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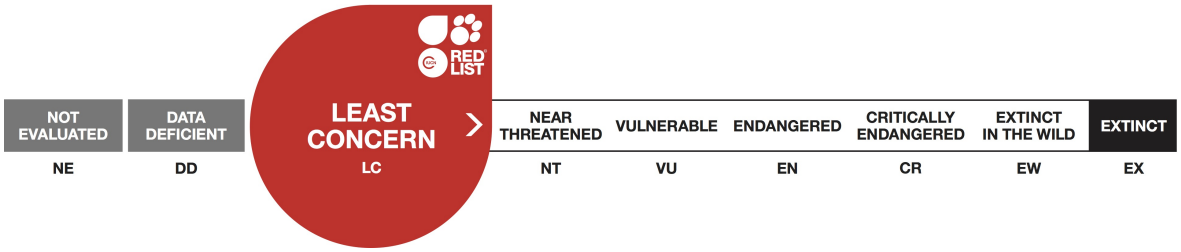
Scope: Global
Language: English

Galaxias truttaceus, Spotted Galaxias

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



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Osmeriformes	Galaxiidae

Taxon Name: *Galaxias truttaceus* Valenciennes, 1846

Common Name(s):

- English: Spotted Galaxias, Spotted Mountain Trout, Trout Minnow

Taxonomic Source(s):

Eschmeyer, W.N., Fricke, R., and Ven der Laan, R. (eds.). 2017. Catalog of Fishes: genera, species, references. Updated 01 November 2017. Available at: http://researcharchive.calacademy.org/research/ichthyology/catelog/fishcatmain.asp.

Taxonomic Notes:

Using combined genetic analyses, Morgan *et al.* (2016) confirmed the presence of genetically distinctive western and eastern subpopulations in *G. truttaceus*, but found no evidence that these subpopulations reflect either different species or subspecies (congruent with morphological data), meeting only part of the genetic criteria for separate evolutionary significant units (ESUs) (McDowall and Frankenberg 1981, Morgan *et al.* 2016). These authors state that the western populations do merit recognition as discrete ESUs when the definition of an ESU is broadened to include ecological criteria, namely, the unique ecology of western populations as a signal of evolutionary divergence and regional adaptation (see Morgan 2003, Morgan *et al.* 2016).

Assessment Information

Red List Category & Criteria: Least Concern ver 3.1

Year Published: 2019

Date Assessed: January 14, 2019

Justification:

This species is assessed as Least Concern. It is widespread and common in south-eastern Australia. Populations in Western Australian have previously declined and are now extremely restricted and isolated, but currently considered stable. Loss of the Western Australian subpopulations would result in a dramatic decline in the extent of occurrence (EOO) of the species.

Geographic Range

Range Description:

Galaxias truttaceus is known from both south-western and south-eastern Australia. The eastern Australian populations occur in South Australia, Tasmania (including King, Flinders and Clarke islands in Bass Strait) and Victoria (Allen *et al.* 2002) where the species is widespread and abundant. The Western Australian populations are currently known from three catchments on the southern coast, namely,

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Goodga River, Angove River and Kent River (Morgan *et al.* 2016). All three catchments that support known extant populations in south-western Australia are landlocked and drain to coastal lakes that have very limited connection with the ocean through a complex arrangement of wetlands that may become seasonally connected only during very wet years (Morgan 2003, Coleman 2010, Morgan *et al.* 2016).

