

Ebro Barbel (*Luciobarbus graellsii*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2015

Revised, November 2017

Web Version, 8/21/2018



Photo: Massimiliano Marcelli. Licensed under Creative Commons BY 4.0. Available: http://eol.org/data_objects/33384422. (November 17, 2017).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“Known from Ebro to Ter drainages on Mediterranean slope and westward to Ason drainage on Atlantic slope [Kottelat and Freyhof 2007]. Recorded from rivers of the northern and eastern Pyrenees basins. Also [Crivelli 1996; Kottelat 1997].”

Status in the United States

No records of *Luciobarbus graellsii* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Luciobarbus graellsii* in the United States were found.

Remarks

Some databases, such as ITIS, have not updated the name for this species to the current valid name, *Luciobarbus graellsii*, and still refer to *Barbus graellsii*, the previously valid name.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Luciobarbus graellsii* (Steindachner 1866) is the valid name for this species. It was originally described as *Barbus graellsii* and has also been known as *Messinobarbus graellsii*.

From ITIS (2017):

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family Cyprinidae
Genus *Barbus*
Species *Barbus graellsii* Steindachner, 1866”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Maturity: L_m ?, range 15 - 20 cm
Max length : 80.0 cm TL male/unsexed; [Doadrio et al. 1991]; max. reported age: 16 years [Kottelat and Freyhof 2007]”

Environment

From Froese and Pauly (2017):

“Freshwater; benthopelagic; non-migratory.”

Climate/Range

From Froese and Pauly (2017):

“Temperate; 44°N - 41°N, 5°W - 0°”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“Known from Ebro to Ter drainages on Mediterranean slope and westward to Ason drainage on Atlantic slope [Kottelat and Freyhof 2007]. Recorded from rivers of the northern and eastern Pyrenees basins. Also [Crivelli 1996; Kottelat 1997].”

Introduced

From Froese and Pauly (2017):

“Recorded from the Ombrone, Albegna and Fiora rivers [in central Italy].”

From Carosi et al. (2017):

“The presence of *L. graellsii* in the study area [in the Tiber River basin, Italy] was first detected in 2010 (Buonerba, Pompei, & Lorenzoni, 2013), and is currently present in two sampling sites in the Tiber and Nestone rivers [in Italy], with abundant and structured populations [self-sustaining, established populations] [...].”

Means of Introduction Outside the United States

From Buonerba et al. (2013):

“Introduction of the allochthonous species [*Luciobarbus graellsii*] [into Italy] is probably due to illegal release by local anglers.”

From Bianco and Ketmaier (2001):

“It is believed to have been introduced to the study area by stocking of fish from northern Italian distributors.”

Short Description

From Froese and Pauly (2017):

“Diagnosed from other species of *Barbus* and *Luciobarbus* in Iberian Peninsula by having the following characters: lateral line with 43-48 + 2-3 scales; last simple dorsal ray slender, not serrated posteriorly in adults, occasionally with a few small, widely set serrae in individuals smaller than about 15 cm SL; posterior barbel reaching beyond posterior margin of eye; lower lip thick, without median lobe; and lower jaw tip covered by lower lip [Kottelat and Freyhof 2007].”

From Buonerba et al. (2013):

“Moreover body coloration, greyish green dorsally, fading to whitish yellow on the flanks to white on the belly, is very different from the typical body coloration of the other *Barbus* species already known to be present in the Tiber River basin (Bianco 1995; Bianco and Ketmaier 2001).”

From Bianco and Ketmaier (2001):

“Another diagnostic character is the presence of large nuptial tubercles on the snout of adult males [...] (absent or only incipient in immature males).”

“Among the three *Barbus* species found at the study sites, *B. graellsii* cannot be misidentified because of its uniformly silvery colouration, larger scales and ink black peritoneal membrane, in contrast to the greyish peritoneum in the other species.”

