The IUCN Red List of Threatened Species™
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Scope(s): Global
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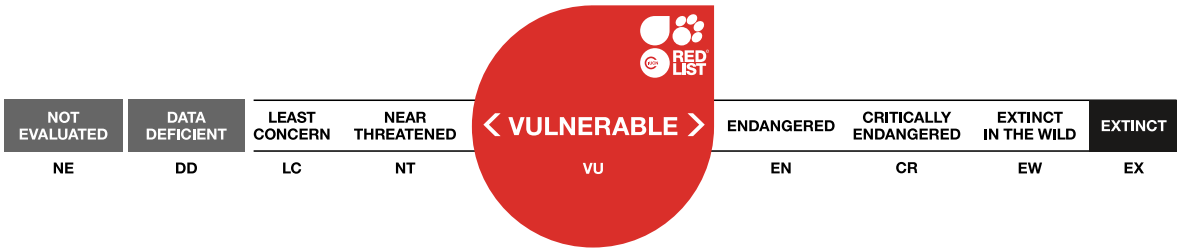
Odontesthes hatcheri, Pejerrey patagónico

Assessment by: Cussac, V.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Atheriniformes	Atherinopsidae

Scientific Name: *Odontesthes hatcheri* (Eigenmann, 1909)

Synonym(s):

- *Menidia hatcheri* Eigenmann, 1909

Common Name(s):

- Spanish; Castilian: Pejerrey patagónico
- English: Patagonian Pejerrey

Taxonomic Source(s):

Fricke, R., Eschmeyer, W.N. and Van der Laan, R. (eds). 2020. Eschmeyer's Catalog of Fishes: genera, species, references. Updated 04 May 2020. Available at: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp.

Assessment Information

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

Year Published: 2022

Date Assessed: June 2, 2022

Justification:

This species has a widespread but disjunct population in the Andean Subregion of southern South America. There are 20 subpopulations remaining with gene pools that are 100% *Odontesthes hatcheri*, mainly in the south-west of the distribution. It has an area of occupancy (AOO) of 80 km^2. Introgression by stocking of *Odontesthes bonariensis* is the primary threat. The 20 subpopulations are grouped into six disconnected basins. These six basins represent six locations based on this threat. There has been observed continuing decline in the AOO, extent of occurrence (EOO), number of subpopulations, and number of mature individuals as a result of this threat. There is also inferred continuing decline in habitat extent and quality due to urbanisation. Therefore, this species is assessed as Vulnerable.

Geographic Range

Range Description:

The Patagonian Pejerrey, *Odontesthes hatcheri* (Eigenmann, 1909), is a native freshwater species from the Andean Subregion of southern South America (Dyer 2000, López *et al.* 2008), encompassing a vast latitudinal range, from 27°S to 54°S. This species is commonly found in rivers, lakes, and reservoirs of both Atlantic and Pacific-Patagonian drainages (Aigo *et al.* 2008).

However, it should be noted that the species is now absent in some localities in its original distribution (Conte-Grand *et al.* 2015) and in a recent survey (December 2019) the species was absent in 10 lakes

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where it was cited by Aigo *et al.* (2008). Throughout much of the distribution the species is genetically introgressed by the neotropical *O. bonaeriensis* (Crichigno *et al.* 2013, Conte-Grand *et al.* 2015, Rueda *et al.* 2016, Hughes *et al.* 2020). There are 20 subpopulations remaining with gene pools that are 100% *Odontesthes hatcheri*, mainly in the south-west of the distribution (Rueda *et al.* 2016).

Country Occurrence:

Native, Extant (resident): Argentina (Chubut, Neuquén, Rio Negro, Santa Cruz); Chile (Aisén)

Native, Possibly Extinct: Argentina (La Pampa, Mendoza)

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Distribution Map

Legend

EXTANT (RESIDENT)

POSSIBLY EXTINCT

Compiled by:

IUCN (International Union for Conservation of Nature) 2020

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

Negative effects on the *O. hatcheri* population by escaped farmed Rainbow Trout are well documented in Alicura Reservoir (Cussac *et al.* 2014; Nabaes Jodar *et al.* 2017, 2020). The population is in decline and the species is now absent from a number of localities known from its original distribution (Conte-Grand *et al.* 2015) and from 10 lakes where it was cited by Aigo *et al.* (2008). Additionally, the species is genetically introgressed by the neotropical *O. bonariensis* throughout much of its distribution (Crichigno *et al.* 2013, Conte-Grand *et al.* 2015, Rueda *et al.* 2016, Hughes *et al.* 2020). There are 20 subpopulations remaining with gene pools that are 100% *Odontesthes hatcheri*, mainly in the south-west of the distribution (Rueda *et al.* 2016).

