

# Freshwater Fish, Crayfish and Turtles of North East Victoria An Identification and Conservation Guide

Victoria's freshwater environments encompass approximately 85,000 kilometres of streams, rivers and creeks as well as 16,700 wetlands covering 541,000 hectares. Unfortunately many native freshwater fish, crayfish and turtle species in Australia are now threatened. These species are declining due to habitat degradation, reduced water quality, barriers to movement, and predation by and competition with introduced species. See inside this brochure for ways to help conserve native freshwater fish, crayfish and turtles. Please refer to the Victorian Recreational Fishing Guide for the legal requirements on fishing from these waters.

## Species Status

# Member of the threatened Lowland Riverine Fish Community of the southern Murray-Darling Basin, Victorian *Flora and Fauna Guarantee Act 1988*

NE Species listed nationally as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

NV Species listed nationally as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

L Species listed as Threatened under the Victorian *Flora and Fauna Guaranteed Act 1988*

Department of Environment, Land Water and Planning –  
(2007) **Advisory List of Threatened Vertebrate Fauna in Victoria**  
(2009) **Advisory List of Threatened Invertebrate Fauna in Victoria**

CR: Critically Endangered EN: Endangered NT: Near threatened VU: Vulnerable  
DD: Data deficient NAS: Species declared as a Noxious Aquatic Species under the Victorian *Fisheries Act 1995* TN: Native species translocated outside of its natural range

**Size:**  
**Fish** - Approximate length from tip of snout with mouth closed, to tip of tail (cm)  
**Crayfish** - Approximate length from the rear of the eye socket to the nearest part of the rear edge of the carapace (main body shell) (cm)  
**Turtle** - Approximate length of the carapace (top of the shell) (cm)

## Guide to colour symbols

- **Rivers:** species commonly found in rivers.
- **Wetlands:** species commonly found in wetlands.
- **Angling:** species commonly caught for recreational or commercial fishing purposes.
- **Migration:** species undergo migration during their life cycle.

## Websites:

Department of Environment, Land Water and Planning [www.delwp.vic.gov.au](http://www.delwp.vic.gov.au) (search for the 'Conserving Threatened Species & Communities', 'Freshwater Ecosystems', 'Victorian Biodiversity Atlas' and 'Arthur Rylah Institute' web pages)  
Victorian Fisheries [vfa.vic.gov.au](http://vfa.vic.gov.au)  
VRFish [www.vrfish.com.au](http://www.vrfish.com.au)  
Murray-Darling Basin Authority [www.mdba.gov.au](http://www.mdba.gov.au)  
Victorian Recreational Fishing Guide Search: Victorian Recreational Fishing Guide  
VRFish Recreational Fishing Code of Conduct Search: VRFish Code of Conduct

## For more information:

Department of Environment, Land Water and Planning: [www.delwp.vic.gov.au](http://www.delwp.vic.gov.au)  
Wangaratta: (03) 5723 8600 Wodonga: (02) 6043 7900  
Benalla: (03) 5761 1611 Arthur Rylah Institute: (03) 9450 8600  
**North East Catchment Management Authority:** [www.necma.vic.gov.au](http://www.necma.vic.gov.au)  
Local Call: 1300 216 513  
**Goulburn Broken Catchment Management Authority:** [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au)  
Shepparton: (03) 5820 1100  
**Murray-Darling Basin Authority:** [www.mdba.gov.au](http://www.mdba.gov.au)  
Canberra: (02) 6279 0100

## Acknowledgements:

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# Freshwater Fish, Crayfish and Turtles

of North East Victoria



An Identification and Conservation Guide



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## Native Fish



**Murray Cod**  
*Maccullochella peelii*  
# NV L EN  
Commonly 45 - 65 cm (JL)  
■ ■ ■



**Trout Cod (Bluenose Cod)**  
*Maccullochella macquariensis*  
# NE L CR  
Commonly 40 - 50 cm (JL)  
■ ■ ■



**Golden Perch**  
*Macquaria ambigua*  
# VU  
Commonly 25 - 45 cm (JL)  
■ ■ ■



**Macquarie Perch**  
*Macquaria australasica*  
# NE L EN  
Commonly 25 - 35 cm (JK)  
■ ■ ■



**Silver Perch**  
*Bidyanus bidyanus*  
# L CR  
Commonly 30 - 45 cm (GS)  
■ ■ ■



**Freshwater Catfish**  
*Tandanus tandanus*  
# L EN  
Commonly 30 - 45 cm (GS)  
■ ■ ■

## Native Fish



**River Blackfish**  
*Gadopsis marmoratus*  
#  
Commonly 20 - 25 cm (GS)  
■ ■ ■



**Two-spined Blackfish**  
*Gadopsis bispinosus*  
Commonly < 20 cm (GS)  
■ ■



**Short-finned Eel**  
*Anguilla australis*  
TN  
Commonly 70 cm (TR)  
■ ■ ■ ■



**Short-headed Lamprey**  
*Mordacia mordax*  
Commonly 30 - 40 cm (TR)  
■ ■



**Southern Pygmy Perch**  
*Nannoperca australis*  
Commonly 4 - 6 cm (GS)  
■ ■



**Murray-Darling Rainbowfish (Crimson-spotted Rainbowfish)**  
*Melanotaenia fluviatilis*  
# L DD  
Commonly 5 - 7 cm (GS)  
■ ■

