

***Metynnis mola* (a fish, no common name)**

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2013

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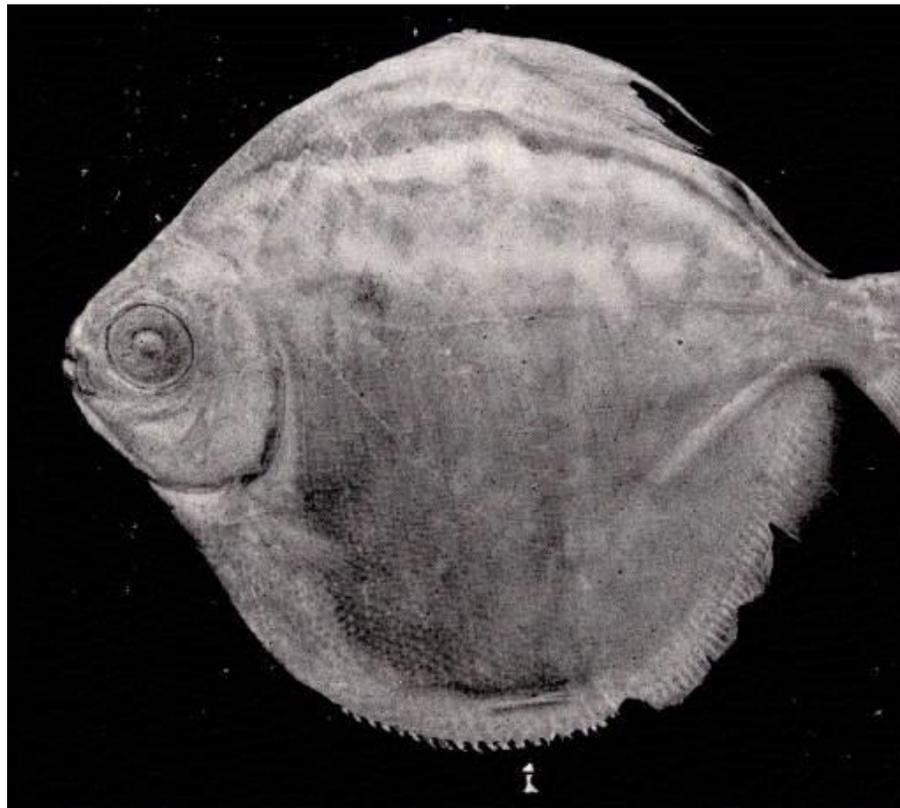


Photo: *Metynnis mola* (Eigenmann and Kennedy). Credit: C. H. Eigenmann, W. L. McAtee, and D. P. Ward. Available in the public domain from the Freshwater and Marine Image bank: <http://digitalcollections.lib.washington.edu/cdm/singleitem/collection/fishimages/id/52380/rec/1>. (February 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“South America: Paraguay-Paraná River basin [Argentina, Brazil, Paraguay].”

Status in the United States

There are no records of occurrences of *Metynnis mola* in the United States; however, Nico et al. (2018) report that the genus *Metynnis* (species uncertain) is locally established in Florida.

From Nico et al. (2018):

“A member of this genus [*Metynnis*] was collected in **Florida** from a lake on Marco Island, Collier County in January, 1980 (FSBC 19822; listed as *Metynnis lippincotianus* in Courtenay et al. 1984, and as *Metynnis* sp. in Courtenay and Stauffer 1990 and in Courtenay et al. 1991). A reproducing population was found in Halpatoiokee Regional Park Conservation Area in Martin County in 2005, with additional specimens taken in 2006 and 2007 (Shafland et al. 2008; Florida Fish and Wildlife Conservation Commission 2009). In **Kentucky**, a single fish (originally identified as a piranha and as *Metynnis roosevelti*) was taken by hook and line from Lighthouse Lake, Louisville, Jefferson County, in the summer of 1981 (Anonymous 1981; Fossett 1981).”

“There is considerable confusion surrounding the Kentucky record. In original published accounts, the fish was identified as a piranha, but the scientific name provided was *Metynnis roosevelti* (= *Metynnis maculatus*). However, in a photograph of the fish accompanying the newspaper article (Fossett 1981), the specimen actually appears to have a short adipose fin and is probably a pacu, possibly *Piaractus brachypomus*. The collectors gave the live fish to the Louisville Zoo, where it was kept in aquaria; when the fish later died, it was supposedly not preserved. The Kentucky specimen has been the basis for inclusion of the species in published lists of nonestablished foreign species, with earlier listings identifying it as *Metynnis roosevelti* (e.g., Courtenay et al. 1984) and later simply as *Metynnis* sp. (i.e., Courtenay and Stauffer 1990; Courtenay et al. 1991).”

