

Australian Capital Territory

Nature Conservation (Trout Cod) Conservation Advice 2020

Notifiable instrument NI2020–354

made under the

Nature Conservation Act 2014, s 90C (Conservation advice)

1 Name of instrument

This instrument is the *Nature Conservation (Trout Cod) Conservation Advice 2020*.

2 Commencement

This instrument commences on the day after its notification day.

3 Conservation advice for Trout Cod

Schedule 1 sets out the conservation advice for Trout Cod (*Maccullochella macquariensis*).

Arthur Georges
Chair, Scientific Committee
24 June 2020

Schedule 1

(see s 3)



ACT
Government

Environment, Planning and
Sustainable Development



CONSERVATION ADVICE

TROUT COD – *Maccullochella macquariensis*

CONSERVATION STATUS

The Trout Cod *Maccullochella macquariensis* (Cuvier, 1829) is recognised as threatened in the following jurisdictions:

International	Vulnerable , International Union for Conservation of Nature (IUCN) Redlist
National	Endangered , <i>Environment Protection and Biodiversity Conservation Act 1999</i> Critically Endangered , Conservation Status of Australian Fishes 2016
ACT	Endangered , <i>Nature Conservation Act 2014</i>
NSW	Endangered , <i>Fisheries Management Act 1994</i>
Victoria	Threatened , <i>Flora and Fauna Guarantee Act 1988</i> Critically Endangered , Advisory List of Threatened Vertebrate Fauna in Victoria
South Australia	Extinct , Action Plan for South Australian Freshwater Fishes

ELIGIBILITY

The factors that make the Trout Cod eligible for listing as Endangered in the ACT Threatened Native Species List are included in the Listing Background section below.

DESCRIPTION AND ECOLOGY

The Trout Cod is a member of the Family Percichthyidae, and is a large, deep-bodied fish that has been recorded to 850 mm in total length and 16 kg but is now usually less than 5 kg (Lintermans 2007). It has a large mouth reaching to below the back of the eye, the head profile is straight, and the upper jaw overhangs the lower. The tail is rounded, and the pelvic fins are located below the pectorals.

The species is often confused with Murray Cod (*Maccullochella peelii*) and hybrids between the two species are also known (Douglas et al. 1995; Couch et al. 2016). The overhanging upper jaw and a speckled body pattern which is blue-grey, rather than yellow-green, distinguishes Trout Cod from the otherwise similarly shaped Murray Cod. Most individuals have a dark stripe through the eye, although this feature is also present in young Murray Cod (Lintermans 2007).



The Trout Cod is thought to have a maximum lifespan of 20–25 years, however, is more likely to be 12 years (Todd et al. 2004). Sexual maturity is reached at 3–5 years of age, with males thought to mature earlier and at a smaller size than females (Douglas et al. 1994). Spawning occurs at a similar time in spring to that of Murray Cod, but for probably a shorter period with hatching commencing approximately five days after fertilisation, continuing for up to 10 days at 15.5–23°C. (Douglas et al. 1994; Koehn and Harrington 2006). Generation length is calculated as 13 years (Koehn et al. 2019).

The Trout Cod is a large-bodied carnivore that, as an adult, is a ‘sit-and-wait’ predator (Lintermans 2007). The diet includes fish, yabbies, aquatic insect larvae, shrimps, freshwater prawns and terrestrial organisms.

DISTRIBUTION AND HABITAT

The Trout Cod is endemic to the southern Murray–Darling river system. This species has suffered major declines in range and abundance with only a single ‘natural’ remnant population remaining (in the Murray River between Yarrowonga and Barmah) (Koehn et al. 2013). Other populations have been re-established either through historic translocation (1920s) or through the national recovery program beginning in the late 1980s in Victoria, the Australian Capital Territory (ACT) and New South Wales (Douglas et al. 1994; Koehn et al. 2013). Historically, the species was also recorded in the lower Murray River in South Australia.

Trout Cod is broadly found in rivers and larger streams and rarely in smaller creeks.

