

## ENGAEUS LIFE HISTORY

As all crayfish have gills under their carapace (shell), they are dependent on water to breathe. Typically the tunnels of burrowing crayfish reach down to the water table and over the summer period when the water table drops, they will follow it down through well established tunnels, sometimes to depths of 2-3 metres.

Burrowing crayfish generally eat decaying organic matter in the soil, such as rotting leaves and twigs but will supplement their diet with the occasional small worm or grub they come across.

All species of *Engaeus* construct characteristic 'chimneys' made from balls of mud placed at the entrance of their burrow. These may range from just a few mud pellets or a structure to 40 cm in height, but we don't really know why they build them!

Over dry periods, they will often plug the chimney, possibly to retain moisture within the burrow.



Breeding takes place from spring through to early summer. During this period adult females can be found carrying eggs or new hatchlings under the tail, which is closed over them to form a pocket for protection.

Each species has slightly different habitat requirements so that although a couple of different species may be found on the one property, they will inhabit specific areas depending on water flow, soil type, vegetation and degree of habitat disturbance.

Living their lives underground makes the burrowing crayfish extremely difficult to study without disturbing them. As a result there is still much to learn on the life history and requirements of the different species.

## HOW CAN WE HELP THIS SPECIES?

- Ensure that if development work is being considered within the range of one of the threatened species, that advice is sought from DPIW before beginning work.
- Protect streamsides and seepages from livestock by fencing.
- Where streamside vegetation is degraded, carry out revegetation work.
- Ensure no pollutants enter the waterways.
- Protect waterways from erosion through fencing and revegetation.

## ASSISTANCE AND SPECIES ADVICE

Commonwealth and State agencies, and regional NRM groups have a strong interest in protecting and preserving these species and as such funding is often available to assist in providing protective measures and habitat remediation on private land.

### SPECIES ADVICE

Zoologist, Threatened Species Section, Biodiversity Conservation Branch, DPIW,  
GPO Box 44, HOBART TAS 7000. Phone: 03 6233 3627  
Email: Phil.Bell@dpiw.tas.gov.au

Central North Field Naturalists, 68 Dynans Bridge Rd, WEEGENA TAS 7304.  
Email: nlester@tassie.net.au

### ASSISTANCE

NRM Cradle Coast, PO Box 338, BURNIE TAS 7320.  
Phone: (03) 6431 6285

NRM North, PO Box 7507, 49-51 Elizabeth St, LAUNCESTON TAS 7250.  
Phone: (03) 6333 7777



# TASMANIA'S FRESHWATER BURROWING CRAYFISH

Tasmania has a rich freshwater crayfish fauna with approximately 37 species in 4 genera. They range from the world's largest freshwater crayfish, the Giant Freshwater Lobster (*Astacopsis gouldi*) weighing up to 6kg, to the tiny burrowing crayfish of the *Engaeus* genus, with a maximum length of 10cm.

Within the *Engaeus* genus there are 15 known species (with another possible new species under investigation), 13 of which occur only in Tasmania, and 2 we share with Victoria.

## WHAT ARE BURROWING CRAYFISH?

The burrowing crayfish of the genus *Engaeus* (pronounced En-GAY-Uss), found only in south eastern Australia, are very specialised crayfish living in tunnel systems in muddy banks, seepages and peaty areas.

While most freshwater crayfish live in flowing water, the burrowing crayfish live their entire life within their burrow systems, only venturing out occasionally at night and in damp, overcast conditions.

As they are typically no longer free-swimming, many of the species have much reduced tails as can be seen in the picture above.

Other features of the genus include a narrow body and, unique among Tasmanian genera, claws that open vertically rather than horizontally to the body, allowing for larger claws in the confined space of narrow tunnels.

## DISRIBUTION OF *ENGAEUS*

The map below shows where the *Engaeus* species are found in Tasmania. Whilst some species appear to be very robust and found over wide areas, others have very limited distributions.

To the west two of the robust species are *E. fossor* and *E. cisternarius*, extending from below Macquarie Harbour in the south west through nearly to Devonport on the north coast. In the east the most widespread is *E. mairener* found from Wesley Vale through to Mt William National Park in the northeast.

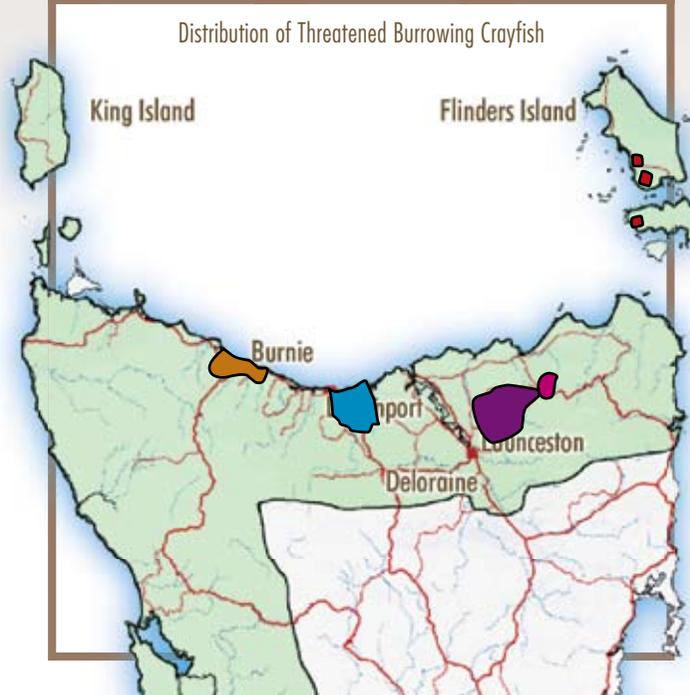
In contrast our threatened species have very limited distributions and within these locations the natural environment is being impacted adversely by human activities.



## THREATENED SPECIES

Of the 15 confirmed species of burrowing crayfish found in Tasmania, 13 are endemic and live nowhere else. Two we share with Victoria. The 5 threatened species of burrowing crayfish (BC) include:

- Scottsdale BC (*E. spinicaudatus*) – **Endangered**
- Furneaux BC (*E. martiginer*) – **Endangered**
- Central North BC (*E. granulatus*) – **Endangered**
- Mt. Arthur BC (*E. orramakunna*) – **Vulnerable**
- Burnie BC (*E. yabbimunna*) – **Vulnerable**



## THREATS

All of our burrowing crayfish are being impacted to some extent by human activities but, due to the limited ranges and localities of these threatened species, these effects are magnified.

They are at risk due to:

### AGRICULTURAL PROCESSES

- Stock grazing, which can break up & compact the soil particularly along stream banks
- Dam construction
- Clearance of streamside vegetation
- Ploughing and ripping



### FORESTRY ACTIVITIES

- Clearing
- Burning
- Conversion to plantation
- Disturbance to stream head-waters and seepage channels



### URBAN IMPACTS

- Waste management policies
- Waterway pollution
- Habitat removal



### HIGH INTENSITY FIRES

- Effects on vegetation
- Effects on habitat quality

### DRAINAGE & ROADING ACTIVITIES, RURAL AND URBAN

- Impacts on seepage/wetland/stream bank habitat quality
- Changes to water flow, quantity and quality
- Erosion and siltation effects

### INTRODUCED SPECIES SUCH AS MAINLAND YABBY

- Might carry parasites and diseases
- May prey on or compete with native crayfish for food and habitat

