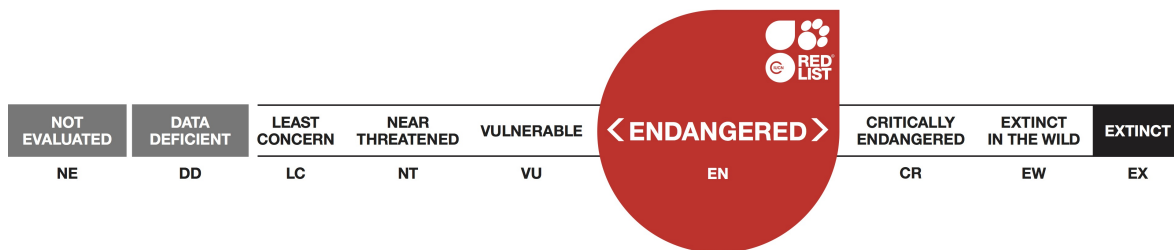


## *Galaxiella munda*, Western Mud Minnow

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



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Osmeriformes	Galaxiidae

**Taxon Name:** *Galaxiella munda* McDowall, 1978

### Common Name(s):

- English: Western Mud Minnow, Mud Minnow, Western Dwarf Minnow

### Taxonomic Source(s):

McDowall, R.M. 1978. A new genus and species of galaxiid fish from Australia (Salmoniformes : Galaxiidae). *Journal of the Royal Society of New Zealand* 8(1): 115-124.

### Identification Information:

*Galaxiella munda* (Mud Minnow) is a small freshwater fish with a scaleless, elongated body and long straight gut, which grows to a maximum length of 58mm (Morgan *et al.* 1996). Between June and October (the breeding season), the adults develop two olive-brown longitudinal bands that are separated by an orange stripe (mid-lateral stripe) and a silver belly (Morgan *et al.* 1996; Allen *et al.* 2002). The lateral stripe gradually disappears to become a thin silver-white line by October and by January most fish are light olive-brown in colour (Morgan *et al.* 1996).

## Assessment Information

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

**Year Published:** 2019

**Date Assessed:** January 10, 2019

### Justification:

This species is assessed as Endangered as a result of its limited area of occupancy (AOO; 124 km<sup>2</sup>), as it is found at only two locations and is experiencing declines in distribution, habitat and subpopulations.

### Previously Published Red List Assessments

1996 – Lower Risk/near threatened (LR/nt)

<http://dx.doi.org/10.2305/IUCN.UK.1996.RLTS.T8821A12934437.en>

## Geographic Range

### Range Description:

This species is known to occur in the south-western corner of Western Australia, extending from Margaret River in the west to Two Peoples Bay (near Albany) in the east, with an isolated population occurring approximately 100 km north of Perth near Gingin (Morgan *et al.* 1996, Morgan *et al.* 1998, Allen *et al.* 2002). This species has also recently been found at one site on the Vasse River and two sites on the Carburnup River, near Busselton, within 50 km and north of the Margaret River (Morgan and

