



refreshing
rivers

SOUTHERN PYGMY PERCH



Refreshing the Upper Billabong is a collaboration between government, industry, research, and community organisations, led by Local Land Services. This Program has been assisted by the New South Wales Government through its Environmental Trust.



INTRODUCTION

Southern Pygmy Perch were formerly found throughout the Murray and lower Murrumbidgee River systems. There have been large-scale reductions in their range since European settlement, particularly inland. In NSW, they are listed as a Threatened Species.

We are excited that three populations of Southern Pygmy Perch have been discovered in recent years living in the creeks of our Upper Billabong Region.

They have become threatened due to habitat degradation including the loss of river/creek bank vegetation, modification of floodplain wetland habitat, and competition with and predation by introduced fish species.

In the Upper Billabong, erosion and sedimentation of the streams mean the deep refuge pools – the pools that maintain water even in drought – have disappeared.

The aquatic vegetation that this species needs, both to avoid predation and for breeding, has also declined. Stock accessing waterways, erosion and sedimentation, and invasion of carp are all contributing to loss of habitat.

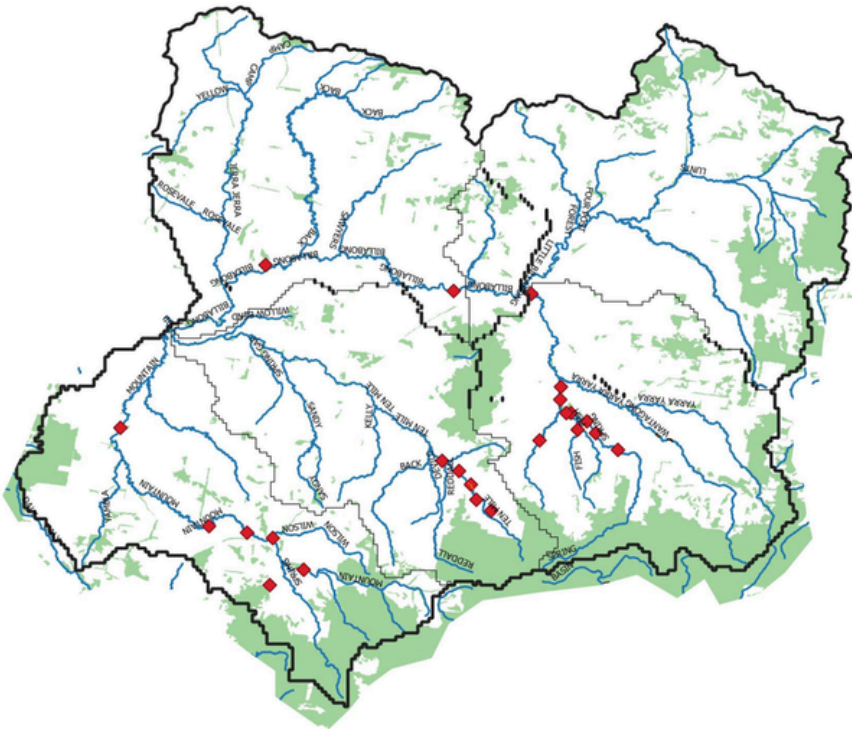
With the establishment of refuge population nurseries, we hope to help increase the population of this threatened species and also provide source populations for further translocations into the future.

LOCATION OF SPP - UPPER BILLABONG

Southern Pygmy Perch were once widely distributed throughout the Murrumbidgee, Murray and Lachlan River systems, as well as coastal streams in Southern Australia, including Tasmania.

The Southern Pygmy Perch is now found in the wild in streams within the Upper Billabong catchment, including Mountain Creek, Ten Mile Creek, Yarra Yarra Creek and Billabong Creek.

The map below indicates locations of known SPP populations, although ongoing drought conditions continue to threaten their habitat and reduce refuge watering holes.



HABITAT

Southern Pygmy Perch prefer habitat that includes small systems with a low flow rate and quiet vegetated areas in streams, billabongs, and lakes. They like covered habitats and are not usually found in open water.

Unfortunately, many of our waterways lack canopy cover, have increasing numbers of invasive species, lack in-stream debris and have been degraded by stock use.

This species also need refuge pools during periods of drought, to ensure that when the water returns to flow, their populations survive.



WHAT CAN I DO?

With wild populations of Southern Pygmy Perch fluctuating due to drought conditions, there are several ways for landholders to improve the streams to provide habitat for this species and other fish, including:

- Restrict livestock access to streams
- Enhance on-farm dams to act as refuge locations
- Complete stream restoration, including the addition of in-stream debris and vegetation
- Bank recovery efforts including management of riparian vegetation and removal of willows



CONTROL STOCK ACCESS

Continuous or frequent grazing around waterways is likely to lead to degradation of riparian zones (land adjacent to waterways). This can impact regrowth of native vegetation, increase stream bank erosion and reduce water quality.

The creation of a buffer zone along waterways can manage stock pressure in riparian areas. This may be a total stock exclusion or implementation of strategic grazing management, in order to promote native vegetation growth and limit weeds.

The additional benefits to the waterway includes reduction of sediment and nutrient runoff and leads to improved water quality.



