

Purple Spotted Gudgeon – *Mogurnda adspersa*

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Introduction

Two populations of Purple Spotted Gudgeon historically occurred in NSW; an eastern population found in coastal catchments north of the Clarence River, and a western population found patchily distributed throughout Murray-Darling Basin drainages. Both populations have experienced significant declines in distribution and abundance.

The western population is now largely confined to drainages in the Gwydir and Border Rivers, although small isolated populations may exist in some other locations such as Wuuluman Creek in the Macquarie River catchment.

There have been few recent confirmed records of the eastern population despite targeted sampling at sites where the species has previously been found. However there have been unconfirmed records from the Tweed, Richmond and Brunswick River catchments over recent years, and NSW DPI researchers confirmed the presence of Purple Spotted Gudgeon in Tucki Tucki Creek (Richmond River catchment) in 2012.

In 2009 a population of Purple Spotted Gudgeon was discovered in Goorangoola Creek in the Hunter Catchment; the first record of this

species in a coastal catchment south of the Clarence River. The origin of this population is unclear, although genetic analysis has shown the population is most similar to Purple Spotted Gudgeon found in southeast Queensland.

The Purple Spotted Gudgeon is listed as an endangered species in NSW. There are heavy penalties for harming, possessing, buying or selling them, or for harming their habitat (see 'Legal implications').

Description

The Purple Spotted Gudgeon is a small and robust fish with a rounded head, a relatively small mouth and a rounded tail. It has two dorsal fins; the first being shorter and lower than the second. The species is generally dark brown in colour along the back, fading to pale brown or cream on the belly. A number of distinguishing markings occur along the body, such as white and red spots that brighten during breeding. The three red-maroon bars on the cheek differentiate the species from other similar freshwater gudgeon species within NSW even at very small sizes. Purple Spotted Gudgeon grow to around 12 cm in length.

Figure 1 – Purple Spotted Gudgeon - Illustration by Jack Hannan

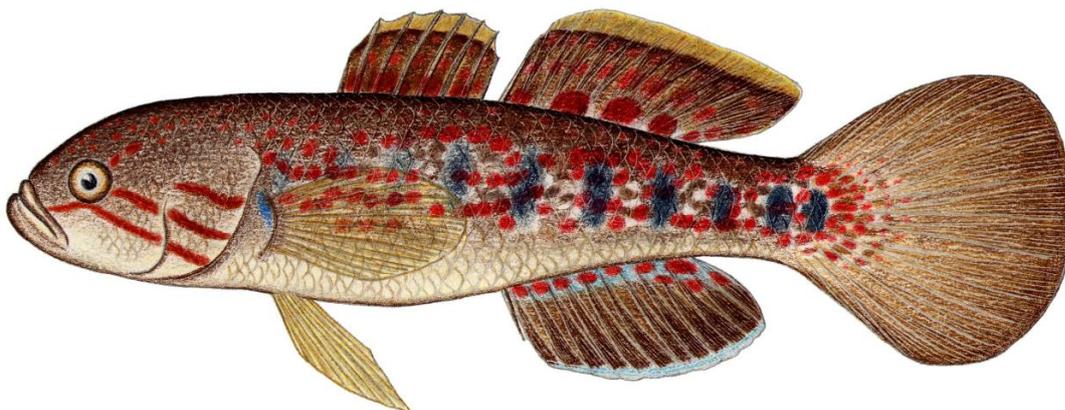
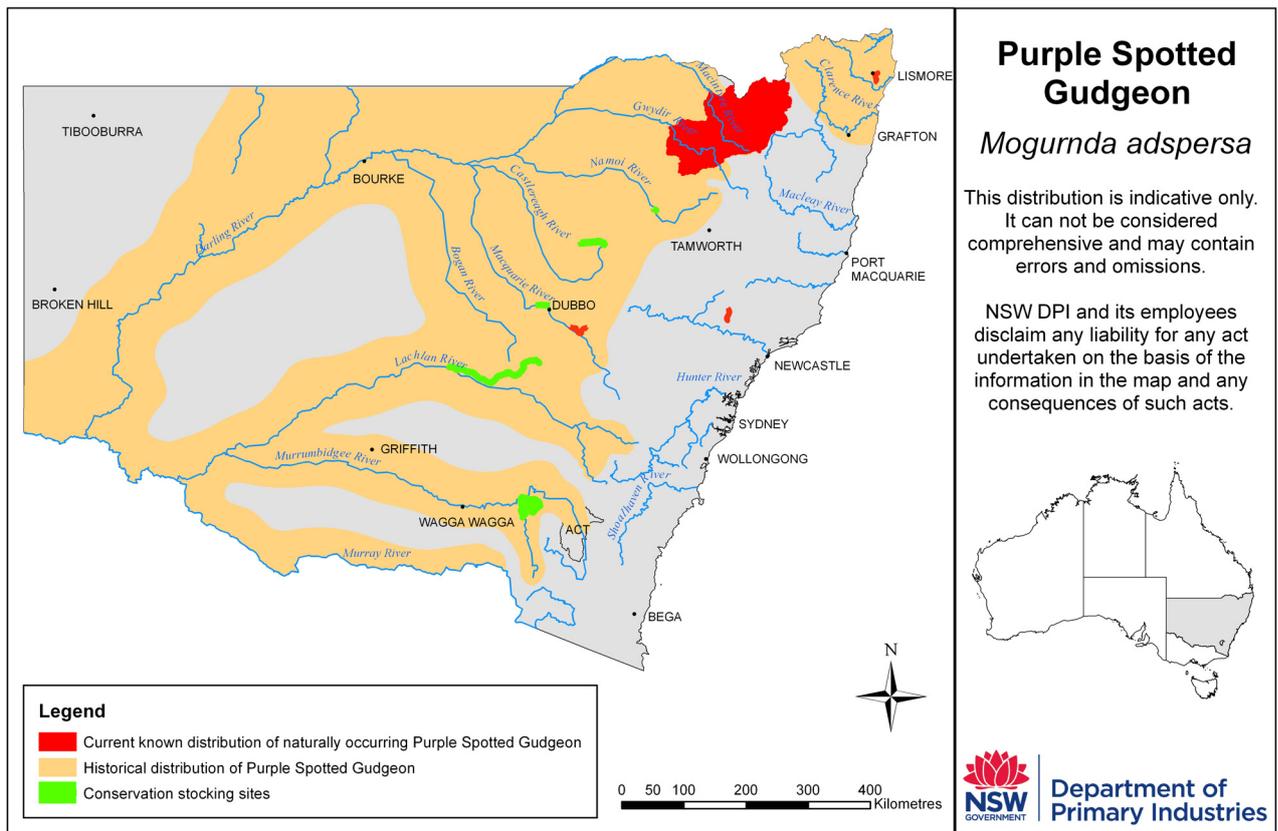


