the species in the Notoplanidae Faubel, 1983 and the presence of a cirrus, of Lang's vesicle and single male copulatory organ also place the species in the genus *Amyris*. Thus whichever taxonomic system is followed, the species belongs to *Amyris* although allocated to two different families by Prudhoe (1985) and Faubel (1983).

Three species are currently recognised within the genus: *A. hummelincki* (Marcus & Marcus, 1968), *A. favis* (Sopott-Ehlers & Schmidt, 1975) and *A. ujara* (Marcus & Marcus, 1968). The species described herein is distinguishable from the known species in being less slender and having the pharynx in the anterior rather than the posterior part of the body, as well as having many more ruffles (c. 12 in the current species) based on illustrations in Marcus and Marcus (1968) and, Sopott-Ehlers and Schmidt (1975). It differs from *A. hummelincki* and *A. ujara* in having a much smaller seminal vesicle and thinner wall to the cirrus sac. *Amyris hummelincki* possesses a simple vagina in contrast to the vagina bulbosa present in the current species. In *A. ujara*, Marcus and Marcus (1968) described the "outer" part of the vagina as "wide and folded", although their illustration (Fig. 55) suggests the presence of a cavity. They did not describe the histological features of the vagina and it is possible that a vagina bulbosa is present in this species. Sopott-Ehlers and Schmidt (1975) describe the female antrum of *A. favis* as being muscular and illustrate it as a cavity with thick walls and a thick epithelial lining, similar to the structure termed a vagina bulbosa seen in the current

species. In the current species, a distinct, rather elongate antrum is present and is distinct from the vagina bulbosa. However it seems that the vagina bulbosa in the current species and the antrum as described in *A. favis* are homologous structures. Lang's vesicle in *A. favis* is much larger than in the current species.

The male system is characterised by an unarmed cirrus that projects externally in all specimens examined although additional specimens are needed to determine that it is indeed retractable. Histologically, the outer wall of the everted cirrus is a hyaline-like membrane with a single layer of tiny flattened nuclei, but lacks any sign of an epithelium which would be the case if it were an everted penis.

The species described here therefore differs from all known species and a new species has been erected to accommodate it.

Family STYLOCHOPLANIDAE Faubel, 1983

Genus *Emprostopharynx* Bock, 1913

Emprostopharynx heroniensis sp. nov.
(Figs 6–10, 19)

Material examined. holotype from shell of hermit crab, reef flat, Heron Island, Queensland (23° 26'S 151° 55'E), whole mount (QM G235811); paratype, same collection data, whole mount and 9 serial sections (QM G235812–13).

Description. (Measurements given are from the holotype). Elongate polyclads, rounded anteriorly, tapering posteriorly, 22 long, maximum width 8 (Fig. 6); pale orange in colour but appearing slightly speckled due to anastomosing intestinal branches; lacking marginal or sub-marginal eyes; lacking tentacles but with tentacular eye clusters (Fig. 7) or elongate arrays (Fig. 8) of c. 10–12 large eyes on either side of cerebral organ; cerebral eyes smaller, arranged in 2 linear arrays anterior to cerebral organ, 5–8 eyes in each array diminishing in size anteriorly; cerebral organ bilobed, 0.36 long, 0.41 wide, 2.9 from anterior extremity. Pharynx elongate, 5.0 posterior to cerebral organ, 3.5 long, without ruffles (paratype) or with single ruffle (holotype); mouth opening in middle of

pharynx; intestinal branches with numerous anastomoses. Gonopores separate (Fig. 9); male gonopore 3.5 posterior to pharynx; penis papilla conical, prominent, filling male antrum; penis unarmed, leads dorsally and anteriorly to interpolated prostatic vesicle (Figs 10, 19), 0.41 long, 0.15 wide, with thick muscular wall and smooth internal lining of elongate eosinophilic cells; anterior pole of prostatic vesicle leads into ventrally reflexed muscular seminal vesicle, 0.15 long, 0.12 wide, from which thin-walled, convoluted, paired vasa deferentia run laterally and then anteriorly. Female gonopore 0.35 posterior to that of male, 5.2 from posterior end. Vagina with thick muscular wall and ciliated lining extends dorsally with a ventrally recurrent arm (Figs 10, 19), dividing into uterine canals almost at level of female gonopore; uterine canals run anteriorly, each with prominent, small diverticulum or uterine vesicle at level of seminal vesicle; neither holotype nor paratype ovigerous. Lang's vesicle absent; shell glands not evident.

