



# NARRACAN BURROWING CRAYFISH

## - Recognising & Protecting Crayfish Habitat

Fact Sheet No. 2, May 2018

**Common name:** Narracan Burrowing Crayfish

**Scientific name:** *Engaeus phyllocercus*

**Conservation status:** 'Endangered' in Victoria

The Narracan Burrowing Crayfish (NBC) is a brightly coloured burrowing crayfish with a leaf-shaped tail. It inhabits boggy seepages, flood beds and the banks of waterways in ferny gullies within a small area of the Western Strzelecki Ranges.

Due to the limited size of the area where NBC are known to occur, and the range of threats faced by the species, the NBC is considered to be at 'very high risk of extinction in the wild in the near future' (DELWP 2009). The long term survival of the NBC is likely to be dependent on careful management and improved protection of existing and potential habitat areas throughout its range.

### What Do They Look Like?

The Narracan Burrowing Crayfish belong to a group of crayfish in the genus *Engaeus* that have bodies adapted for burrowing in soil. This includes their small size, a reduced swimming tail, small eyes and antennae. They are smaller than a Yabbie (smooth shelled crayfish that often live in farm dams) and may grow up to 90 mm in length. Their colours may be vibrant, ranging from dark purple hues through to bright orange and red, with bright orange or red legs. Like all crayfish, they have two claws. These claws may be the same shape and size (isomorphic) or a different shape and size (dimorphic) and often have bright orange tips.

### Distinguishing Features

The Narracan Burrowing Crayfish can be distinguished by the shape of its tail fan known as uropods (see following images).

The uropods are leaf-shaped in appearance compared with most other crayfish where the uropods have a more rounded shape.

**Narracan Burrowing Crayfish**



**Leaf-shaped uropods**



### Other Crayfish In The Area

Narracan Burrowing Crayfish can often be found living closely with the more common Gippsland Burrowing Crayfish *Engaeus hemicirratulus*. Although they can build burrows near to each other, the Gippsland Burrowing Crayfish often builds large, fan shaped chimneys away from the water, sometimes high up on slopes where it relies on run-off to fill its large chambers. It can be distinguished from the NBC by its bright orange or grey hairy body and round uropods.

**Gippsland Burrowing Crayfish**



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Narracan Burrowing Crayfish are found in similar habitats to the Strzelecki Burrowing Crayfish, another threatened crayfish which occurs in the hills of the Strzelecki Ranges to the east, but their ranges do not overlap (see Fact Sheet 3). Spiny freshwater crayfish may be found in the waterways.

Further information about these other species can be found at [www.burrowingcrayfish.com.au](http://www.burrowingcrayfish.com.au)

## The Life Of A Burrowing Crayfish

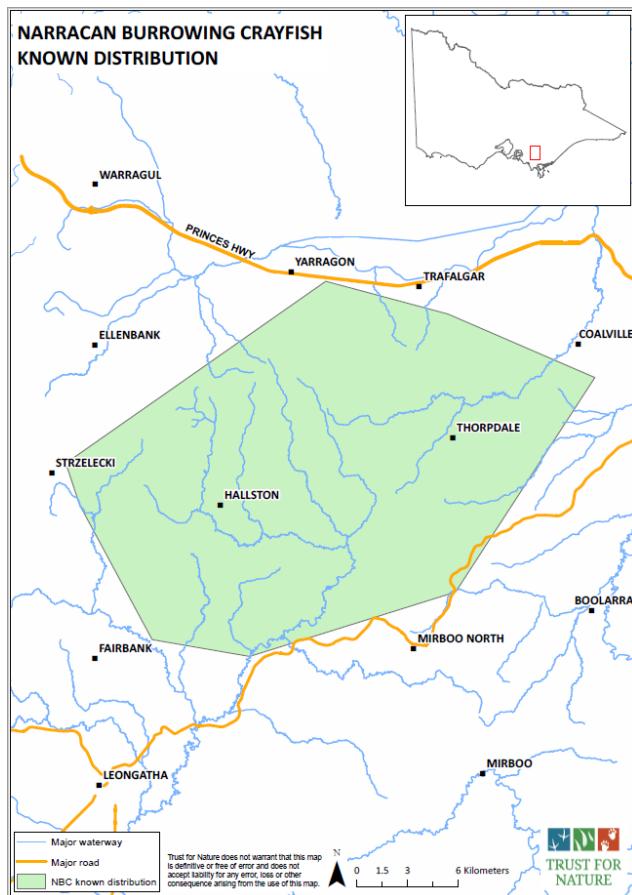
The cryptic behaviour of burrowing crayfish makes them challenging to study and conserve. They spend most of their lives underground and their ability to disperse is very limited. They rarely come to the surface apart from at night to seek mates in spring and summer, or after heavy rains. Males enter burrows of females to mate, after which the female carries clusters of eggs under her tail. It is thought that the young most likely hatch in February. They may remain in the maternal burrow for some time and several generations have been recorded within the same burrow system. Burrowing crayfish feed on plant material such as roots, decomposing leaves, rotting logs and small invertebrates.

