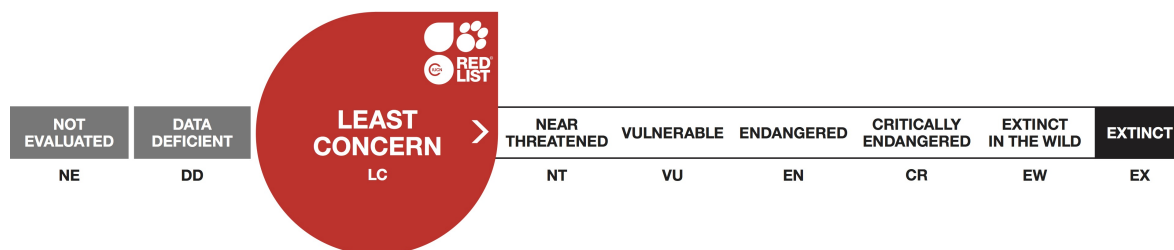


Gasterosteus aculeatus, Threespined Stickleback

Assessment by: NatureServe



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Gasterosteiformes	Gasterosteidae

Taxon Name: *Gasterosteus aculeatus* Linnaeus, 1758

Synonym(s):

- *Gasteracanthus cataphractus* Pallas, 1814
- *Gasterosteus pugetti* Girard, 1856
- *Gasterosteus texanus* Sauvage, 1874
- *Gasterosteus aculeatus messinicus* Stephanidis, 1971
- *Gasterosteus algeriensis* Sauvage, 1874
- *Gasterosteus argentatissimus* Blanchard, 1866
- *Gasterosteus argyropomus* Cuvier, 1829
- *Gasterosteus atkinsii* Bean, 1879
- *Gasterosteus bailloni* Blanchard, 1866
- *Gasterosteus biaculeatus* Mitchill, 1815
- *Gasterosteus biarmatus* Krynicki, 1840
- *Gasterosteus bispinosus* Walbaum, 1792
- *Gasterosteus brachycentrus* Cuvier, 1829
- *Gasterosteus cataphractus* (Pallas, 1814)
- *Gasterosteus cuvieri* Girard, 1850
- *Gasterosteus dekayi* Ayres, 1855
- *Gasterosteus dimidiatus* Reinhardt, 1837
- *Gasterosteus elegans* Blanchard, 1866
- *Gasterosteus hologymnus* Regan, 1909
- *Gasterosteus inopinatus* Girard, 1854
- *Gasterosteus insculptus* Richardson, 1855
- *Gasterosteus intermedius* Girard, 1856
- *Gasterosteus leiurus* Cuvier, 1829
- *Gasterosteus loricatus* Reinhardt, 1837
- *Gasterosteus nemausensis* Crespon, 1844
- *Gasterosteus neoboracensis* DeKay, 1842
- *Gasterosteus neustrianus* Blanchard, 1866
- *Gasterosteus niger* Cuvier, 1829
- *Gasterosteus noveboracensis* Cuvier, 1829
- *Gasterosteus obolarius* Cuvier, 1829
- *Gasterosteus plebeius* Girard, 1854
- *Gasterosteus ponticus* Nordmann, 1840
- *Gasterosteus quadrispinosa* Crespon, 1844
- *Gasterosteus santaeannae* Regan, 1909
- *Gasterosteus semiarmatus* Cuvier, 1829
- *Gasterosteus semiloricatus* Cuvier, 1829
- *Gasterosteus serratus* Ayres, 1855
- *Gasterosteus spinulosus* Yarrell, 1835
- *Gasterosteus suppositus* Sauvage, 1874
- *Gasterosteus teraculeatus* Lacepède, 1801
- *Gasterosteus tetracanthus* Cuvier, 1829
- *Gasterosteus trachurus* Cuvier, 1829

- *Gasterosteus williamsoni* Girard, 1854
- *Leiurus aculeatus* (Linnaeus, 1758)

Regional Assessments:

- Europe

Common Name(s):