## Native Fish



**Flat-headed Gudgeon**  
*Philypnodon grandiceps*  
#  
Commonly 8 cm (TR)  
■ ■ ■



**Dwarf Flat-headed Gudgeon**  
*Philypnodon macrostomus*  
Commonly < 4 cm (TR)  
■ ■



**Carp Gudgeon Complex**  
*Hypseleotris* spp.  
#  
Commonly 3 - 5 cm (GS)  
■ ■



**Bony Herring (Bony Bream)**  
*Nematolosa erebi*  
#  
Commonly 10 - 20 cm (GS)  
■



**Australian Smelt**  
*Retropinna semoni*  
Commonly 4-7 cm (TR)  
■ ■ ■



**Unspecked Hardyhead**  
*Craterocephalus strecusmuscarum fulvus*  
# L DD  
Commonly 5 - 7 cm (GS)  
■ ■

## Native Fish



**Climbing Galaxias (Broad-finned Galaxias)**  
*Galaxias brevipinnis*  
TN  
Commonly 15 cm (NA)  
■ ■



**Barred Galaxias**  
*Galaxias fuscus*  
NE L CR  
Commonly 7 - 9 cm (TR)  
■



**Mountain Galaxias**  
*Galaxias olidus*  
Commonly 8 cm (TR)  
■ ■



**Flat-headed Galaxias**  
*Galaxias rostratus*  
# VU  
Commonly < 10 cm (TR)  
■ ■ ■



**Obscure Galaxias**  
*Galaxias* sp. 1  
Commonly 8 - 9 cm (TR)  
■ ■



**Riffle Galaxias**  
*Galaxias* sp. 2  
Commonly 6 - 7 cm (TR)  
■



## Introduced Fish

## Introduced Fish

## Crayfish

## Turtles



**Rainbow Trout**  
*Oncorhynchus mykiss*  
Commonly < 60 cm, < 5 kg (NA)



**Brown Trout**  
*Salmo trutta*  
Commonly < 90 cm, < 8 kg (NA)



**Atlantic Salmon**  
*Salmo salar*  
Commonly 1 – 3 kg (KHA)



**Brook Char**  
*Salvelinus fontinalis*  
Commonly 80 – 85 cm (NA)



**Redfin Perch**  
*Perca fluviatilis*  
Commonly 40 cm, < 2.5 kg (GS)



**Common Carp**  
*Cyprinus carpio*  
NAS  
Max. 120 cm (JL)



**Goldfish**  
*Carassius auratus*  
Commonly 20 cm (JL)



**Oriental Weatherloach**  
*Misgurnus anguillicaudatus*  
NAS  
Max. 25 cm, commonly < 19 cm (GS)



**Eastern Gambusia**  
*Gambusia holbrooki*  
NAS  
Max. 6 cm (TR)



**Tench**  
*Tinca tinca*  
Commonly 10 - 30 cm (TR)



**Roach**  
*Rutilus rutilus*  
Commonly 15 - 20 cm (GS)



**Central Highlands Spiny Crayfish**  
*Euastacus woiwuru*  
Max. 7 cm, commonly 4 - 5 cm (TR)



**Murray Spiny Crayfish**  
*Euastacus armatus*  
L NT  
Max. 15 cm (GS)



**Alpine Spiny Crayfish**  
*Euastacus crassus*  
L EN  
Max. 6 cm (TR)



**Yabby**  
*Cherax destructor*  
Commonly 9 - 11 cm (GS)



**Barmah Swamp Yabby**  
*Cherax sp. nov.*  
Max. 12 cm, commonly 9 – 10 cm (TR)



**Upland Burrowing Crayfish**  
*Engaeus lyelli*  
Max. 4 cm (TR)



**North-eastern Burrowing Crayfish**  
*Engaeus cymus*  
Max. 4 cm (NA)



**Central Highlands Burrowing Crayfish**  
*Engaeus affinis*  
Max. 4 cm (TR)



**Common Long-necked Turtle**  
*Chelodina longicollis*  
Max. 30 cm, commonly < 25 cm (KW)



**Broad-shelled Turtle**  
*Chelodina expansa*  
L EN  
Max. 46 cm (KH)



**Murray River Turtle**  
*Emydura macquarii*  
DD  
Max. 32 cm (KW)

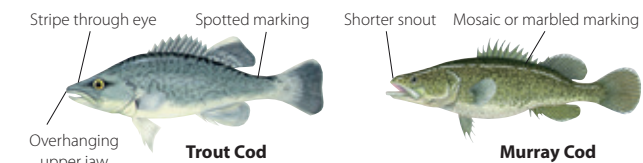


## Declining native freshwater fish, crayfish and turtle communities

Victoria's freshwater environments support a rich variety of animals and plants which require specific environmental conditions for their survival. Unfortunately many native freshwater fish, crayfish and turtle species in Australia are now threatened. Under the *Flora and Fauna Guarantee Act 1988*, the Lowland Riverine Fish Community of the southern Murray-Darling Basin is listed as a threatened ecological community. Thirteen of the fifteen fish species from that community are found in northeast Victoria and are shown in this brochure.

