Luke Pearce and the plight of the Southern Pygmy Pearch

Institute for Land, Water and Society
Charles Sturt University

The tiny Pygmy Perch, one of Australia's smallest freshwater fish and now listed as a threatened species in NSW, has its own champion.

"The little guys really are in trouble," says Luke Pearce, a NSW Fisheries Conservation Manager and Charles Sturt University's Masters student who is helping to save the fish from extinction.

In three years he has seen the numbers of Pygmy Perch found at one site in the Upper Murray drop from 2500 to four.

"But they are a great little fish, really cute and attractive," says Luke, who is based in Albury.

The fish, which grow to just 9cms in length, have orange to red fins. Their scales vary in colour from cream to gold/orange to reddish brown.

"Historically there has always been a focus on large fish, like Murray Cod and Golden Perch, because they have an economic and recreational value," says Luke.

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However, there was a time, not all that long ago, when Pygmy Perch were plentiful throughout the Murray Darling Basin. When their numbers were high, they were an important food source for larger fish and waterbirds.

"They were really abundant up until the 1970s and early 1980s," says Luke. "I have a fishing book written in the late 1970s with a section in it on how to use pygmy perch as live bait; they were that plentiful.

"Originally Pygmy Perch would have been in most the wetlands along the Murray and its tributaries but they are now no longer found in any of the wetlands along the Murray in NSW. They were in two wetlands, but since the drought in 2005, those populations seem to have disappeared as the wetlands just weren't getting water on a regular enough basis to maintain the fish and the habitat they need. Water plants, which are now missing from a lot of our wetlands and streams, are vitally important for Pygmy Perch."

Other than some early work in the 1970s and a little ad hoc work since, there has been little research done on pygmy perch...that was until Luke stepped in.

"Through my role with DPI Fisheries which involves monitoring of, and trying to secure, fish populations, I could see what was happening to pygmy perch," says Luke who began monitoring Pygmy Perch numbers in an informal way in 2006. "So I took it upon myself to try and do a little bit more which is how I came to be doing my Masters with Charles Sturt University in 2010."

Luke, whose supervisor is Dr Paul Humphries from CSUs Institute for land, Water and Society, is researching the impact of changing environmental conditions (droughts, floods and exotic fish) on Pygmy Perch populations in Coppabella Creek, a tributary of the Upper Murray near Jingellic, one of three known remnant populations of Pygmy Perch in NSW. The other two are in the Upper Billabong system near Holbrook; and the Upper Lachlan system near Yass.

(While looking for Pygmy Perch in the Southern Highlands Luke happened to spot a yellow-spotted bell frog. "When we went back looking for them we found more," says Luke. "It's only a small population and it's the only known place in the world where that species of frog exists." Some of the frogs have been taken to Taronga Zoo in Sydney where a breeding program is being established. The Lachlan Catchment Management Authority has also receiving funding for a project to try and protect and rehabilitate habitat for both the frog and Pygmy Perch.)

"I have a passion for all fish and their ecosystems but once you start working with a particular species like Pygmy Perch, you become more attached and more involved with them and get to really like them," says Luke who found 2500 Pygmy Perch in Coppabella creek in 2009.

Luke checking the CSU wetlands for pygmy perch

At that time the biggest threat to the fish was drought as the pools of water along the creek were drying up. A decision was made to take the fish from the wild (about 2000) that would have otherwise perished and put them into a breeding program at DPI's Narranderra Fisheries Centre in February 2009.

But it seems an even bigger threat than drought to the perch's survival were the major floods that occurred in December 2010, January 2011 and again in March this year which have resulted in a dramatic downturn in Pygmy Perch numbers.

In 2010 Luke was unable to sample his sites (ten altogether) along Coppabella Creek because of the floods and by the time he was able to sample in 2011 he could only find two Pygmy Perch.

"It looks as if the floods have washed them away," says Luke. "Because they are so small, and populations are so low, trying to find the fish and where they may have been swept to, if they haven't died that is, was like trying to find a needle in a haystack."

This year when he sampled in April he found just four fish. "But that's better than two but there's still got a long way to go to recover to what they were," says Luke.

"Historically there would have been sufficient numbers of these fish and enough robustness in the population for them to be able to survive through these extreme events. Now they are in such low abundances in such small fragmented and isolated areas, they are a lot more susceptible to events like floods and droughts and a population in an area can be wiped out completely."

Fortunately the breeding program at Narrandera has been successful. Last year 14,000 Pygmy Perch were released into three locations that had the right conditions – the wetlands at CSUs Albury-Wodonga campus; and, in the Lower Murray, Washpan Creek near Euston and Thegoa Lagoon near Wentworth. And while not as successful this year, fisheries officers were able to release around 250 Pygmy Perch into a wetland near Deniliquin which are still alive.

"When we released the fish into the lagoons at CSU we thought conditions would be ideal because there is a permanent water source; there is good quality water; plenty of water plants which this fish love and CSU has agreed to manage the wetlands in a way which will enhance the fish's chance of survival," says Luke. "Also when we introduced the Pygmy Perch there were no predators others than waterbirds."

Water plants are essential habitat for the pygmy perch

However since then an exotic species , mosquito fish (gambusia) has managed to get into the wetlands, probably with the floods in late 2010/early 2011. This fish, which not only out-competes the Pygmy Perch for food, is an aggressive species which, even though it is quite small, hassles other fish, nips at their fins and eats their eggs and juvenile larvae.

Despite the mosquito fish Luke did discover evidence this year that the Pygmy Perch had bred in the CSU wetlands.

"I'm very hopeful that what we are doing will work," says Luke. "I wouldn't be doing it if I thought it was futile. Given the right resources I think we can recover this species and some other native species as well.

"But there is a lot of work to be done first in terms of rehabilitation of habitat and the breeding and reintroduction programs as they are actually locally extinct from a lot of areas. Pigmy Perch haven't been reported in the Murrumbidgee catchment for over 35 years and we suspect they are extinct from that and many other catchments.

"We have to first fix up the reasons why they declined in the first place and then reintroduce them. But we know from our breeding program, that if the conditions are right, they can breed quite well. We were able to turn 2000 fish into 14,000 fish in two years."

Because of their size Luke agrees the pygmy perch would make great pets or aquarium specimens. However as they have a threatened species, there are restrictions on keeping them.

"We are working with Sydney Aquarium at the moment to get a program up to have a variety of native fish in schools for educational purposes," says Luke.

Luke, 36, has been in his current role with the department for six years. Prior to that he worked on a fish rehabilitation program for 12 months; was the council's environmental officer at Tumut; and before that worked for the NSW Department of Agriculture as a soils officer and research agronomist.

"But I've always been a really keen fisherman and had a strong interest in fish," says Luke.

*Luke is keen to hear from anyone who knows of any existing or past populations of pygmy perch. You can phone him on 02 60 42 4213. Email is luke.pearce@dpi.nsw.gov.au. However as it is easy to confuse pygmy perch with barby carp Luke suggested people check the Department's fact sheets which are available at http://www.dpi.nsw.gov.au/fisheries/species-protection/conservation/what-current/endangered-species/southern-pygmy-perch