

Flagfish (*Jordanella floridae*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, July 2017
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Photo: Noel M. Burkhead, U.S. Geological Survey.
Available: <https://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=663>.

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“North America: St. Johns and Ochlocknee River drainages south to peninsular Florida, USA.”

Status in the United States

From Fuller (2018):

“**Native Range:** Peninsular Florida north to St. Johns and Ochlockonee River drainages (Page and Burr 1991).”

“Nonindigenous Occurrences: There are also unconfirmed records of Flagfish being collected in Charleston County, **South Carolina** (Lee et al. 1980 et seq.).”

“Status: Failed in western portion of panhandle of Florida and in South Carolina.”

“A single specimen was taken from a small stream in the Ochlockonee River drainage west of Tallahassee in Leon County, Florida (Swift et al. 1977; Lee et al. 1980 et seq.). The specimen (UF 56238, formerly FSU 6238) was collected in 1959. Swift et al. (1977) believed the Florida panhandle record was the result of an introduction since all other localities known to them were close to the coast. However, in peninsular Florida *Jordanella floridae* occurs naturally far inland (e.g., the Kissimmee River drainage). We regard this location as native for this reason.”

Means of Introduction into the United States

This species is native to parts of the United States.

From Fuller (2018):

“Unknown. Likely aquarium introductions.”

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 Acanthopterygii
Order Cyprinodontiformes
Suborder Cyprinodontoidei
Family Cyprinodontidae
Subfamily Cyprinodontinae
Tribe Cyprinodontini
Genus *Jordanella*
Species *Jordanella floridae* Goode and Bean, 1879

“Current standing: valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 6.0 cm TL male/unsexed; [Huber 1996]”

Environment

From Froese and Pauly (2017):

“Freshwater; brackish; benthopelagic; non-migratory [Riehl and Baensch 1996].”

“[...] 18°C - 22°C [Riehl and Baensch 1996; assumed to be recommended aquarium water temperatures]”

Climate/Range

From Froese and Pauly (2017):

“Subtropical; [...] 31°N - 26°N”

Distribution Outside the United States

Native

This species is not native outside the United States.

Introduced

J. floridae has been introduced to Australia and the Philippines (Froese and Pauly 2017).

Webb (2008) lists *J. floridae* as reported but not established in Queensland, Australia.

Means of Introduction Outside the United States

Froese and Pauly (2017) report the reason for introduction into the Philippines as “ornamental”.

Short Description

From Froese and Pauly (2017):

“Anal soft rays: 11 – 13”

From Stevenson (1992):

“Although the colour pattern is variable these fishes are basically olive-green with a checkerboard pattern of dark stripes and reddish spots. Both sexes have a distinct black spot on the side, which is larger on the female. Sometimes the female sports a dark spot on the dorsal fin. During the breeding period they transform into an attractive fish covered with iridescent spots of all the colours of the rainbow. The female brightens up as well but the male is the peacock of the family.”

Biology

From Froese and Pauly (2017):

“In vegetated sloughs, ponds, lakes, and sluggish streams; enters brackish water. [...] In Guinness Book of Records as the fish with the fewest eggs (20 eggs are spawned over a period of several days) [Foot 2000]. Feeds on worms, crustaceans, insects and plant matter [Mills and Vevers 1989]. Not a seasonal killifish.”

“Males care for the eggs [Bonnevier et al. 2003]. Lays up to 100 eggs in the aquarium [Mills and Vevers 1989]. The male does a 'T-dance' with a receptive female and the female lays her eggs over algal-covered rocks where they adhere by their sticky thread. In the laboratory, this was simulated by using a green orlon wool wrapped glass plate - males will continuously guard the eggs on this, fanning with their fins to keep eggs clean and aerated (D. Holdway, pers. com 2006).”

From Stevenson (1992):

“The female began to dig small impressions in the gravel here and there for about a week. The American flagfish is known to use cichlid-fashion spawning procedures. The male is extremely rough although the female can turn the tables during the courtship. Once the spawning begins, they will lay eggs daily for several days to a week, usually in small batches of 20 eggs.”

Human Uses

From Froese and Pauly (2017):

“Fisheries: of no interest; aquarium: commercial”

Diseases

From Bullock (1966):

“*Octospiniferoides chandleri* Bullock, 1957 is redescribed on the basis of more than 150 worms collected from several host species in central Florida. [...] In this locality 96% of over 150 *G. affinis* were infected with from one to 32 specimens per fish. Also in this man-made pond seven of 13 *Chireops goodei*, three of eight *Heterandria formosa*, the only specimen of *Jordanella floridae* examined, and an immature *Notropis* sp. were also infected.”

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

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

Although reports of *Jordanella floridae* introductions exist outside the United States, the extent of establishment or ecological harm is unknown (Froese and Pauly 2017).

