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New names for four common Marginellidae (Mollusca : Gastropoda) from northern New Zealand

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Abstract

The common littoral and shallow sublittoral New Zealand species hitherto identified as *Marginella pygmaea* Sowerby, 1846 and *M. mustelina* Angas, 1871, and a Kermadec Islands species similar to *M. mustelina*, are considered to be specifically distinct from Australian type material of these taxa. *Marginella pygmaea* is interpreted as a synonym of the Australian species *Mesoginella turbinata* (Sowerby, 1846) and the New Zealand species is described as new, together with a similar sympatric species. A New Zealand specimen is selected as neotype of *Marginella fasciata* Sowerby, 1846, which becomes the name for *M. mustelina* of authors, and the similar Kermadec Islands species is described as new.

Additional keywords: Australia, neotype, new taxa.

Introduction

The primary objective of the present contribution is to address doubts concerning the identity of two of the most common New Zealand littoral species, long known as *Marginella mustelina* A. Angas, 1871, and *M. pygmaea* Sowerby, 1846, which, it transpires, are both specifically distinct from their Australian type material. The opportunity is taken to describe a common new species of *Mesoginella* from the north-eastern North Island and a new species of *Serrata* from the Kermadec Islands. The only marginelloidean now known to be common to both Australia (New South Wales) and New Zealand (Raoul Island, Kermadec Islands) is the minute cystiscid *Pugnus parvus* Hedley, 1896 (Brook and Marshall 1998).

Twenty-eight species of Marginellidae are currently recognised in the New Zealand Recent fauna, although rich collections from there at Museum of New Zealand Te Papa Tongarewa contain well over twice this number (Marshall *et al*. in press).

Marginellids are carnivorous marine gastropods that occur worldwide at littoral to bathyal depths on soft and hard substrata. There are many hundreds of living species, and the family has a rich fossil record. In the latest revision (Coovert and Coovert 1995), the family was divided into two subfamilies, three tribes and 31 genera, and Cystiscidae was separated as a distinct family in Marginelloidea. Generic placements follow this revision, in which several taxa introduced by Laseron (1957) were newly synonymised. However, I favour the more conservative superfamilial classification of Ponder (1998*a*, 1998*b*).

Materials and methods

All New Zealand and Australian material at Museum of New Zealand Te Papa Tongarewa, Wellington (NMNZ) (registration numbers prefixed by 'M.') was examined, together with relevant type material at Auckland Institute and Museum, Auckland, and The Natural History Museum, London (BMNH). The height of the spire (i.e. the maximum measurable) was measured on the median shell axis from the tip of the protoconch to the suture on the last adult whorl, immediately behind the point at which the mature outer lip begins to thicken and climb adapically (expressed as a percentage of total shell height). Height precedes diameter in all given dimensions, and all measurements and radulae were taken from adult specimens.

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Protoconch whorl counting follows van Osselaer (1999; fig. 10). Radulae were cleaned with an aqueous solution of potassium hydroxide, sonicated and manipulated and mounted on double-sided adhesive carbon tabs. Images of shells and radulae (coated with carbon and gold/palladium) were captured by scanning electron microscope (SEM) and digital camera (uncoated shells). Unfortunately, live material was not available for description and illustration of living animals and comments on colour and colour pattern are derived from the literature and/or preserved specimens.

Systematics

Superfamily **MURICOIDEA** Rafinesque, 1815

Family **MARGINELLIDAE** Fleming, 1828

Subfamily **MARGINELLINAE** Fleming, 1828

Tribe **AUSTROGINELLINI** Coovert & Coovert, 1995

Genus ***Serrata*** Jousseaume, 1875

Serrata Jousseaume, 1875: 167. Type species (by tautonymy): *Marginella serrata* Gaskoin, 1849; Recent, Mauritius.

Haloginella Laseron, 1957: 284. Type species (by original designation): *Hyalina* (*Volvarina*) *mustelina* Angas, 1871; Recent, southern Australia.

Exiginella Laseron, 1957: 289. Type species (by original designation): *Marginella winteri* Tate, 1878; Middle Miocene, Victoria.

Diagnosis

Shell 3.6–13.0 mm long at maturity, white to brown, often banded, usually cylindrical; spire low to medium; outer lip thickened, finely to coarsely denticulate, rarely smooth; external varix present; no siphonal notch, parietal callus deposits or ridge; columella with four strong plications and with or without incipient adapical fifth plication, combined occupying less than half aperture length. Head simple, diverging cephalic tentacles slender, eyes set in expanded outer bases; siphon moderately long; mantle smooth or pustulose, extending over external shell surface. Radula uniserial, teeth 13–35, short and very broad, each with 22–59 cusps.

Remarks

Synonymy follows Coovert and Coovert (1995: 81), as does the diagnosis, which has been emended to include species/specimens (*S. fasciata*) that lack any trace of an adapical fifth columellar plication. Other New Zealand Recent species referrable to *Serrata*, in addition to the two recorded below, are *S. albescens* (Hutton, 1873), *S. maoriana* (Powell, 1932), *S. parvistriata* (Suter, 1908) and *S. plicatula* (Suter, 1910) (Spencer *et al*. 2002). Several additional (undescribed) species are known from the region (NMNZ).

Serrata fasciata (Sowerby, 1846)

(Figs 1*A*,*I*, 2*A*)

Marginella fasciata Sowerby, 1846: 389, pl. 76, fig. 142. – Weinkauff, 1879: 144, pl. 20, fig. 6; Tomlin, 1917: 266.

Volvarina rubrifasciata Jousseaume, 1875: 221. Unnecessary replacement name for *Marginella fasciata* Sowerby, 1846, which is not preoccupied by *Persicula fasciata* Martini, 1773 (not binomial) quoted in synonymy by Schumacher (1815: 235).

Marginella mustelina Suter, 1913: 460, pl. 20, fig. 13 (in part not Angas, 1871; New Zealand records only).

Marginella (*Volvarina*) *mustelina* Powell, 1932: 209 (in part; New Zealand records only).

Volvarina (*Haloginella*) *mustelina* Ponder, 1970: 56, 65, figs 1B,Ba,2H–L,3A,4A,Aa,G,Ga (not Angas).

