

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

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2013

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Photo: *Metynnis luna*. Credit: Erling Holm. Licensed under CC BY-NC-SA 3.0. Available: http://eol.org/data_objects/24188493. (February 2018).

1 Native Range and Status in the United States

Native Range

From Eschmeyer et al. (2018):

“Amazon River basin: Peru, Bolivia, Brazil, Ecuador and Colombia.”

Status in the United States

From Nico et al. (2018):

“A member of this genus 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 non-established 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).”

Means of Introductions in the United States

From Nico et al. (2018):

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

Remarks

From Ota et al. (2016):

“Taxonomic confusion is rife in the literature dealing with *Metynnis* species. There are 28 nominal species and only around half of them are recognized as valid. The elevated number of synonyms is probably a consequence of the enormous variability of body shape and color pattern, which in turn are highly influenced by ontogeny and sexual dimorphism (Zarske & Géry, 1999; Jégu, 2003; Pavanelli et al., 2009; Ota et al., 2013). As a consequence, there is little information about the phylogenetic relationships among species of *Metynnis*.”

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 luna* Cope, 1878

“Taxonomic status: valid”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 12.9 cm SL male/unsexed; [Cella-Ribeiro et al. 2015]; max. published weight: 102.00 g [Cella-Ribeiro et al. 2015]”

Environment

From Froese and Pauly (2017):

“Freshwater; pelagic.”

Climate/Range

From Froese and Pauly (2017):

“Tropical”

Distribution Outside the United States

Native

From Eschmeyer et al. (2018):

“Amazon River basin: Peru, Bolivia, Brazil, Ecuador and Colombia.”

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 Cope (1878):

“From orbicular, the dorsal region very convex ; the abdominal outline still more so. The depth is eleven-twelfths of the length less the caudal fin, and the length of the head enters the latter three and two-tenth times. The depth of the head from the superior border of the post-temporal bone equals the length. The eye is large, entering the length of the head three and one-sixth times, and the convex interorbital space one and one-half times. The chin projects a little beyond the premaxillary border, and the end of the toothless maxillary bone is immediately below the proximal extremity and below the nostrils.”

“Color golden, excepting the superior half of the region above the lateral line, which is dove-color in spirits. No spots of any kind.”

Biology

From Froese and Pauly (2017):

“Filters on phytoplankton with long gill rakers [Zarske and Géry 1999].”

Alvira Reyes et al. (2015) report that *Metynnis luna* engages in short migrations during January and February, according to communities interviewed in the Tapiche and Blanco watersheds, Loreto, Peru.

Human Uses

From Alvira Reyes et al. (2015):

“The most commonly eaten and sold species of fish [among communities in Loreto, Peru] are [...] *Metynnis luna* [...]”

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 *Metynnis luna*, however unidentified species of *Metynnis* are listed as locally established in Florida

4 Global Distribution



Figure 1. Known global distribution of *Metynnis luna*, reported from northern South America. Map from GBIF Secretariat (2017). Occurrences in Guyana, Venezuela, and central and eastern Colombia were excluded from the climate matching analysis because *M. luna* is not known to be established in these areas, which are outside the Amazon River basin.

5 Distribution Within the United States

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

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.005, which is low. The range for a low climate match is from 0.000 to 0.005, inclusive. Climate match was high in far southern Florida, medium through the rest of peninsular Florida and along most of the Gulf Coast to southern Texas, and low elsewhere in the contiguous United States.