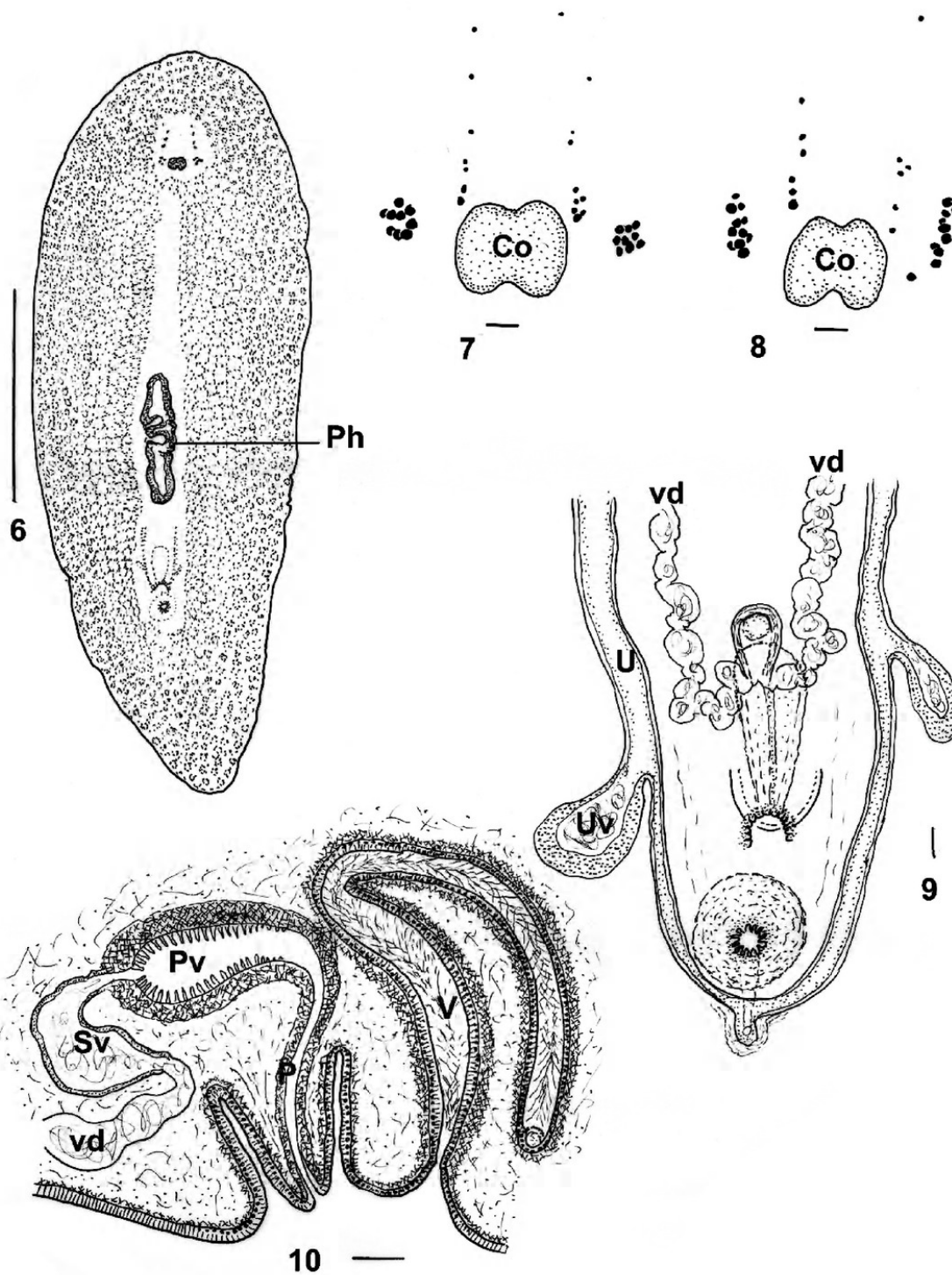
Remarks. Using the system of Faubel (1983), this species belongs within *Emprosthopharynx* Bock, 1913. The interpolated prostatic vesicle places it in the Schematommatidea Bock, 1913, the smooth lining of the prostatic vesicle, ruffled pharynx, lack of the ejaculatory duct projecting in to the prostatic organ, the lack of prostatic vesicles and the presence of true uteri place the species in the Stylochoplanidae (see Faubel 1983, p. 81). Within this family, the lack of a common gonopore, a papillate penis and the lack of Lang's vesicle place the species within *Emprosthopharynx* (see Faubel 1983, p. 100). By contrast, using the taxonomic system of Prudhoe (1985), the species belongs to the Planocercoidea Poche, 1926 and the family Leptoplanidae (see Prudhoe 1985, p. 81). Within this family, the muscular prostatic organ places the species within the Stylochoplaninae, and the various features identified in the key to genera by Prudhoe (1985) lead to the genera *Candibia* and *Stylochoplana*. The lack in the current species of Lang's vesicle, places the species in *Stylochoplana* and the separation of cerebral and tentacular eyes together with the

