



Hyridella Swainson, 1840

Diagnostic features

Shell medium-sized, oblong to oval to elongate, not winged; solid to thin valves, sculpture of collabral growth lines usually visible across surface of shell; umbos with distinct chevron ridges but commonly eroded, extending beyond umbo in some species; thick brown to black periostracum; interior of valves nacreous bluish to bronze to white; central pseudocardinal teeth tend to become fissured radially.

Anatomy: The gills (ctenidia) are eulamellibranch and the foot is compressed, tongue-shaped and lacks a byssal groove. Larvae are brooded in a marsupium that occupies about a third of the inner pair of demibranchs in female ctenidia. Inhalant and exhalant siphons short but prominent and formed by the mantle edge, which is open ventrally, inhalant 'siphon' larger than exhalant 'siphon' bearing a variable number of prominent papillae and heavily pigmented.

The Australian species of *Hyridella* can be separated as follows:

***H. australis*.** With heavy v-shaped beak sculpture, restricted to umbos. Shell oblong-ovate, posterior end strongly ridged and rounded, reaches 90 mm in length, height/length ratio about 60%, periostracum glossy black with very faint impressed sculpture across shell surface

***H. drapeta*.** With fine beak sculpture, restricted to umbos which is generally absent in adults with eroded umbos. Shell moderately elongate, oval, posteriorly rather rounded and with weak flattened ridge, dorsal margin weakly winged, ventral margin usually gently arched; reaches about 90 mm in length, height/length ratio less than 50%.

***H. depressa*.** With fine beak sculpture, restricted to umbos. Shell moderately elongate, oval, posteriorly rather rounded and with weak ridge, postero-dorsal margin angled and dorsal margin anterior to beaks slopes away markedly (flatter in the other species); reaches about 90 mm in length, height/length ratio about 50%.

***H. glenelgensis*.** Strong v-shaped umbonal sculpture extends onto surface of adult. Shell amygdaloid (almond-shaped), posterior end ridged and pointed, reaches 40-50 mm in length.

***H. narracanensis*.** With heavy v-shaped beak sculpture, restricted to umbos. Shell amygdaloid (almond-

shaped), posteriorly ridged and pointed, reaches 60 mm in length.

Classification

Hyridella Swainson, 1840

Class Bivalvia

Infraclass Heteroconchia

Cohort Palaeoheterodonta

Order Unionida

Superfamily Unionoidea

Family Hyriidae

Subfamily Hyriinae

Genus *Hyridella* Swainson, 1840

Type species: *Unio australis* Lamarck, 1819

Original reference: Swainson, W. (1840) *A treatise on Malacology or the natural classification of shells and shellfish*, London. Longman, Brown, Green and Longmans. 419 pp.

Type locality: Nepean River, NSW.

Synonyms: *Leiovirgus*, Haas, 1912; *Propehyridella* Cotton & Gabriel, 1932; *Hyridunio* Iredale, 1934; *Rugoshyria* Iredale 1934.

Two subgenera are recognised:

Hyridella (*Hyridella*) Swainson, 1840

Hyridella (*Protohyridella*) Cotton & Gabriel, 1932

State of taxonomy

The last major taxonomic revision of Australian freshwater mussels was by McMichael and Hiscock (1958).

Based on the available molecular results, Walker et al. (2014) pointed out that a reassessment of Australian hyriids is needed.

Biology and ecology

This genus favours flowing freshwater rivers and streams, but also occurs in water supply dams. Infaunal, living two thirds to almost fully buried in sand and sediment. Suspension feeders. Sexes separate; females brood young in marsupia in the inner pair of demibranchs. Larvae (glochidia) are parasitic, using fish as hosts and dispersal agents.

Distribution

Eastern Australian coastal rivers, including Tasmania. The genus also occurs in West Papua, Papua New Guinea and the Solomon Islands.

Notes

'*Rugoshyria interserta*' (Iredale, 1934) and '*Rugoshyria aquilonalis*' (Iredale, 1934) are both known only from single specimens and have never been recollected. They were placed in *Hyridella* by McMichael and Hiscock (1958), as we have done here, but the validity and relationships of both are uncertain.

The Australian genera of freshwater mussels are distinguished by the following shell characters (note that all are subject to erosion with age, depending on the local environment):-

Hyridella. Beaks and umbos of at least young specimens sculptured with V-shaped ridges; shell quadrate to elongate (ratio of maximum height of shell to its length >50%), usually not markedly winged. Hinge strong with grooved pseudocardinal teeth and simple 'lateral' teeth. Shell surface (other than beaks) are, in most species of *Hyridella*, more-or-less smooth except for collabral growth lines, but sculpturing extends over shell surface in *H. gienelgensis*. Eastern and south-eastern Australia, and Tasmania.

Velesunio. Beaks smooth, shell can be rather thick, rounded in outline (ratio of maximum height of shell to its length >50%), often inflated, hinge lamellar, usually simple (rarely serrated). Shell surface with collabral growth lines only. Northern and eastern Australia, Tasmania.

Alathyria. Shell typically large, elongate-ovate (ratio of maximum height of shell to its length >50%), often distinctly winged, thick, hinge usually with heavy, pseudocardinal teeth grooved, 'lateral' teeth smooth. Shell surface more-or-less smooth, with collabral growth lines only, although nodular sculpture has been observed on the beaks of *A. pertexta*. Eastern half of Australia.

Cucumerunio. Shell very elongate (ratio of maximum height of shell to its length <40%), beaks sculptured with V-shaped ridges; rest of shell surface with conspicuous nodules or ridges. Hinge strong, pseudocardinal teeth grooved. Eastern rivers of NSW and Queensland.

Lortiella. Shell elongate (ratio of maximum height of shell to its length <45%), usually winged posteriorly, hinge simple, not well developed. Beaks smooth and shell surface with collabral growth lines only. Found in NW Australia.

Westralunio. Shell more or less oblong (ratio of maximum height of shell to its length >50%). Pseudocardinal teeth erect, strongly serrated, shell medium-sized (usually less than 70-80 mm in length, up to 90-100 mm). Beaks sculptured in un-eroded juveniles with v- or w-shaped ridges, shell rather thick, with collabral growth lines. Three taxa in SW Australia and two species in Papua New Guinea.

Further reading

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