Marginella (*Haloginella*) *mustelina* Powell, 1979: 218, fig. 49/1 (in part; New Zealand records only).

Haloginella mustelina Coovert, 1987*a*: 2, figs 1,2 (only). – Coovert, 1987*b*: 13 (in part; New Zealand records only); Coovert, 1989: 16, fig. 31 (in part; New Zealand records only).

Material examined

Neotype. (Here designated) NMNZ M.138250, Goat Island Bay, Leigh, New Zealand, alive, intertidal.

Other material examined. Three Kings Islands: King Bank, 33°57.4′S, 172°19.4′E, 128–123 m (4, M.138024); North West Bay, Great Island, alive, 12 m (2, M.117192); South East Bay, Great Island, 34°09.5′S, 172°08.8′E, alive, 20–22 m (5, M.134816); South East Bay, 34°09.5′S, 172°08.8′E, alive, 13–15 m (4, M.134896); off West Island, *Elingamite* wreck, 34°11′S, 172°03′E, 37 m (8, M.137879). Cape Maria van Diemen, beach (1, M.138025). Spirits Bay: W side of Pananehe Island, beach (4, M.59413); beach (1, M.17882). Doubtless Bay: N end Coopers Beach, alive under intertidal rocks (7, M.64303); Cooper's Beach (1, M.4707); Cable Bay, alive (6, M.17635; 4, M.16289). Hihi Beach, Mangonui Harbour, alive (3, M.49742). Reef Point, Ahipara, alive (3, M.90555). Cavalli Islands (4, M.6412). Tauranga Bay, Whangaroa: (2, M.90550; 7, M.6053). Bay of Islands: Tapeka, alive (12, M.90571; 30, M.4231); Russell, alive (7, M.9948). Poor Knights Islands: Northern Arch, Te Araara Point, 35°27′S, 174°44′E, 50 m (4, M.138018); Middle Arch, Tawhiti Rahi, 35°28′S, 174°44′E, 30 m (2, M.119457). Tutukaka, alive (5, M.37672). Ocean Beach, Whangarei Heads (4, M.90557). Goat Island Beach, Leigh: alive under stones resting on sand (12, M.8813; many, M.90573; 6, M.15607; 2, M.17719; 7, M.45635; 3, M.111117; 28, M.153789; 4, M.2980). Off NW tip of Little Barrier Island, 11–15 m (1, M.108925). Great Barrier Island: Oruawhero, alive (M.90570); Whangaparapara, alive under stones at low tide (15, M.4708). Howick, Auckland, alive (M.90565). Aldermen Islands, off E side of Ruamahua-nui Island, 36°57.2′S, 176°05.8′E, 38 m (3, M.112701). North Rock, Mount Maunganui, beach (1, M.64371). Boulder Bay, Motuhora Island, beach (4, M.44592). Off White Island: 37°30.5′S, 177°09.7′E, 64–69 m (5, M.137876); 37°30.5′S, 177°09.8′E, 62 m (5, M.119869); 37°30.6′S, 177°09.7′E, 73–59 m (30, M.94462); 37°30.6′S, 177°09.7′E, 64–69 m (9, M.137878). Motunui Rock, Omaio Bay, Cape Runaway, alive under intertidal rocks (many, M.39833). Te Kaha, alive (many, M.111979). Waihau Bay: Cemetary Point, beach and alive under intertidal rocks (many, M.153789; 4, M.44544); alive (many, M.15050; 2, M.9812); alive under rock slabs resting on mud (6, M.44545). Cape Runaway: 15–18 m (1, M.94156); Otamaroa, beach (1, M.113574). Lottin Point, alive (2, M.15102). Matakaoa Point, Hicks Bay (9, M.33172). Maruhou Point, Te Araroa, alive under intertidal rocks (1, M.58874). Ranfurly Bank, East Cape: 37°32.8′S, 178°48.7′E, 94 m (2, M.60758); 37°33.2′S, 178°50.3′E, 76–71 m (many, M.72658); 37°33.4′S, 178°48.3′E, 106–103 m (1, M.137877); 37°35.0′S, 178°51.6′E, 39–50 m (3, M.60883); 37°37.8′S, 178°52.4′E, 50–72 m (many, M.137875); 37°38.4′S, 178°51.7′E, 79–83 m (20, M.138027). Mahia Peninsula: beach (2, M.10093); Aurora Point, beach (1, M.138076).

Description

Shell 6.10–7.90 mm high and with 3.4–3.6 whorls at maturity, smooth, highly polished, narrowly ovate, height/width ratio 2.14–2.45 (mean 2.27; n = 12); spire short, conical, 8.2%–15.4% of shell height (mean 11.27; n = 12). Protoconch colourless, translucent, width of first half whorl 570–630 μm. Teleoconch translucent white with reddish brown bands, two subsutural rows of irregular maculations near insertion, another on adapical side of adapical columellar plait, and a broad, solidly pigmented band approximately midway between them; columellar plaits and mature outer lip white. Protoconch tip bluntly rounded, merging insensibly with teleoconch. Spire whorls flat; suture defined by fine line, not impressed; last adult whorl broadly and rather evenly convex, no anterior notch. Outer lip thickened at maturity, inner edge dentate, straight for most of its length or with slight, broad median indentation, broadly prosocyrt in profile. Columellar plaits strong, similar, plaited zone occupying approximately 42% of aperture length. Mantle smooth: other aspects of external and internal anatomy as described by Ponder (1970, under *Volvarina mustelina*). Radular teeth (Fig. 1*I*) very broad, subrectangular, with 33–37 small, sharp, narrowly conical, subequal cusps (four similar radulae examined by SEM).