Even though they build their burrows on land, burrowing crayfish are still dependent on water. However, the way they access this water varies between different species.

Some species build burrows that connect directly to the water table, others connect directly to streams, or rely solely on run-off to fill their burrow chambers. The Narracan Burrowing Crayfish digs burrows that are connected to the water table and vary in complexity. Their burrows may be shallow with horizontal branches in flood beds or vertical, particularly when they are located slightly further away from the saturation zone.

## Where Are They Found?

Like many of our burrowing crayfish, the Narracan Burrowing Crayfish has a very restricted distribution. It occurs over an area of approximately 30 x 20 km in the highland region to the north and west of the Western Strzelecki Ranges in South Gippsland, Victoria. The range includes as far west as Mt Worth and Strzelecki-Ferndale to the Little Morwell River at Darlimurla in the south east. It is also found in Sunny Creek catchments just south of Trafalgar. Their habitat usually occurs in altitudes over 120 m.



## Narracan Burrowing Crayfish Habitat

The Narracan Burrowing Crayfish makes its home in heavy clay or clay loam soils in stream bars, flood beds, swampy ground (seepages, permanent springs and wetlands) and less commonly the banks of flowing streams.

While their habitat has varying degrees of vegetation cover, they are most often found in ferny gullies of wet sclerophyll forest and include a dense understorey of tree-ferns such as Soft tree-fern (*Cyathea australis*) as well as ground-ferns such as Mother Shield-fern (*Polystichum proliferum*) and Hard Water-fern (*Blechnum wattsii*).



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To the west of their range, they have been found in sparsely vegetated stream banks, surrounded by pasture and in more disturbed areas such as roadside table drains adjacent to remnant vegetation.



## Recognising Narracan Burrowing Crayfish Chimneys

While burrowing crayfish are rarely observed, their chimneys may be a familiar part of the landscape. These chimneys are built from balls of mud and often pop up in wet areas, especially during rainy weather. They come in all sorts of shapes and sizes, and can be small and squat, fan shaped, or tall and conical reaching heights over 40 cm.

It may not be possible to identify the presence of NBC solely by their chimneys, although the following characteristics may be helpful:

- Located within or close to boggy soils, springs or creek banks, or within shallow bodies of water (creek bars) within the range identified in the distribution map
- Tall, pelleted, conical chimneys up to 10 cm tall, or
- Small, fan-shaped structures 1-2 cm high
- May consist of single or groups of chimneys (up to 12) with multiple entrances



## Why Are They Endangered?

Much of the region where Narracan Burrowing Crayfish are found was once covered in tall, wet sclerophyll forest dominated by Mountain Ash (*Eucalyptus regnans*). However, most of this vegetation has been cleared and modified by agriculture, grazing and forestry, leaving only a few areas where wet forest vegetation remains.