Figure 2 Map of NSW showing distribution of Purple Spotted Gudgeon



Habitat and ecology

- The Purple Spotted Gudgeon is a benthic species, usually found in rivers, creeks and billabongs with slow-moving or still waters; often amongst weeds, rocks or snags.
- Most remnant populations occur in small to medium sized streams.
- They feed mainly on small fish, insect larvae, worms, tadpoles, and some plant matter.
- Males reach maturity at about 4.5 cm and females at about 5 cm in length.
- The male has an elaborate courtship display and spawning occurs over summer when water temperatures are warmer.
- Females may lay several batches of eggs per season (30 - 1,300 per batch). The adhesive eggs are deposited in clusters on solid objects such as rocks, wood or broad-leaved plants. The male guards and fans the eggs until hatching (3-8 days).

Why is the Purple Spotted Gudgeon threatened?

- Predation by introduced fish such as Eastern Gambusia (*Gambusia holbrooki*) and Redfin (*Perca fluviatilis*).
- Habitat degradation, particularly the loss of aquatic plants.
- Fluctuations in water levels as a result of river regulation, resulting in deleterious effects on reproduction and recruitment.

Conservation and recovery actions

- Develop and implement control programs for introduced pest species.
- Promote appropriate land management practices to improve water quality and river health.
- Allocate environmental water flows in regulated rivers to restore natural seasonal flow patterns and maintain connectivity with floodplain wetlands.
- Conduct further research to establish the current distribution and abundance of Purple Spotted Gudgeon in NSW, and investigate the reasons for their decline.

- Implement the Protected, Threatened and Pest Species Sighting Program: Report any sightings of the species on the NSW DPI 24 hour automated message-taking service by calling (02) 4916 3877.

Captive breeding and reintroduction

Captive breeding and reintroduction actions have been undertaken to attempt to reintroduce Purple Spotted Gudgeon into catchments where they are believed to be locally extinct including the upper Castlereagh River (Macquarie), Gulligal Lagoon (Namoi), Goobang Creek (Lachlan), and Adjungbilly Creek (Murrumbidgee).

Currently it is unknown whether these stocking events have successfully resulted in the establishment of breeding populations.

Legal implications

It is illegal to catch and keep, buy, sell, possess or harm Purple Spotted Gudgeon (or any other threatened species in NSW) without a specific permit, licence or other appropriate approval, and significant penalties apply. For endangered species these penalties can include fines up to \$220,000 and up to 2 years in prison.

However, offences related to buying, selling or possessing Purple Spotted Gudgeon do not apply to fish that have been cultivated or kept under the authority of an aquaculture permit.

There can also be significant penalties for causing damage to the habitat of a threatened species without approval through actions such as dredging riverbeds, removing large woody debris and constructing barriers that block the free passage of fish.

Clearing that constitutes a routine agricultural management activity, and certain routine agricultural activities (other than clearing) are permitted, provided the activities are to the minimum extent reasonably necessary and all other relevant statutory approvals or authorities have been obtained.

The impact of developments or activities that require consent or approval (in accordance with the *Environmental Planning and Assessment Act 1979*) must be assessed and considered by consent or determining authorities. Where such actions are likely to result in a significant impact on a threatened species or its habitat, a detailed species impact statement must be prepared.

Strategies to be adopted for promoting the recovery of Purple Spotted Gudgeons to a position of viability in nature are set out in the NSW DPI Priorities Action Statement.

A recovery plan may be prepared for the Purple Spotted Gudgeon in accordance with the provisions of the *Fisheries Management Act 1994* to promote the recovery of the species to a position of viability in nature.

Bibliography and further reading

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Lintermans, M. 2009. *Fishes of the Murray-Darling Basin: An introductory guide*. Murray Darling Basin Authority, Canberra, 157 pp.

Figure 3 Purple spotted gudgeon. Photo by Gunther Schmida



For further information

See the NSW DPI website: www.dpi.nsw.gov.au

Contact the NSW DPI Threatened Species Section:

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