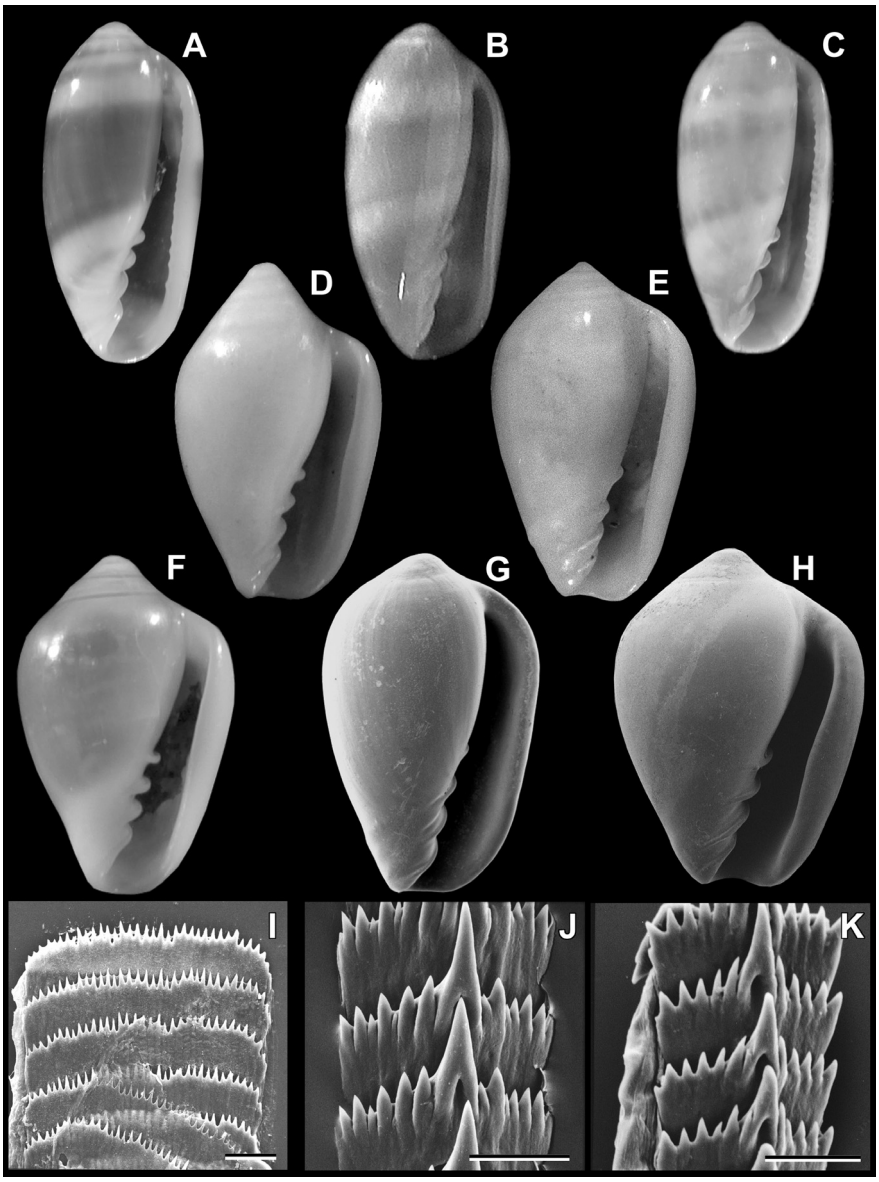

Fig. 1. Shells and radulae (*I–K*) of *Serrata* and *Mesoginella* species (G and H gold-plated for SEM, others natural). *A*, *Serrata fasciata* (Sowerby, 1846), neotype, Leigh, intertidal, 6.50 × 3.10 mm (M.138250). *B*, *Serrata raoulica* n. sp., holotype, Raoul Island, Kermadec Islands, 4.10 × 2.00 mm (M.272600). *C*, *Serrata mustelina* Angas, 1871, syntype, Port Jackson, New South Wales, 5.80 × 2.80 mm high (BMNH 1871.7.5.15). *D*, *Mesoginella koma* n. sp., holotype, Taurikura Bay, Whangarei Harbour, 5.20 × 2.98 mm (M.138047). *E*, *Mesoginella turbinata* (Sowerby, 1846) = holotype of *Marginella pygmaea* Sowerby, 1846 (BMNH 1880.9.18.7). *F*, *Mesoginella pisinna* n. sp., holotype, Matapouri Bay, 11–13 m, 4.60 × 3.00 mm (M.138251). *G*, *Mesoginella tryphenensis* (Powell, 1932), off Mayor Island, 59–74 m, 4.15 × 2.55 mm (M.66469). *H*, *Mesoginella pisinna*, paratype, Matapouri Bay, 11–13 m, 4.60 × 3.00 mm (M.134399). *I*, *Serrata fasciata*, Goat Island Beach, Leigh, intertidal (M.45635). *J*, *Mesoginella koma*, paratype, Taurikura Bay (M.23242). *K*, *Mesoginella pisinna*, paratype, Matapouri Bay, 11–13 m (M.134399). Scale bars = 20 μm.

