The IUCN Red List of Threatened Species™
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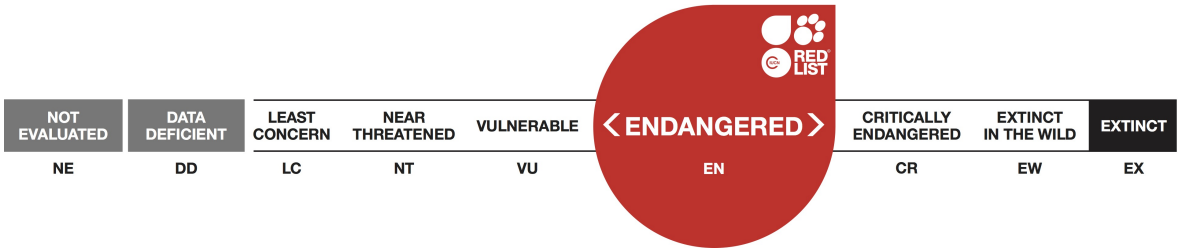
Scope: Global
Language: English

Nannatherina balstoni, Balston's Pygmy Perch

Assessment by: Morgan, D.L. & Beatty, S.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Perciformes	Percichthyidae

Taxon Name: *Nannatherina balstoni* Regan, 1906

Common Name(s):

- English: Balston's Pygmy Perch, King River Perchlet

Taxonomic Source(s):

Allen, G. R., Midgley, S. H. and Allen, M. 2002. *Field guide to the freshwater fishes of Australia*. Western Australia Museum, Perth, Western Australia.

Identification Information:

Nannatherina balstoni is the largest pygmy perch in south-western Australia, where it attains a length of 90 mm TL. It is most readily distinguished from other pygmy perches in the region by the large mouth, which extends well below the eye (Morgan *et al*. 2011). The body has a series of dark stripe and bars that appear as a diamond shaped pattern over the sides. During breeding, an orange tinge appears on bottom jaw; dorsal rays VII-VIII, 9-11; anal rays III, 8-10; pectoral rays 12-13; lateral line consisting of an interrupted series 2-17 tubed scales (Allen *et al*. 2002).

Assessment Information

Red List Category & Criteria: Endangered B2ab(i,ii,iii,iv) ver 3.1

Year Published: 2019

Date Assessed: January 9, 2019

Justification:

This species is assessed as Endangered (EN) due to small AOO, limited locations (1) and continuing decline in distribution, sub populations and habitat. *Nannatherina balstoni* has not been assessed since it was listed as DD in 1996. Only limited information was provided in that review. Since that time, the ecology and distribution has been mapped (Morgan *et al*. 1995, 1998; Gill and Morgan 1998), salinity tolerances examined (Beatty *et al*. 2011) and impacts of climate change determined (Beatty *et al*. 2014). There is a loss new information of the spread of exotic fish into refuge habitats (Allen *et al*. 2017) and the species has been found to have been lost from several catchments (Morgan *et al*. 2014).

Previously Published Red List Assessments

1996 – Data Deficient (DD)
http://dx.doi.org/10.2305/IUCN.UK.1996.RLTS.T14320A4431394.en

1994 – Rare (R)

Geographic Range

http://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T14320A123378416.en

Range Description:

This species is historically known from the south west coast of Western Australia from Goodga River to Gin Gin Brook (Morgan *et al*. 1995, 1998, 2011, 2014) although the species has been lost from the northern extent of their range (Morgan *et al*. 2014). It sporadically inhabits tannin-stained freshwater pools, streams and lakes in sandy areas within the study area, and is often extremely rare when encountered. The species has disappeared from river systems and wetlands north of Margaret River and is now only found in drainage systems and wetlands between Margaret River and Two Peoples Bay. This species has recently been found to only occupy around 69% of its historical distribution as it has been lost from Turner Brook, King River and Moore River (Morgan *et al*. 2014).

Country Occurrence:

Native: Australia (Western Australia)

