

Primefact

Terrestrial Crayfish – *Euastacus maccai*

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DPIRD Fisheries, Threatened Species Unit

Introduction

The Terrestrial Crayfish (*Euastacus maccai*) is a medium-sized freshwater crayfish endemic to the highland regions of northern New South Wales. Unlike most crayfish, this species occupies burrows that are not connected to surface streams, instead accessing subsurface groundwater beneath terrestrial vegetation.



Figure 1 Terrestrial Crayfish (Rob McCormack)

The Terrestrial Crayfish is considered a short-range endemic, restricted to upland areas between 850–1,400 m elevation. Parts of its range fall within protected areas including Werrikimbe National Park, Mummel Gulf National Park, Enfield, Riamukka and Nundle State Forests.

Its highly specialised habitat, extremely limited distribution, and sensitivity to environmental change place it at significant risk.

Heavy penalties apply for harming, possessing, buying or selling this species, or damaging its habitat (see ‘Legal implications’).

Description

The Terrestrial Crayfish is a medium-sized *Euastacus* species with:

- The Terrestrial Crayfish has been documented to reach a maximum 57 mm occipital carapace length and weighs up to 100g.
- Brown to black dorsal colouration and pale ventral surfaces
- Reddish-brown claws with orange-tipped spines

Identification of *Euastacus* species is technically challenging due to subtle morphological differences, often involving the number and arrangement of spines or grooves. Detailed diagnostic features are provided in McCormack & Coughran (2008).

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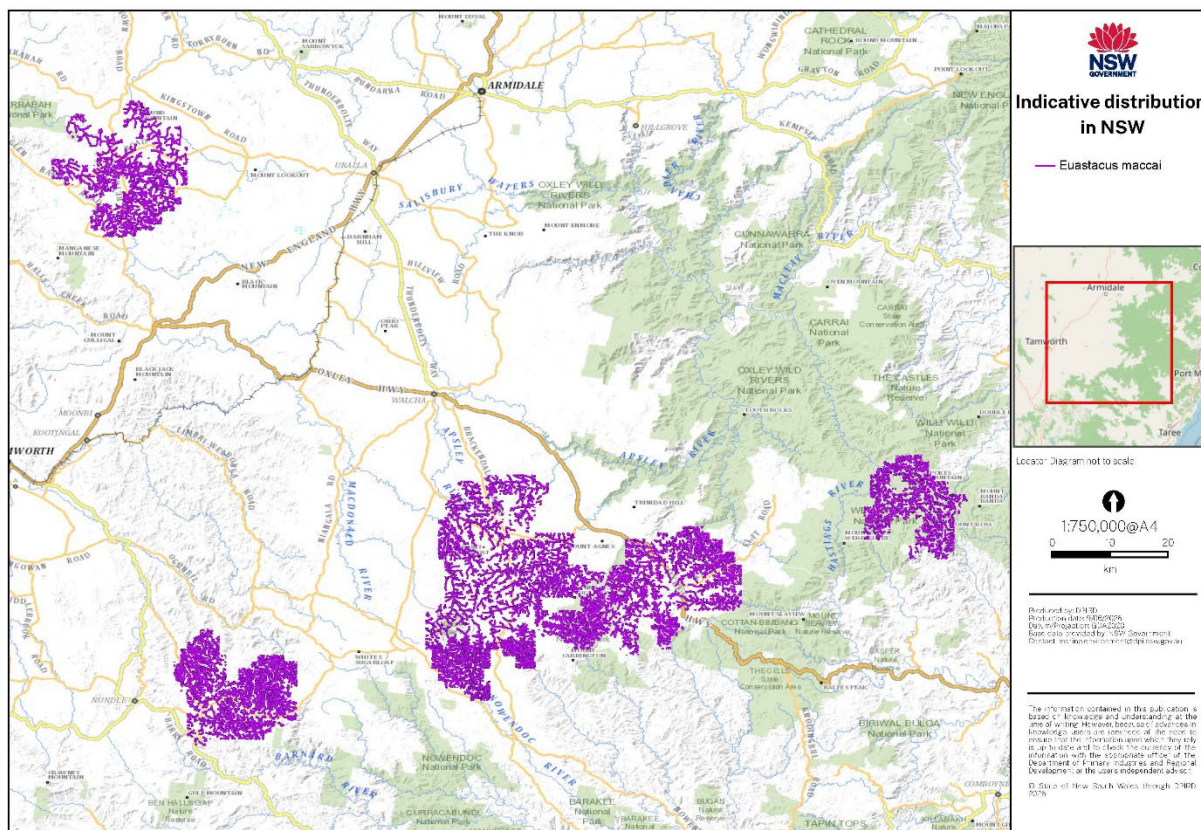


Figure 2 Indicative distribution of the Terrestrial Crayfish based on survey records and predicted occurrence and expert opinion.



Figure 3 Terrestrial Crayfish (Rob McCormack)

Habitat and ecology

The Terrestrial Crayfish inhabits terrestrial burrows that extend down to groundwater but do not connect to surface water. These burrows occur in:

- Ephemeral soaks
- Floodplains
- Spring-fed swampy areas
- Cow paddocks and upland flats



Figure 3 Terrestrial Crayfish habitat (Rob McCormack)

The species occupies the uppermost reaches of several subcatchments, where cooler temperatures and stable subsurface moisture are essential. Its distribution is patchy and confined to high-elevation environments. Although the biology of the Terrestrial Crayfish is poorly known, the species is expected to share traits common to other *Euastacus*:

- Slow growth, often only a few mm OCL per year
- Long lifespan, potentially several decades
- Late maturity, with females likely maturing at 45–50 mm OCL
- Low fecundity, typical of upland *Euastacus* species
- Limited dispersal ability, making recolonisation unlikely after disturbance

The species is presumed to be omnivorous, feeding on detritus, plant material and small invertebrates.

Why is the Terrestrial Crayfish threatened?

The highly restricted distribution of this species puts all individuals in the population at considerable risk of extirpation by a single

stochastic event, impacting the species across its very small range. The primary threats include:

- Increasing average environmental temperatures associated with climate change.
- Extreme weather events reduce groundwater availability, cause mortality, and alter soil moisture regimes essential for burrow stability
- Increase in frequency, severity and magnitude of bushfires
- Hydrological changes, such as altered rainfall patterns and lower groundwater tables reduce the availability of suitable burrowing habitat.
- Invasive species and disease.
- Illegal collection
- Livestock farming

Conservation and recovery actions

- Implement education initiatives to improve the identification and awareness of the protected status of Terrestrial Crayfish.
- Compile existing information to identify knowledge gaps on biology, ecology and life history as well as associated threats.
- Establishment of population monitoring programs to identify the distribution, and new subpopulations of the species.
- Fire management planning to reduce risk to key habitat
- Protection of high elevation groundwater dependent ecosystems.

Legal implications

Under the *NSW Fisheries Management Act 1994*, it is an offence to buy, sell, possess or harm a Terrestrial Crayfish (or any other threatened species in NSW) without a specific permit, licence or approval, and significant penalties apply. For Endangered species, these penalties can include fines of up to \$220,000 and up to two years in prison.

There can also be significant penalties for causing damage to the habitat of a threatened species without approval.

The impacts 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 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 the Terrestrial Crayfish must be set out in the NSW DPIRD Priorities Action Statement.

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Further information

For further information see the NSW DPIRD website:
www.dpi.nsw.gov.au

Contact the NSW DPIRD Threatened Species Unit:
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