absence of a penis stylet places the species in Group A of Prudhoe (1985).

In the system of Faubel (1983, p. 100), *Stylochoplana* and *Emprosthopharynx* are related genera, differentiated primarily by the presence of Lang's vesicle in the former genus. In the system of Prudhoe (1985), sub-marginal eyes are present in *Emprosthopharynx* while in the system of Faubel (1983), sub-marginal eyes may or may not be present within the genus. Prudhoe (1985) considered that Lang's vesicle may be present or absent in *Stylochoplana*.

The species composition of the genus *Emprosthorrhynchus* adopted by Faubel (1983) and Prudhoe (1985) overlaps considerably and therefore species from both systems have been considered in identifying the species described here. Prudhoe (1985) accepted *E. opisthoporus* Bock, 1913 (type species), *E. rasae* Prudhoe, 1968 and *E. vanhoeffeni* Bock, 1913, while Faubel (1983) accepted these three species but also included *E. hancocki* (Hyman, 1953) (formerly *Stylochoplana hancocki* Hyman, 1953) and *E. pallidus* (Quatrefages, 1845) (formerly *Polycelis pallidus* Quatrefages, 1854). The species described here is immediately differentiable from the three species admitted to the genus by Prudhoe (1985) in lacking sub-marginal eyes and differs from *E. hancocki* in lacking tentacles, in having the cerebral eyes distributed exclusively anterior to the cerebral organ (both anterior and posterior to it in *E. hancocki*) and having few or no ruffles to the pharynx, compared with numerous folds in *E. hancocki*, based on the original description by Hyman (1953). *Emprosthopharynx pallidus* is greenish in colour (Quatrefages 1845, p.133) (compared with pale orange in the present species), the prostatic vesicle is well anterior to the seminal vesicle and is linked to it by a narrow duct (Quatrefages 1845, Plate 8, fig 2) while in the current species, the seminal vesicle opens directly into the prostatic vesicle, and it apparently lacks uterine vesicles, which are present in the current species.

Prudhoe's (1985) *Stylochoplana* Group A includes: *S. aberrans* (Kato, 1944), *S. agilis* (Lang, 1884), *S. alcha* (du Bois-Reymond & Marcus,



FIGS. 6–10. *Emprostopharynx heroniensis* sp. nov. 6, entire polyclad, holotype; 7, 8, cerebral organ and eyes, showing variation in shapes of tentacular eye clusters (7, holotype; 8, paratype); 9, terminal genitalia, ventral view; 10, longitudinal section through terminal genitalia. (Scale bars: Fig. 6, 5 mm; Figs. 7–10, 0.1 mm). Legend: Co, cerebral organ; P, penis; Ph, pharynx; Pv, prostatic vesicle; Sv, seminal vesicle; U, uterus; Uv, uterine vesicle; V, vagina; vd, vas deferens.