ENHANCE ON-FARM DAMS

Improving water quality in farm dams can bolster the health of livestock while increasing drought resilience on the property.

Dam improvements can include things like:

- Fencing, to limit livestock access, reducing waste build up and allowing vegetation regrowth.
- Creating an access point to the dam, hardened with crushed rock, to prevent pugging.
- Additional trees planted around the dam to provide shade and shelter. Avoid planting on dam walls, inflow or spillway areas.
- Plant grasses and ground cover in the inflow and spillways to create filtration of water, sediment and chemicals.
- Revegetation with native water plants, like sedges and rushes.
- Include logs within the fenced areas to provide habitat and shade for frogs and aquatic animals.
- Ensure the dam has varying water depths, creating a variety of habitats for native species, and extending the depth and temperature in the deeper pools during hot months.

With fencing and increased filtration, the siltation rate at the dam will slow down, and decrease the need to muck out the buildup of sediment.

ENHANCE ON-FARM DAMS

Here are six reasons to enhance dams on farms:

1. Improve water quality - enhanced dams have cleaner water with reduced siltation, nutrients and pollution.
2. Increase water security - with reduced sedimentation the dam capacity is retained with reduced evaporation.
3. Increased ecosystem services - including water filtration, pollination, nutrient cycling and pest management.
4. Reduced Greenhouse Gas Emissions - improving dam condition helps reduce GHG emissions, particularly methane, from the water body. This may also potentially provide a source of carbon credits in the future.
5. Support biodiversity - enhanced dams can act as a proxy for natural wetlands, providing habitat for native plants and animals, including threatened species.
6. Peace of mind - a secure water supply can provide you with an oasis in times of drought, and provide peace of mind for your water security.

For more on how to create an Enhanced Dam, please see the booklet on the [Sustainable Farms website](#)

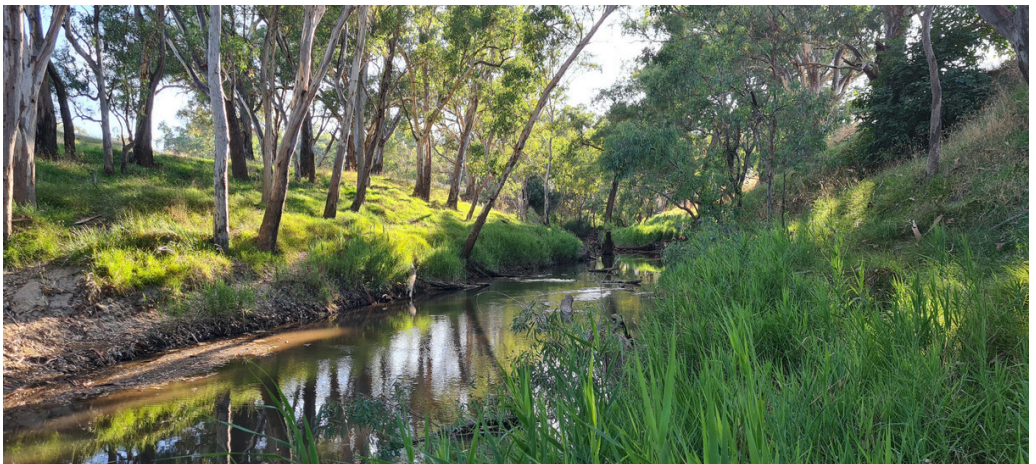
INSTREAM RESTORATION

Increasing instream complexity provides additional habitat for fish and other organisms. Complexity can also create pools with instream debris forming obstructions that trap sediment.

To increase instream complexity, logs and debris can be carefully added, as well as the addition of things like fish hotels which can create refuge areas.

The banks should be stabilised with native vegetation, which can help slow the water movement. Rocks can also be added to provide additional stabilisation, complexity and shade.

These actions benefit waterways in two ways. Firstly, a whole of waterway improvement can occur, for example reduction of channelling and erosion, allowing for areas of different depth and water flow to develop, improving water quality. Secondly, restoring vegetation has many additional benefits including stabilisation of banks and filtering run off into waterways.



BANK RECOVERY

Destruction of habitat is one of the main causes of native freshwater fish decline in Australia. Many riparian zones are lacking in native vegetation and invaded by weeds including blackberry and willows.

Riparian vegetation provides shade to waterways, reducing high water temperatures and providing cooler places for aquatic life to inhabit.

Vegetation on stream banks minimises runoff, prevents slumping of the banks while providing protection for deeper pools in stream.



DROUGHT REFUGES

Species like the Southern Pygmy Perch rely on deep, permanent pools for refuge in dry times. These refuges can include isolated pools or dams, or cool shaded gullies, which provide protection from extreme temperatures.

Slowing the water by adding vegetation and big woody material creates turbulence and eddies, leading to artificial pool and riffles, creating holes and deeper waters that are refuges in drought and habitat for fish.

Providing complexity of pools and riffles offers a wide variety of habitat types needed to support a diverse community.



CONCLUSION

The Southern Pygmy Perch is an endangered species within our rivers.

With a few actions, we can support their ecosystem while improving our waterways, to help save this species.

If you would like more information on the project to save the Southern Pygmy Perch, please go to the Refreshing Rivers website, or contact Holbrook Landcare Network.

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