Black Tetra (*Gymnocorymbus ternetzi*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2011
Revised, July 2017
Web Version, 11/17/2017

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1 Native Range and Status in the United States

Native Range

From Nico and Fuller (2017):

"Tropical America. Amazon (Guaporé drainage) and La Plata (Paraguay River) basins in southern Brazil, Argentina, and Bolivia, South America (Géry 1977)."

Status in the United States

From Nico and Fuller (2017):

"**Nonindigenous Occurrences**: It has been recorded from geothermal waters (hot springs), in the San Luis Valley, Rio Grande basin, Colorado, during the period 1980 to 1984 (Zuckerman and Behnke 1986). There are two records from Ruskin, Little Manatee River drainage, Hillsborough

County, Florida. The first of these fish was taken from a canal on 30 September 1978, the second from a drainage ditch on 26 October 1979 (museum specimens). In probable reference to one of these collections, Courtenay and Hensley (1979) reported that this species was collected in large numbers from a roadside ditch near a fish farm in Ruskin. A single specimen was collected in an unnamed tributary to Big Branch Bayou, Lacombe, Louisiana, in 2004 (K. Piller, pers.comm.)"

"**Status:** Failed in Colorado, Florida, and Louisiana."

Means of Introductions in the United States

From Nico and Fuller (2017):

"The Colorado introduction resulted from an escape from a local tropical fish farm, and the Florida record may represent either an aquarium release or a fish farm escape. The Louisiana collection took place near a tropical fish farm and was likely and [*sic*] escapee."

Remarks

From Nico and Fuller (2017):

"The hot springs area of Colorado where this fish was found is at an altitude of 8,000 ft and has very cold winters, but L. Zuckerman (personal communication) suggested that some introduced species might spread downstream during warmer months and reach other thermal refugia."

From ITIS (2017):

"Common Name(s): black tetra
black widow"

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Characiformes
Family Characidae
Genus *Gymnocorymbus*
Species *Gymnocorymbus ternetzi* (Boulenger, 1895)"

"Taxonomic Status:
Current Standing: valid"

Size, Weight, and Age Range

From Froese and Pauly (2017):

"Max length : 7.5 cm SL male/unsexed; [Britski et al. 2007]"

Environment

From Froese and Pauly (2017):

"Freshwater; pelagic; pH range: 6.0 - 8.0; dH range: 5 - 19."

Climate/Range

From Froese and Pauly (2017):

"Subtropical; 20°C - 26°C [Riehl and Baensch 1991], preferred ?; 11°S - 30°S, 64°W - 48°W"

Distribution Outside the United States

Native

From Nico and Fuller (2017):

"Tropical America. Amazon (Guaporé drainage) and La Plata (Paraguay River) basins in southern Brazil, Argentina, and Bolivia, South America (Géry 1977)."

Introduced

According to Froese and Pauly (2017), *G. ternetzi* has been introduced to a number of locations:

- It is established in Colombia, but the year of introduction and origin are unknown.
- It has been introduced to the Phillipines but no other details are known.
- It is established in Thailand and Japan, having been introduced to both places from Hong Kong between 1950 and 1959.
- It was introduced to Canada in 1971, but the source location and population status are unknown.

Means of Introduction Outside the United States

From Froese and Pauly (2017):

"Widespread in fish rearing facilities and has presumably escaped into local waters. [Welcomme 1988]"

"Reason: ornamental"

Biology
From Froese and Pauly (2017):

"Occurs in the middle and upper water layers. Feeds on worms, small crustaceans and insects [Mills and Vevers 1989]."

Human Uses
From Froese and Pauly (2017):

"Aquarium: highly commercial"

Diseases
From Froese and Pauly (2017):

"Fin-rot Disease (late stage), Bacterial diseases
White spot Disease, Parasitic infestations (protozoa, worms, etc.)
Dactylogyrus Gill Flukes Disease, Parasitic infestations (protozoa, worms, etc.)
Fin Rot (early stage), Bacterial diseases"

From Chaudhary et al. (2016):

"During an investigation of the diversity of monogenean parasites in Meerut, U.P., India, the exotic freshwater fish *Gymnocorymbus ternetzi* was found infected with the gill dactylogyrid species of *Diaphorocleidus* Jogunoori *et al.* 2004. Using morphological study, the present monogeneans were found similar in morphology of anchors, bars and male copulatory organ with *D. armillatus* Jogunoori *et al.* 2004."

No OIE-reportable diseases have been documented for this species.

Threat to Humans
From Froese and Pauly (2017):

"Harmless"

3 Impacts of Introductions
From Nico and Fuller (2017):

"**Impact of Introduction:** Unknown."

From Piyathissa et al. (2017):

"This study was conducted to assess the invasive potential of exotic aquarium fish species in Gampaha, Kandy and Polonnaruwa districts in Sri Lanka. Twenty aquarium hobbyists, three pet shops and three fish breeders in each district were randomly selected and fish species present in

their captivity were identified. The invasion potential of species present was evaluated using their thermal tolerance, history of invasion elsewhere, and potential propagule pressure calculated by frequency of occurrence in homes, pet shops and breeding centers. […] *Colossoma macropomum*, *Salmo trutta*, *Pethia conchonius*, *Gymnocorymbus ternetzi*, *Hemichromis bimaculatus* and *Acanthurus dussumieri* showed low invasive potential."