From Fuller (2018):

“Impact of Introduction: Unknown.”

4 Global Distribution

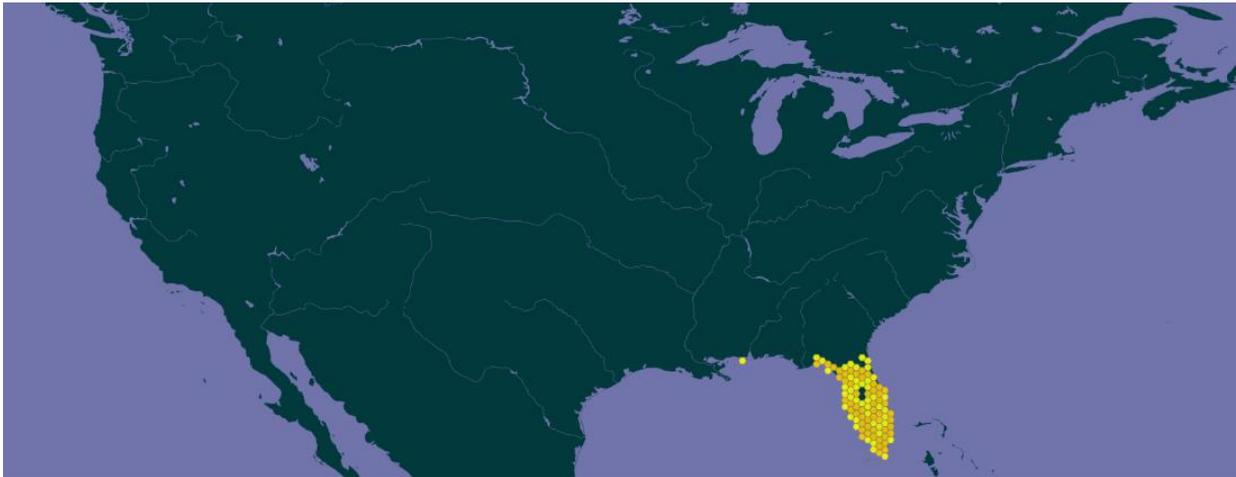


Figure 1. Known global distribution of *J. floridae*, reported from the southeastern United States. Map from GBIF (2017). Occurrence shown in Alabama does not represent an established population and was not included in the climate matching analysis.