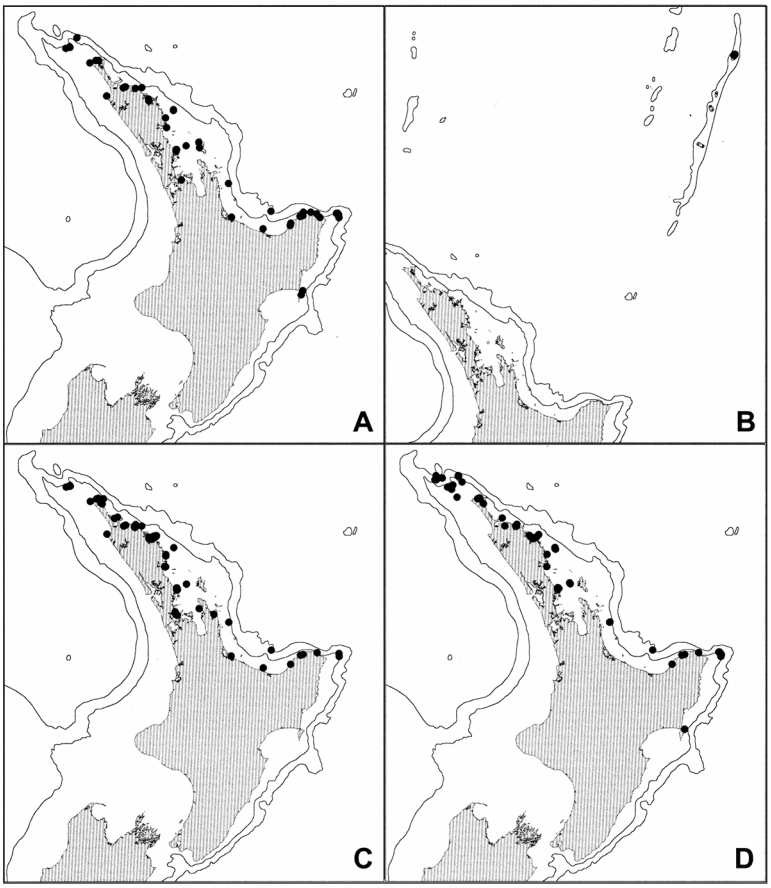

Fig. 2. Maps of northern New Zealand showing distributions of *Serrata* and *Mesoginella* species (200 and 1000 m isobaths indicated). *A*, *Serrata fasciata* (Sowerby, 1846). *B*, *Serrata raoulica* n. sp. *C*, *Mesoginella koma* n. sp. *D*, *Mesoginella pisinna* n. sp.

Distribution

Three Kings Islands, Cape Maria van Diemen to Spirits Bay, and north-eastern North Island as far south as Mahia Peninsula, New Zealand, 0–103 m; taken alive intertidally (under stones) to 22 m (Fig. 2*A*).

Remarks

The original description and illustration of *Marginella fasciata* (Sowerby 1846: 389, pl. 76, fig. 142) are accordant with both the Australian species *S. mustelina* (as suggested by Tomlin 1917: 266) and New Zealand specimens long so-identified. Because type material of *M. fasciata* is evidently no longer extant (not at BMNH: K. M. Way, personal communication, 2003), I select a New Zealand specimen as neotype, thus conserving Sowerby's taxon and providing a name for the New Zealand specimens, which are specifically distinct from *S. mustelina*. Weinkauff's (1879) illustration is presumably a crude copy of Sowerby's original. Jousseaume (1875) replaced *M. fasciata* with the name

Volvarina rubrifasciata, which, however, was unnecessary because Sowerby's name is not preoccupied (Tomlin 1917: 295).

Compared with syntypes (Fig. 1*C*) and other Australian specimens of *S. mustelina* (Ponder 1998, fig. 15.167C, as *mustellina* (sic)) (NMNZ) with adult facies in the same size range (height 6.5–7.0 mm), New Zealand specimens differ in having a more narrowly conical spire, a more evenly tapered base and in lacking an incipient adapical fifth columellar plait. New Zealand specimens differ further in having a pale yellowish brown instead of a deep reddish brown sutural line on the protoconch, in that the columellar plaits and adjacent base are white instead of reddish brown and in that the broad supramedian band is typically darker. The mantle is reportedly smooth in *S. fasciata* (Ponder 1970, fig. 1C), but papillate in *S. mustelina* (Hedley 1917: 709, pl. 50, fig. 3; Laseron 1957: 289, fig. 35).

Specimens from the Three Kings Islands (animal unknown) differ from North Island examples in being more darkly pigmented and in having a single solidly pigmented subsutural spiral band as wide as the two narrower rows of maculations of the mainland shells. Otherwise, they appear indistinguishable. Most specimens have a broad median colour band bounded by darker lines, but some North Island specimens are paler than usual and lack pigmentation between the bounding lines. The latter form is common between Te Kaha and Cape Runaway, especially at Waihau Bay, but rare elsewhere. There is complete gradation between weakly and strongly pigmented shells within populations.

Among other marginellids known from the New Zealand region (rich material NMNZ, including more than 30 undescribed species), *S. fasciata* is extremely distinctive in the combination of relatively large size (length up to 7.9 mm), brown colour and colour pattern. The north-eastern North Island species *S. maoria* (Powell, 1932) (several hundred specimens in 22 lots NMNZ), differs in details of colour pattern (Powell 1932), in attaining larger size (height up to 9.0 mm) and in having a toothless outer lip. The only other superficially similar species is described below.

Serrata fasciata has intracapsular, crawl-away development, with a single egg per capsule (Ponder 1970; Coovert 1986). Development of the other species discussed herein is unknown, but is likely to be direct also, because all have a paucispiral protoconch with a broad, bluntly rounded first whorl. It is scarcely suprising, therefore, that none of them is actually common to both Australia and New Zealand, as previous interpretations of *S. mustelina* and *Mesoginella pygmaea* suggested.

Serrata raoulica n. sp.

(Figs 1*B*, 2*B*)

Marginella mustelina Iredale, 1910: 71; Oliver. – 1915: 537 (not Angas, 1871).
Marginella (*Volvarina*) cf. *mustelina* Powell, 1932: 209, fig. 22 (not Angas).
Serrata sp. aff. *mustelina* Brook & Marshall, 1998: 226.

Material examined

Holotype. NMNZ M.272600, Raoul Island, Kermadec Islands, R. S. Bell.

Paratypes. Raoul Island, Kermadec Islands: R. S. Bell (16, NMNZ M.212468); dredged from gravel, 9–37 m (2, M.214612); W side of Meyer Island, 30 m (9, M.153930).

Other material examined. Raoul Island, Kermadec Islands: off W end of Napier Island, 40 m (11, M.153894).

Description

Shell 4.10–5.05 mm high at maturity, with 2.5–3.5 whorls, smooth, highly polished, narrowly ovate, height/width ratio 2.09–2.20 (mean 2.14; n = 6); spire short, conical,

13%–19% of shell height (mean 15.5%; $n = 6$). Protoconch translucent white, width of first half whorl 430–470 μm. Teleoconch translucent white, with pale orange–brown bands. Immature specimens with four narrow band with broader interspaces, one bordering suture, one above and beside adapical columella plait, others between them; with increasing shell size, bands broaden until considerably broader than interspaces, median two bands coalesce through pigmentation of interspace; adapical columellar plait pale buff, other plaits, area immediately outside them and mature outer lip white. Protoconch tip bluntly rounded, merging insensibly with teleoconch. Spire whorls flat; suture defined by fine line, not impressed; last adult whorl broadly and evenly convex, no anterior notch. Outer lip thickened at maturity, smooth, straight for most of its length or with slight, broad median indentation, broadly prosocyrt in profile. Columellar plaits strong, similar, plaited zone occupying approximately 46% of aperture length. Animal unknown.

