



***Westralunio inbisi inbisi* Klunzinger,  
Whisson, Zieritz, Benson, Stewart &  
Kirkendale, 2022**



*Westralunio inbisi inbisi*. Paratype. (Shell length rarely exceeds 90 mm). Photo: C. Whisson.



*Westralunio inbisi inbisi*. Juvenile from Lake Yeagarup, south W. Australia, showing beak sculpture. Scale bar = 10 mm. Photo: M. W. Klunzinger.



Distribution of *Westralunio inbisi inbisi*.



Goodga River Fishway, the type locality of this taxon. Photo: S. Beatty.



Deep River, SW Western Australia, a locality in which *Westralunio inbisi inbisi* is found. Photo M. W. Klunzinger.

**Diagnostic features**

The shell is medium-sized, oblong to ovate, having solid to thin valves, sculpture of collabral growth lines and a surface covered with a thick brown periostracum. Umbos of juveniles have v- to w-shaped sculpture, usually eroded in shells more than 30 mm long. The interior of valves is nacreous bluish to bronze to white, with copper

blotches. The hinge has pseudocardinal teeth which are strongly grooved and serrated; lamellar teeth are usually smooth and blade-like. Anterior retractor muscle scars are deeply impressed. Posterior end of shell tends to be more truncated than *W. carteri* and overall, shells of this subspecies are less oblong and smaller than *W. carteri*, but series of shells are needed to note differences. From Klunzinger et al. (2022), "Specimens of *W. inbisi inbisi* are distinguished from other Australian *Westralunio* taxa by having shell series that are significantly smaller and less elongated than *W. carteri*, but not *W. inbisi meridiemus*. The subspecies has three diagnostic nucleotides at COI (75 A, 87 T, 318 T) and none at 16S, which differentiate it from its sister taxa, *W. carteri* and *W. inbisi meridiemus* using ASAP and TCS species delimitation models."

Anatomy: A supra-anal opening is absent. Larvae (glochidia) are brooded in the marsupia in the inner pair of demibranchs of ctenidia (gills) in females, inhalant and exhalant siphons are short but prominent and formed by the mantle edge which is open ventrally and fused posteriorly; inhalant siphon larger than exhalant and bears a variable number of prominent papillae and is heavily pigmented with black and orange blotches.

## Classification

*Westralunio inbisi inbisi* Klunzinger, Whisson, Zieritz, Benson, Stewart & Kirkendale, 2022

Class Bivalvia

Infraclass Heteroconchia

Cohort Palaeoheterodonta

Order Unionida

Superfamily Unionoidea

Family Hyriidae

Subfamily Velesunioninae

Genus *Westralunio* Iredale, 1934 (Type species: *Westralunio ambiguus carteri* Iredale, 1934)

*Original name:* *Westralunio inbisi inbisi* Klunzinger, Whisson, Zieritz, Benson, Stewart & Kirkendale, 2022. In Klunzinger, M.W., Whisson, C., Zieritz, A., Benson, J.A., Stewart, B.A., & Kirkendale, L. (2022). Integrated taxonomy reveals new threatened freshwater mussels (Bivalvia: Hyriidae: *Westralunio*) from southwestern Australia. *Scientific Reports* 12: 20385.

*Type locality:* Goodga River at vertical slot fishway, Western Australia.

*Synonym:* "*Westralunio carteri*" II Klunzinger et al., 2021; Benson et al., 2022.

## 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.

Molecular species delimitation modelling by Klunzinger et al. (2021) and Benson et al. (2022) recovered three distinct Evolutionarily Significant Units (ESUs) as "*Westralunio carteri*" I, "*Westralunio carteri*" II and "*Westralunio carteri*" III. Klunzinger et al. (2022) combined genetic data with morphometrical shape and shell measurement indices to formally describe "*Westralunio carteri*" I as *Westralunio carteri* Iredale, 1934; "*Westralunio carteri*" II as *Westralunio inbisi inbisi* sp. nov. and "*Westralunio carteri*" III as *Westralunio inbisi meridiemus* sp. nov.

## Biology and ecology

This subspecies lives in perennial freshwater rivers, streams, lakes and water supply reservoirs. It is infaunal, living two thirds to almost fully buried in silty sand/mud sediment and is a suspension feeder. It is presumed to be dioecious with females brooding larva (glochidia) in marsupia in the inner pair of demibranchs of the ctenidia (gills). When released, glochidia become parasitic on fish gills or fins. After undergoing metamorphosis on host fishes, glochidia become young mussels with a ciliated foot and two adductor muscles among other developments. They detach from host fish, dropping to the sediment to begin a suspension-feeding lifestyle.

## Distribution

Southerly to south-westerly flowing rivers, streams and lakes of coastal south-western Australia. *Westralunio inbisi inbisi* is generally widespread across southern drainages from Waychinicup River to Margaret and Blackwood Rivers.

## Notes

## Further reading

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