4 Global Distribution

Figure 1. Known global established locations of *G. ternetzi*. Map from GBIF (2016). Locations in the U.S. and India are not pictured and were not included in the climate matching analysis because they do not represent established populations.

5 Distribution Within the United States

Figure 2. Known U.S. occurrences of *G. ternetzi*. None of the locations shown represent established populations. Map from Nico and Fuller (2017).

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was high along the Gulf Coast and peninsular Florida and medium in Texas and southern Georgia. Low matches covered the rest of the contiguous U.S. Climate 6 score indicated that the contiguous U.S. has a medium climate match overall. Scores between 0.005 and 0.103 indicate a medium climate match; Climate 6 score for *G. ternetzi* was 0.022.

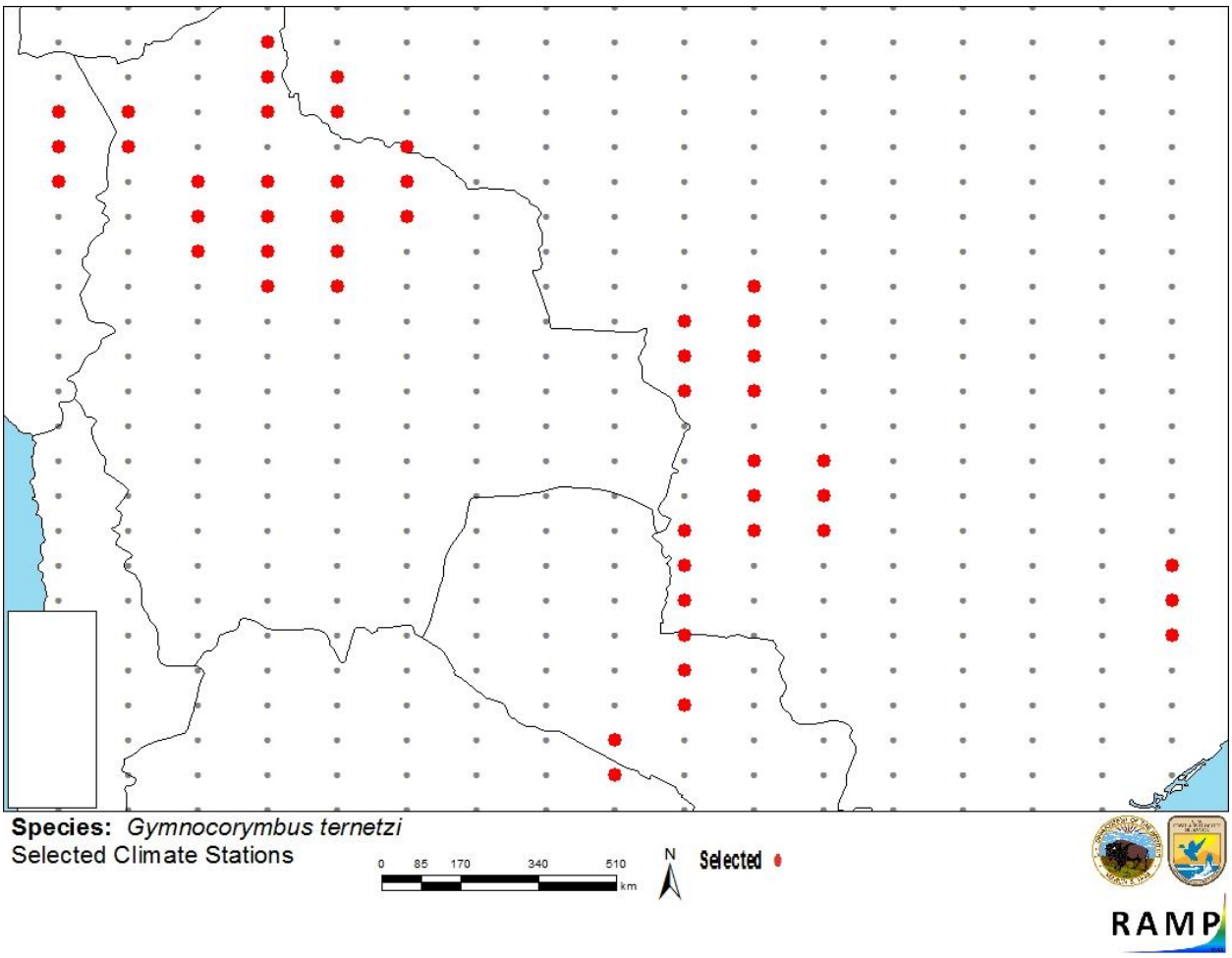

Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations in Brazil, Bolivia, and surrounding countries selected as source locations (red) and non-source locations (blue) for *G. ternetzi* climate matching. Source locations from GBIF (2016).

