

Trigonectes aplocheiloides

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Cyprinodontiformes	Rivulidae

Scientific Name: *Trigonectes aplocheiloides* Huber, 1995

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(iii,iv); D2 [ver 3.1](#)

Year Published: 2022

Date Assessed: December 17, 2020

Justification:

Trigonectes aplocheiloides is assessed as Vulnerable (VU). The area of occupancy (AOO) is estimated to be less than 2,000 km² (1,732 km²). The population is severely fragmented and known to exist at no more than 10 locations (three), with a continuing decline in the area, extent and quality of habitat and the number of subpopulations. Many of the seasonal ponds that this species inhabits have disappeared. Seasonal killifish are very vulnerable to agricultural expansion and many subpopulations disappear as those seasonal ponds are commonly dried or filled for agriculture. Also, herbicides and pesticides and other chemicals from near crops end up in those ponds that are in the lower portions of the terrain resulting in severe negative impacts of these activities in this particular group of fish. It is thought that this could push the species to becoming Critically Endangered or Extinct in a very short time period.

Geographic Range

Range Description:

This species is endemic of the western Chacoan region (or semi-arid Chaco) in the lower Paraguay basin, and has been recorded in Argentina (Salta province) and Paraguay. It is probably present in Bolivia, though lacking a formal citation for that country.

Country Occurrence:

Native, Extant (resident): Argentina (Salta); Paraguay

Native, Possibly Extant (resident): Argentina (Formosa); Bolivia, Plurinational States of

Population

No data are available on the population trend. However, it inhabits severely modified habitats affected by deforestation and intensive agriculture and cattle raising, which generates intensive habitat loss, fragmentation and poor quality, which is expected to negatively affect the population of this species and cause a population decline. This species habitat is severely fragmented due to deforestation followed by intense agriculture and habitat modification, compromising the connectivity between subpopulations and their long-term survival.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species inhabits seasonal ponds that fill with rains during the summer (around December) and dry up in autumn (around March or April). It is found syntopically with other seasonal killifish species such as *Austrolebias monstrosus*, *A. wichi*, *A. vandenbergi*, *Papiliolebias bitteri* and *Neofundulus paraguayensis*. Many of those ponds where this species inhabits have disappeared due to habitat modification for intensive agriculture, such as soybean plantations. Also, this agricultural expansion generated habitat fragmentation compromising subpopulations' connectivity and long term survival.

Systems: Freshwater (=Inland waters)

Use and Trade

This species is an object of the aquarium trade and is extracted from nature for this use.

Threats (see Appendix for additional information)

Many of the seasonal ponds that this species inhabits have disappeared or are suspected to have disappeared given that most of its distribution is within areas with extensive agriculture that severely affect seasonal killifish species, and many of those records are before the intense agricultural expansion that affected the Chacoan region, one of the most deforested regions in the world in the last decades. Seasonal killifish are very vulnerable to agricultural expansion and many subpopulations disappear as those seasonal ponds are commonly dried or filled for agriculture. Also, herbicides and pesticides and other chemicals from near crops end up in those ponds that are in the lower portions of the terrain resulting in severe negative impacts of these activities in this group of fish.

Conservation Actions (see Appendix for additional information)

No conservation actions are directed towards this species.

Credits

Assessor(s): Alonso, F.

Reviewer(s): Serra, W.S.

Bibliography

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Calviño, P., Nadalin, D.O., Serio, M.J. and López, H.L. 2016. Colección ictiológica del Museo de La Plata: la familia Rivulidae. *ProBiota: Serie Técnica y Didáctica* 36: 1-21.

Huber, J.H. 1995. Nouvelles collections de cyprinodontes paraguayens, avec description de 4 espèce rivulines inédites et redécouverte d'une espèce à la localité typique jusqu'alors indéterminée. *Association Killiphile Francophone de Belgique. Killi-Contact - Périodique bimestriel Spec. publ.*: 1-25.

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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) -> 5.8. Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha)	-	Suitable	-

Use and Trade

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

End Use	Local	National	International
13. Pets/display animals, horticulture	No	Yes	Yes

Threats

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

Threat	Timing	Scope	Severity	Impact Score
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	-	-	Low impact: 3
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	-	-	Low impact: 3
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.3. Agro-industry grazing, ranching or farming	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	-	-	Low impact: 3
4. Transportation & service corridors -> 4.2. Utility & service lines	Ongoing	-	-	Low impact: 3
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.1. Increase in fire frequency/intensity	Ongoing	-	-	Low impact: 3

7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.3. Abstraction of surface water (agricultural use)	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.7. Abstraction of ground water (agricultural use)	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	-	-	Low impact: 3
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	-	-	Low impact: 3
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.2. Soil erosion, sedimentation	Ongoing	-	-	Low impact: 3
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	-	-	Low impact: 3
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	-	-	Low impact: 3
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	-	-	Low impact: 3
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	-	-	Low impact: 3

Conservation Actions in Place

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

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Percentage of population protected by PAs: 0
Area based regional management plan: No
Occurs in at least one protected area: No
In-place species management
Harvest management plan: No
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No
In-place education

Conservation Action in Place
Subject to recent education and awareness programmes: No
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 Action Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.3. Habitat & natural process restoration
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-national level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level
6. Livelihood, economic & other incentives -> 6.4. Conservation payments

Research Needed

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

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions

Research Needed
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
2. Conservation Planning -> 2.2. Area-based Management Plan
2. Conservation Planning -> 2.3. Harvest & Trade Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 1732
Estimated extent of occurrence (EOO) (km ²): 33079
Number of Locations: 3
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 158
Upper elevation limit (m): 273
Population
Population severely fragmented: Yes
Continuing decline in subpopulations: Yes
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Movement patterns: Not a Migrant

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