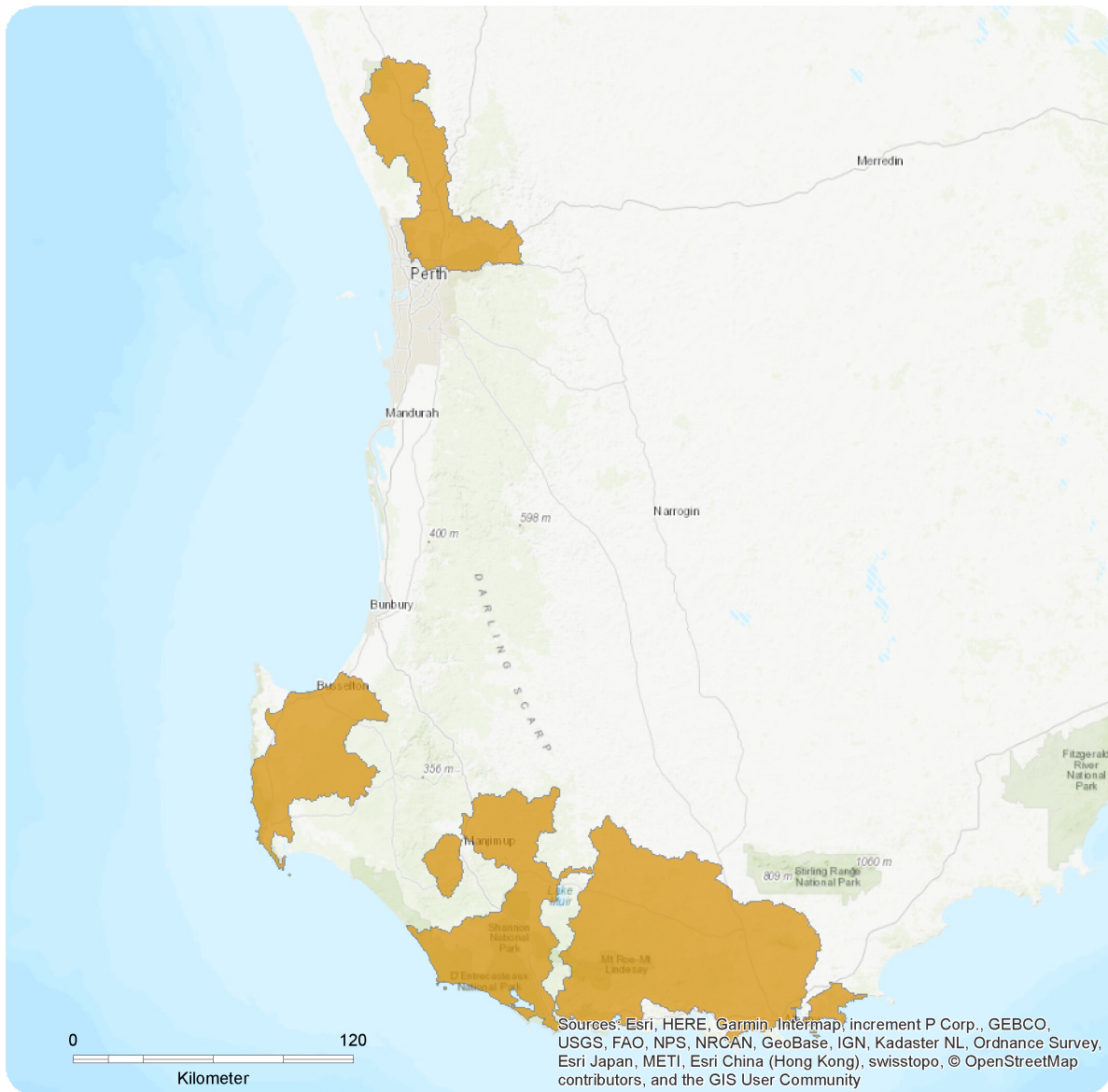
Beatty 2004, Beatty *et al.* 2009). This species is not likely to be found throughout the length of all the streams and river systems that it occurs in, and is more likely to be restricted to just a few kilometres of the small freshwater tributaries.

**Country Occurrence:**

**Native:** Australia (Western Australia)

# Distribution Map

*Galaxiella munda*



## 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.



## Population

The total population size of this species is unknown and there are insufficient data to adequately determine any trends in the species' population size (Department of the Environment 2018). However, there have been observed and inferred losses of populations and likely reductions in total number of individuals due to secondary salinisation, groundwater and flow declines, and the effects of alien fishes.

**Current Population Trend:** Decreasing

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

This species generally occurs in swift flowing streams within remnant forest or *Melaleuca* riparian zones and is typically found near submerged vegetation, occasionally in the still water of ponds, swamps and roadside drains, and often inhabiting darkly tannin-stained and acidic water (Morgan *et al.* 1998, 2011; Allen *et al.* 2002). This species has a one year life cycle and is known to breed during the winter-spring period between June and October, with females depositing several clutches of eggs over a period of a few weeks in flooded vegetation (Pen *et al.* 1991, Morgan *et al.* 1998).

**Systems:** Freshwater

## Use and Trade

There is no information available relating to the use or trade of this species.

