



***Alathyria* Iredale, 1934**

Diagnostic features

Alathyria is distinguished from other hyriid genera in lacking sculpture on the shell and umbo (although nodular beak sculpture has been reported in *A. pertexta*); ratio of maximum height to maximum length more than 50%; the shell thickened in the antero-dorsal region; maximum length 80-200 mm; usually winged (dorsal margin extended as a posterior blade in some species, or there is at least a dorsal arch); some with postero-ventral inflection. The hinge is strong, unionid-type, with the pseudocardinal teeth erect and denticulate. The lateral teeth are smooth.

Anatomy: the gills (ctenidia) are of the eulamellibranch type, and the foot is compressed, tongue-shaped, and lacks a byssal groove. Larvae (glochidia) are brooded in a marsupium that occupies about three quarters of the inner pair of demibranchs. Inhalant and exhalant siphons do not protrude and are formed by the mantle edge, which is open ventrally, separated from each other by a mantle bridge. The exhalant (branchial) 'siphon' is larger than the inhalant (anal) 'siphon', with two to three rows of papillae, and heavily pigmented with opaque orange and dark brown to black blotches. Labial palps large, semi-lunar in shape.

Alathyria is most closely related to *Velesunio*, with species of the former genus possessing a thicker shell and more prominent hinge.

How to distinguish between species of *Alathyria*:

***A. pertexta*:** rather elongate (maximum height relative to maximum length about 50- 55%); dorsal margin excavated anterior to the beaks; reduced hinge teeth, and a characteristic purple to pink internal nacre (other species usually white).

***A. jacksoni*:** usually oval (maximum height relative to maximum length 55-60%), posterior dorsal margin winged in moderate currents and arched in strong currents; rarely with reduced teeth although they may be eroded.

A. condola (inland drainages): rounded and swollen shell (maximum height relative to maximum length 65%), posterior dorsal margin not winged, usually excavated anterior to the beaks; strong hinge teeth.

A. profuga (coastal drainages): more elongate (maximum height relative to maximum length less than 65%), dorsal margin winged; reduced hinge teeth.

Classification

Alathyria Iredale, 1934

Class Bivalvia

Infraclass Heteroconchia

Cohort Palaeoheterodonta

Order Unionida

Superfamily Unionoidea

Family Hyriidae

Subfamily Velesunioninae

Genus *Alathyria* Iredale, 1934

Type species: *Alathyria jacksoni* Iredale, 1934

Original reference: Iredale, T. (1934). The Freshwater mussels of Australia. *Australian Zoologist* 8: 57-78.

Type locality: Barwon River, New South Wales.

Synonym: *Quaesithyria* Iredale, 1943

State of taxonomy

The last major taxonomic revision of Australian freshwater mussels was conducted by McMichael & Hiscock (1958). Based on recent molecular results, Walker et al. (2014) suggested that a reassessment of Australian hyriids is needed.

Biology and ecology

Rivers, streams and water supply reservoirs. Infaunal, living two thirds to almost fully buried in sand and sediment. Suspension feeder. Sexes separate. Females brood larvae in marsupia in the inner pair of demibranchs. Larvae (glochidia) parasitic, using fish as hosts and dispersal agents.

The variation in the posterior dorsal shape appears to be associated with water velocity. The changes apparently enhance the mussel's ability to maintain an anchorage in strong currents (Balla & Walker, 1991).

Distribution

Australian mainland between Gulf of Carpentaria drainage rivers, Northern Territory, through central and south-eastern Queensland, south to south-eastern New South Wales, Victoria and South Australia (in Tasmania as fossils). Also occurs in Papua.

Notes

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%), 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 80 mm in length, up to 100 mm). Beaks sculptured in un-eroded juveniles with v- or w-shaped ridges, shell rather thick, with collabral growth lines. SW Australia and two species in Papua New Guinea.

Further reading

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