5 Distribution Within the United States

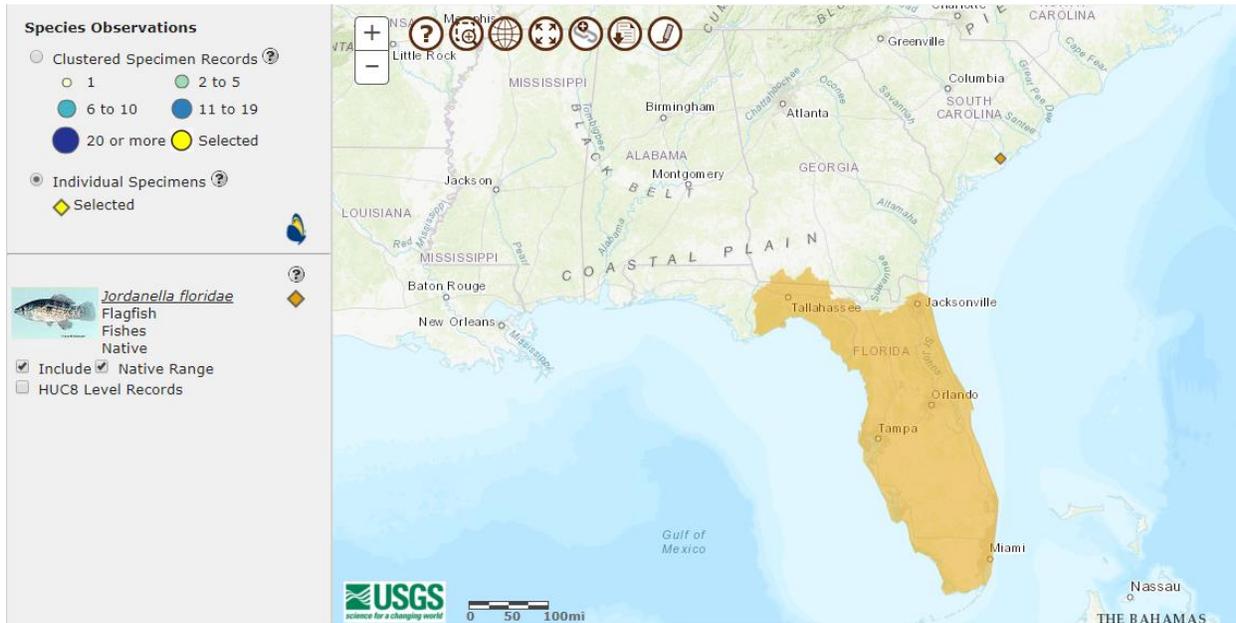


Figure 2. Known distribution of *Jordanella floridae* in the United States, reported from peninsular Florida and coastal South Carolina. Map from Fuller (2018). The occurrence depicted in South Carolina does not represent an established population and was not included in the climate matching analysis.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean distance) was high along the Atlantic and Gulf Coasts from approximately Jacksonville, North Carolina to Houston, Texas. The climate match was medium throughout most of the inland southeastern U.S., and low elsewhere. Climate 6 score indicated a medium climate match for the contiguous U.S. Scores between 0.005 and 0.103 are classified as medium match. Climate 6 score for *J. floridae* was 0.071, a medium match.

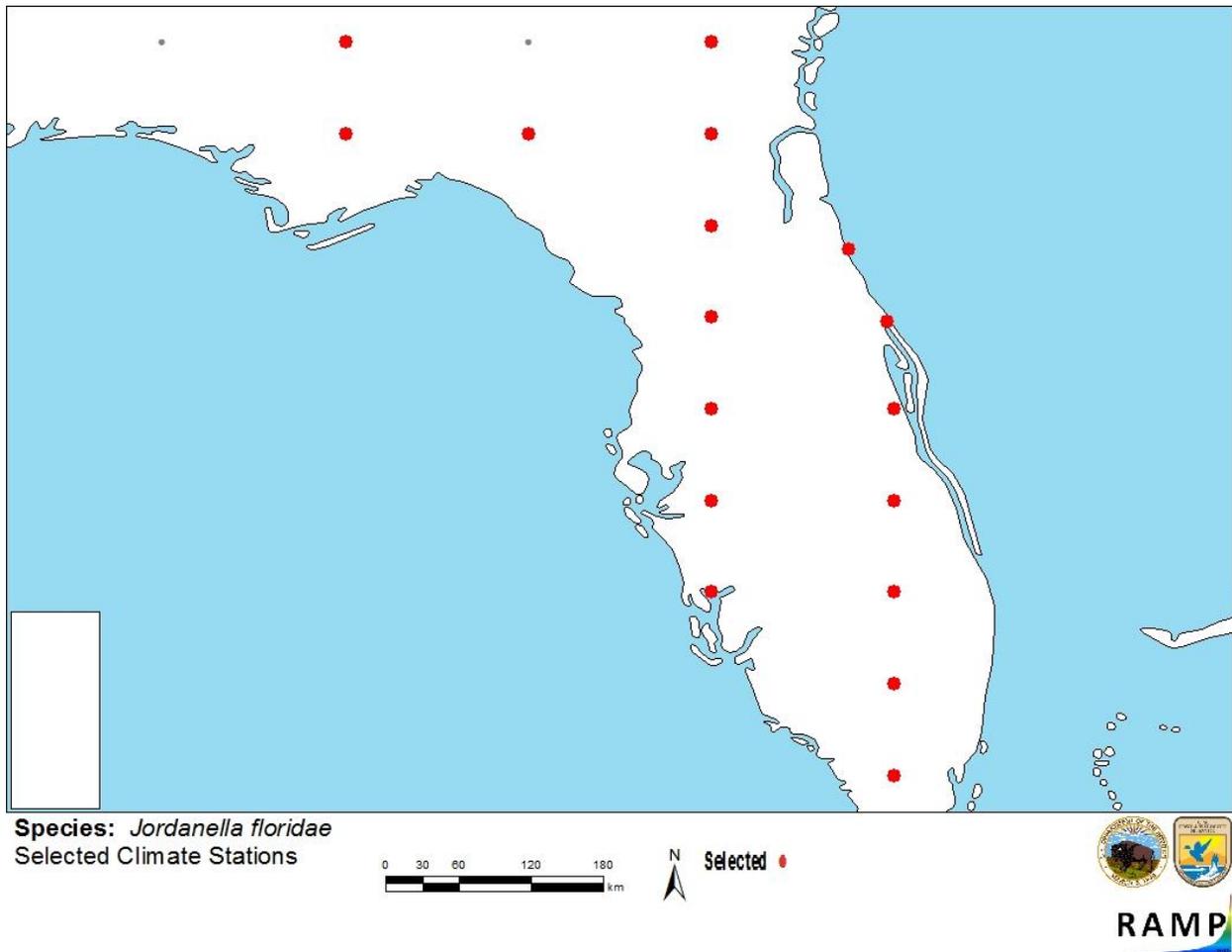


Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations in Florida selected as source locations (red) and non-source locations (gray) for *Jordanella floridae* climate matching. Source locations from GBIF Secretariat (2017).