Current Population Trend: Decreasing

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

The habitat is restricted to vegetated lake littoral zones. These areas are being destroyed by urbanization and threatened by warming and CO_2 increase (Crichigno and Cussac 2022).

Systems: Freshwater (=Inland waters)

Use and Trade

This species is used in sport fishing without release (Reglamento General de Pesca Deportiva Continental Patagónico 2020). It is subjected to artisanal and recreational fisheries outside national park areas (Barletta *et al.* 2015).

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

Introgression by stocking of *Odontesthes bonariensis* (Valenciennes, 1835) was documented at morphological (Crichigno *et al.* 2013, Conte-Grand *et al.* 2015) and genetic levels (Conte-Grand *et al.* 2015, Rueda *et al.* 2016). The occurrence of hybridization between these two atherinopsids has been evidenced in fish held in captivity (Crichigno *et al.* 2014).

Macchi *et al.* (1999) showed that in four Patagonian lakes and reservoirs (Gutierrez, Morenito, Alicura and Piedra del Aguila), *O. hatcheri* was mostly predated by *Salmo trutta.* Especially in Alicurá reservoir following the onset of aquaculture 25 years ago, the almost total absence of *O. hatcheri* in littoral captures was observed (Cussac *et al.* 2014, Nabaes Jodar *et al.* 2017).

The species is restricted to vegetated lake littoral zones. These areas are being destroyed by urbanization and threatened by warming and CO_2 increase (Crichigno and Cussac 2022).

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

Three hatcheries (Estación Hidrobiológica de Chascomús, Estación de Piscicultura de Embalse and Piscicultura Río Limay) have participated since 1930 in stocking programmes of *O. hatcheri* and *O. bonariensis* along the Andean Cuyan and Patagonian Provinces (González and Mastrarrigo 1954, Amalfi 2009). However, these actions seem to have contributed more to introgression than to *O. hatcheri* conservation (Hughes *et al.* 2020). Capture is forbidden in national parks of Argentina.

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Credits

Assessor(s): Cussac, V.

Reviewer(s): Lyons, T.J.

Partner(s) and Institution(s): ABQ BioPark

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External Resources

For Supplementary Material, and 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) -> 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)	-	Suitable	-
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	Breeding season	Suitable	Yes

Use and Trade

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

End Use	Local	National	International
1. Food - human	Yes	No	No
15. Sport hunting/specimen collecting	Yes	No	No

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	Majority (50-90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		
2. Agriculture & aquaculture -> 2.4. Marine & freshwater aquaculture -> 2.4.2. Industrial aquaculture	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
	Stresses:	2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Odontesthes bonariensis)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.1. Hybridisation -> 2.3.2. Competition -> 2.3.5. Inbreeding -> 2.3.6. Skewed sex ratios -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Salvelinus fontinalis)	Ongoing	Minority (<50%)	Rapid declines	Medium impact: 6

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	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Salmo trutta)	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Salmo salar)	Ongoing	Minority (<50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Oncorhynchus mykiss)	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Salvelinus namaycush)	Ongoing	Minority (<50%)	Very rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition -> 2.3.7. Reduced reproductive success		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Cyprinus carpio)	Ongoing	Minority (<50%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition		
8. Invasive and other problematic species, genes & diseases -> 8.3. Introduced genetic material	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6

	Stresses:	2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.1. Hybridisation -> 2.3.2. Competition -> 2.3.5. Inbreeding -> 2.3.6. Skewed sex ratios		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		

Conservation Actions in Place

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

Conservation Action in Place
In-place land/water protection
Occurs in at least one protected area: Yes
In-place species management
Successfully reintroduced or introduced benignly: Unknown
Subject to ex-situ conservation: Yes

Conservation Actions Needed

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

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.2. Invasive/problematic species control
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km²): 80
Continuing decline in area of occupancy (AOO): Yes
Estimated extent of occurrence (EOO) (km²): 134293-187641
Continuing decline in extent of occurrence (EOO): Yes
Number of Locations: 6
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 0
Upper elevation limit (m): 800

Population
Continuing decline of mature individuals: Yes
Continuing decline in subpopulations: Yes
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 1
Movement patterns: Altitudinal Migrant
Congregatory: Congregatory (and dispersive)

The IUCN Red List Partnership

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