

Threatened Fish Species



Southern pygmy perch
Nannoperca australis

INTERNATIONAL	NT
NATIONAL	VU
NSW	EN
SA	CR PR
VIC	TH

Southern pygmy perch is a small laterally compressed fish, with a small mouth, reaching 60mm (maximum size is 85mm). Prefers slow-flowing or still water with dense aquatic vegetation. Usually found in streams, channels and billabongs.

Diet consists mainly of zooplankton and small insect larvae. Spawning occurs from spring to early summer when water temperatures reach 16°C. Maturity is generally reached in the first 12 months. This species may live up to five years. Females produce up to 4,200 round, transparent and non-adhesive eggs, which are scattered on aquatic vegetation.

Formerly known to occur in the Murray and lower Murrumbidgee catchments, is now thought to have disappeared from most locations in New South Wales and is patchily distributed from the Broken, Ovens, Campaspe, Goulburn, Kiewa, Mitta Mitta, Loddon and Wimmera basins.



Southern purple-spotted gudgeon
Mogurnda adspersa

INTERNATIONAL	LC
NATIONAL	NL
NSW	EN
SA	CR PR
VIC	TH

Purple-spotted gudgeon is an attractive fish growing to 120mm (maximum size is about 150mm). The species inhabits rivers, creeks and billabongs, and is usually found in quiet or slow-flowing sections over rocks or among vegetation.

Diet consists of small fish, aquatic invertebrates, worms and tadpoles. Spawning occurs in summer when water temperatures exceed 20°C. Females deposit several batches of adhesive eggs on rocks, logs or solid surfaces, and the male guards and fans the eggs.

The species has significantly declined in the Murray Darling Basin. Threats include predation from alien species such as trout, redfin and eastern gambusia, habitat alteration, cold water pollution, changes to flow and climate change.



Flat-headed galaxias
Galaxias rostratus

INTERNATIONAL	CR
NATIONAL	CR
NSW	CR
SA	EW
VIC	TH VU

Flat-headed galaxias are small, slender bodied fish with a flattened head that reaches 80mm length (maximum is about 146mm). They are found in still or slow-flowing water on the margins of lakes, billabongs and streams. The species usually swims mid-water over rock and sandy substrates and is often found close to, or among, aquatic plants.

Predominately feeds on aquatic insects and micro-crustaceans. Spawning occurs from late winter to early spring when temperatures reach 9-14°C. It is not known if the species migrates for spawning. Individuals mature within their first year. Eggs are round and slightly adhesive and are scattered randomly to the substrate.

Historically, this species was common to the southern Murray-Darling Basin. Possible threats include competition with and predation by introduced species such as redfin, trout and eastern gambusia, river regulation, cold water pollution, in-stream barriers and climate change.



Olive perchlet
Ambassis agassizii

INTERNATIONAL	LC
NATIONAL	NL
NSW	EN
SA	CR PR
VIC	REGIONALLY EW

Olive perchlet is a small, semi-transparent wetland specialist species that inhabits rivers, creeks, ponds and swamps. It was once widespread throughout the Murray Darling basin but has suffered large-scale decline.

Olive perchlet feed on a range of zooplankton and aquatic and terrestrial insects. They are usually found in slow-flowing or still waters, in sheltered areas such as overhanging vegetation, aquatic macrophyte beds, logs and dead branches. Spawning occurs from October to December, when water temperatures increase to approximately 23°C. Females lay up to 700 eggs, attached to aquatic plants and rocks on the streambed.

Key threats include predation by eastern gambusia and redfin, habitat degradation particularly loss of aquatic plants from carp and water regulation, cold water pollution, water level fluctuations and climate change.



Murray hardyhead
Craterocephalus fluviatilis

INTERNATIONAL	CR
NATIONAL	EN
NSW	CR
SA	CR
VIC	TH

Historically common in lowland areas of the Murray-Darling Basin, the species is now only known from less than 10 sites throughout its former range. Spawning generally occurs over an extended breeding season, most commonly from spring to early autumn. Individuals only spawn once in their lifetime and die soon after spawning. Lays adhesive eggs which are approximately 1.5mm in diameter on submerged aquatic vegetation.

Primarily eats micro-crustaceans, some aquatic insects, and algae. The reasons for its dramatic decline are unknown, but it is suspected that habitat degradation, river regulation, and the impacts of alien species, eastern gambusia, are contributing threats.

The Murray hardyhead is one of the most salt tolerant fish species found within inland Australia, adults having been found in waters that were one and a half times the salinity of sea water.



Yarra pygmy perch
Nannoperca obscura

INTERNATIONAL	EN
NATIONAL	VU
NSW	CR
SA	CR
VIC	TH

Yarra pygmy perch is a small (~75mm), gold to dusky brown coloured fish, with a pointed head, small mouth, slightly rounded tail and single deeply notched dorsal fin. While also found in coastal areas from western Victoria through to south-eastern SA, the only MDB population is found in the lower reaches of the Murray River system in SA. It occurs in patchily in slower flowing habitats within drainage channels and wetlands, usually with an abundance of submerged aquatic vegetation, and often alongside southern pygmy perch.