Distribution

Raoul Island, Kermadec Islands, 30–40 m (shells only; Fig. 2*B*).

Remarks

The shell of *S. raoulica* differs principally from that of *S. fasciata* in attaining smaller size (height 5.05 *v.* 8.70 mm), in having a smaller protoconch (diameter of first half whorl 430–470 *v.* 570–630 μm), in having a broader abapical colour band and in that the adapical columellar plait shares the pigmentation of the (abapical) colour band outside it, unlike *S. fasciata*, in which all the plaits are white and the abapical colour band is on the adapical side of the adapical columella plait. It differs further from *S. fasciata*, and *S. mustelina* too, in having a smooth rather than dentate outer lip.

Etymology

From Raoul Island.

Genus ***Mesoginella*** Laseron, 1957

Mesoginella Laseron, 1957: 282. Type species (by original designation): *Marginella turbinata* Sowerby, 1846; Recent, south-eastern Australia.

Deviginella Laseron, 1957: 283. Type species (by original designation): *Marginella* (*Glabella*) *brachia* Watson, 1886; Recent, Queensland.

Hianoginella Laseron, 1957: 288. Type species (by original designation): *Marginella physa* Cotton, 1949; Pliocene, South Australia.

Sinuginella Laseron, 1957: 282. Type species (by original designation): *Marginella inconspicua* Sowerby, 1846; Recent, New South Wales.

Spiroginella Laseron, 1957: 283. Type species (by original designation): *Marginella leia* Cotton, 1944 = *Marginella turbinata* Sowerby, 1846; Recent, south-eastern Australia.

Urniginella Laseron, 1957: 287. Type species (by original designation): *Marginella cassidiformis* Tate, 1878; Middle Miocene, Victoria.

Diagnosis

Shell 2.5–11.0 mm long at maturity, glossy, smooth or with weak to distinct axial costae. White to yellowish–white, semi-opaque to translucent, rarely brownish–orange or with yellow bands. Narrowly to broadly obovate, obconic, biconic or broadly cylindrical, weakly to strongly shouldered. Spire of low to medium height with evenly contoured whorls; aperture moderately narrow; outer lip smooth to denticulate, moderately to strongly thickened, thickest medially; external varix present; weak siphonal notch present in most species; posterior notch weak to absent; ventral callusing usually absent; columella with

four strong plications occupying slightly less to slightly more than half aperture length, adapical plication remote in some species. Head simple, diverging cephalic tentacles slender, eyes set in their expanded outer bases; siphon long; mantle smooth or weakly pustulose, extending over external shell surface, foot narrow to broad. Radula uniserial, teeth 19–75, of moderate width, weakly arched, each with 9–22 strong cusps, central cusp typically strongest.

Remarks

Synonymy follows Coovert and Coovert (1995: 86), as does the diagnosis. Other New Zealand Recent species referrable to *Mesoginella*, in addition to the two recorded below, are *M. aupouria* (Powell, 1937), *M. cracens* (Dell, 1956), *M. ergastula* (Dell, 1953), *M. judithae* (Dell, 1956), *M. larochei* (Powell, 1932), *M. manawatawhia* (Powell, 1937), *M. otagoensis* (Dell, 1956), *M. pygmaeiformis* (Powell, 1937), *M. tryphenensis* (Powell, 1932) and *M. vailei* (Powell, 1932) (Spencer *et al*. 2002). There are, however, several additional species that remain to be described (NMNZ).

Mesoginella koma n. sp.

(Figs 1*D*,*E*,*J*, 2*C*)

Marginella pygmaea Suter, 1913: 465, pl. 20, fig. 19 (in part not Sowerby, 1846; New Zealand records only).

Marginella (*Glabella*) *pygmaea* Powell, 1932: 205, figs 18,20 (in part not Sowerby; New Zealand records only).

Volvarina (*Sinuginella*) *pygmaea* Coan, 1965: fig. 4 (not Sowerby).

Mesoginella (*Sinuginella*) *pygmaea* Ponder, 1970: 56, figs 1A,2A–G,4B,E (not Sowerby).

Marginella (*Sinuginella*) *pygmaea* Powell, 1979: 220, fig. 50/5 (not Sowerby).

Material examined

Holotype. NMNZ M.138047, between High Island and shore, Taurikura Bay, Whangarei Harbour, New Zealand, alive, 18 May 1961, W. F. Ponder.

Paratypes. Between High Island and shore, Taurikura Bay, Whangarei Harbour, alive (29, M.23242).

