

Recovery actions for Glenelg Freshwater Mussel

Biodiversity On-ground Actions Regional Partnerships and Targeted Actions Project 2017–2018.



Background

The Glenelg Freshwater Mussel (*Hyridella glenelgensis*) is a small (51–80 mm long) almond shaped, native bivalve mussel, restricted to the Glenelg River system in south-western Victoria. It was first discovered and described in 1898 and has a distinctive shape and sculpture on its shell (Figs.1 & 2). The species lives in firm, coarse sandy sediments (Figs. 3 & 4) that provide ideal burrowing substrate. Importantly, the species needs flowing water as this assists in maintaining suitable water temperatures, restricting algal growth, and is important for respiration.



Figure 1. Glenelg Freshwater Mussel

Credit: Tarmo Raadik DELWP

The mussel has a delicate shell, very limited movement, and holds itself in the substrate using a muscular foot. After fertilisation, females hold developing offspring in an internal brood pouch, from which they are ejected into the water column as a microscopic and parasitic life stage known as 'glochidia', which then must attach to a

fish host. The glochidia stay embedded in the fish host for a few weeks, and then detach and settle onto the substrate, where they remain and grow.

Very little research has been undertaken on the biology or distribution of this species. Whilst widespread across the Glenelg River catchment, by the late 1990s it was known from only a single stream. The Glenelg Freshwater Mussel is now considered highly threatened and is listed nationally as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*, and the International Union for the Conservation of Nature Red List 2017. It is listed as threatened in Victoria (*Flora and Fauna Guarantee Act*).

Main threats

The main threats to the Glenelg Freshwater Mussel are:

- Reduction in water quantity (groundwater, run-off) and quality (increasing salinity)
- Low flow and cessations in flow (increased water temperature and low oxygen levels)
- Siltation (restricts burrowing, feeding, breeding)
- Habitat degradation (loss of bankside vegetation, pugging from livestock access, drought, carp)

Conservation management of the species by the Arthur Rylah Institute commenced in 2014 and focussed on the status of the remaining population and aimed to trial translocation to establish additional populations. Unfortunately, the remaining population had undergone a major decline in extent and abundance, and was considered too small to support the removal of individuals for translocation. Recovery actions turned to

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locating additional remnant populations to understand what stocks of mussels remained.



Figure 2. Shell shape and sculpture

Credit: Tarmo Raadik DELWP

Based on the known past distribution of the species, its dependence on flowing water which is usually sustained by groundwater output during drier times, three areas of the Glenelg River catchment were identified as potentially harbouring remnant populations. Two of these were intensively searched for the presence of mussels, with two additional, but very small, populations located. These are very close to, but isolated from, the larger remnant population. Dead shells at a fourth location indicated a previously existing population.

The three known populations of Glenelg Freshwater Mussel are restricted to an estimated area of occupancy of less than 1.0 km².

Project aims and method

To finalise the audit of mussel populations, and to plan the next direction for mussel recovery, the current project, funded by the Victorian government, will complete the search for remnant populations in the third area of the Glenelg River catchment, which consists of five stream systems which were identified as being groundwater sustained.

Within the target area, mussel searches will be undertaken by an experienced team along reaches in each stream systems. The standard instream detection method for mussels has been modified to improve detection for the Glenelg Freshwater Mussel. It involves

gently 'brailling' the substrate using the fingers of both hands to detect buried mussels (Figure 3), and searches along the bank to detect dead shells, which are a sign of live mussels nearby.

Streamflow and water quality will also be assessed, along with coarse habitat characteristics to determine if sites meet criteria as potential future translocation locations.



Figure 3. Searching for Glenelg Freshwater Mussels

Credit: Tarmo Raadik DELWP



Figure 4. Typical habitat

Credit: Tarmo Raadik DELWP

Contact

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