It breeds in spring when water temperatures are 16-24°C, and its diet consists of microcrustaceans, molluscs and aquatic insects.

Key threats include river regulation, loss of aquatic vegetation, interactions with introduced species, namely redfin perch and eastern gambusia, and climate change.



Enhancing Farm Dams

for conservation of threatened floodplain specialist fish of the Murray-Darling Basin



The 'Magnificent Six' is a group of threatened floodplain specialist fish on the brink of extinction in the southern Murray-Darling Basin. These species are southern pygmy perch, Yarra pygmy perch, southern purple-spotted gudgeon, Murray hardyhead, olive perchlet and flat-headed galaxias.

Reasons for their decline include:

- Altered flow regimes, reduced connectivity with the floodplain, and loss of permanent floodplain wetland habitat.
- Habitat destruction, especially loss of aquatic plants
- Climate change and drying of wetlands during the Millennium Drought
- Predation by, and competition with, pest fish species such as European carp, redfin perch, eastern mosquitofish.

The 'Magnificent Six' can survive and breed in permanent farm dams, provided that the habitat is suitable, and key threatening processes are addressed.

Creating suitable habitat for threatened fish can also:

- Benefit on-farm biodiversity (e.g., create habitat for frogs, insects, and water birds)
- Reduce evaporation loss.
- Improve stock water quality.
- Sequester carbon.

Native fish in farm dams can also control mosquitos and provide a source of food for waterbirds.

Fish habitat in farm dams

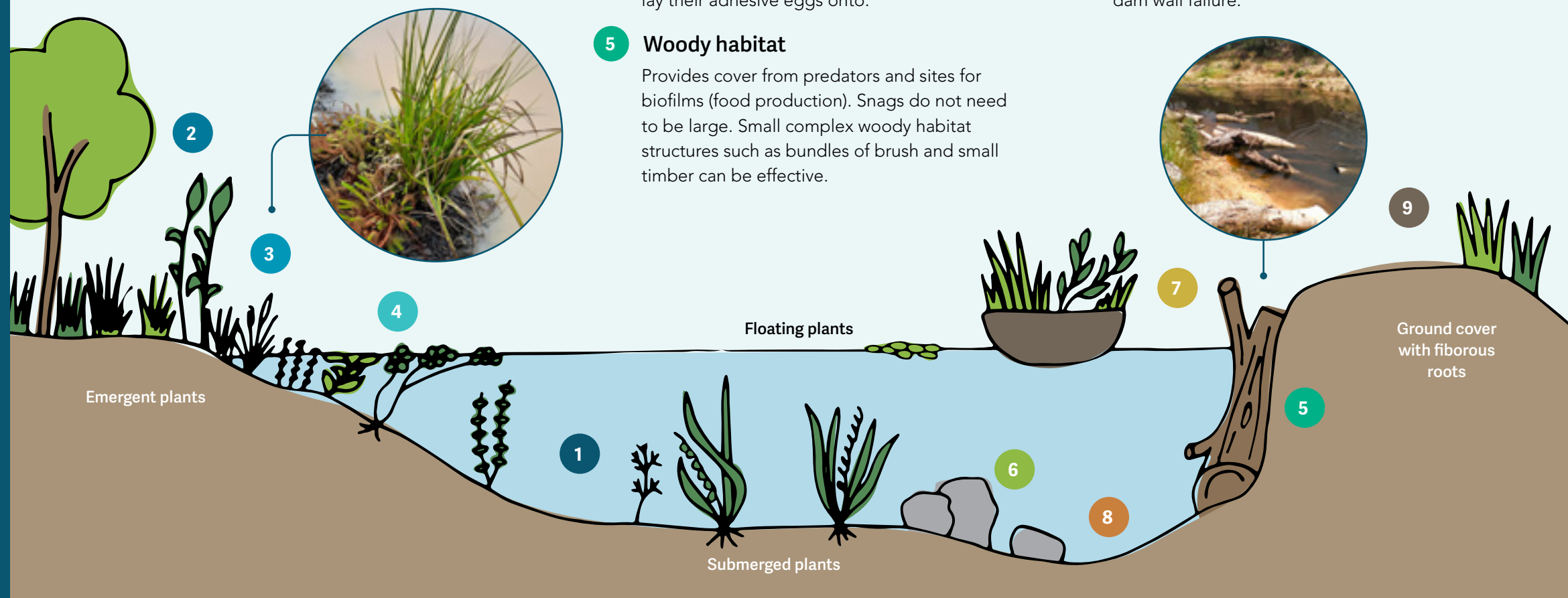


Managing farm dams for native fish includes managing the dam's surrounding catchment. See the [NSW Farm Dam Handbook](#)

([watersnsw.com.au](#) or scan the QR) for a comprehensive guide for managing the catchment zone, shelterbelt zone, and filter zone surrounding the farm dam.