In the Canberra region Trout Cod formerly occurred along the length of the Murrumbidgee River in the ACT and in adjoining reaches in NSW where it was recorded up until the 1970s (Berra 1974; Greenham 1981; Lintermans 2000; Lintermans 2002; Gilligan 2005; Trueman 2012; Koehn et al. 2013).

In the ACT, Trout Cod is currently restricted to the Murrumbidgee and Cotter rivers, where it has been reintroduced as part of a national recovery program (Koehn et al. 2013). Scattered records are made throughout the Murrumbidgee River, particularly near Kambah Pool and Gigerline Gorge downstream of Angle Crossing. Similarly, in the Cotter River. Individuals are regularly recorded in Bendora Reservoir and occasional individuals are sampled downstream of Bendora Dam, presumably from fish displaced out of the reservoir (Lintermans 1995; ACT Government and University of Canberra unpublished data).

THREATS

The main identified threats in the ACT action plan (ACT Government 2018c) include:

- habitat modification
- river regulation
- barriers to fish passage
- overfishing
- sedimentation
- reduction in water quality
- introduction of alien fish species
- changing climate

- hybridisation and limited genetic diversity.

MAJOR CONSERVATION OBJECTIVE

The overall objective of the action plan (ACT Government 2018c) is to re-establish and maintain in the long term, viable, wild populations of Trout Cod as a component of the indigenous aquatic biological resources of the ACT and as a contribution to regional and national conservation of the species. This includes the need to maintain natural evolutionary processes and resilience.

CONSERVATION PRIORITIES

The 2018 Action Plan for Trout Cod (ACT Government 2018c) establishes actions and identifies the following main priorities to:

- protect reintroduced populations in Bendora Reservoir and the Murrumbidgee River, and allow these populations to establish and expand in distribution. Continue to support national and regional re-establishment.
- monitor key sites (those with an established long-term monitoring program) to investigate the success of reintroductions; determine long-term population trends; and to evaluate the effects of management (Bendora Reservoir and Murrumbidgee River).
- manage to maintain riverine habitats with appropriate seasonal flow regimes, intact riparian zones, pool depths, and minimal sediment inputs from roads and surrounding land use.

OTHER RELEVANT ADVICE, PLANS OR PRESCRIPTIONS

- [ACT Aquatic and Riparian Conservation Strategy](#) (ACT Government 2018a)
- [ACT Action Plan – Trout Cod](#) (ACT Government 2018c)
- [National Recovery Plan – Trout Cod](#) (Trout Cod Recovery Team 2008)
- [IUCN Redlist species account – Trout Cod](#) (Koehn et al. 2019)
- [Conservator Translocation Guidelines](#) (ACT Government 2018b)

LISTING BACKGROUND

The Trout Cod was initially listed in the ACT as an Endangered species on 6 January 1997 in accordance with section 21 of the *Nature Conservation Act 1980*. At that time, the Flora and Fauna Committee (now the Scientific Committee) concluded that the assessment satisfied the following criteria:

- 1.1 Species is known or suspected to occur in the ACT region and is already recognised as endangered or presumed extinct in an authoritative international or national listing.
- 1.2 Species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the near future as demonstrated by:
 - 1.2.1 Current severe decline in population or distribution from evidence based on:
 - 1.2.1.1 direct observation, including comparison of historical and current records.
 - 1.2.1.2 severe decline in rate of reproduction or recruitment; severe increase in mortality; severe disruption of demographic or social structure.
 - 1.2.1.4 very high actual or potential levels of exploitation.

The Trout Cod is eligible for listing as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as, prior to the commencement of the EPBC Act, it

was listed as endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The most recent review of the species national conservation status found that the species meets the IUCN Criterion B – B2ab(iii,iv) for Vulnerable based on its restricted distribution in south-eastern Australia (area of occupancy (AOO) is estimated at 688km²) and continuing decline projected in habitat quality (Koehn et al. 2019).

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FURTHER INFORMATION

Further information on the related Action Plan or other threatened species and ecological communities can be obtained from: Environment, Planning and Sustainable Development Directorate (EPSDD).

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