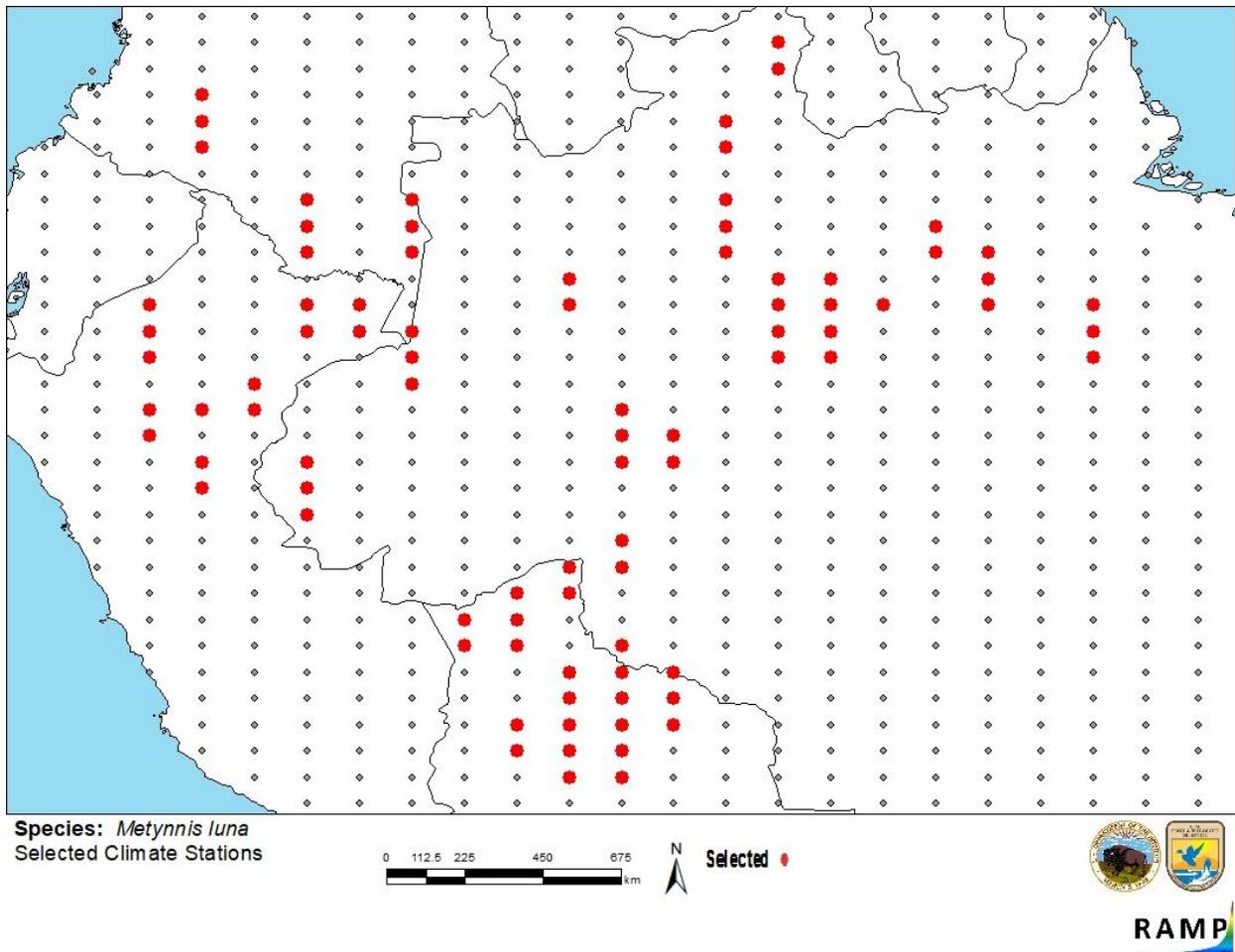


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in northern South America selected as source locations (red; Brazil, Colombia, Peru, Venezuela) and non-source locations (gray) for *Metynnis luna* climate matching. Source locations from GBIF Secretariat (2017).