No evidence was found to suggest that this species is in trade in the United States.

Means of Introductions in the United States

From Nico et al. (2018):

“Records [for *Metynnis* sp.] mostly likely represent aquarium releases.”

Remarks

From Pavanelli et al. (2009):

“Species of *Metynnis* have been studied for decades, however there are still misidentifications, mainly because of the high ontogenetic variability, the sexual dimorphism and the absence of identification keys, besides the existence of several nominal taxa of doubtful status. Perhaps further careful inventories in the rio Paraguai basin could reveal even additional new species of *Metynnis*. In spite of serrasalmin systematics are undergoing major revision and much remains to be done. Even the status of the family is still not a consensus. Some recent researchers still maintain the subfamily Serrasalminae (Jégu 2003), while others recognize them as a distinct family, the Serrasalmidae (e.g. Calcagnotto et al. 2005).”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

“Kingdom Animalia
Phylum Chordata
Subphylum Vertebrata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Characiformes
Family Characidae
Genus *Metynnis* Cope, 1878
Species *Metynnis mola* Eigenmann and Kennedy, 1903

“Taxonomic Status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 15.0 cm TL male/unsexed; [Jégu 2003]”

Environment

From Froese and Pauly (2017):

“Freshwater; pelagic; pH range: 5.0 - 7.0; dH range: ? – 12. [...] 20°C - 26°C [Baensch and Riehl 1991; assumed to represent recommended aquarium water temperatures]”

From Fernandes et al. (2010):

“The influence of habitat, biomass of herbaceous vegetation, depth and distance from permanent water bodies on the structure of fish assemblages of a seasonal floodplain was evaluated using data collected along 22 transects in an area of 25 km² in the floodplain of Cuiabá River, Pantanal, Brazil. Each transect was sampled for fish using throw traps and gillnets during the flood period of 2006. Multivariate multiple regression analysis and multivariate analysis of covariance indicated that depth was the only variable that affected the structure of the fish assemblage, both for quantitative data (abundance) and qualitative data (presence-absence). Species such as *Neofundulus parvipinnis* and *Laetacara dorsigera* were more abundant in shallower sites (below 25 cm), while *Serrasalmus maculatus* and *Metynnis mola* were found mostly in the deepest areas (over 55 cm).”

Climate/Range

From Froese and Pauly (2017):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“South America: Paraguay-Paraná River basin [Argentina, Brazil, Paraguay].”

Introduced

There are no known introductions of this species outside of its native range.

Means of Introduction Outside the United States

There are no known introductions of this species outside of its native range.

Short Description

From Eigenmann and Kennedy (1903):

“Form nearly circular. The dorsal profile is very slightly concave at the occiput and the ventral profile about equally concave at the isthmus. Lateral line but slightly decurved near its anterior end.”

“Color light brown, with 7-8 irregular bars and a few indistinct spots of darker above the lateral line. Fins immaculate.”

Biology

From Wantzen et al. (2002):

“*Metynnis maculatus*, *M. mola* and *Myloplus laevis* were herbivores that browsed filamentous algae and macrophytes, whereas the loricariid catfish grazed on benthic algae on sediment surfaces.”

From Silveira and Weiss (2014):

“In particular, *Astyanax assuncionensis* and *Metynnis mola* were among the most frequent and most abundant fish taxa in the area. Together with the high seed concentration in the fish fecal material, this evidence allows us to conclude that such fish species may play an important role in seed dispersal in the herbaceous plants of the Pantanal.”

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases have been documented.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

There are currently no recorded introductions or impacts of introductions of *Metynniss mola*, however unidentified species of *Metynniss* are listed as locally established in Florida.

4 Global Distribution



Figure 1. Known global distribution of *Metynniss mola*, reported from central South America. Map from GBIF Secretariat (2017).

