



STRZELECKI BURROWING CRAYFISH

- Recognising & Protecting Crayfish Habitat

Fact Sheet No. 3, May 2018

Common name: Strzelecki Burrowing Crayfish

Scientific name: *Engaeus rostrigaleatus*

Conservation status: 'Endangered' in Victoria

The Strzelecki Burrowing Crayfish (SBC) is a small species of burrowing crayfish that inhabits boggy seepages, springs and banks of shallow creeks in the ferny gullies of the high altitude regions of the Eastern Strzelecki Ranges. Due to the limited size of the area where SBC is known to occur, and the range of threats faced by the species, the SBC is at considerable risk of becoming extinct in the wild. The long term survival of the SBC 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 Strzelecki Burrowing Crayfish belongs 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. Strzelecki Burrowing Crayfish are smaller than your typical 'yabby' (smooth shelled crayfish that often live in open water) reaching lengths of about 90 mm. Their often vibrant colours include dark purple and olive hues, through to bright orange and reds. Others are lighter yellow with blue hues. Like all crayfish, they have two large claws. These claws may be the same size (isomorphic) or different in size and shape (dimorphic).

Distinguishing Features

The Strzelecki Burrowing Crayfish can be distinguished by the shape of its rostrum (the pointed extension of the carapace shell at the head of the crayfish) which:

- is tuberculate (lumpy),
- ends in a blunt tip, and
- projects downward

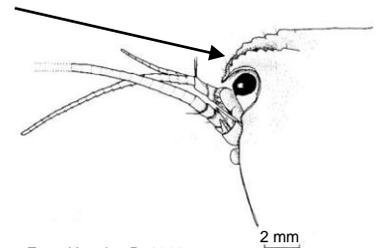
In most other burrowing crayfish, the end of the rostrum is upturned.

Strzelecki Burrowing Crayfish



Photo: R. Appleton

Down-turned rostrum



From Horwitz, P. 1990

Other Crayfish In The Area

Strzelecki Burrowing Crayfish can often be found living closely to the more common Gippsland Burrowing Crayfish *Engaeus hemicirratulus*. Although they can build burrows close to each other, the Gippsland Burrowing Crayfish often builds large, fan shaped chimneys away from the water, sometimes high up on slopes at a great distance from water where it relies on run-off to fill its large chambers. The Gippsland Burrowing Crayfish can be distinguished by its bright orange or pale hairy body and upturned rostrum.

Gippsland Burrowing Crayfish



Strzelecki Burrowing Crayfish are found in similar habitats to the Narracan Burrowing Crayfish, another threatened crayfish which occurs in the hills of the Strzelecki Ranges to the west, but their ranges do not overlap (see Fact Sheet 2). Spiny freshwater crayfish may be found in the waterways.

Further information about these other species of crayfish can be found at www.burrowingcrayfish.com.au

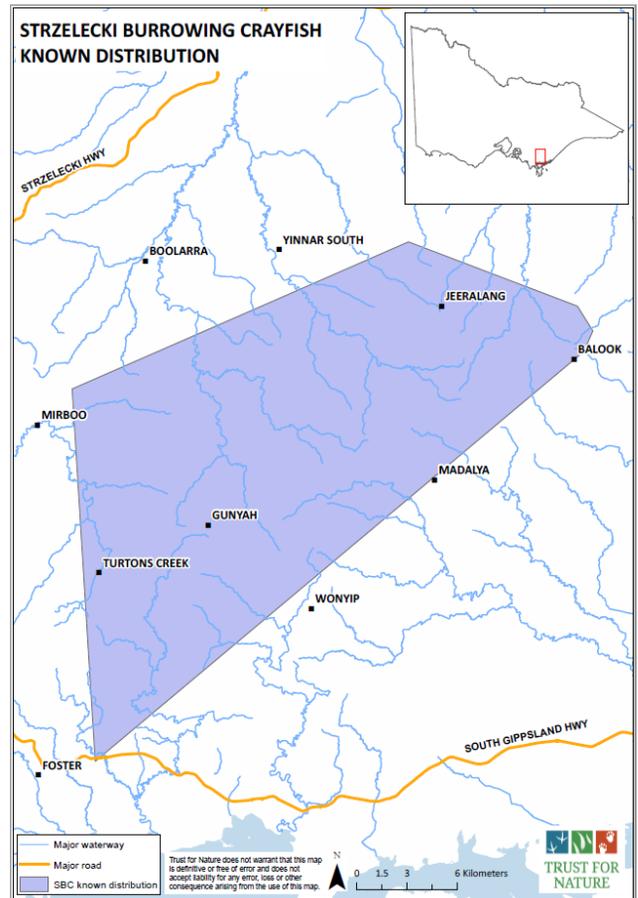
The Life Of A Burrowing Crayfish

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. Even though they build their burrows on land, they are still reliant on water by either building burrows that connect to the water table, directly to streams, or rely solely on run-off to fill their burrow chambers.

