

Tandanus tandanus Freshwater Catfish

Taxonomy

Tandanus tandanus (Mitchell, 1838)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1995).

Categorised as Endangered in the 2013 Advisory list of threatened vertebrate fauna in Victoria (DSE 2013).

Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iv,v)

Species Information

Description and Life History

The Freshwater Catfish is a member of the family Plotosidae, and is distinguishable by the tapering appearance of the joined second dorsal, caudal and anal fins. Members of the family also have several pairs of barbels around the mouth, are scaleless and have a smooth tough skin. A single spine is found in the first dorsal fin and the pectoral fins. The Freshwater Catfish is also known as the Eel-tailed catfish, jewfish, Tandan or Kenaru. It has a stout body, almost circular in section with the posterior of the body compressed. The head is large and flattened below with a blunt rounded snout. The moderately-sized eyes are located high on the side of the head. The downturned mouth has thick fleshy lips and there are eight barbels in four pairs around the mouth. The vomerine teeth are in a semicircular patch. The anterior nostrils are tubular and located on the front border of the upper lip. The first dorsal fin is short based, located high on the back behind the head and preceded by a strong serrated spine. The second dorsal fin combines with the caudal and anal fins to form a continuous median fin. The pectoral fins are large, located low on the body and have strong serrated spines. The pelvic fins are abdominal and rounded (Cadwallader and Backhouse 1983). It lives to 12 years and is nocturnal (Allen et al. 2002).

Fish mature at 3-5 years (Davis 1977a). Eggs are spherical, non-adhesive and demersal, 2.6-4.0 mm in diameter (Lake 1967c). Fecundity increases with fish size ranging from 9,000-26,000 eggs (Davis 1977b; Lake 1967a). Spawning season is spring to summer at about 24 degrees C (Davis 1977b; Lake 1967a). Males build nests then guard the eggs until hatching after the female departs. Hatching occurs after 8-11 days depending on temperature. Major recruitment events coincide with overbank flooding. It is considered non-migratory with small home ranges (Davis 1977c; Koster et al. 2015) but dispersal, particularly by juveniles may have been underestimated.

Generation Length

The generation length of the Freshwater Catfish is inferred to be 6 to 10 years. This is based on longevity (up to 12 years) and age of first breeding (3-5 years). Breeding success is unknown.

Distribution

The taxon is endemic to Australia. It occurs throughout much of the Murray-Darling River drainage and in coastal drainages from northern Queensland to central New South Wales. Victorian populations occur in the Murray River

Tandanus tandanus

Freshwater Catfish

tributaries and the Murray River up to Echuca. It was introduced into the Wimmera River at Horsham and Victoria Lake, Maryborough.

Habitat

The Freshwater Catfish occurs in a wide range of habitats, although it appears to show a preference for slower flowing areas. Fish are often associated with some form of structure especially aquatic vegetation but also undercut banks and root masses.

Threats

Threats include habitat loss, including reduced flooding and access to floodplain habitats, resulting from draining of wetlands, loss of instream vegetation, impacts of European Carp *Cyprinus carpio*, predation on nests by Redfin *Perca fluviatilis* and cold water pollution from impoundments. However, Freshwater Catfish is one of the most drought tolerant fish because it can tolerate very poor water quality and persist in mud pools.

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p style="text-align: center;">based on any of the following:</p> <ul style="list-style-type: none"> (a) direct observation [except A3] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites 			

Evidence:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

Tandanus tandanus

Freshwater Catfish

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 284 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas. Recent records at Gunbower Creek and Hughes Creek are believed to have gone.

The taxon is estimated to be severely fragmented. The only substantial subpopulation is in the Wimmera (introduced in the 1970s from Murray River fish). All other subpopulations are relatively small and isolated, and if lost there would be little or no means of natural recolonisation.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above. Irrigation upgrades in northern Victoria could affect the taxon by converting flow regimes and proposals to remove weir pools. The Little Murray subpopulations may potentially be affected by further serious droughts.

Tandanus tandanus

Freshwater Catfish

Criterion C. Small Population size and decline		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b)	Extreme fluctuations in the number of mature individuals			

Evidence:

Ineligible under Criterion C as Data Deficient

There is insufficient evidence to determine the number of mature individuals. Freshwater catfish are benthic, cryptic species that are hard to catch so it is extremely difficult to quantify the population size. The most effective survey method is fyke netting so other survey techniques may be ineffective in assessing population sizes and condition. To obtain reliable data, targeted surveys across its range would be required. There is not consistent regular monitoring of all the populations.

Criterion D. Very small or restricted populations		Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)		< 50	< 250	< 1,000
D2. Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.		-	-	D2. Typically: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

There is insufficient evidence to determine the number of mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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Tandanus tandanus Freshwater Catfish

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