

Inland Yabby (*Cherax destructor*) Illustration, Geoff Thompson

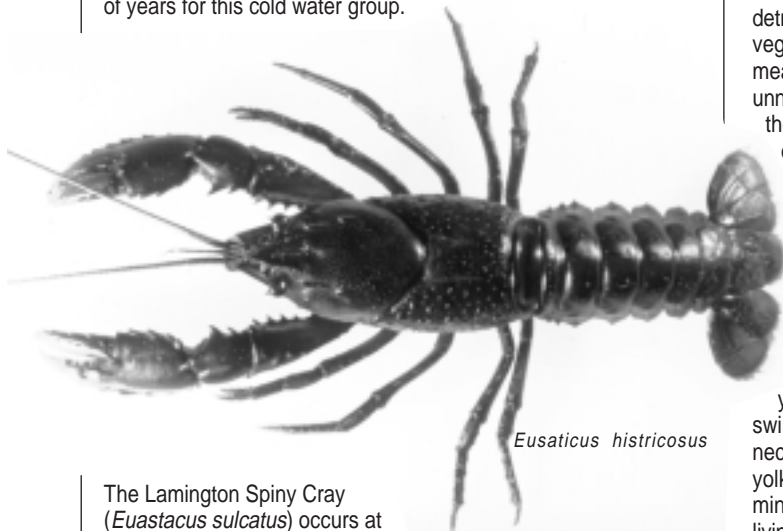
## Introduction

Over 100 species of freshwater crayfish (family Parastacidae) are known from Australia. More than 20 of these are native to Queensland, including the smallest species in the world, the Swamp Crayfish (*Tenuibranchiurus glypticus*), which reaches little over 25 mm in length. Several Australian crayfish grow to a very large size. The giant Tasmanian crayfish, *Astacopsis gouldi*, reaches approximately 4.5 kg in weight and is the world's largest freshwater crayfish.

All known Queensland species belong to three genera: *Cherax* (Smooth Freshwater Crayfish or Freshwater Yabbies), *Euastacus* (Spiny Freshwater Crayfish) and *Tenuibranchiurus* (Swamp Crayfish, mentioned above).

## Spiny Freshwater Crayfish

Spiny crays (*Euastacus*) are restricted to eastern Australia. In Queensland they are mainly found in the high altitude mountain streams of the rainforest areas along the Great Dividing Range. Species in the tropical north are restricted to much higher altitudes (above 800 m) than those in southern Queensland (several occur below 300 m). It appears that mountain tops have provided a refuge from climatic variation over many millions of years for this cold water group.



*Eusaticus histicosus*

The Lamington Spiny Cray (*Euastacus sulcatus*) occurs at altitudes above 300 m in subtropical rainforests of the Lamington Plateau, McPherson Range, Cunningham's Gap, Mistake Mountains and Mt Tamborine. The typical colour form, restricted to the Lamington Plateau, is bright blue or blue-green with patches of white on the carapace and red connective tissue on the joints. To the south and west of its range, red or brown colour forms predominate.

## Smooth Freshwater Crayfish

Species of the genus *Cherax* are commonly referred to as 'Yabbies' or 'Lobbies'. They can be distinguished from spiny crays (*Euastacus*) by the smoother body and claws (few spines or tubercles), and are widely distributed in Australia and southern New Guinea. Approximately 10 species are currently known from Queensland. The Inland Yabby (*C. destructor*) is an extremely hardy species, surviving in a wide range of habitats over almost one-third of Australia. In Queensland, its natural distribution is west of the Great Dividing Range, apart from the Dawson River catchment. It has also been introduced into the Brisbane River catchment.

## Swamp Crayfish

The sole member of the genus *Tenuibranchiurus* differs from all other freshwater crayfish in Queensland by its tiny size (fully grown at 25 mm) and by the arrangement of its nippers. They open and close vertically rather than horizontally or obliquely.

## Biology

Freshwater crayfish are bottom-dwelling opportunistic scavengers. A large part of their diet consists of rotting leaves and other plant detritus. In captivity, they can be fed a wide variety of foods including vegetables, fish food and chicken pellets. Although chunks of raw meat are readily accepted, large amounts of animal protein are unnecessary and more likely to foul the water. In aquaria, they have the unfortunate habit of damaging plants with their claws, but otherwise make interesting pets. Slow moving ornamental fish such as goldfish are also easy prey and should not be housed with crayfish.