Consider removing pest fish from an existing dam before stocking with native fish (e.g. through drying then re-filling).

Use the following guidelines for additional farm dam enhancements that will support threatened floodplain specialist fish.



1 Range of depths

Benches that wet and dry promote aquatic plant growth and food (zooplankton) production for juvenile fish.

2 Riparian vegetation

Provides shade and input of carbon (leaves, branches). Carbon is the start of the food chain in aquatic ecosystems.

3 Emergent vegetation surrounding the dam

Provides habitat and shelter and buffers wave action, reducing sediment re-suspension from the wetland's edges.

4 Submerged and floating macrophytes

Provide critical habitat for floodplain specialist fish. Some species also need aquatic plants to lay their adhesive eggs onto.

5 Woody habitat

Provides cover from predators and sites for biofilms (food production). Snags do not need to be large. Small complex woody habitat structures such as bundles of brush and small timber can be effective.

6 Rocks

Provide cover from predators. Some species also require hard surfaces to lay their eggs. A rock pyramid in deeper areas can provide effective habitat at a range of water levels.

7 Floating island

Provides additional cover and can remove nutrients from the farm dam.

8 Drought refuge pool

A deeper zone that can be managed and potentially topped up with water during dry times.

9 Dam wall

Do not plant trees on the spillway or dam wall, or within 15m of the base of the dam wall. Tree roots can cause structural issues resulting in dam wall failure.

Suitable aquatic plants

Aquatic plants are key habitat for 'the magnificent six' fish species. Consult your local native nursery to obtain a list of suitable aquatic plants local to your area. It is best to plant a range of structural forms (emergent, submerged, floating).



See [Farm Dam Planting Guide](#) for detailed planting information ([sustainablefarms.org.au](#)).

Example emergent species (to be planted at the water's edge)

- Stream club rush *Bolboschoenus fluviatilis*
- Slender knotweed *Persicaria decipiens*
- Common spike rush *Eleocharis acuta*
- River club sedge *Schoenoplectus tabernaemontani*
- *Crassula helmsii*
- Soft twig-rush *Baumea rubiginosa*
- Sedges *Carex* sp.
- Rushes *Juncus* sp.

Example submerged species (to be planted in shallow water/benches that may wet and dry)

- Water ribbons *Triglochin microtuberosum*
- Water milfoil *Myriophyllum crispatum*
- Nardoo *Marsilea drummondii*
- Sea-tassel *Ruppia* sp. (in saline dams that could support Murray Hardyhead)

Example floating (to be planted in water that generally remains submerged)

- Pondweed *Potamogeton* sp.
- Wavy marshwort *Nymphoides crenata*

Aquatic plants to avoid:

- Pest plants such as spiny rush, pale yellow water lily, parrots feather, water primrose and Vietnamese mint.

Stocking dams with native fish


Inadvertently stocking of dams with exotic species, or native fish species outside of their natural range is a key issue for fisheries management agencies. Translocations have potential to spread disease and pest species and threaten aquatic biodiversity. However, if done properly, and with a suitable source of fish and required permits, landholders can greatly assist native fish conservation of floodplain specialist fish by offering their dam to harbor a backup population, or potentially act as a 'natural hatchery' that can be harvested to re-stock wild sites.

To get involved in stocking threatened fish in farm dams for conservation, contact your local fisheries agency for advice on permitting requirements:

Department of Primary Industries and Regions, South Australia

Contact: fisheries.permits@dpi.nsw.gov.au

NSW DPI Fisheries

 www.dpi.nsw.gov.au/_data/assets/pdf_file/0009/638487/Fish-in-Farm-Dams.pdf
Contact: fisheries.permits@dpi.nsw.gov.au

Victorian Fisheries Authority

 www.vfa.vic.gov.au/recreational-fishing/fish-stocking/stocking-fish-in-farm-dams
Contact: fish.translocations@vfa.vic.gov.au

For advice on where to source fish for conservation stocking with appropriate genetics:

- Australia New Guinea Fishes Association
- Native Fish Australia
- Nature Glenelg Trust – Aquasave
- Nature Glenelg Trust – Not-for-profit environmental organisation

Releasing fish into your dam

Stress to fish can be reduced by minimising handling and transport time. Ensure you request a stock health statement from the hatchery, and carefully check for contamination with other species and disease. To increase survival rates, fish should be given time to acclimatise to their new surroundings before they are released – this involves gradually mixing the transport water with the receiving water to allow fish to adjust to the temperature and water chemistry of the dam.

For further information visit www.dpi.nsw.gov.au or scan the QR code.

