

# Darling River Snail – *Notopala sublineata*

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Threatened Species Unit

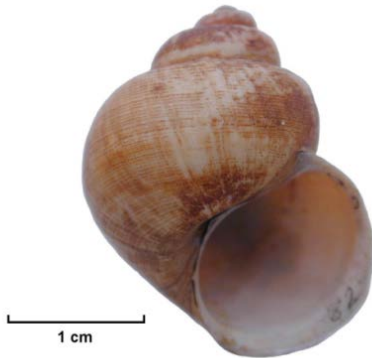


Figure 1: A Darling River Snail (Photo: A. Miller)

## Introduction

The Darling River Snail (also known as ‘River Snail’) is a medium-sized (20-25 mm) freshwater snail that was once common and widespread in the Darling River and its tributaries. However populations declined rapidly over the last few decades, probably as a result of weir building and other activities associated with river flow management. They are now virtually extinct throughout their natural range. In the last decade, living specimens have only been found from within irrigation pipelines in southern NSW.

In NSW, the Darling River Snail was listed as an endangered species in 2001. The Fisheries Scientific Committee has since reviewed the status of the species and upgraded the listing to **critically endangered species** in 2016. There are heavy penalties for harming, possessing, buying or selling them, or for harming their habitat (see ‘Legal implications’).

## Description

There are approximately 18 *Notopala* species found in Australia. Only three of these – *N. sublineata*, *N. hanleyi* and *N. kingi suprafasciata* occur in NSW. Prior to recent genetic and morphological analyses, the three species, as well as *N. alisoni* (found outside NSW), were all

considered to be subspecies of *N. sublineata*. The Darling River Snail has a round shell that ends in a conical spire. The outer shell is generally dark green but may also be greenish brown or dark brown, without banding. Morphological analyses show that shells of the Darling River Snail can be distinguished conchologically from other species in the *Notopala* genus. The body is similar to other snails but possesses a prominent snout and short eye stalks on the outside of the tentacles.

## Habitat and ecology

- The Darling River Snail is restricted to the Darling River and its tributaries. Collections and sightings of the species in NSW declined in the 1960s and 1970s and by the 1980s, populations were thought to only occur in a small number of locations.
- The species once occurred in flowing rivers throughout the Murray-Darling system, along the banks attached to logs and rocks or crawling in the mud.
- Artificially introduced hard surfaces now provide habitat for the species with populations being recorded as surviving in irrigation pipelines. The pipeline environment is thought to promote microbial production and organic accumulation, which is a highly nutritious food source for the species.
- The genus *Notopala* is characterised by females giving birth to live young rather than the more usual method for freshwater gastropods of laying eggs that hatch in an external environment. Therefore the species has limited dispersal capabilities as dispersal via drifting or by dislodged egg capsule is not possible.
- Females are sexually mature at 15-16 mm. Fertilisation is internal, and the young remain with the female until they are large enough to survive independently.
- The Darling River Snail feeds on the bacteria and microflora associated with detritus.