Burrowing crayfish rarely come to the surface, apart from at night in spring and summer to seek mates, or after heavy rains. Males enter burrows of females to mate and the female carries clusters of eggs under her tail, probably throughout summer. The young likely hatch by February and may remain in the maternal burrow for some time. Several generations have been recorded within the same burrow system. They feed on plant material such as roots, decomposing leaves, rotting logs and small invertebrates.

Where Are They Found?

Like many of our burrowing crayfish, the Strzelecki Burrowing Crayfish has a very restricted distribution, occurring over an area of approximately 430 square kms in the highland region of the Eastern Strzelecki Ranges in West Gippsland, Victoria. Their habitat usually occurs in altitudes over 400 m.



Strzelecki Burrowing Crayfish Habitat

The Strzelecki Burrowing Crayfish makes its home in heavy clay or clay loam soils along creek banks, flood beds and boggy seepage areas under native vegetation. They are more likely to be found along the smaller tributaries of waterways. Their main habitat is Wet Forest, often dominated by Mountain Ash, with abundant tree ferns, or sites entirely dominated by tree ferns. They can also be found in Cool Temperate Forest with a canopy that includes Myrtle Beech trees (*Nothofagus cunninghamii*), such as at Tarra-Bulga National Park.



Recognising Strzelecki Burrowing Crayfish Chimneys

The SBC digs burrows that are connected to the water table and vary in complexity from shallow burrows, especially in seepage areas where they are often found under roots of tree ferns, to more complex, horizontal branching burrows that descend into water-filled or muddy chambers of around 30 cm. The crayfish can often be found residing in these muddy chambers.

While it is difficult to investigate the type of burrow without disturbing it, the chimneys that the SBC build are more readily observable. These chimneys are built from balls of mud surrounding the burrow entrance and often pop up in wet areas, especially after rainy weather. It may not be possible to accurately identify the presence of SBC solely by their chimneys as they vary in shape and size, however, 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
- Composed of pelleted, conical chimneys up to 10 cm tall, or
- Small, fan-shaped or squat, 1-2 cm high
- May be single, or occur in groups of up to 10 chimneys, with multiple entrances



Why Are They Endangered?

The region where the Strzelecki Burrowing Crayfish now occur was once covered in tall forest. These forests included Wet Forest dominated by Mountain Ash, and Cool Temperate Rainforest dominated by Myrtle Beech. Most of the native vegetation has been progressively cleared for settlement, agriculture and large scale timber plantations, and the original forests now cover only about 10% of the Strzelecki Bioregion. Some good examples of the original forest can be seen in Tarra Bulga National Park, Gunya Gunya Rainforest, Turtons Creek and Agnes Scenic Reserves.

Strzelecki Burrowing Crayfish are of conservation concern due to their very small geographic range, limited abilities to disperse and ongoing habitat loss. For these reasons, they have special protection in Victoria and are listed under Victoria's *Flora and Fauna Guarantee Act 1998*. Threatened species require conservation actions in order to help stop their decline and provide security for their ongoing survival. While very small areas of crayfish habitat are protected within reserves, much of the remaining remnant forests are located 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 or disturb the soil, degrade their habitat and contribute to habitat loss. These processes are often associated with urbanisation, agriculture and forestry practices.

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, agroforestry 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 to help 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 and how to protect them.

Find Out Where Strzelecki Burrowing Crayfish Occur

- Learn to identify Strzelecki Burrowing Crayfish habitat
- Determine if they occur on your property, or local park, by looking for their chimneys. These are best observed in and around moist areas or wetlands between late autumn and early summer.

Protect Strzelecki 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 creeks, wetlands, springs and boggy seepages
- Maintain, protect or develop natural connectivity corridors between suitable freshwater habitats
- Protect habitat along waterways from erosion through fencing and appropriate revegetation. Seek assistance with fencing through organisations including Landcare, Trust for Nature and Greening Australia.
- 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>

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/>

Greening Australia

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

Crayfish website

www.burrowingcrayfish.com.au

Victorian Department of Sustainability and Environment (2009) Advisory List of Threatened Invertebrate Fauna in Victoria – 2009. Department of Sustainability and Environment, East Melbourne, Victoria.

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