## Threats (see Appendix for additional information)

Threats to this species include its low tolerance to salinity and increasing salinisation of freshwater streams, and ongoing effects of extreme flow and groundwater reductions due to climate change, along with water extraction (Morgan *et al.* 1998, 2011; Phillips *et al.* 2007). Competition and predation from introduced fish, including Redfin Perch (*Perca fluviatilis*), Eastern Gambusia (*Gambusia holbrooki*), Rainbow Trout (*Oncorhynchus mykiss*) and Brown Trout (*Salmo trutta*) are also likely to have severely impacted the species (Morgan *et al.* 2004). This species may also be affected by river regulation (e.g. weir and dam construction) and the subsequent infestation (or stocking) of these areas with predatory fish species. It is unclear however to what degree these threats have resulted in at least a substantial reduction in species' numbers. The recent observed loss of the species from the Margaret River has been attributed to a combination of invasion by Eastern Gambusia and flow declines.

## Conservation Actions (see Appendix for additional information)

This species is listed as Vulnerable in Western Australia under Schedule 3 of the Wildlife Conservation Act 1950 (January 2018 list). Populations of this species have been reported within five national parks and three nature reserves: Shannon River, D'Entrecasteaux, Mount Frankland, Walpole-Nornalup and Mt Roe-Mt Lindsay National Parks and Lake Muir, Gum Link Road, and Blue Gum Road Nature Reserves, which are all currently managed by the Western Australian Government. This species is also known from a number of state forests, crown reserves, private property and leasehold land (CALM 2005).

## Credits

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

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

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

## Bibliography

Beatty, S., Morgan, D., and Allen, M. 2009. Freshwater fish and crayfish communities of the Carburnup and Buayanyup Rivers: conservation significance and management considerations. Murdoch University, Perth.

IUCN. 2019. The IUCN Red List of Threatened Species. Version 2019-3. Available at: [www.iucnredlist.org](http://www.iucnredlist.org). (Accessed: 10 December 2019).

Morgan, D.L., Beatty, S.J., Klunzinger, M.W., Allen, M.G. and Burnham, Q.F. 2011. *A Field Guide to Freshwater Fishes, Crayfishes & Mussels of South-western Australia*. SERCUL & Freshwater Fish Group & Fish Health Unit, Murdoch University, Perth.

Pen, L.J., Potter, I.C., and Hilliard, R.W. 1991. Biology of *Galaxiella munda* McDowall (Teleostei: Galaxiidae), including a comparison of the reproductive strategies of this and three other local species. *Journal of Fish Biology* 39: 717-731.

## Citation

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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) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	-	Suitable	-
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	-	Suitable	-

### Threats

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

Threat	Timing	Scope	Severity	Impact Score
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	-	-	-
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.4. Abstraction of surface water (unknown use)	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species ( <i>Oncorhynchus mykiss</i> )	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species ( <i>Gambusia affinis</i> )	Ongoing	Minority (50%)	Very rapid declines	Medium impact: 7
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species ( <i>Salmo trutta</i> )	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5



8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Perca fluviatilis)	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.4. Type Unknown/Unrecorded	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality		

## Conservation Actions in Place

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

<b>Conservation Actions in Place</b>
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: No
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 81-90
Area based regional management plan: Yes
Invasive species control or prevention: No
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced benignly: 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>)

<b>Conservation Actions Needed</b>
2. Land/water management -> 2.2. Invasive/problematic species control
3. Species management -> 3.2. Species recovery

## Research Needed

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

<b>Research Needed</b>
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats

## Additional Data Fields

<b>Distribution</b>
Estimated area of occupancy (AOO) (km <sup>2</sup> ): 124
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km <sup>2</sup> ): 50162
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 2
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 30
Upper elevation limit (m): 300
<b>Population</b>
Population severely fragmented: No
Continuing decline in subpopulations: Yes
Extreme fluctuations in subpopulations: Unknown
All individuals in one subpopulation: No
<b>Habitats and Ecology</b>
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 1

<b>Habitats and Ecology</b>
Movement patterns: Not a Migrant
Congregatory: Congregatory (year-round)

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