Biology

From Froese and Pauly (2017):

“Inhabits lower and middle reaches of rivers with slow current, preferring areas with vegetation and shore cover. Migrates upstream areas with faster current and gravel or stone bottom for spawning [Kottelat and Freyhof 2007]. Feeds on invertebrates and plants [Crivelli 1996] and algae [Kottelat and Freyhof 2007]”

From Freyhof and Kottelat (2008):

“Spawns for the first time at 4 years, 150-200 mm SL. Spawns in May-August. Generally feeds on algae and aquatic macro-invertebrates.”

Human Uses

From Froese and Pauly (2017):

“Gamefish: yes”

Diseases

No records of OIE reportable diseases were found.

Poelen et al. (2014) list *Dactylogyrus bocageii*, *D. legionensis*, *D. lenkoranoides*, *D. linstowoides*, and *D. mascomai* as parasites of *Luciobarbus graellsii*.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

The following outlines theorized, *potential* impacts from introductions.

From Buonerba et al. (2013):

“As documented for other alien species (Zerunian 2001), *L. graellsii* could be a source of risk for the fish fauna of the Tiber River, but in particular for *B. tyberinus*, an endemic species of Central Italy [...]. These biological characteristics make *L. graellsii* a potential competitor for resources of *B. tyberinus*, already threatened by the presence of the allochthonous *B. barbus* (Lorenzoni et al. 2006b; Giannetto et al. 2012).”

From Bianco and Ketmaier (2001):

“Translocation of invasive species as *C. genei* and *P. bonelli*, from northern Italy, as well as the introduction of exotic species [including *Luciobarbus graellsii*], appear to be principal causes in the reduction of native species especially in the main and lower reaches of rivers.”

4 Global Distribution

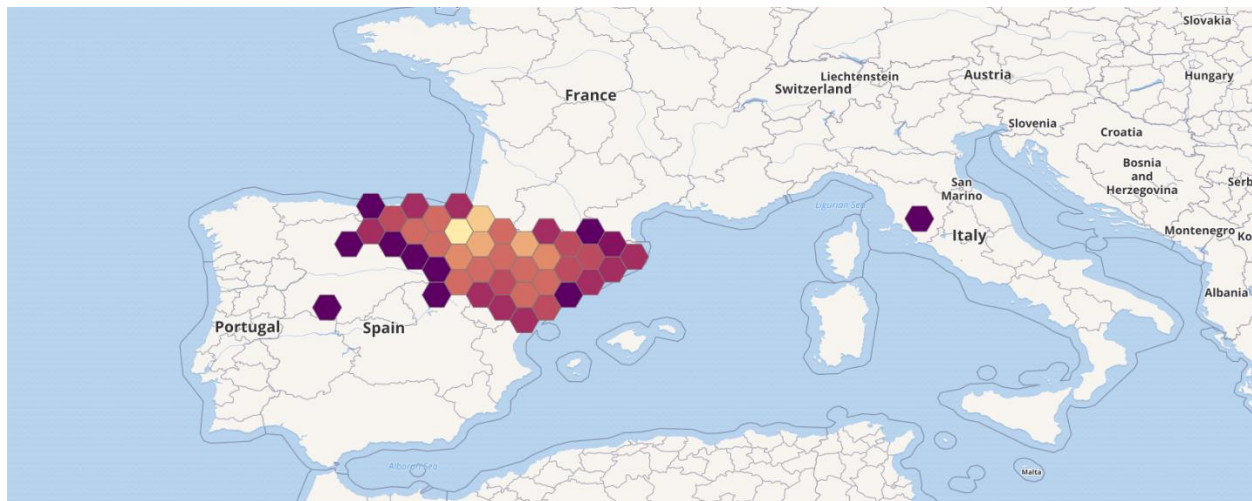


Figure 1. Known global distribution of *Luciobarbus graellsii*. Locations are in Spain and Italy. Map from GBIF Secretariat (2017).

Additional locations in the Tiber River basin in Italy are given in Carosi et al. (2017).

5 Distribution Within the United States

No records of *Luciobarbus graellsii* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Luciobarbus graellsii* was high in small pockets of the west. The climate match was low in the very upper Midwest, the northern Northeast, Florida and the Gulf Coast, and along with the northern Pacific Coast. All other areas were medium. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.047, medium, and individually high for Arizona, California, Idaho, Nevada, Oregon, and Washington.