It is primarily within these patches of forest that the NBC can still be found. Some good examples of intact forest habitat can be seen at Mount Worth State Park, Yarragon South and Sunny Creek. Only a very small area of crayfish habitat is protected within reserves. Much of the remaining forests are on private land. Protection of crayfish habitat therefore requires the support of private landholders, the community and public land managers working within the range of this species.

## What Threats Do They Face?

Burrowing crayfish are very dependent on soil moisture and local wetland systems for survival. Activities that affect the water table and water supply to crayfish habitat, or which physically remove vegetation or disturb the soil, degrades their habitat and contributes to habitat loss. Broad scale habitat change and changes in weather, water and drainage patterns due to climate change could become a major issue in the future, so it is important to build resilience in crayfish communities by protecting and linking habitat where possible.

The following threats may be associated with the above activities in the region:

- Dam construction - floods suitable habitat and removes habitat
- Channelization of streams - alters drainage patterns, disturbs creek bank integrity and water flow, and dries suitable habitat
- Removal of native vegetation - dries out soil, leads to erosion and sedimentation of waterways, exposes burrows and alters soil microclimate
- Pollution of water systems - pesticides and fertilizers poison crayfish and reduce water quality
- Trampling by stock and machinery - causes stream bank erosion, vegetation loss, soil compaction, and crushing of burrows
- Cultivation and intensive farming - removes habitat, destroys burrows and alters soil condition
- Construction of infrastructure such as roads and tracks - affects water quality and quantity, changes catchments and removes habitat

## What Can I Do To Help Protect Them?

Everyone can play an important role in helping to protect these unique and vulnerable crayfish. One way is to become a **Citizen Scientist** and contribute to the network of knowledge amongst the local community and Scientists by finding out as much as you can about the crayfish.

## Find Out Where Narracan Burrowing Crayfish Occur

- Learn to identify Narracan Burrowing Crayfish habitat
- Determine if they occur on your property, local park, or school ground by looking for their chimneys (best observed between late autumn and early summer) in and around moist areas or wetlands, generally under native vegetation

## Protect Narracan Burrowing Crayfish Habitat

- Protect habitat (streamsides and seepages) from stock, machinery use or other activities that compact or churn the soil, especially during winter and spring
- Retain native vegetation around wetlands, boggy seepages and creeks
- Maintain, protect or develop natural connectivity corridors between suitable freshwater habitats
- Protect habitat along waterways from erosion through fencing and revegetation
- Do not disturb soil or alter drainage patterns (i.e. don't drain or flood habitat) that may alter existing seepages and floodplain areas
- Consider protecting habitat by joining Land For Wildlife, or entering into a Conservation Covenant with Trust for Nature (TfN), to permanently conserve and protect the natural, cultural or scientific values of the land

## Resources & Contacts

### Baw Baw Shire Council

<http://www.bawbawshire.vic.gov.au/Home>

### Building Capability To Manage Giant Gippsland Earthworm Habitat On Farms

<http://www.giantearthworm.org.au>

### DELWP

<http://www.delwp.vic.gov.au/>

### Land For Wildlife

<http://www.depi.vic.gov.au/environment-and-wildlife/community-programs/land-for-wildlife>

### Trust for Nature

<http://www.trustfornature.org.au/what-we-do/conservation-covenants/>

### Landcare

<https://www.landcarevic.org.au/>

### Crayfish website

[www.burrowingcrayfish.com.au](http://www.burrowingcrayfish.com.au)

Horwitz, P. 1990. A taxonomic revision of species in the freshwater crayfish genus *Engaeus* Erichson (Decapoda: Parastacidae). *Invertebrate Taxonomy* 4: 427-614

Lake, P.S. and Newcombe, P.S. 1975 Observations on the ecology of *Parastacoides tasmaniensis* (Decapoda: Parastacidae) from south western Tasmania. *Australian Journal of Zoology* 18: 197-214

Growsn, I.O. and Richardson, A.M.M. 1988. Diet and burrowing habits of the freshwater crayfish, *Parastacoides tasmaniensis tasmaniensis* Clark (Decapoda: Parastacidae). *Australian Journal of Marine and Freshwater Research* 39: 525-534

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