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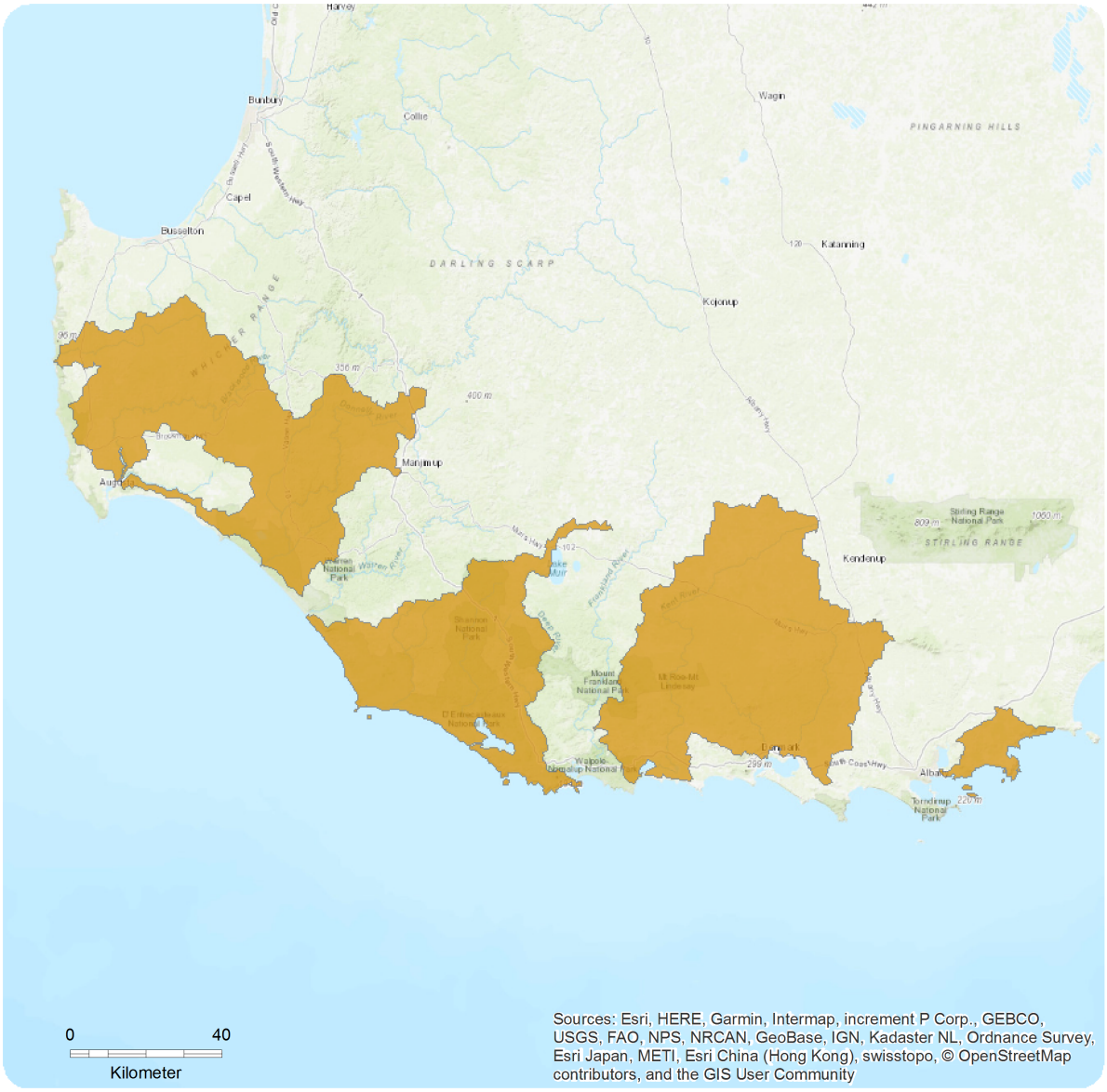
Distribution Map

Nannatherina balstoni



Range

Extant (resident)

Compiled by:

Lintermans, M. and colleagues 2019 IUCN Red List assessment for Australian freshwater fish.

NE DD LC NT VU **EN** ENDANGERED CR EW EX

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

Most populations are represented by low numbers of fish and the species has been lost from the northern extent of its range throughout the Swan Coastal Plain (Morgan *et al*. 2014). The population in Turner Brook no longer exists and the species is presumed to be extirpated from the type locality (King River) (Morgan *et al*. 2014). Although often found in acid pools and lakes of the region, it is also known from spring fed streams (Beatty *et al*. 2014). Populations were examined for biological criteria in peat flat pools and small streams by Morgan *et al*. (1995). In recent surveys for the species throughout its southern range (between the Bow and Hay Rivers) it accounted for ~2.5% of all native fish captured, highlighting its rarity (Beatty *et al*. 2015). Relative abundance varied among river systems with it representing 12, 10, 6.4 and 0.7% of all native fishes in the Bow, Kent, Denmark and Hay River systems, respectively (Beatty *et al*. 2015), which contrasted with the population in Milyeannup Brook (a tributary of the Blackwood River) where it contributed to ~64% of all fishes captured, which is a perennial groundwater dependent system (Beatty *et al*. 2015). Population estimates using mark-recapture in the only known location within the Hay River system suggest that there were only 26 individuals in one pool, compared to 8117 Western Pygmy Perch (*Nannoperca vittata*) (Beatty *et al*. 2015).