1968), *S. amica* Kato, 1937, *S. challengerii* (Graff, 1892), *S. conoceraea* (Schmarda, 1859), *S. gracilis* (Heath & McGregor, 1913), *S. graffii* (Laidlaw, 1906), *S. lynca* (du Bois-Reymond & Marcus, 1958), *S. maculata* (Quatrefages, 1845), *S. nadiiae* (Melouk, 1941), *S. palmula* (Quatrefages, 1845), *S. parasitica* (Kato, 1935), *S. pusilla* (Bock, 1924), *S. selenopsis* (Marcus, 1947), *S. tarda* (Graff, 1878) and *S. utonomii* (Kato, 1943). All of these species apart from *S. gracilis* possess a Lang's vesicle and are therefore differentiable from the species described here. *Stylochoplana gracilis* was transferred to *Emprostopharynx* by Faubel (1983).

The genus *Emprostopharynx*, as defined by Faubel (1983) therefore includes two groups of species clearly defined by the presence or absence of sub-marginal eyes. The type species, *E. opisthporus* possesses sub-marginal eyes, as do *E. rasae* and *E. vanhoeffeni*, while *E. pallida*, *E. gracilis*, *E. hancocki* and the new species lack them. Faubel (1983) pointed out the inconsistencies of using eye distribution in family level classifications, preferring to base his classification primarily on features of the male reproductive system. He considered eye patterns useful at the species level, following the lengthy historical usage of these characters, but did not consider their use at a generic level. It seems appropriate in this instance to indicate that the species allocated to *Emprostopharynx* by Faubel (1983) appear to represent two genera differentiated by the distribution of eyes and the erection of a new genus may be warranted in the future,

Prudhoe (1985, p. 120) noted that species of *Emprostopharynx* tend to be associated with hermit crabs, as is the case with the new species described here.

Family ILYPLANIDAE Faubel, 1983

Genus *Zygantrella* gen. nov.

Diagnosis. Ilyplanidae, of oval body form; cerebral tentacles present; eyes in paired cerebral and tentacular clusters, marginal eyes absent; pharynx plicate, oriented antero-posteriorly; common genital pore located posterior to