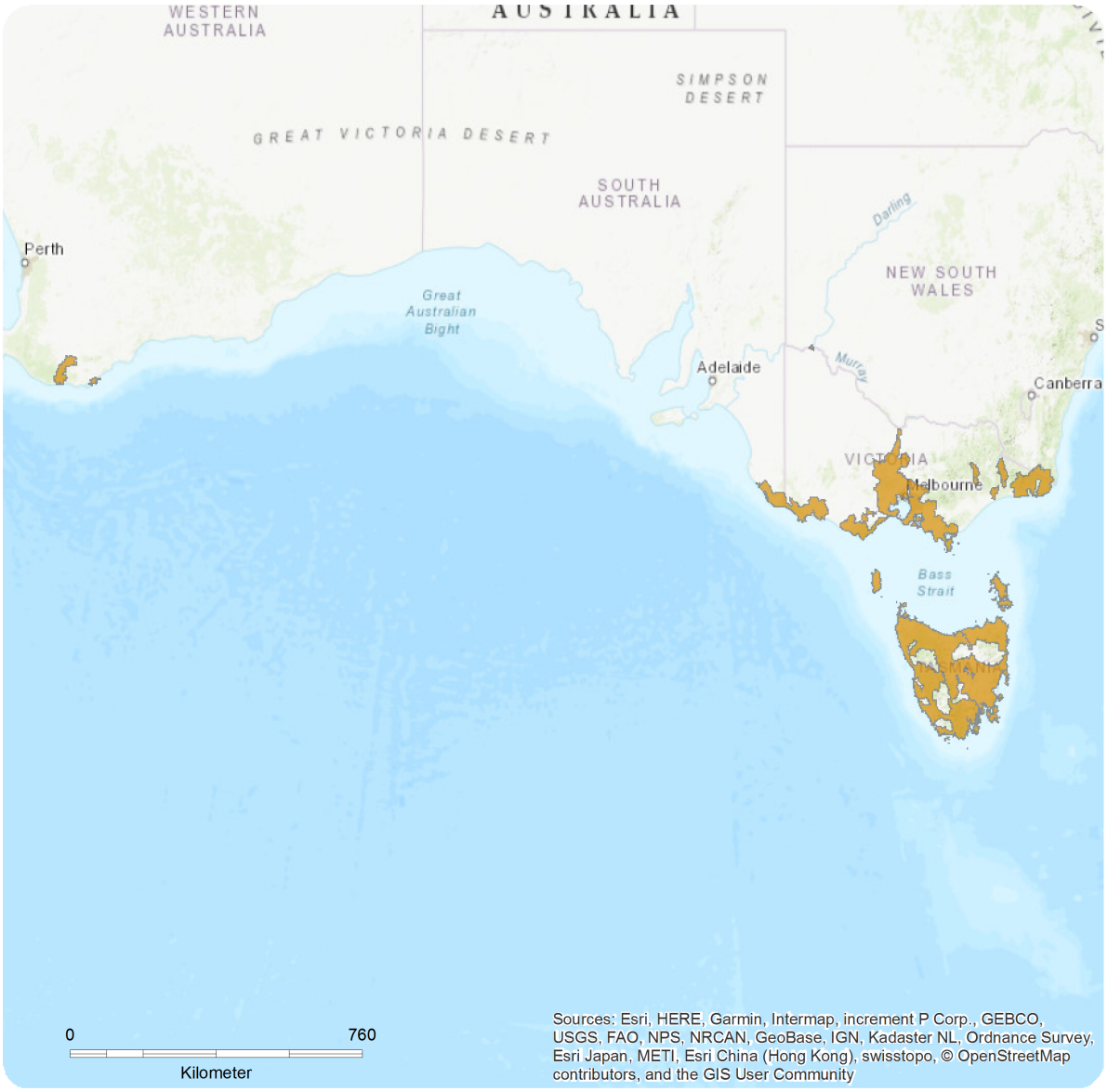
Using combined genetic analyses, Morgan *et al.* (2016) confirmed the presence of genetically distinctive western and eastern subpopulations in *G. truttaceus*, but found no evidence that these subpopulations reflect either different species or subspecies (congruent with morphological data), meeting only part of the genetic criteria for separate evolutionary significant units (ESUs) (McDowall and Frankenberg 1981, Morgan *et al.* 2016). These authors state that the western populations do merit recognition as discrete ESUs when the definition of an ESU is broadened to include ecological criteria, namely, the unique ecology of western populations as a signal of evolutionary divergence and regional adaptation (see Morgan 2003, Morgan *et al.* 2016).