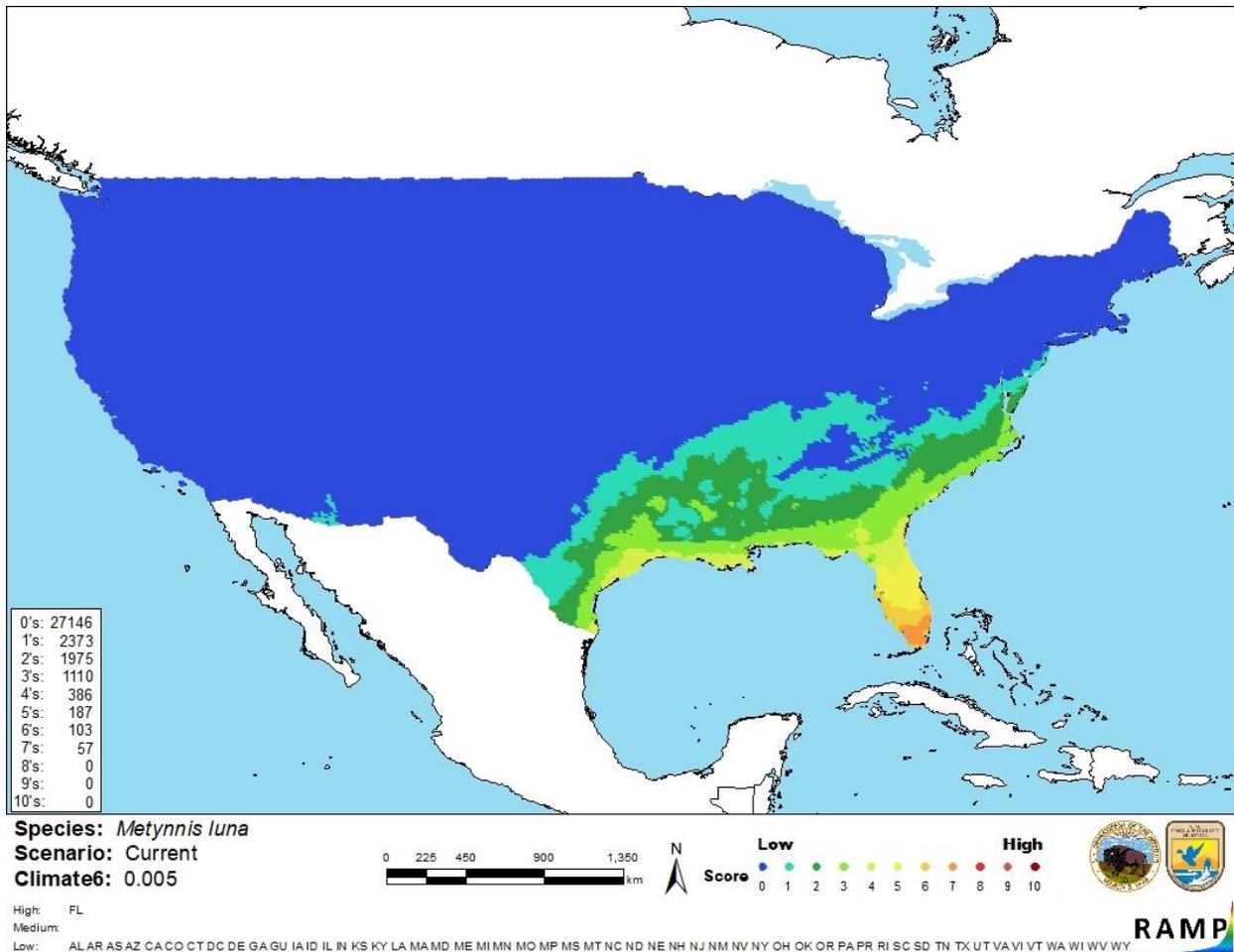


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Metynnis luna* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0=Lowest match, 10=Highest match.

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

7 Certainty of Assessment

Peer-reviewed literature on *Metynnis luna* is limited. There is little information available about its biology and its distribution. This species is not known to be introduced outside of its native range. However, uncertain identification of *Metynnis* spp. captured and established in the United States, as well as the need for systematic revision of the genus, complicates the assessment of this species. 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 luna is a freshwater fish native to the Amazon Basin in South America. It is used for human consumption and in the ornamental fish trade, but it is not known to be in trade in the United States. There are no known introductions of this species outside of its native range, so its history of invasiveness is 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. luna* has a low climate match with the contiguous United States, with highest matches in the southeastern United States, especially in Florida and along the Gulf Coast. With the lack of introduction history and the difficulty of identifying species in the genus, the certainty of this assessment is low. Overall risk for *M. luna* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **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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