Other material examined. Off Three Kings Islands: 34°09.1′S, 172°08.4′E, North West Bay, Great Island, alive, 23 m (2, M.134675); 34°10′S, 172°08′E, 33 m (1, M.137972); off West Island, *Elingamite* wreck, 34°11′S, 172°03′E, 37 m (3, M.137964); South East Bay, Great Island, 15 m (3, M.117189). Cape Maria van Diemen, beach (3, M.138006). Pananehe Island, Spirits Bay: beach (9, M.5344; 4, M.8513; many, M.59395; 18, M.17881). Tom Bowling Bay (1, M.90546). Parengarenga Harbour: off Akatarere Point, 4 m (11, M.137967); Te Hapua, alive in intertidal pools in compacted mudstone platform beside wharf (11, M.49518); Te Hapua, alive, intertidal (22, M.42338). Reef Point, Ahipara (10, M.90564). Off Rangaunu Bay, 34°49.6′S, 173°15.0′E, 23 m (10, M.137957). Doubtless Bay: Cable Bay, beach (19, M.90569); Coopers Beach (1, M.138008); R.K. Dell (30, M.4232). Hihi Beach, Mangonui Harbour (1, M.21668). Bay in Stephensons Island, opposite Whangaroa Heads: 34°58′S, 173°47′E, 22–24 m (1, M.41338); 34°58′S, 173°47′E, 17–9 m (5, M.41539); beach (16, M.6051). Whangaroa: harbour entrance, main channel, 35°02′S, 173°45′E, 20 m (4, M.41098); centre of Kaouou Bay, 35°02′S, 173°45′E, 13 m (25, M.41805); Tauranga Bay (5, M.90572). Cavalli Islands, beach (5, M.6415). Bay of Islands: Deepwater Cove entrance, 35°12′S, 174°18′E, 33–46 m (1, M.138028); Deepwater Cove, 35°11.6′S, 174°18.1′E, 23–32 m (2, M.137963); 35°12.0′S, 174°16.3′E, 49 m (4, M.95747); Deepwater Cove (5, M.90551); Waewaetorea Passage, 35°12.4′S, 174°13.3′E, alive, 4 m (8, M.49334); Russell, beach (2, M.90558; 7, 112070); off Russell, 15 m (12, M.6050); 35°13.2′S, 174°17.4′E, 11–16 m (9, M.137966); Uruapukapuka Bay, 35°13.2′S, 174°14.3′E, 2–4 m (4, M.36088; 2, M.44344), 2 m (6, M.39734), 4 m (23, M.41244); Oke Bay, 35°13.4′S, 174°16.1′E, 3–5 m (4, M.96038); Bamboo Bay, Moturua Island, 35°13.9′S, 174°11.3′E, 4–6 m (13, M.44029); Orakawa Bay, 35°15.4′S, 174°12.2′E, 4–6 m (4, M.35617); near Knob Point, 35°15.4′S, 174°11.5′E, 4 m (7, M.44659); Manawara Bay, 35°15.7′S, 174°12.1′E, 2–6 m (1, M.40954); Paraoa Bay Point, 35°15.8′S, 174°10.4′E, 7 m (1, M.49415). S of Matapouri Bay, 35°34.8′S, 174°32.0′E, alive, 11–13 m (4, M.134398). Tutukaka, beach (17, M.90566). Whangarei Heads: beach (2, M.2974; 24,

M.90547); Taurikura Bay, alive, 2 m (4, M.138002; 13, M.42534); off Hat Island, 3 m (2, M.138009). Off NW tip of Little Barrier Island, alive, 11–15 m (4, M.108928). Leigh: beach (many, M.90576; 2, M.15606; 42, M.8822; 12, M.11116); off Panetiki Island, alive, 25 m (5, M.138022). Auckland: Cheltenham Beach (3, M.90549); Takapuna Reef (20, M.5083); Takapuna (many, M.90561); Campbell's Bay, beach (6, M.90574). Mercury Bay, Whitianga: (24, M.20584); alive (13, M.20583). Papaaroha, Coromandel, alive (4, M.90567). Off E side of Ruamahua-nui Island, Aldermen Islands, 36°57.2′S, 176°05.8′E, 38 m (1, M.137965). Mount Maunganui, beach (2, M.90548). Off Boulder Bay, Motuhora Island, alive, 11–13 m (8, M.44519); 18 m (1, M.44526). Off White Island, 37°30.6′S, 177°09.7′E, 64–69 m (10, M.137971). Motunui Rock, Omaio Bay, beach (50, M.33334). Otamaroa, Cape Runaway, beach (2, M.113575). Cemetary Point, Waihau Bay, beach (many, M.153706). Matakaoa Point, Hicks Bay, 37°34′S, 178°19′E (5, M.44623). Ranfurly Bank, East Cape: 37°35.0′S, 178°51.6′E, 39–50 m (1, M.137962); 37°38.4′S, 178°51.7′E, 79–83 m (1, M.137969).

Description

Shell 4.80–6.05 mm high at maturity, with 4.00–4.20 whorls, stout, smooth apart from minutely granulate parietal glaze, suture rather indistinct and defined by fine line, height/width ratio 1.60–1.82 (mean 1.68; $n = 12$), spire height 18.8%–23.7% of shell height (mean 21.8; $n = 12$). Protoconch translucent white, merging insensibly into teleoconch, width of first half whorl 470–450 μm. Teleoconch either translucent white, yellowish white, pale yellow or pale orange, some specimens with darker subsutural band. Spire conical, shoulder broadly rounded, spire whorls more or less flat. Outer lip strongly thickened at maturity, smooth. Anterior siphonal notch very shallowly indented. Columella plaits four, strong, zone occupied about half aperture length. Radular teeth (Fig. 1*J*) broad, broadly V-shaped, cusps narrowly conical, central cusp very long, flanked on each side by six or seven smaller, more or less subequal cusps (four similar radulae examined by SEM).

Distribution

Three Kings Islands, Cape Maria van Diemen eastwards, and north-eastern North Island as far south as East Cape, New Zealand, 0–83 m; taken alive intertidally to 25 m (Fig. 2*C*).

Remarks

Mesoginella koma is introduced for New Zealand *Marginella pygmaea* of authors not Sowerby, 1846.

Marginella pygmaea was based on a specimen without locality data, for which Powell (1932) 'provisionally' nominated New Zealand as type locality. However, comparison with the holotype (Fig. 1*G*) reveals that New Zealand specimens differ in attaining considerably smaller size (height of largest specimen examined 7.50 *v.* 8.50 mm). The holotype of *M. pygmaea* differs further from New Zealand specimens in having a low but distinct fasciole outside the adapical columella plait and in having five low, rounded axial costae on the shoulder of the last whorl: Coovert's (1999) contention that it is a New Zealand specimen is incorrect. The holotype of *M. pygmaea* is indistinguishable from weakly costate New South Wales forms of the common southern Australian species *Mesoginella turbinata* (Sowerby, 1846) (see Coovert 1988: 15), of which *M. pygmaea* is here considered to be a junior synonym (action here of the first reviser for taxa published simultaneously). The southern Australian species previously identified as *M. pygmaea* (May 1921, 1923) was renamed *M. pygmaeoides* by Singleton (1937) on the basis of differences between Tasmanian and New Zealand specimens reported by Powell (1932).