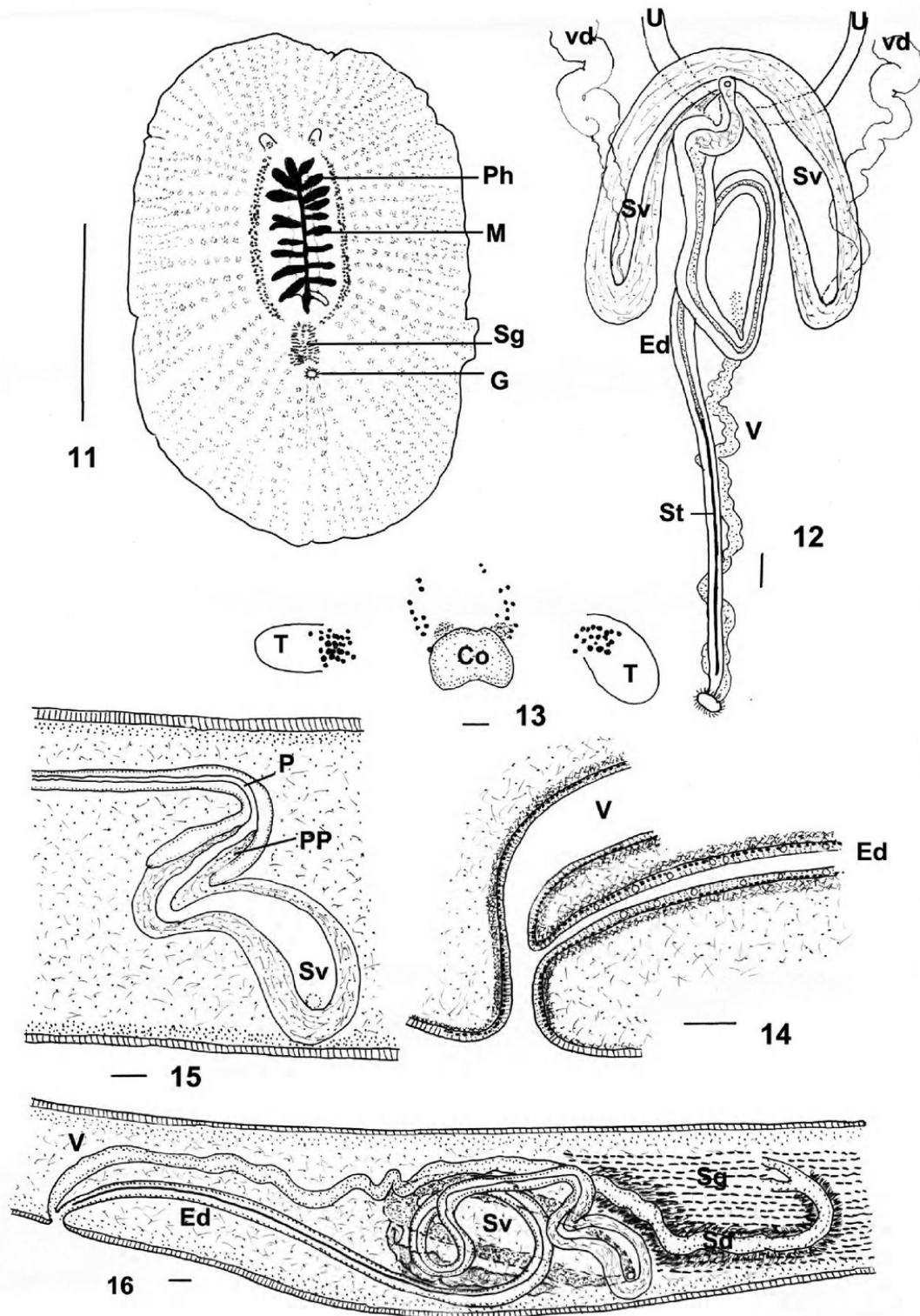
pharynx; elongated, convoluted ejaculatory duct, lined with glandular cells; penis armed with stylet; muscular, U-shaped seminal vesicle present; vagina elongate, directed anteriorly, dorsal to male genitalia; Lang's vesicle absent.

Type and only species: *Zygantrella queenslandensis* sp. nov.