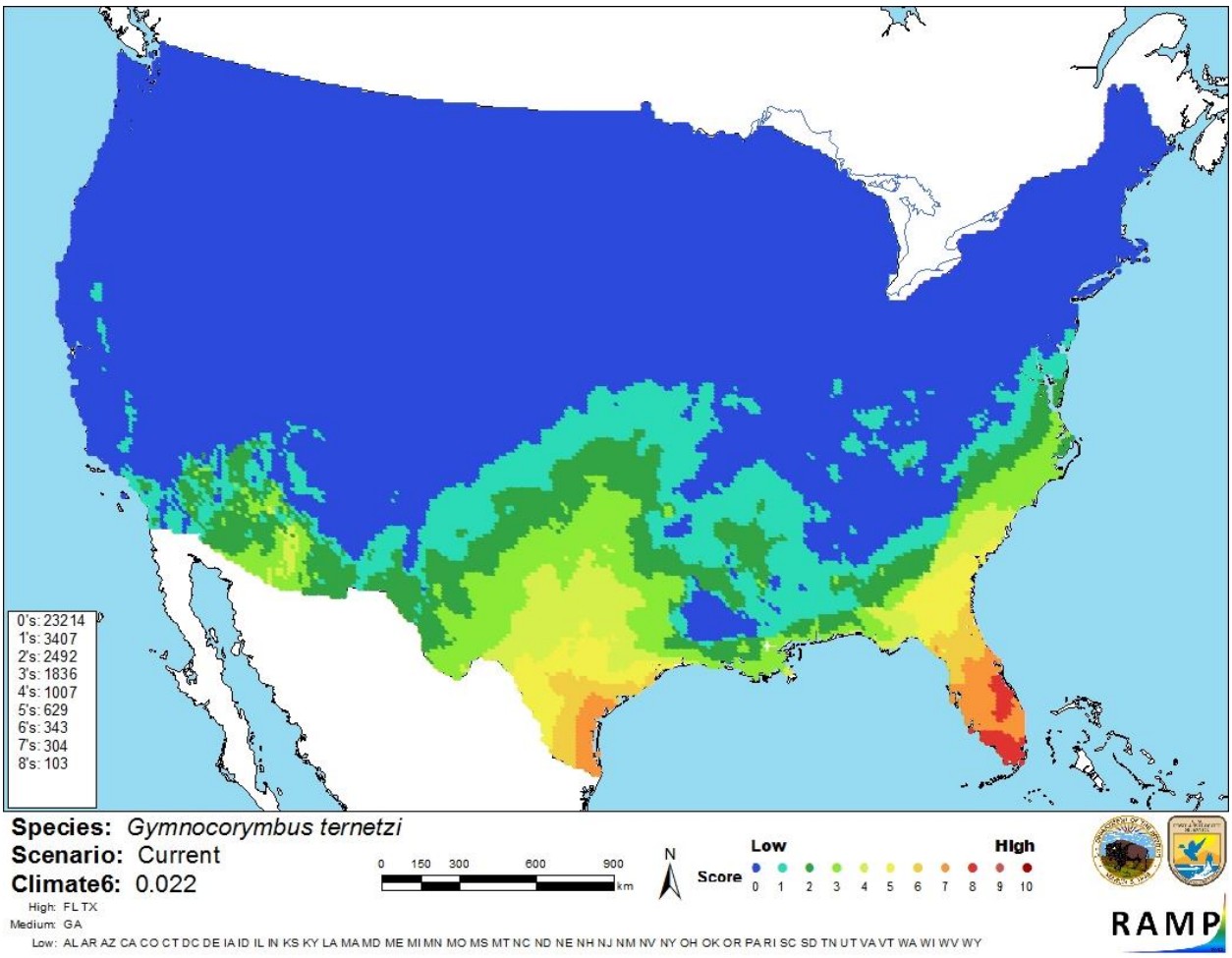

Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *G. ternetzi* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

The "High", "Medium", and "Low" climate match categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

Information on the biology of *G. ternetzi* and its introduction history in the U.S. is available and easily accessed. However, little information is available on other introductions of the species outside its native range and on possible impacts to native ecosystems where establishment has been successful. Given this lack of information, certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Gymnocorymbus ternetzi is native to South America and has been introduced to North America and Asia, although introductions in the United States have failed and the status of some Asian introductions remains uncertain. *G. ternetzi* is popular in the aquarium trade, and at least some introductions are likely aquarium releases and fish farm escapes. Impacts of introductions have not been studied adequately to determine severity. Climate match is highest in Florida and Texas, with medium match overall for the contiguous United States. Overall risk posed by *G. ternetzi* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Low**
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

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10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

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Courtenay, W. R., Jr., and D. A. Hensley. 1979. Survey of introduced non-native fishes. Phase I report. Introduced exotic fishes in North America: status 1979. Report submitted to National Fishery Research Laboratory, U.S. Fish and Wildlife Service, Gainesville, Florida.

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