

## Threatened species in NSW

# River snail

## *Notopala sublineata*

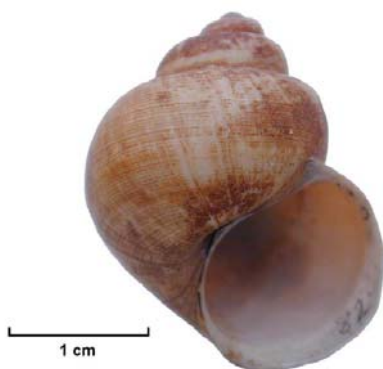


Photo: Alison Miller

### Threatened Species Unit

Fisheries Conservation and Aquaculture Branch

Port Stephens Fisheries Centre

### Introduction

*Notopala sublineata* is a freshwater snail that was once common and widespread in the Murray-Darling river system. Populations of this species have declined rapidly over the last few decades, apparently as a result of weir building and other activities associated with river flow management. They now seem to be virtually extinct throughout their natural range. In the last decade only a few dead shells (no living specimens) have been found in natural waterways. Living specimens have recently been found from within irrigation pipelines in Southern NSW.

The river snail is listed as an **endangered species** in NSW. There are heavy penalties for harming, possessing, buying or selling them, or for harming their habitat (see 'Legal implications').

### Description

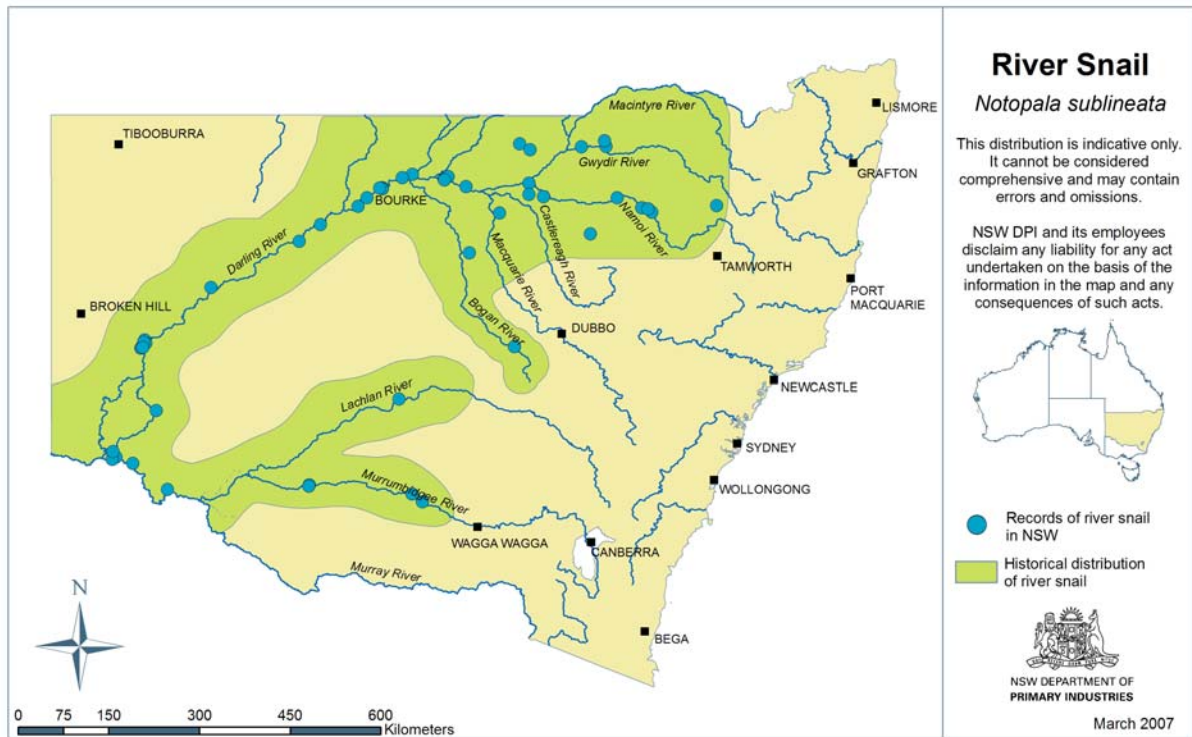
There are approximately 18 *Notopala* species found in Australia, mostly in northern Australia. Only two of these – the endangered 'river snail' *Notopala sublineata* and the species *Notopala suprafasciata* occur in the Murray-Darling system. Both have undergone major declines in recent decades and are now very rare. These two species can be distinguished by the fact that *Notopala sublineata* is smaller (~2.5 - 3.0cm) and does not have diffuse spiral bands on the shell.