- English: Threespined Stickleback, Banstickle, Barnystickle, Barnytickle, Branchy, Branstickle, Burnstickle, Common stickleback, Cushy, Doctor, Eastern stickleback, European stickleback, Jacksharp, New York stickleback, Pinfish, Prickley, Prickly, Prickly, Prickly back, Santa Ana Stickleback, Saw-finned stickleback, Spanicle, Spannystickle, Spanny, Spannytickle, Spantickle, Sparnicle, Sparny, Sparnytickle, Spawn, Spawnykettle, Spawnytickle, Stickleback, Thornback, Thorny back, Threespine Stickleback, Tiddler, Twospine stickleback
- French: Arselet, Cordonnier, Crève-valet, Épinart, Épinglet, Épinoche, Épinoche à trois épines, Estancelin, Estranglo cat, Spinaubé, Spinavaou, Stichling
- Spanish: Espinocho, Espinós, Espinosillo, Espinoso

Taxonomic Source(s):

Mattern, M. Y. and McLennan, D. A. 2004. Total evidence phylogeny of Gasterosteidae: combining molecular, morphological and behavioral data. *Cladistics* 20(1): 14-22.

Assessment Information

Red List Category & Criteria: Least Concern [ver 3.1](#)

Year Published: 2019

Date Assessed: July 20, 2016

Justification:

Gasterosteus aculeatus is a stickleback that inhabits arctic, subarctic, and temperate marine and coastal freshwaters circumglobally in the northern hemisphere. Some subpopulations are threatened and have been declining as a result of invasive species and/or industrial activity near water bodies. Notably, locally adapted subpopulations often form morphologically and genetically distinct 'species pairs', some of which have been wiped out as a result of water quality degradation, invasive species, and hybridization. The species is common and has a vast range, and there are no widespread major threats. Although sub-species level conservation management is warranted for many subpopulations, *Gasterosteus aculeatus* is globally listed as Least Concern.

Previously Published Red List Assessments

2015 – Least Concern (LC)

<http://dx.doi.org/10.2305/IUCN.UK.2015-1.RLTS.T8951A76576912.en>

2013 – Least Concern (LC)

2010 – Least Concern (LC)

2008 – Least Concern (LC)

1996 – Lower Risk/least concern (LR/lc)

Geographic Range

Range Description:

The range of *Gasterosteus aculeatus* is circumarctic and temperate, and encompasses the coastal waters of Eurasia, Iceland, eastern Asia (north of ~35°N) and Northern America (north of ~30°N) including Greenland. In North America, this fish ranges from Alaska to Baja California on the west coast, from Baffin Island and the west side of Hudson Bay to Chesapeake Bay, Virginia, along east coast, and it occurs also in inland areas (including Lake Ontario) along both coasts. Sometimes this species occurs in the open ocean. This species has been introduced and is established in certain areas of California, Massachusetts, and the Great Lakes (Lakes Huron, Michigan, Erie and Superior) (Fuller *et al.* 1999, Stephenson and Momot 2000). In Eurasia it is found along North Sea coasts of Scotland and Scandinavia; coasts of Iceland and White Sea; Atlantic coasts from Ireland northward; southeastern shore of Baltic Sea and its basin (Odra and Vistula drainages); shores of Black Sea and its northern basin (from Danube to Kuban drainages). Almost absent inland in Finland, except north of 68°N. There is a hybrid zone with *G. gymnurus* in the English Channel, southern North Sea, Baltic Sea and their basins. It has been introduced to northern Italy.

The species is most commonly found to 27 m depth, but has been noted to occur at over 300 m.

Country Occurrence:

Native: Algeria; Belarus; Belgium; Bosnia and Herzegovina; Canada (British Columbia, Labrador, Manitoba, New Brunswick, Newfoundland I, Nova Scotia, Nunavut, Ontario, Prince Edward I., Québec); China; Croatia; Denmark; Estonia; Finland; France; Georgia; Germany; Greece; Greenland; Iceland; Ireland; Japan (Hokkaido); Korea, Democratic People's Republic of; Korea, Republic of; Latvia; Lithuania; Mexico (Baja California); Netherlands; Norway; Poland; Portugal; Romania; Russian Federation; Saint Pierre and Miquelon; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine; United Kingdom; United States (Alaska, Aleutian Is., California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Rhode Island, Virginia, Washington)