5 Distribution Within the United States

There is currently no known distribution of *Metynniss mola* within the United States; however, unidentified species of *Metynniss* are listed as locally established in Florida.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.025, which is medium. The range for a medium climate match is between 0.005 and 0.103. The climate match was highest for the southeastern United States and Texas. Most of Florida and parts of the Georgia and Texas coasts had a high match. There was a medium match along the remainder of the coast from southern Virginia to Texas, and north into central Texas. The remainder of the country had a low match.

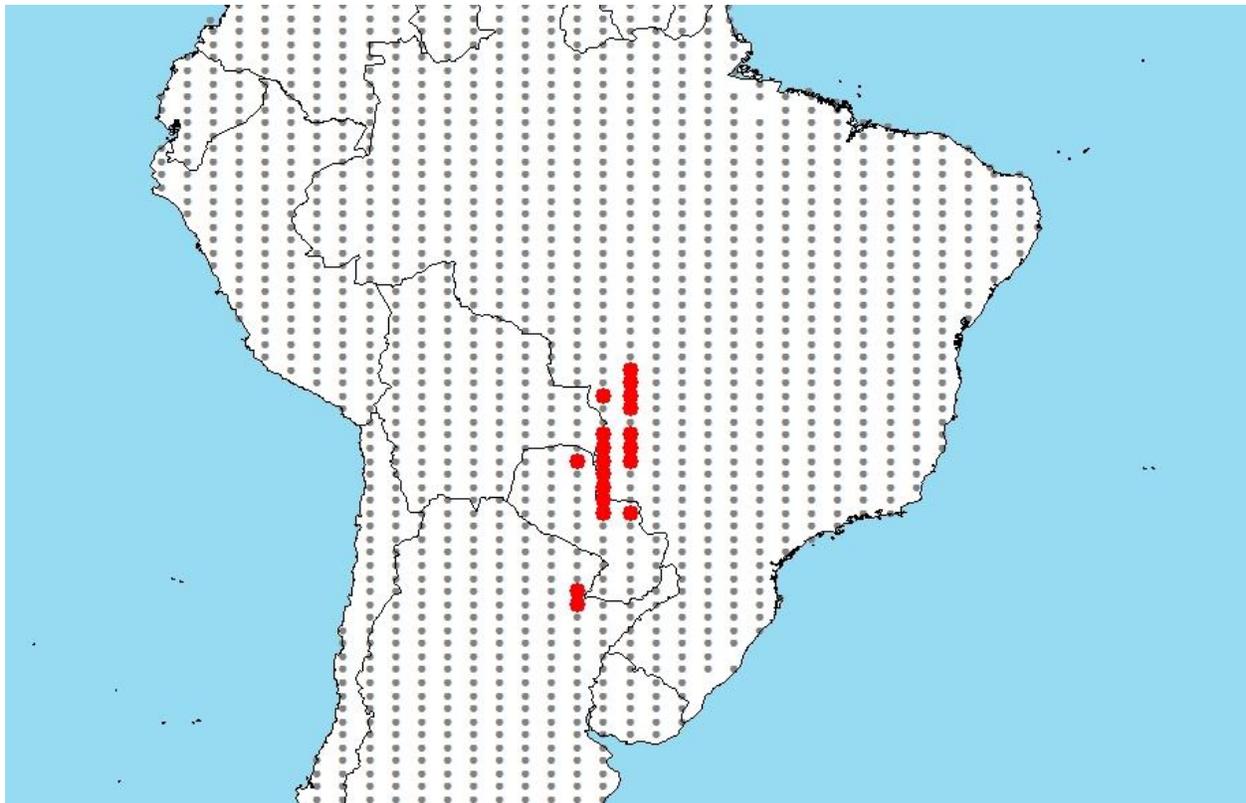


Figure 2. RAMP (Sanders et al. 2014) source map of central South America showing weather stations selected as source locations (red; Brazil, Paraguay, and Argentina) and non-source locations (gray) for *Metynnis mola* climate matching. Source locations from GBIF Secretariat (2017).