*Notopala sublineata* consists of three sub-species, which until recently were considered separate species. *Notopala sublineata hanleyi* is restricted to the Murray and Murrumbidgee drainages, and *N. sublineata sublineata* to the Darling River and its tributaries. A third subspecies has a wide distribution in northern inland and coastal drainages outside of NSW.

### Habitat and ecology

- The river snail once occurred in flowing rivers throughout the Murray-Darling system, where it was found along the banks attached to logs and rocks or crawling in the mud.
- Although now virtually extinct throughout its natural range, remaining populations appear to be restricted to artificial habitats (irrigation pipelines) in the Murray and Darling systems.
- Like other species in the family Viviparidae, the females brood their young to a crawl-away stage, rather than having drifting or swimming larvae. As a result they have limited dispersal abilities.
- As a filter feeder the river snail feeds on bacteria suspended in the water and also grazes on the bacterial 'biofilms' that occur on hard surfaces in free flowing waters.





### Why is the river snail threatened?

- Habitat modification resulting from river regulation and construction of dams and weirs.
- The replacement of bacterial biofilms (in flowing waters) with algal dominated biofilms (in still waters) as a result of river regulation. The river snail can not effectively assimilate algae, and so essentially starves to death.
- Deliberate removal of the species from irrigation pipelines on the Murray River (where juvenile snails have reportedly caused problems by blocking spray nozzles) by flushing them with chemicals.



River snail. Photo: Dean Gilligan

### Conservation and recovery actions

- Allocate and manage environmental water flows in regulated rivers to restore natural seasonal flow patterns.
- Investigate the feasibility of captive breeding and re-establishing populations in their former range.
- Investigate alternatives to chemical flushing of pipelines.
- Work with irrigators to relocate river snails after flushing from pipelines.
- Implement the NSW River Snail Recovery Plan.
- Implement the Protected, Threatened and Pest Species Sighting Program: **Report any sightings of the species on the NSW DPI 24 hour automated message-taking service by calling (02) 4916 3877.**

### Legal implications

It is illegal to catch and keep, buy, sell, possess or harm river snail (or any other threatened species in NSW) without a specific permit, licence or other appropriate approval, and significant penalties apply. For 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 riverbeds, removing large woody debris and constructing barriers that block the free passage of fish.

Clearing activities authorised by property vegetation plans approved under the *Native Vegetation Act 2003* are permitted, provided the native vegetation reform package had the benefit of biodiversity certification at the time the property vegetation plan was approved.

Clearing that constitutes a routine agricultural management activity, and certain routine agricultural 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 impact 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 a 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 river snail to a position of viability in nature must be set out in the NSW DPI Priorities Action Statement.

A recovery plan has been prepared for the species 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**

NSW Department of Primary Industries 2007 *NSW River Snail Recovery Plan*, NSW Department of Primary Industries, Port Stephens Fisheries Centre, NSW.

Ponder WF 1997, Conservation status, threats and habitat requirements of Australian terrestrial and freshwater Mollusca, *Memoirs of the Museum of Victoria* 56(2): 421-430

Sheldon F and Walker KF 1993, Pipelines as a refuge for freshwater snails, *Regulated rivers: Research and Management* 8: 295-300.

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

Walker KF 1996, The river snail *Notopala hanleyi*: an endangered pest, *Xanthopus* (Nature Conservation Society of SA), March 1996: 1-5.

### **For further information**

Phone the Fisheries Information and Advisory Line: 1300 550 474.

For more information on general fishing regulations check with your local fisheries office or on the NSW Department of Primary Industries website at [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

### **Contact the NSW DPI Threatened Species Unit**

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River snail. Photos: Dean Gilligan





River snail shells from irrigation pipelines.

Photo: David Harasti

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ISSN 1832-6668

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Job number 6555