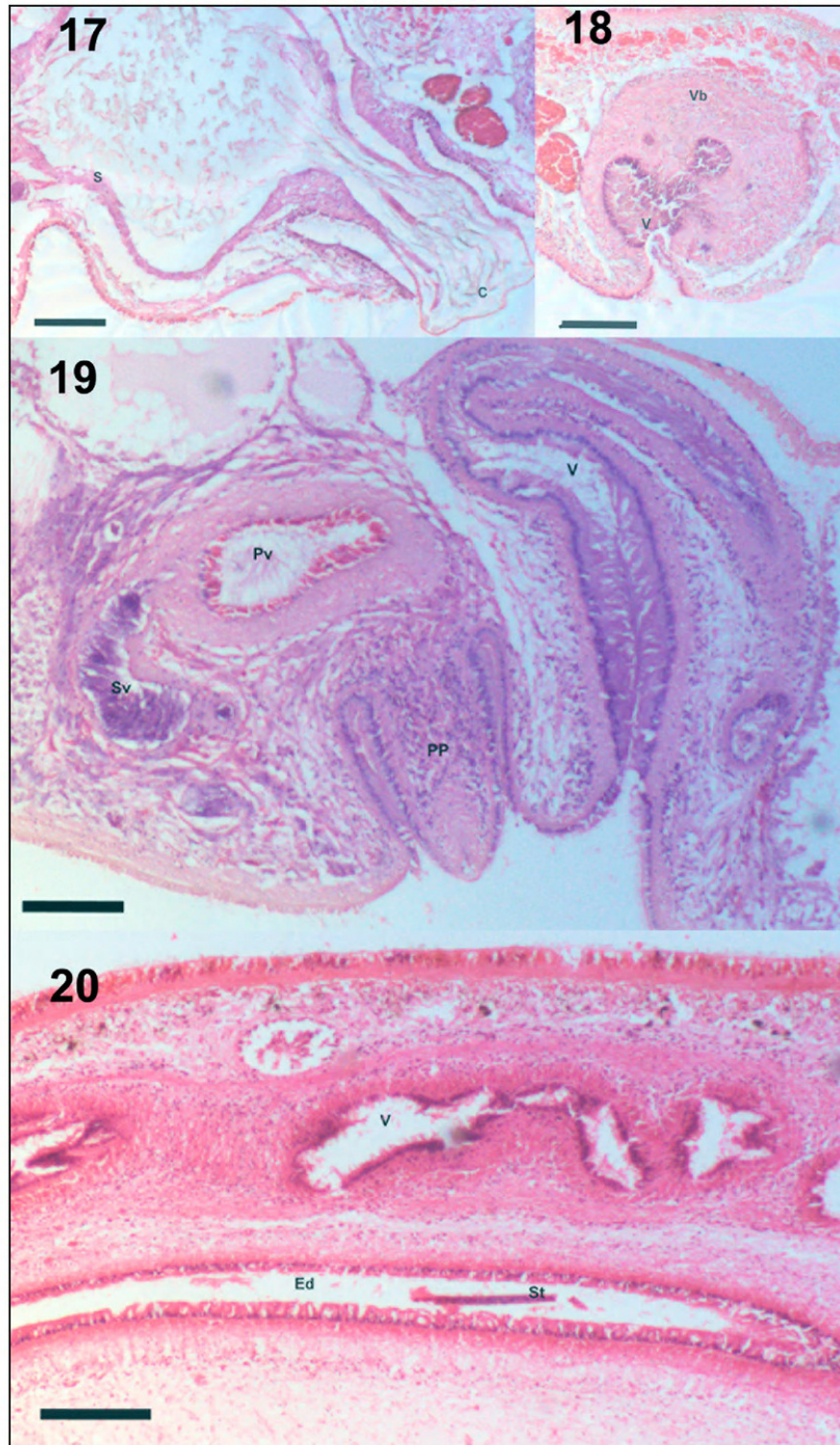
Zygantrella queenslandensis sp. nov. (Figs 11–16, 20)

Material examined. Holotype, inter-tidal, under rocks, Bowen, Queensland (20° 04'S 148° 22'E), coll. 15.vi.1997 (QM G235814); paratype, 1 specimen, same collection data (QM G235815); voucher specimens: 2 specimens, Wellington Point, Moreton Bay, Queensland (27° 25'S 153° 20'E), coll. 1.ix.1977, whole mounts (QM G235816, G238519) and 28 serial sections (QM G235820); 1 specimen, Rowe's Bay, Queensland (19° 16'S 146° 49'E), coll. 15.vii.2002, whole mount (QM G235817) and 17 serial sections (QM G235822); 1 specimen, same data, whole mount (QM G235821); 1 specimen, same locality, coll. 1.vii.1994 (QM G235818).