According to Tomlin (1917), the 'type' of *Marginella pymaea* was one of two specimens originally gummed to a tablet and was the 'larger of the two'. Sowerby (1846), however, stated that 'The specimen is in the collection of Mr Bell', so the second specimen must have

been added subsequently. Accordingly, it is concluded that the type specimen (BMNH 1880.9.18.7) is the holotype rather than a syntype as stated by Kaicher (1992: 6194).

This species was recorded (as *pygmaea*) from Foveaux Strait and the Chatham Islands by Suter (1913) and Powell (1932) on the basis of specimens from A. Hamilton's collection, dating from around the early 1900s. The provenance of much of Hamilton's material is extremely dubious, most notably that described by Murdoch (1905), reputedly from 'Whangaroa', which undoubtedly originated from Stewart Island or Foveaux Strait (Powell 1942: 125; Powell 1955: 62; Marshall 1978: 80). Because *M. koma* has not been obtained subsequently south of East Cape despite extensive shore collecting and dredging (NMNZ), there can be little doubt that Hamilton's material was mislocalised, a contention supported by the fact that the species was not recorded from the Chatham Islands by Finlay (1928), Dell (1960) or Marston (1996), and is not represented in extensive collections from Foveaux Strait (or Stewart Island) formed over several decades by E. C. Smith (NMNZ).

Mesoginella koma is the most common marginellid off mainland north-eastern North Island, both as beached shells and living intertidally to 25 m, where it is distinctive in the combination of smooth, white or yellowish shell, 5.00–7.50 mm high (adult facies), with a moderately elevated, conical spire. For the list of material examined, I have attempted to be conservative when interepretation of the limits of variation of this species, because it seems likely that some forms in the lower part of the bathymetric range may represent one or more additional distinct, although similar, species.

Etymology

Pallid (Maori).

Mesoginella pisinna n. sp.

(Figs 1*F*,*H*,*K*, 2*D*)

Mesoginella (*Sinuginella*) *tryphenensis* Ponder, 1970: 59 (not Powell 1932).

Material examined

Holotype. NMNZ M.138251, coast 1.6 km S of Matapouri Bay, Northland, New Zealand, 35°34.8′S, 174°32.0′E, alive, 11–13 m, 9 Feb. 1997, K. W. Burch, airlifted from steep rock face covered with red algae.

Paratypes. Coast 1.6 km S of Matapouri Bay, 35°34.8′S, 174°32.0′E, alive, 11–13 m (22, M.134399).

Other material examined. Off Three Kings Islands: Middlesex Bank, 33°57.0′S, 171°45.4′E, 98–103 m (35, M.137977); King Bank, 33°57.0′S, 172°19.0′E, 128 m (2, M.137993); King Bank, 33°57.4′S, 172°19.4′E, 128–123 m (15, M.137986); Middlesex Bank, 33°59.9′S, 171°45.3′E, 186–196 m (1, M.137983); Middlesex Bank, 34°01.2′S, 171°44.4′E, 206–211m (4, M.137978); Middlesex Bank, 34°02.0′S, 171°44.0′E, 246–291 m (2, M.138046); Middlesex Bank, 34°02.1′S, 171°45.8′E, 221–206 m (1, M.137973); 22 km ENE of Great Island, 34°05.0′S, 172°24.6′E, 200 m (2, M.137976); off North East Island, Great Island, 34°08.5′S, 172°11′E, 102 m (16, M.34513); off Prince's Rocks, 34°10′S, 172°08′E, 14 m (1, M.49804); North West Bay, Great Island, 34°09.1′S, 172°08.4′E, alive, 23 m (many, M.134674); South East Bay, Great Island, 34°09.5′S, 172°08.8′E, alive, 13–15 m (6, M.134897); South East Bay, 34°09.5′S, 172°08.8′E, alive, 20–22 m (42, M.134684); inner South East Bay, 34°10′S, 172°08′E, 27 m (1, M.137991); off N face of Hinemoa Island, 34°10.8′S, 172°02.6′E, 23 m (2, M.137982); S of Great Island, 34°14.1′S, 172°09.0′E, 192–202 m (2, M.137974); 28 km S of Great Island, 34°24.0′S, 172°16.8′E, 120 m (3, M.138033). Spirits Bay: beach (19, M.137995); W side of Pananehe Island, beach (16, M.137999). Off Akatarere Point, Parengarenga Harbour, 34°22′S, 173°03′E, 4 m (3, M.41305). Cable Bay, Doubtless Bay (6, M.137988). Matai Bay reef, Karikari Peninsula, 34°50′E, 173°25′S, 42 m (1, M.138021). Bay in Stephensons Island, opposite Whangaroa Heads: 34°58′S, 173°47′E, 22–24 m (7, M.41337); 34°58′S, 173°47′E, 17–9 m (2, M.41540). Immediately outside Whangaroa Harbour entrance, 35°00.35′S, 173°45.7′E, 25 m (3, M.137992). Bay of Islands: Deepwater Cove, 35°11.6′S, 174°18.1′E, 23–32 m (3, M.137989); near Knob Point, 35°15.4′S, 174°11.5′E, 4 m (1, M.44663); 35°10.5′S, 174°19.3′E, 36–53 m