The life-cycle of freshwater crayfish is very different from their distant marine relatives. In marine crayfish and lobsters, newly hatched eggs are released into the sea as planktonic larvae, whereas freshwater crayfish hatchlings continue to develop on the swimmerets under the female's abdomen. The yolk of the egg is retained by the young hatchlings as a yolk sac, supplying food during early growth. The mother's swimmerets move gently to provide a supply of well-aerated water necessary for the survival of the developing young. Only when the yolk sac has been completely absorbed and the young resemble miniature adults, do they leave the mother and commence free-living. The period of maternal care varies between species: Murray Lobsters (*Euastacus armatus*) may carry their young for 1 to 2 months; Marron (*Cherax tenuimanus*) for 4 weeks; and Inland Yabbies (*C. destructor*) for only 10 days. Breeding and growth periods are usually seasonal, with a peak in spring/summer. The length of the season varies between species and from one locality to another.

Most Australian freshwater crayfish construct some form of burrow, to be used as shelter from predators, or into which they retreat with the onset of unfavourable conditions. The Swamp Crayfish (*Tenuibranchiurus glypticus*) inhabits poorly drained areas with limited standing water in summer and which seasonally dry up in winter. A large period of the year is spent below ground in elaborate community burrows that may extend over 1.5 m below the surface. Many species of *Cherax* can also survive dry spells by burrowing down to ground water until the next rains. The extensive burrows of *Cherax destructor* cause damage to farm dams, retaining walls and irrigation channels.

#### **Crayfish as food**

Throughout Europe, freshwater crayfish have long been regarded as a fine food source. In Sweden they are virtually a national food and eating crayfish is part of an annual crayfish festival. In southern USA, and particularly the State of Louisiana, crayfish (known locally as crawfish or crawdad) are the base of a number of southern recipes; gumbo and jambalaya being two of the best known.

In southern Western Australia there is a highly regulated amateur fishery for the Marron (*Cherax tenuimanus*), which has been rated by gourmets as one of the finest-flavoured crustaceans. The Inland Yabby (*Cherax destructor*) is commercially fished in New South Wales, Victoria and South Australia.

Farming of Australian freshwater crayfish began with Marron and Inland Yabbies. Over the last decade the Redclaw (*Cherax quadricarinatus*), a species native to northern tropical Australia, has risen to prominence as an aquaculture species, both in Queensland and internationally. Redclaws were originally found no further south than the Normanby River system on the eastern coast, but they have been widely translocated for use in farm dams and have been introduced into a number of reservoirs, such as Lake Tinaroo, the Burdekin Dam and Lake Samsonvale. However, under the Fisheries (Freshwater) Management Plan 1999 it is now unlawful to release Redclaws outside their natural range in Queensland (rivers flowing into the Gulf of Carpentaria and north-eastern Cape York Peninsula). Further details are available in a brochure released recently by the Queensland Fisheries Management Authority and the Department of Primary Industries.

Freshwater crayfish have a much milder flavour than saltwater prawns; their flesh is soft with a high moisture content (75-80%) and freezing for any length of time may cause a loss of taste and texture.

The most common 'yabby' recipe is exceedingly simple: 'Boil for a few minutes in salty water, then serve with bread and butter'. Vinegar, lemon, wine, or beer are often used as additives.

#### **Classification and world distribution**

Freshwater crayfish, like the commercially-important European and American marine lobsters (family Nephropidae), have large, strong nippers on their first legs. The familiar Australian marine crayfish (family Palinuridae) belong to a different group without nippers.

There are two superfamilies of freshwater crayfish - the Astacoidea or 'northern hemisphere freshwater crayfish', and the Parastacoidea or 'southern hemisphere freshwater crayfish'. The Astacoidea are found in the rivers and streams of Europe, northern Asia, Japan and North America. Members of the Parastacoidea are found in Australia, Madagascar, South America, New Guinea and New Zealand. The two superfamilies differ in some aspects of their appearance and in embryological development. It is interesting that no crayfish occur naturally in the freshwaters of Central America, South-East Asia, India, or the whole of the African continent. Except for New Guinea, the tropics are devoid of crayfish from lat. 10° N to lat. 10° S.

#### **Further Information**

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