

Large male Southern Purple-Spotted Gudgeon in captivity.
Photo Todd Goodman.



GUDGEON HITS A PURPLE PATCH

RESEARCHERS ADAM WATT, NICK WHITEROD, CHRIS BICE AND MICHAEL HAMMER EXPLAIN THE SUCCESSFUL REINTRODUCTION OF THE SOUTHERN PURPLE-SPOTTED GUDGEON NATIVE FISH SPECIES INTO SITES IN SOUTH AUSTRALIA AND THE ONGOING EFFORTS TO ENSURE ITS SURVIVAL.

Distribution of the Southern Purple-Spotted Gudgeon

The Southern Purple-Spotted Gudgeon (*Mogurnda adspersa*) was once widespread and common in the lower River Murray in South Australia. Following a rapid decline in distribution and abundance, this species was declared regionally extinct in South Australia in the early 1990s, with the last verified record sampled in 1973 near Blanchetown (South Australian Museum specimen). The species was rediscovered in the Lower Murray in South Australia in late 2002, at Jury Swamp between Blanchetown and Wellington.

Drought action plan development

Drought, river regulation and over-abstraction resulted in record low inflows during the period 2001–09, with Lake Alexandrina experiencing the lowest water levels in recorded history. Low water levels were accompanied by significant reductions in submerged aquatic vegetation cover, disconnection of habitats and increased salinity, exposing several threatened native small-bodied fish populations to extreme risk of local extinction.

As a result, the South Australian Department of Environment and Natural Resources (DENR) initiated the rescue to recovery 'Drought Action Plan (DAP) for South Australian Murray–Darling Basin threatened freshwater fish populations'. This project aimed to provide guidelines for the management and conservation of five species of small- and medium-bodied freshwater fish of national or state conservation significance in the South Australian Murray–Darling Basin (MDB). The Southern Purple-Spotted Gudgeon was one of the species targeted under the DAP.

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Securing the Jury Swamp population

The population of Southern Purple-Spotted Gudgeon at Jury Swamp has been under significant threat since its rediscovery. In 2007, monitoring indicated conditions in Jury Swamp had deteriorated, with reduced water levels leading to the loss of critical habitat. Urgent action was necessary to ensure the short-term viability of the population. Management involved capture of the remaining individual fish and subsequent captive maintenance including:

- Fish were collected in 2005 and January 2007, with the next phase of rescues taking place in April 2007 following habitat drying and disease outbreak. In total, 56 fish survived the rescues and were held in captivity.
- Two hatcheries were established and have produced juveniles to back up broodstock and have been released into a surrogate refuge site. Fish released to this site have shown strong survival and wild recruitment.
- Two school programs have been established and these hold fish as backup and rear fish for release.
- The last Southern Purple-Spotted Gudgeon sampled from Jury Swamp was in spring 2009.

Monitoring of the Southern Purple-Spotted Gudgeon population and habitat conditions at Jury Swamp is ongoing and it is hoped the release of captive bred fish to enhance existing populations will happen soon.

Reintroduction success

Drought conditions across the MDB have lessened and in 2010–11, broad-scale rainfall and significant inflows resulted in increased water levels to most catchments and sites where threatened fish species had previously been at risk. These conditions created potential for the reintroduction of the Southern Purple-Spotted Gudgeon into its former wild habitat.

A reintroduction framework was developed by the DAP to maximise the chances of successful reintroduction of the threatened fish into the Lower Lakes.

Conditions in Jury Swamp from 2010–12 remained unsuitable for the reintroduction of the Southern Purple-Spotted Gudgeon; therefore another reintroduction site was needed. In an innovative move it was decided to reintroduce the fish to the lower Finnis River, where the species has been historically abundant.

The first round of threatened native fish reintroductions were undertaken in November 2011, with about 200 Southern Purple-Spotted Gudgeon being released into the lower Finnis River. Reintroduced fish were 'calcein stained' before release to ensure they could be differentiated from any potential wild stock.

During follow-up monitoring in March 2012, three marked Southern Purple-Spotted Gudgeon were re-captured, all displaying good health. This represents the first record of the species in the lower Finnis River in more than 40 years and highlights the success of the reintroduction project.

A second round of reintroductions was carried out at the same site in the Lower Finnis River with about 400 Southern Purple-Spotted Gudgeon released in late March 2012.

Additional reintroductions and assessments will be carried out during the next 12 months in the lower Finnis River and reintroductions will occur at Jury Swamp as soon as environmental conditions improve.



A recaptured Gudgeon six months following reintroduction, the first record of the native fish in the lower Finnis River in South Australia in more than 40 years. Photo courtesy of the authors.

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Jury Swamp in dry and wet conditions. Photos Michael Hammer.

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