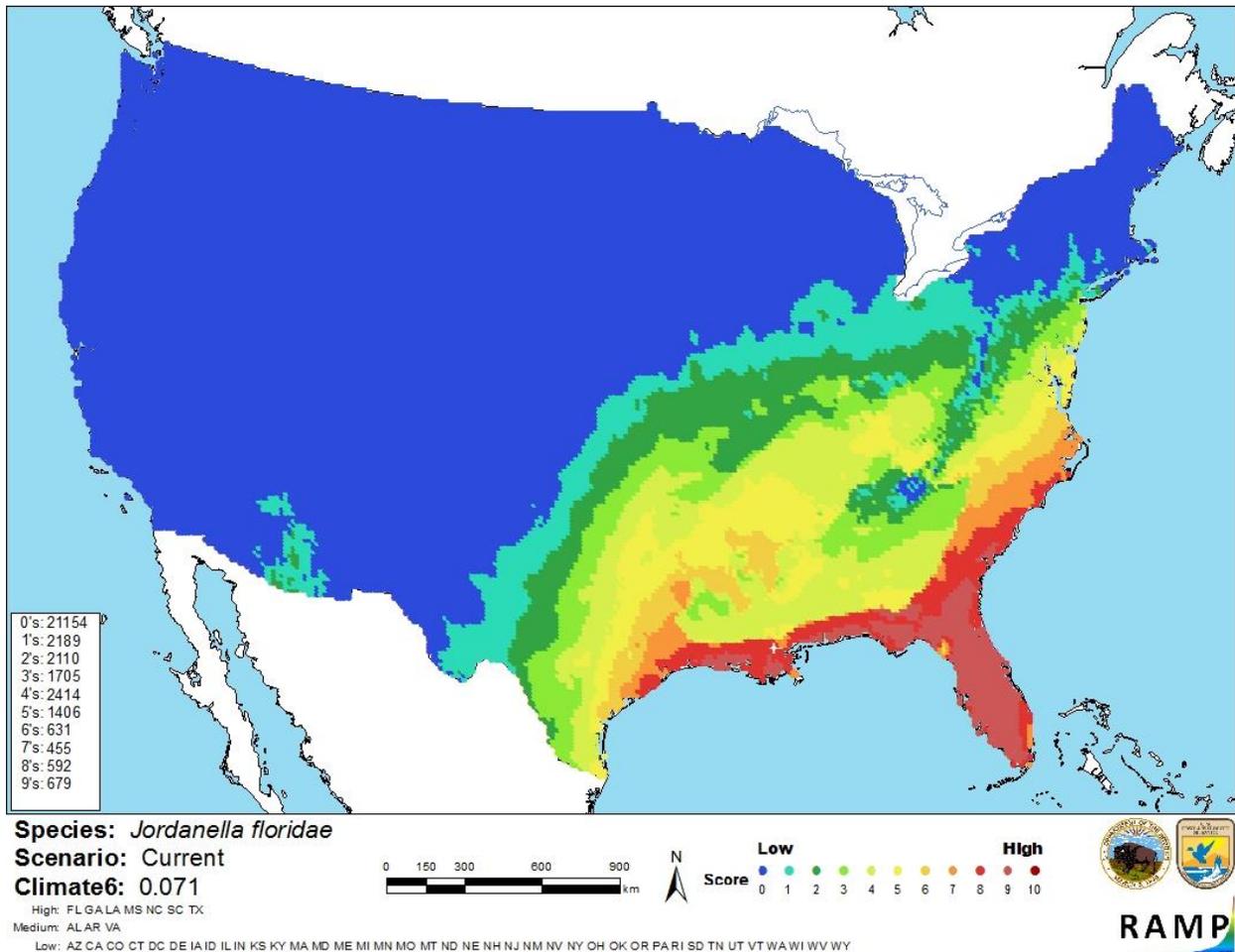


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Jordanella floridae* in the contiguous United States bases on source locations reported by GBIF (2017) 0= Lowest match, 10= Highest match. Counts of climate match scores are tabulated on the left.

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
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

Information of the biology and distribution of this species within its native range is well understood. However, little information is available on the impacts of introduction of *Jordanella floridae*. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Jordanella floridae is native to the southeast coastal region of the United States. Introductions outside its native range have likely occurred through the aquarium trade. Australia and the Philippines are the only known introduction locations outside of the United States, although establishment has not been observed in either country. Information on this species outside its native range is sparse, particularly so in the peer-reviewed published literature. Overall risk posed by this species 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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Froese, R., and D. Pauly, editors. 2017. *Jordanella floridae* (Goode and Bean, 1879). FishBase. Available : <http://www.fishbase.se/summary/Jordanella-floridae.html>. (July 2017).

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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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