Description. Oval polyclads, 16–26 (20.6, n=7) long, maximum width 13–19 (15.4, n=7) (Fig. 11); pale, cream in colour with distinctly brown pharynx; lacking marginal eyes; with prominent elongate cerebral tentacles on either side of cerebral organ; cerebral organ bilobed, 0.35–0.50 (0.42, n=5) long, 0.45–0.60 (0.51, n=5) wide, 3.1–5.3 (3.9, n=5) from anterior extremity; cerebral eyes 12–15 in number in each of 2 elongate clusters lateral and anterior to cerebral organ; tentacular eyes at base of each tentacle, tightly clustered; c. 30 eyes in each cluster (Fig. 13). Pharynx plicate in anterior two thirds of body, immediately posterior to cerebral organ, with c. 12 ruffles, 4.2–6.0 (5.0) long; mouth just posterior to centre of pharynx 60–68 (63, n=3) % from anterior end of pharynx; intestinal branches mainly divaricate, non-anastomosing, few anastomoses adjacent to pharynx. Common gonopore, 3.6–5.5 (4.2, n=5) posterior to pharynx, 2.1–5.9 (3.8, n=5) from posterior extremity (Figs 12, 14). Ejaculatory duct elongate, convoluted, runs anteriorly from genital pore, lined with elongate cells with eosinophilic cytoplasm and basal nuclei and scattered vacuolated cells (Figs 14, 20); epithelium becomes columnar proximally and finally low columnar; distinct prostate



FIGS. 11-16. *Zygantrella queenslandensis* gen et sp. nov. 11, entire polyclad; 12, ventral view of terminal genitalia; 13, cerebral organ, tentacles and eyes; 14, longitudinal section through common genital gonopore; 15, longitudinal section through penis papilla and seminal vesicle; 16, longitudinal section through terminal genitalia; seminal vesicle and vas deferens shown on right side only. Scale bars: Fig. 11, 8 mm; Figs. 12-16, 0.1 mm. Legend: Co, cerebral organ; Ed, ejaculatory duct; G, gonopore; M, mouth; P, penis; Ph, pharynx; PP, penis papilla; Sd, shell duct; Sg, shell glands; St, stylet; Sv, seminal vesicle; T, tentacle; U, uterus; V, vagina; vd, vas deferens.



FIGS. 17-20. Transverse histological sections through the terminal genitalia. **17**, *Amyris bulbosa* sp. nov., section through male gonopore showing everted cirrus and enlarged muscular sac surrounding terminal male genitalia; **18**, *Amyris bulbosa* sp. nov., section through female gonopore showing distal vagina and muscular wall of globular vagina bulbosa; **19**, *Emprostopharynx heroniensis* sp. nov., section through male and female gonopores showing seminal vesicle, prostatic organ, penis papilla and vagina; **20**, *Zygantrrella queenslandensis* gen et sp. nov., section through distal ejaculatory duct and vagina, showing epithelium. Scale bars: 1 mm. Legend: C, cirrus; Ed, ejaculatory duct; PP, penis papilla; Pv, prostatic vesicle; S, muscular sac surrounding terminal male genitalia; St, stylet; Sv, seminal vesicle; V, vagina; Vb, vagina bulbosa.

absent; penis elongate armed with prominent stylet c. 1.0 long (Fig. 12); penis papilla diminutive, within slight enlargement of proximal ejaculatory duct (Fig. 15); leads into large, muscular seminal vesicle, U-shaped in dorso-ventral view (Fig. 12); vasa deferentia arise from distal poles of each branch of seminal vesicle, coil anteriorly and laterally. Vagina elongate, sinuous, runs anteriorly from common genital pore, dorsal to ejaculatory duct (Figs 16, 20), lined with columnar, glandular epithelium, but lacking vacuolated cells; shell glands commence at level of seminal vesicle; vagina runs ventrally, then turns dorsally to run posteriorly; divides into two uterine ducts which initially run anteriorly, then turn laterally and again run anteriorly; entire parenchyma from level of seminal vesicle to recurrent region of vagina filled with eosinophilic shell glands, seen as mass obscuring male genitalia in whole mounts, 2.1–2.4 (2.3, n=2) long, 1.3–1.7 (1.5, n=2) wide in gravid specimens.

Remarks. The current species is difficult to place in the taxonomic system of Prudhoe (1985), with the dichotomous keys leading to a placement within *Phylloplana* Laidlaw, 1903, although it clearly does not comply with the generic description. Based on features of the genital system described in Prudhoe (1985), including the anterior direction of the vagina, dorsal to the male genitalia, the species described here has similarities with *Zygantriplana* Laidlaw, 1906, although again, there are several inconsistencies with the generic diagnosis provided by Prudhoe (1985).