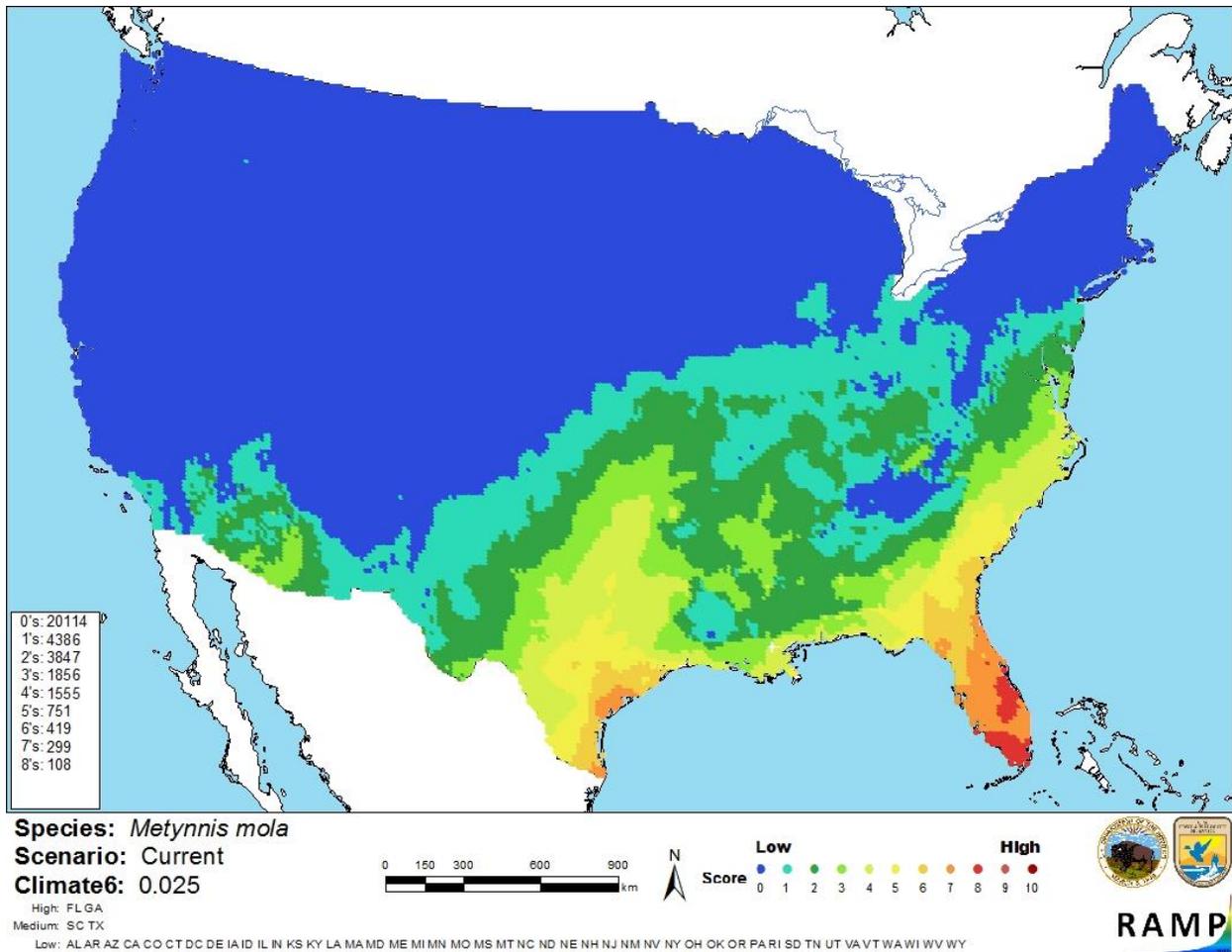


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Metynnis mola* in the contiguous United States based on source locations reported by GBIF (2017). 0=Lowest match, 10=Highest match.

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

Some information on the biology, ecology and distribution of *Metynnis mola* is available. No introductions of this species have been reported, so impacts of introduction are unknown. Assessment of this species is complicated due to uncertain identification of *Metynnis* spp. captured and established in the United States, and the need for systematic revision of the genus.

Additional information and research on this species will be needed to increase the certainty of this assessment. Based on available data, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Metynnis mola is a freshwater fish native to the Paraguay-Paraná River basin in South America. This species is not known to have been introduced outside of its native range, making its history of invasiveness uncertain. However, members of the *Metynnis* genus (species uncertain) have been collected beyond their native range in Florida, where their status is listed as locally established. *M. mola* is not known to be in trade. The climate match with the contiguous United States is medium, with the highest matches in the southeastern United States and Texas. The certainty of this risk assessment is low due to limited information and taxonomic uncertainty about this species. Overall risk posed by *M. mola* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **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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