Country Occurrence:

Native: Australia (South Australia, Tasmania, Victoria, Western Australia)

Distribution Map

Galaxias truttaceus



Range

Extant (resident)

Compiled by:

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

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

There is no quantitative information available relating to current or predicted population trends for this species in south-eastern Australia. However, recent studies have examined aspects of *G. truttaceus* in the Goodga River, Western Australia with Allen (2016) giving a population estimate of individual *G. truttaceus* > 80 mm TL (mature animals) being 13,910 (lower/upper 95% CI = 8,948-18,873), and extrapolated this to be ~ 20,000 individuals of all size classes. This is the largest of the three WA populations, owing to the presence of a fishway that was constructed in 2003, and increased the habitat available to the species (Morgan and Beatty 2006).

Current Population Trend: Stable

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

This is a lotic species that occurs in natural lowland coastal habitats and favours cover such as logs, boulders and overhung banks on the edges of pools. Coastal populations spawn in autumn-winter, and the larvae have a marine phase of several months before returning to estuaries as 45-65 mm whitebait in spring. In landlocked populations, spawning occurs in autumn (western) or spring (eastern) after an upstream migration into feeder streams, and the larvae fulfil their pelagic phase in downstream lakes. Fecundity is moderate to high: 1,000-16,000 eggs deposited amongst instream aquatic vegetation (Humphries 1989, Lintermans 2007).

Systems: Freshwater, Marine

Use and Trade

This species is found with low frequency in the aquarium trade in Australia (T. Raadik pers. comm. 2019).

Threats **(see Appendix for additional information)**

Physical barriers to migratory spawning waters are a threat to this species across its range (Threatened Species Scientific Committee 2006). Hydrology changes, such as increases in water temperature and sedimentation of habitat, may have caused the local extirpation of this species from watersheds (Threatened Species Scientific Committee 2006). Landlocked populations of the species may be adversely affected by competition resulting from the deliberate or inadvertent introduction of exotic fish species, such as Rainbow Trout (*Oncorhynchus mykiss*), Brown Trout (*Salmo trutta*), Redfin Perch (*Perca fluviatilis*) and Eastern Gambusia (*Gambusia holbrooki*). This species may also be threatened by the parasite *Ligula intestinalis* (Morgan 2003), which affects the swimming ability and fecundity of individuals. Habitat loss due to urbanisation (e.g. around Melbourne) may also threaten this species.

Conservation Actions **(see Appendix for additional information)**

The Western Australian population is currently listed as Endangered in Western Australia under Schedule 1 of the Wildlife Conservation Act 1950 (Dawson 2018), as rare or likely to become extinct under Schedule 4 of the Wildlife Conservation Act 1950, and Critically Endangered under the Environmental Protection and Biodiversity Conservation (EPBC) ACT 1999 (Department of the Environment 2018). There are currently no action recovery plans in place.

Monitoring of the species and of the spread of the parasite *Ligula intestinalis* across its range is

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recommended. Research into the importance of flow and barrier impact to recruitment is required, and should be considered when designing fishways (Morgan and Beatty 2006).

Credits

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

Reviewer(s): Bice, C., Bruce, A., Coleman, R., Freeman, R., Gilligan, D., Koehn, J., Lintermans, M., Pearce, L., Raadik, T., Scott, K., Tims, A. & Whiterod, N.

Facilitators(s) and Compiler(s): Lutz, M., Sayer, C. & Smith, E.

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External Resources

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

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)	-	Suitable	-
5. Wetlands (inland) -> 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)	-	Suitable	-
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	-	Suitable	-
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	-	Suitable	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	-	-	-
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	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 -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Perca fluviatilis)	Ongoing	-	-	-
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Salmo trutta)	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	-	-	-
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.2. Soil erosion, sedimentation	Ongoing	-	-	-

Conservation Actions in Place

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

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Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No

Research Needed

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

Research Needed
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km^2): 2356
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km^2): 1332549
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): Unknown
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: Unknown

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The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

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.