In the taxonomic system of Faubel (1983), the species clearly belongs to the family Ilyplanidae Faubel, 1983, based primarily on the lack of a distinctive prostatic organ (superfamily Emprosthommatitidea Bock, 1913) and lacking prostatoids but with a penis stylet (Faubel 1983, p. 31). Faubel (1983) indicated (p. 36) that the family had been created for species in which the epithelial lining of the ejaculatory duct is of a glandular nature. This is the situation with the current species as no other identifiable prostatic tissue is identifiable; the glandular nature of the epithelium of the distal ejaculatory duct is shown in Fig. 14. Within the

family Ilyplanidae, the presence of a common genital atrium places the species close to *Zygantriplana*, a result similar to that using the descriptions of Prudhoe (1985). Prudhoe (1985) recognised six species within the genus: *Z. angusta* (Verrill, 1893), *Z. clepeastra* Kato, 1944, *Z. henriettae* Corrêa, 1949, *Z. plesia* Corrêa, 1949, *Z. stylifera* Hyman, 1953, *Z. verrilli* Laidlaw, 1906 and *Z. yrsa* du Bois-Reymond & Marcus, 1968.

Faubel (1983) by contrast divided these species into several, frequently monotypic genera, leaving *Z. verrilli* as the sole species of *Zygantriplana*, but transferring *Z. yrsa* to *Ilyella* Faubel, 1983, *Z. henriettae* and *Z. plesia* to *Zygantrioides* Faubel, 1983, and *Z. clepeastra* to *Zygantrum* Faubel, 1983. *Zygantriplana angusta* and *Z. stylifera* were transferred to the family Stylochoplanidae Faubel, 1983 as *Alloioiplana stylifera* (Hyman, 1953) and *Compoplana angusta* (Verrill, 1839) respectively.

Following the system of Faubel (1983), the current species, in possessing a common genital atrium, is aligned with *Zygantrum*, *Zygantrioides* and *Zygantriplana*, but does not comply fully with their generic descriptions.

The armed penis distinguishes this species from *Zygantrioides* and *Zygantriplana*, thereby aligning it with *Zygantrum*, but it differs from this genus in that tentacles are present (absent in *Zygantrum*), eyes are distributed in discrete tentacular and cerebral groups (strewn over anterior third of body in *Zygantrum*) and Lang's vesicle is absent (present in *Zygantrum*).

Since this species cannot be accommodated within any of the currently recognised genera of the Ilyplanidae, a new genus, *Zygantrella*, is proposed to accommodate it. Only a single species is currently attributable to this genus. The shape of the seminal vesicle also distinguishes this species from confamilial genera.

DISCUSSION

The finding of three new species of acotylean polyclads in Queensland is hardly surprising given the lack of study of the littoral platyhelminth fauna, particularly in the north of the state. That one of them requires a novel

genus to accommodate it is again not surprising, given the systematic re-arrangement of the acotyleans by Faubel (1983) which introduced large numbers of novel genera.

As indicated above, the different taxonomic systems for the acotylean polyclads adopted by Faubel (1983) and Prudhoe (1985) were taken into consideration when assessing each of the three new species described herein. It proved to be simpler to place each species within the system of Faubel (1983) even though this required the erection of a new genus.

The genus *Zygantriplana*, as used by Prudhoe (1985) was split by Faubel (1983) into a number of frequently monotypic genera. Following the arrangement of Faubel (1983), the new species described here requires the erection of yet another monotypic genus, *Zygantrilla*, based on several characters. The validity of these genera can only be tested by additional collections and descriptions.

The present descriptions of new species of acotylean polyclads, mainly from northern Queensland, continues to provide evidence of our lack of knowledge of this littoral platyhelminth fauna.

ACKNOWLEDGEMENTS

Thanks are due to Dr T.H. Cribb for organising the collection of polyclads at Wellington Point.

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