# THREATENED SPECIES



# Freshwater Burrowing Crayfish

The freshwater burrowing crayfish (*Engaeus* sp.) is one of four groups of freshwater crayfish native to Tasmania. They are small with two prominent claws and a general body length under ten centimetres. They vary in colour from orange to reddish brown, grey-blue and purple. During the breeding season (late spring to summer) females carry large orange eggs and recently hatched young under their tail.

The other groups of freshwater crayfish in Tasmania are **Astocpsis** species (also known as the giant freshwater crayfish) which is entirely endemic to Tasmania, **Parastacoides** species and **Geocharax** species which are also found on the mainland.

Freshwater crayfish in Tasmania can be distinguished by the orientation and shape of their claw, the size of the grooves along their body and the location and number of spines on their body. The *Engaeus* species hold their claws more or less vertically (an adaptation to their burrowing habitat), whereas the three other groups of crayfish hold their claws more or less horizontally, as they do not burrow.

Occasionally they can lose a claw and can be seen with one claw notably smaller than the other. This is quite natural and they are able to regrow their missing appendage.

Fifteen species of *Engaeus* occur in Tasmania. Thirteen are endemic to Tasmania, meaning they do not occur anywhere else in the world. Four species have been listed as threatened at both a State and Commonwealth level and are now the focus of a five year recovery plan.

The small size of the burrowing crayfish and their unique burrowing habitat distinguish them from freshwater lobsters, which are significantly larger and live in river and creek beds, not burrows.

Yabbies do occur in Tasmania, but they are not native and can be harmful to the native freshwater crayfish. The introduced yabby has been declared a 'controlled fish' *Inland Fisheries Act* (1995).

# What do they live in?

The name burrowing crayfish comes from the fact that they dig and live in muddy burrows. The burrows can be simple and shallow or complex, deep and extensive, and can often be the product of several generations of crayfish families, digging activity.

Burrows may be directly connected to streams or lakes, may connect to the water table, or may simply rely on run-off to stay wet. From species to species the reliance on water availability and other environmental conditions does vary. Those burrowing crayfish relying solely on run-off are found only in Australia and are specific to *Engaeus* species. Due to their reliance on infrequent water, they are the most terrestrial of the world's freshwater crayfish. As a consequence, the dispersal of the *Engaeus* species through waterways is limited to when the water is flowing and has led to restricted ranges and large physical differences between local species.

The burrows can be distinguished by a chimney like peak where they come to surface. In sheltered areas the chimneys may reach up to 40 cm above ground level.

# Where are burrowing crayfish?

Tasmanian *Engaeus* species are mostly found in the north and west of the state, where they have distinct groups and sub-groups. The genus displays remarkable diversity given the relatively small geographic area over which they occur. The state is characterised by a jig-saw pattern of distinct and interlocking ranges for individual species of burrowing crayfish. Overlap between species does occasionally occur, but is not common.

Freshwater burrowing crayfish are believed to eat rotting wood, detritus, root material and occasionally animal material.

# Threats to freshwater burrowing crayfish

The four species of burrowing crayfish are of high conservation concern due to their severely restricted habitat ranges and the presence of actively threatening processes within these areas.



Threatening processes include those that affect water quality and quantity, soil and food (wood/plant) availability.

All crayfish are very susceptible to any alteration of their environment during mating, moulting, nurturing their young and at times when they venture to the surface.

Changes to crayfish habitat can be brought about through the following actions:

- agricultural processes including stock grazing (which churns and compacts soil), dam construction, clearance of riparian vegetation and ploughing;
- forestry activities (e.g. clearing, burning, conversion to plantation) which impose significant physical disturbance on stream headwaters and seepage channels (to which crayfish can show varying degrees of tolerance);
- general road and drainage activities (urban and nonurban) impacting on seepage/wetland/stream bank habitat quality, and any activities (e.g. alluvial mining) that degrade river bank integrity and enhance erosion.

## How can we help them?

Everyone can assist in protecting these unique and vulnerable creatures. Most importantly people working on the land can play a vital role in assisting the survival of the crayfish populations. The improvement of water quality, through the reduction of pollutants, pesticides and removal of pest species will assist in rejuvenating the burrowing crayfish populations. Maintaining and restoring riparian vegetation around streams and rivers and more simply, excluding stock access to stream sides, for at least part of the stream length, will create natural habitat for these creatures and allow the crayfish to regain a stronghold throughout Tasmania.

### **Protected creatures**

The National Parks & Wildlife Act 1973, protects all invertebrates found within national parks, state reserves, nature reserves and historic areas.

# Threatened freshwater burrowing crayfish

Not all burrowing crayfish species in Tasmania are threatened. However, some of those in the genus *Engaeus* are threatened due to habitat disturbance, and can only be found in very small and specific sites in northern Tasmania. Some of the threatened species are outlined below.

### Mt Arthur burrowing crayfish

Engaeus orramakunna

Distributed around Mt Arthur, Lilydale, Nabowla and possibly to Launceston.Vulnerable status.

### Scottsdale burrowing crayfish

Engaeus spinicaudatus

Found north of Scottsdale, in an area containing only some four square kilometres of suitable habitat. Endangered status.

#### Burnie burrowing crayfish

Engaeus yabbimunna

They can be found extending from Burnie to the west covering about 130 km<sup>2</sup>. The species has only been known since 1992, when discovered in the Burnie Park, and has since been sited in Seabrook Creek and other catchments to the west of Burnie.Vulnerable status.

### Furneaux burrowing crayfish

Engaeus martigener

Previously known only from isolated locations at higher altitude on Mt Strzlecki and the Darling Ranges on Flinders Island and Mt Munro on Cape Barren Island. Vulnerable status.

### **Further information**

Biodiversity Conservation Branch: DPIPWE Phone: (03) 6233 6556 Fax: (03) 6233 3477

Bryant & Jackson (1999), Tasmania's Threatened Fauna Handbook Threatened Species Handbook, Parks & Wildlife Service.



Department of Primary Industries, Parks, Water and Environment