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

Nannatherina balstoni inhabits acidic, tannin-stained freshwater pools, streams and lakes in sandy areas generally within 30 km of the coast (Morgan *et al*. 1995, 1998). The species is generally restricted to coastal peat flats along the south coast in the extreme south-west of the continent (Morgan *et al*. 1998). It is one of the rarest of all of the fishes of the region, and is usually found in low numbers compared to sympatric species. For example, a mark-recapture study in the only known location within the Hay River system suggest that there were only 26 individuals in one pool, compared to 8117 Western Pygmy Perch (*Nannoperca vittata*) and 90 Little Pygmy Perch (*Nannoperca pygmaea*) (Beatty *et al*. 2015). In peat flat pools and coastal streams the species spawns at the end of its first year of life, when males and females have reached on average 60 and 63 mm, respectively (Morgan *et al*. 1995). Spawning generally peaks in mid-winter (July) and takes place among inundated riparian vegetation. In larger river systems, such as the Hay River and Blackwood River, the species undertakes potamodromous migrations (for spawning) into small seasonally flowing or spring fed tributaries, with the resultant new recruits moving back downstream as flows in the tributaries subside in late spring (Beatty *et al*. 2014, 2015). Many of the main channels of some of the larger rivers of the region are no longer suitable as they have become secondarily salinised and exceed to tolerance of the species (Beatty *et al*. 2011). Larvae commence feeding on cladocerans, before also consuming other crustaceans from about 10 mm BL (Gill and Morgan 1998). There is a distinct dietary switch to terrestrially derived fauna from ~25 mm TL and includes arachnids, hymenopterans and dipterans (Morgan *et al*. 1995, Gill and Morgan 1998). Growth is rapid compared to other pygmy perches of the region and although the species typically survives for just over a year, fish up to 3 or 4 years have been recorded, where they reach a maximum size of 90 mm TL (Morgan *et al*. 1995, 2011).

Systems: Freshwater

Use and Trade

The is no trade in the species and it is not harvested.

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Threats (see Appendix for additional information)

The distribution of this species has contracted markedly. The species has disappeared from all rivers between Moore River and Margaret River and the remaining populations are extremely fragmented. The range decline seen in this species is largely due to increased salinisation of habitats, land clearing and habitat degradation along with altered flow regimes due to climate change and the removal of water for irrigation. Barriers constructed along its distribution prevent migration and introduced alien fishes have also been identified as threats. Trout are stocked into their habitats in the Donnelly River and Blackwood River; *Gambusia holbrooki* have recently colonised their refuges habitats in the upper Margaret River (see Allen *et al*. 2017). Many of the secondarily salinised rivers are no longer suitable habitats for the species or are becoming unsuitable as salinity increases (see Beatty *et al*. 2011, 2014, 2015). Climate change projections suggest that groundwater and surface water will continue to decline in this region and will impact the species across most of their habitats (see Beatty *et al*. 2014, Ogston *et al*. 2016).

Conservation Actions (see Appendix for additional information)

This species was monitored between 2013 and 2015, but requires ongoing monitoring of certain populations where it is most threatened (e.g. Margaret River, Blackwood River, Hay River) (see Beatty *et al*. 2015, Allen *et al*. 2017). It has been listed as vulnerable under the EPBC Act 1999. It is protected in WA under the WA Wildlife Conservation Act 1950.

Credits

Assessor(s): Morgan, D.L. & Beatty, S.

Reviewer(s): Moore, G. & Brown, C.

Facilitators(s) and Compiler(s): Tallant, J.

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External Resources

For Images and External Links to Additional Information, please see the Red List website.

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Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	Resident	Suitable	Yes

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	-	-	-
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	-	-	-
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)	Ongoing	-	-	-
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.2. Abstraction of surface water (commercial use)	Ongoing	-	-	-
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Oncorhynchus mykiss)	Ongoing	-	-	-
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Gambusia holbrooki)	Ongoing	-	-	-
8. Invasive and other problematic species, genes & diseases -> 8.2. Problematic native species/diseases -> 8.2.1. Unspecified species	Ongoing	-	-	-

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Research, Monitoring and Planning

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Conservation Actions in Place
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over part of range
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 71-80
Area based regional management plan: No
Invasive species control or prevention: No
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced beningly: No
Subject to ex-situ conservation: No
In-Place Education
Subject to recent education and awareness programmes: Yes
Included in international legislation: No
Subject to any international management/trade controls: No

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.2. Invasive/problematic species control
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
2. Conservation Planning -> 2.1. Species Action/Recovery Plan

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Research Needed
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km²): 216
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km²): 15867
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 1
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: No
Population
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 1
Movement patterns: Full Migrant
Congregatory: Congregatory (and dispersive)

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The IUCN Red List Partnership

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The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.