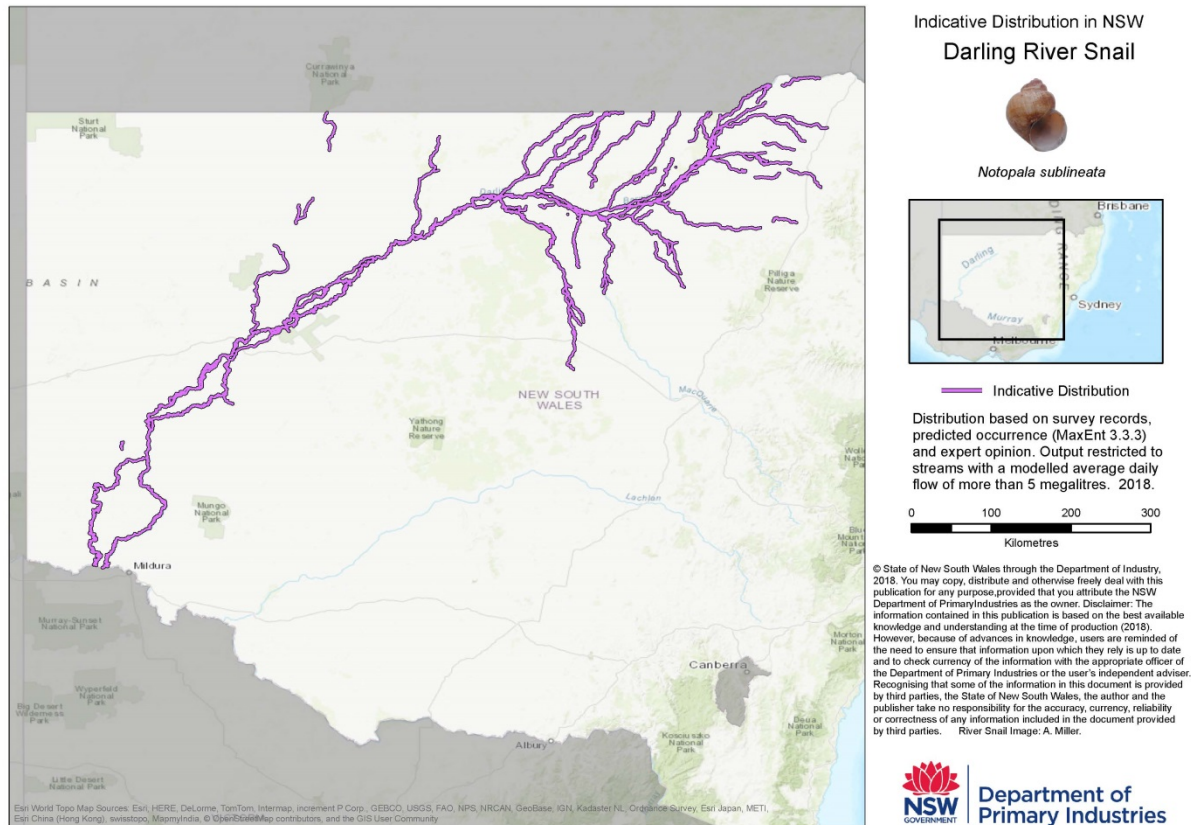


Figure 2: Indicative distribution of the Darling River Snail based on survey records, predicted occurrence and expert opinion.

## Why is the Darling River Snail threatened?

- Changes in the nature of their food source (periphyton (biofilm)) as a result of altered flow regimes (principally weir and dam building). The Darling River Snail is not able to thrive on the relatively low nutrient content provided by algae that grows in reduced flow variably conditions.
- The decline in the species occurred around the time of the incursion of Common Carp into the Darling River system and may be associated with predation by these fish or habitat degradation caused by them.
- The species is also threatened by deliberate removal (using flushing chemicals) from habitats where it may still survive such as town water supply pipelines on the Darling River.
- Removal of large woody debris from rivers results in direct habitat loss for the species.

## Conservation and recovery actions

- Continue to collect data on the presence/absence of the Darling River Snail during incidental surveys.
- Protect habitats known to support, or with the potential to support Darling River Snail populations.

- Support research into the habitat requirements and ecology of the Darling River Snail and key threats to the species.
- Increase community awareness and support for recovery actions.
- Report any sightings of the species via the NSW DPI online form: [www.dpi.nsw.gov.au/fisheries/species-protection/report-it](http://www.dpi.nsw.gov.au/fisheries/species-protection/report-it)
- A full list of strategies to be adopted for promoting the recovery of the Darling River Snail is set out in the NSW DPI Priorities Action Statement: [www.dpi.nsw.gov.au/fisheries/species-protection/priorities-action-statement2](http://www.dpi.nsw.gov.au/fisheries/species-protection/priorities-action-statement2)

## Legal implications

It is illegal to catch and keep, buy, sell, possess or harm Darling River Snail (or any other threatened species in NSW) without a specific permit, licence or other appropriate approval, and significant penalties apply. For critically endangered species, these penalties can include fines of up to \$220,000 and up to 2 years in prison.

There can also be significant penalties for causing damage to the habitat of a threatened species without approval, through actions such as dredging river beds, removing large woody

debris and constructing barriers that block the free passage of fish.

Clearing that constitutes a routine agricultural management activity, and certain routine farming practice activities (other than clearing) are permitted, provided the activities are to the minimum extent reasonably necessary and all other relevant statutory approvals or authorities have been obtained.

The impacts of developments or activities that require consent or approval in accordance with the *Environmental Planning and Assessment Act 1979* must be assessed and considered by consent or determining authorities. Where such actions are likely to result in significant impact on a threatened species or its habitat, a detailed species impact statement must be prepared.

Strategies to be adopted for promoting the recovery of the Darling River Snail are set out in the NSW DPI Priorities Action Statement.

A [recovery plan](#) has been prepared in accordance with the provisions of the *Fisheries Management Act 1994* to promote the recovery of the species to a position of viability in nature.

## Bibliography and further reading

Brazier, J. (1879) Description of a new species of *Vivipara*. *Proceedings of the Linnean Society of New South Wales* **3**: 221-222.

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Murphy, M. J. and Shea, M. (2013) Survey of the terrestrial and freshwater molluscan fauna of the Pilliga forest area in northern inland New South Wales, Australia. *Molluscan Research* **33**: 237-253.

Sheldon, F. and Walker, K. F. (1997) Changes in biofilms induced by flow regulation could explain extinctions of aquatic snails in the lower River Murray, Australia. *Hydrobiologia* **347**: 97-108.

## For further information

See the NSW DPI website: [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

Contact the NSW DPI Threatened Species Unit:  
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