## Why are native freshwater fish, crayfish and turtle numbers declining?

- Flow regulation**  
Dams, weirs and water extraction alter natural flow regimes and effect flow volume, velocity and natural flow variation. Flow regulation impacts water quality and the diversity and availability of in-stream habitats for fish, crayfish and turtles. Many native fish species rely on natural seasonal flow regimes as a cue for migration and spawning.
- Habitat degradation**  
Includes removing in-stream woody debris (de-snagging) and rocks, clearing of river bank vegetation, river bank realignment and erosion resulting from negative human-induced changes, and weed invasion and competition e.g. willow, blackberry and aquatic weeds.
- Reduced water quality**  
Inputs of nutrients e.g. artificial fertiliser run off and excess stock excrement, sediments, salinity, pesticides and other chemicals, as well as artificial changes in water temperature can adversely affect the health and survival of fish, crayfish and turtles.
- Barriers to fish passage**  
Physical barriers such as dams, weirs, culverts and road-crossings, and non-physical barriers such as increased flow velocities, reduced habitats and water quality can prevent fish, crayfish and turtle movement between habitats and limit their movement between populations.
- Introduced species**  
Freshwater fish species have been introduced into Victoria for recreational angling, ornamental trade and biological control purposes. While some introduced freshwater fish are important angling species, many predate on native species and/or compete with native species for habitat, food and other resources. Some can also introduce and spread new diseases, viruses and parasites. Certain introduced species are classified as noxious. Introduced foxes harm turtle populations by preying on turtle eggs and nesting adults.
- Disease**  
The outbreak and spread of diseases, viruses and parasites can impact the health of fish, crayfish and turtle populations.
- Exploitation and illegal fishing**  
Illegal commercial and recreational take and over fishing contribute to the decline of fish populations. Turtles can become trapped and drown in illegal fishing nets and may get caught on illegal set lines.
- Loss of genetic diversity**  
Illegal and uninformed stocking and translocation of fish species can negatively affect the genetic integrity and fitness of wild populations.
- Road kill**  
Turtles are often hit by motor vehicles when crossing roads.



Distinguishing features of Trout Cod and Murray Cod (VF)

## You can help

To help conserve Victoria's freshwater fish, crayfish and turtles you can:

- Join a local community group** such as an angling club, Landcare, Friends of, or environmental group or club; adopt a stream and protect the environment.
- Submit records** to the Victorian Biodiversity Atlas of fish, crayfish and turtles you have seen or captured, especially tagged fish and rare species.
- Fish responsibly:** adhere to fishing regulations, e.g. closed seasons and bag, gear and size limits; practice catch and release fishing with minimal handling; use barbless hooks. Refer to the Victorian Recreational Fishing Guide Code of Conduct. Return all captured turtles safely to the water.
- Keep your boat and fishing gear clean, dispose unwanted live bait in a bin and never return noxious aquatic species to the water** to prevent the introduction and spread of noxious aquatic species.
- Be a responsible pet owner** and never flush or dump unwanted pet fish, crayfish or turtles in waterways.
- Report illegal fishing - call 13 FISH (133 474).**
- Spread the word, join in discussions** – use positive messages to educate others about conserving native fish, crayfish and turtles and their habitat.



A tagged Golden Perch (JL). Research agencies and organisations tag and release fish to obtain information about their distribution, growth, movement and exploitation. Compiling this information contributes to the management of waterways to ensure fish populations and communities are healthy and self-sustaining. If you capture a tagged fish, please record the tag number, date, time, location, length, weight and name of the species caught, and phone the contact number on the tag.

## Tips for adjacent land holders and managers of rivers and wetlands

- Protect and rehabilitate native riparian vegetation** including weed control, to stabilise river banks, reduce nutrient and sediment loads into waterways, and enhance fish habitat. Revegetate areas with locally endemic plants.
- Protect and restore diverse in-stream habitats** such as logs, native aquatic vegetation, pools and riffles to provide refuges, food sources and spawning sites for fish, crayfish and turtles.
- Maintain or reinstate natural flow regimes** as far as possible, to benefit fish populations and re-connect aquatic habitats such as floodplain wetlands to rivers.
- Restrict or manage stock access and grazing** by fencing off freshwater environments and providing alternative water sources.
- Remove barriers or install fishways** to provide fish passage.
- Apply for grants** to support waterway habitat improvement activities for example, through your local Catchment Management Authority or the Victorian Recreational Fishing Grants Program.
- Gain further knowledge and ideas:** Refer to further information and contacts on the back of this brochure.



Riparian revegetation helps restore fish habitat (SR)

Fishways allow fish to move around barriers such as weirs (JO)