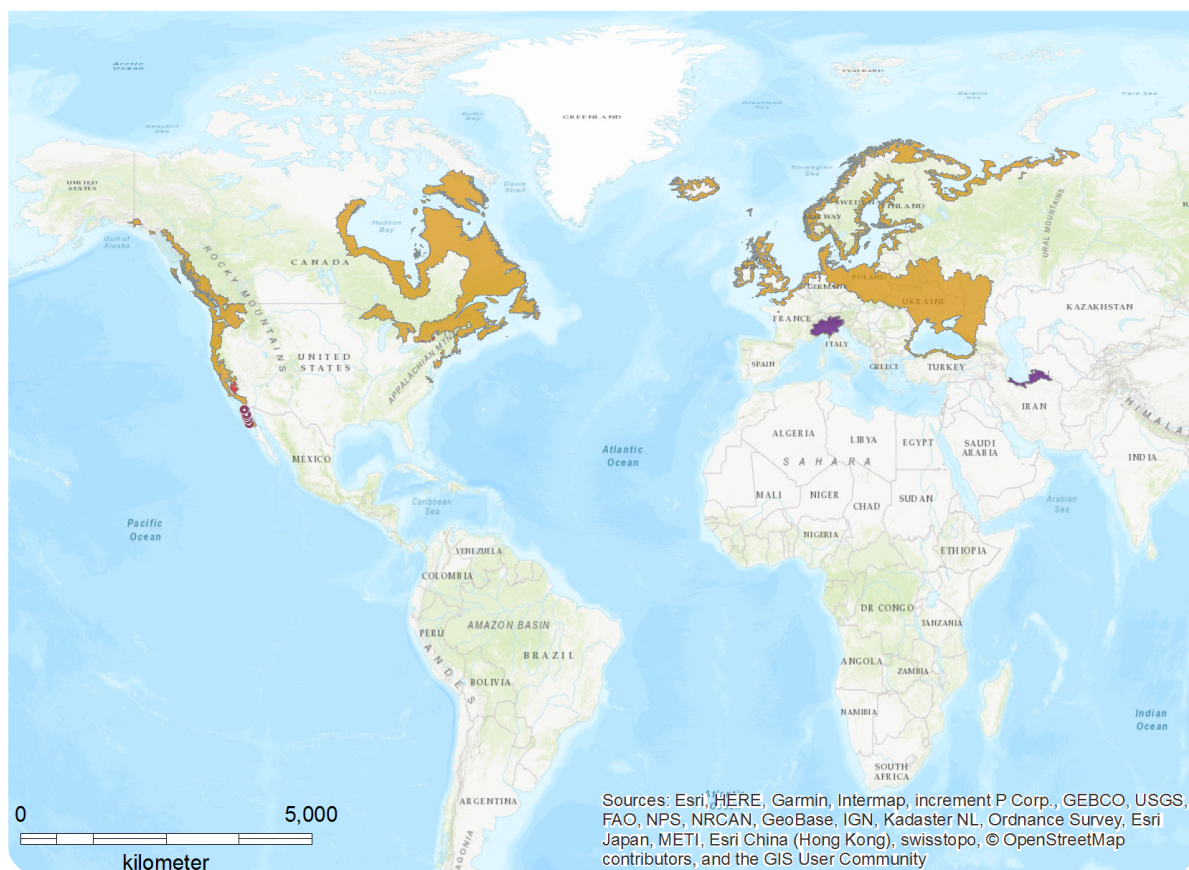
Introduced: Austria; Czechia; Hungary; Iran, Islamic Republic of; Italy; Slovakia

FAO Marine Fishing Areas:

Native: Arctic Sea - , Atlantic - northeast, Atlantic - northwest, Mediterranean and Black Sea - , Pacific - eastern central, Pacific - northeast, Pacific - northwest

Distribution Map

Gasterosteus aculeatus

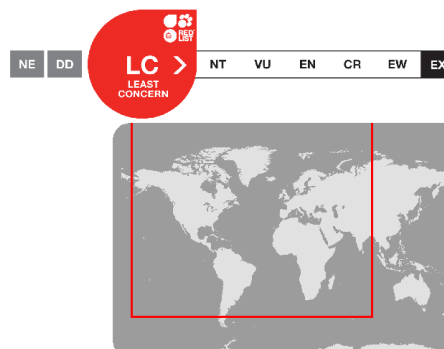


Range

- Possibly Extant (resident)
- Extant & Introduced (resident)
- Extant (resident)
- Extinct

Compiled by:

IUCN (International Union for Conservation of Nature)



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

Population

Gasterosteus aculeatus is common throughout its range. To date there have been no dedicated surveys or range-wide population estimates. The overall population likely exceeds 1,000,000 individuals, but local populations are in decline. Locally adapted subpopulations often form morphologically and genetically distinct 'species pairs', some of which have been wiped out as a result of water quality degradation, invasive species, and hybridization (Hatfield 2001a,b; Hatfield and Ptolemy 2001; Wood 2003). Further research is needed in order to determine population size and trends in abundance for this species.

Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)

This species is typically found in quiet weedy pools and backwaters. It is also found in the marginal vegetation of streams, over sand and mud bottom substrates. Marine populations are pelagic, and usually found inshore along the coast, in estuaries and coastal lagoons. In some lakes, two morphologically and ecologically distinct forms may occur, differing in habitat and morphology (one littoral, the other mainly limnetic) (Taylor 1999).

The species can be anadromous, but there are numerous resident populations in brackish or pure freshwater. Anadromous populations forage at sea until two years old, then move to lower parts of rivers in March-April to reproduce (van Mullem and van der Vlugt 1964). Freshwater populations usually spawn for the first time at one year. In spawning season, males develop a bright orange to red belly and blue-green flank and eyes. They defend territories, in which in April-June they construct a nest on the bottom, in relatively shallow areas, very rarely attached to plants. They make a depression up to 14 × 10 cm to which they bring plant materials (especially filamentous algae), which are glued together with kidney secretions. Eggs are deposited in freshwater in a nest of plant material made by the male on the bottom in shallow water (Craig-Bennett 1931, Sargent and Gebler 1980). The female will typically lay a few hundred eggs and may lay eggs in several nests over a period of several days (Morrow 1980).

Several females are individually led to the nest to spawn, then chased away. Males guard and fan eggs to provide them with oxygenated water. Eggs hatch in 7-8 days and juveniles are guarded for a few days after which the male abandons the nest. Anadromous individuals usually die of exhaustion after spawning, while freshwater individuals are able to complete several cycles within one year or sometimes over several years. Juveniles move to sea (anadromous populations) or to deeper, larger water bodies (freshwater populations) in July-August where they form large feeding schools (Symons 1971).

They feed on small aquatic invertebrates, especially insects and crustaceans (Kuitert 2000).

Systems: Freshwater, Marine

Use and Trade

There are no records of this species in trade.

Threats (see Appendix for additional information)

No major widespread threats known. Some subpopulations have been declining as a result of invasive species and/or industrial activity near water bodies (e.g., Araguas *et al.* 2012, COSEWIC 2013).

Conservation Actions (see Appendix for additional information)

There are no species-specific conservation measures in place for *Gasterosteus aculeatus*. There are however several subpopulations that are listed in Canada's Species at Risk Act (SARA), which implies full legal protection for those populations. All of these subpopulations are located in British Columbia. Research and monitoring are needed to determine population size and trends across the large range of this species. Within-species diversity is high in this species, and the adaptive radiation exhibited by them warrants protection (Foster *et al.* 2003).

Credits

Assessor(s): NatureServe

Reviewer(s): Lyons, T.J.

Contributor(s): Freyhof, J., Kottelat, M. & Lukey, J.R.

Facilitators(s) and Compiler(s): Hammerson, G.A. & Ormes, M.

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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) -> 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)	-	Suitable	-
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	-	Suitable	-
5. Wetlands (inland) -> 5.13. Wetlands (inland) - Permanent Inland Deltas	-	Suitable	-
5. Wetlands (inland) -> 5.14. Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes	-	Suitable	-
5. Wetlands (inland) -> 5.16. Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools	-	Suitable	-
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	-	Suitable	-
9. Marine Neritic -> 9.9. Marine Neritic - Seagrass (Submerged)	-	Suitable	-
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	-	Suitable	-
13. Marine Coastal/Supratidal -> 13.4. Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes	-	Suitable	-
13. Marine Coastal/Supratidal -> 13.5. Marine Coastal/Supratidal - Coastal Freshwater Lakes	-	Suitable	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.2. Industrial & military effluents -> 9.2.3. Type Unknown/Unrecorded	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.1. Hybridisation		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: Yes
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
Area based regional management plan: No
Invasive species control or prevention: Unknown
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: Unknown
In-Place Education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management/trade controls: No

Research Needed

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

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): Unknown
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): Unknown

Distribution
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: Unknown
Lower depth limit (m): 27
Upper depth limit (m): 0
Population
Continuing decline of mature individuals: Unknown
Extreme fluctuations: Unknown
Population severely fragmented: No
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: Unknown
All individuals in one subpopulation: No
Habitats and Ecology
Movement patterns: Full Migrant

The IUCN Red List Partnership



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