(1, M.95681); between and N of Black Island and Moturoa, 35°12′S, 174°06′E, 31 m (3, M.41631); Oke Bay, 35°13.4′S, 174°16.1′E, 3–5 m (1, M.137987); Rawhiti Channel, 35°13.9′S, 174°15.5′E, alive, 3–5 m (9, M.95803); off Poroporo Island, 35°13.9′S, 174°13.1′E, alive, 6–7 m (1, M.43989). Poor Knights Islands: Northern Arch, Te Araara Point, 35°27′S, 174°44′E, 50 m (1, M.138015); Middle Arch, Tawhiti Rahi, 35°28′S, 174°44′E, 30 m (5, M.119466); South Harbour, Aorangi Island, 35°29′S, 174°44.5′E, alive, 25 m (3, M.138020); off The Pinnacles, 46 m (1, M.44718). Whangarei Heads: between High Island and shore, Taurikura Bay, alive (12, M.138023); Taurikura Bay, alive, 2 m (15, M.138003). Little Barrier Island: Waimaomao Bay, 36°10.5′S, 175°06.0′E, 10 m (1, M.138012); off Sugar Loaf, 36°10.7′S, 175°07.0′E, 24 m (2, M.138011). Leigh: North Reef, off NW tip of Goat Island, 18 m (2, M.49572); beach: (many, M.137960; 4, M.138044; 7, M.138040; 6, M.138039). Off Cape Rodney, 36°17.0′S, 174°49.5′E, alive, 20 m (5, M.138013). Off E side of Ruamahua-nui Island, Aldermen Islands: 36°57.2′S, 176°05.8′E, 38 m (3, M.112742); 36°57.3′S, 176°06.0′E, alive, 33 m (3, M.138010). Off White Island: 37°30.5′S, 177°09.7′E, 64–69 m (many, M.137994); 37°30.6′S, 177°09.7′E, 73–59 m (many, M.137990); 37°30.6′S, 177°09.7′E, 64–69 m (7, M.137996). Motunui Rock, Omaio Bay, beach (7, M.138043). Otamaroa, Cape Runaway, beach (15, M.138042). Cemetary Point, Waihau Bay, beach (many, M.137958). Matakaoa Point, Hicks Bay (4, M.138041). Ranfurly Bank, East Cape: 37°32.8′S, 178°48.7′E, 94 m (5, M.60756); 37°33.1′S, 178°49.5′E, 94–89 m (5, M.74685); 37°33.2′S, 178°50.3′E, alive, 76–71 m (many, M.72662); 37°35.0′S, 178°51.6′E, alive, 39–50 m (21, M.60882); 37°35.8′S, 178°52.7′E, 49 m (6, M.65459); 37°36.3′S, 178°53.1′E, 74 m (1, M.60923); 37°37.8′S, 178°52.4′E, 50–72 m (many, M.137997); 37°38.4′S, 178°51.7′E, 79–83 m (many, M.137998). Cemetary Point, Mahia Peninsula (2, M.138075).

Description

Shell 3.60–5.50 mm high at maturity, with 3.25–4.50 whorls, stout, broadly ovate, smooth apart from minutely granulate parietal glaze, suture rather indistinct and defined by fine line, height/width ratio 1.47–1.62 (mean 1.52; n = 14), spire height 14%–21% of shell height (mean 18.2; n = 14). Protoconch translucent white. Teleoconch uniform translucent white; or suture bounded by narrow white (adapical) and orange bands, base outside abapical three columella plicae and apertural rim opaque white, elsewhere pale translucent orange or buff, paler at periphery, or white. Protoconch bluntly rounded, merging insensibly into teleoconch. Spire broadly conical, shoulder broadly rounded, spire whorls more or less flat. Outer lip strongly thickened at maturity, smooth. Anterior siphonal notch very shallowly or not indented. Columella plaits four, strong, zone occupied about half aperture length. Radular teeth (Fig. 1*K*) broadly V-shaped, cusps sharp and narrowly conical, central cusp large, five or six smaller, subequal cusps on each side (five similar radulae examined by SEM).

Distribution

Three Kings Islands, Spirits Bay, and north-eastern North Island as far south as Mahia Peninsula, New Zealand, 0–291 m; taken alive at 2–76 m from rocky substrata with Bryozoa and shell (Fig. 2*D*).

Remarks

Compared with *Mesoginella koma*, *M. pisinna* differs in attaining smaller size (height of largest specimen seen 5.50 *v.* 7.50 mm) and in being smaller relative to the total number of whorls (shells with four whorls adult and approximately four mm high *v.* subadult and approximately five mm high). From examination of contracted, preserved, recently collected specimens taken together at the type locality of *M. pisinna*, *M. pisinna* differs further from *M. koma* by having darker, much more numerous pigmentation spots. In comparing living specimens taken together at Whangarei Heads, Ponder (1970) observed that living specimens of *M. pisinna* (as *M. tryphenensis* Powell) differed from *M. koma* (as *M. pygmaea*) by having more dark pigmentation and the yellow pustules on the mantle more

distinctly raised. *Mesoginella koma* occurs throughout most of the geographic range of *M. pisinna* and is uncommon deeper than 20 m, whereas *M. pisinna* ranges deeper and is common from approximately 2–80 m on appropriate substrata. As with *M. koma*, for the list of material examined, interpretation of the limits of variation of this species is conservative, because it seems likely that some forms in the lower part of the bathymetric range represent several additional distinct, but similar, species.

Compared with *M. aupouria* (Powell, 1937), adults of which may be of equivalent size, although usually larger, *M. pisinna* differs by having a higher, more narrowly conical spire and a considerably thinner outer lip at maturity. *Mesoginella aupouria* is known only from off the Three Kings Islands at 100–805 m (11 lots NMNZ; holotype BMNH 19621061). The sympatric (but asyntopic) species *M. tryphenensis* (Powell, 1932) is more superficially similar, being narrower, consistently white, with a shorter spire, a smaller protoconch and a weak but distinct fasciole outside the adapical second columellar plait (Fig. 1*G*).

During the present study, specimens of *M. pisinna* and *M. koma* were found mixed together in many samples identified as *M. pygmaea*, and the two species have been taken living together at several localities at 2–13 m depth.

Etymology

Small (Latin).

Discussion

The recognition of different species on opposite sides of the Tasman Sea is not surprising given that endemism among New Zealand molluscs is extremely high, more than 86% of recorded marine species being endemics (Spencer *et al*. in press). This is particularly likely in taxa having direct development. *Serrata fasciata* has intracapsular, crawl-away development, with a single egg per capsule (Ponder 1970; Coovert 1986). Although development of the other species discussed here is unknown, it seems likely to be direct also, because all have a paucispiral protoconch with a broad, bluntly rounded first whorl. It is scarcely surprising, therefore, that none of them is actually common to both Australia and New Zealand, as previous interpretations of *S. mustelina* and *Mesoginella pygmaea* suggested. The only marginelloidean now known to occur on both sides of the Tasman Sea is the minute cystiscid *Pugnus parvus* Hedley, 1896 (New South Wales and Kermadec Islands; Brook and Marshall 1998).

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