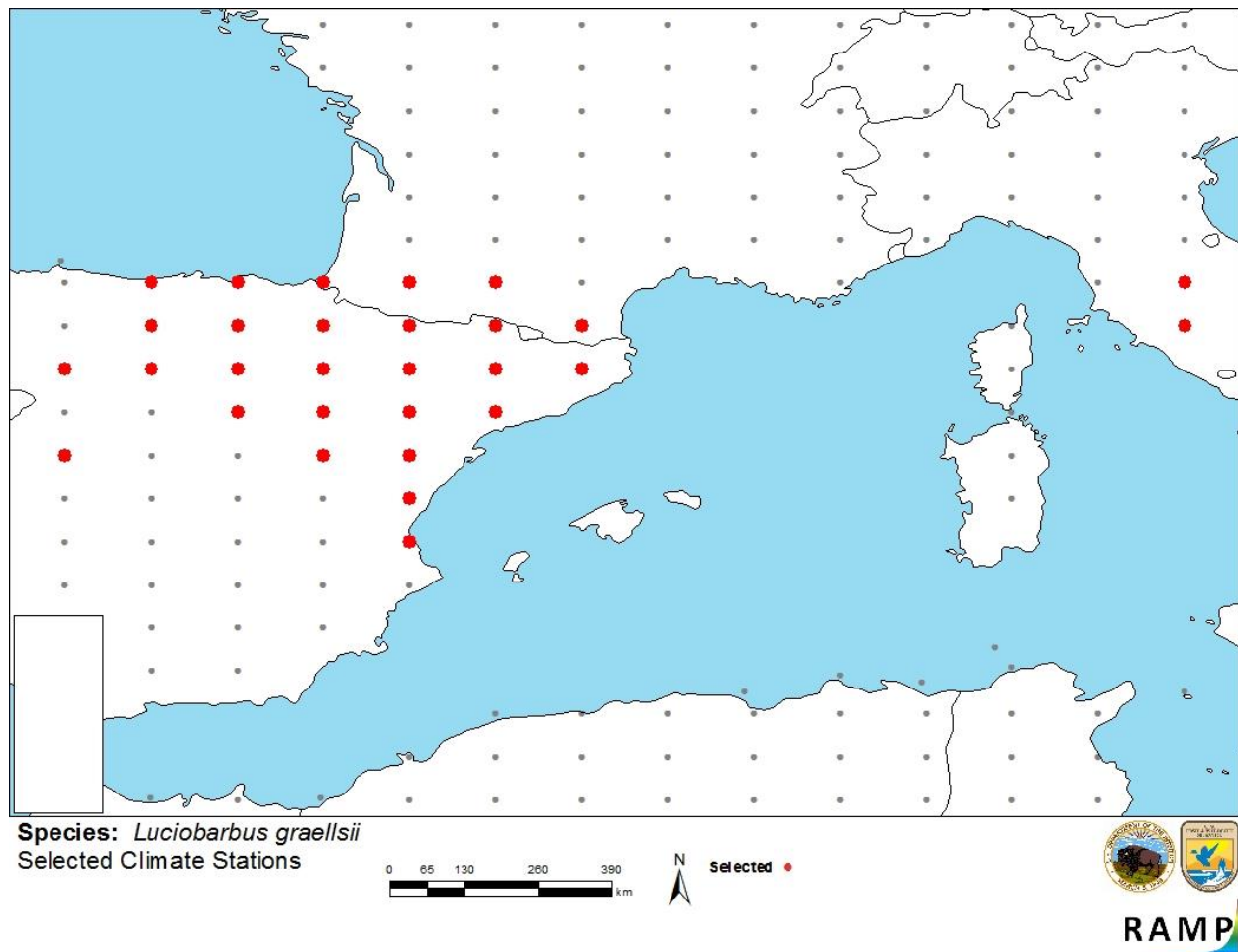


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Spain, France, Italy) and non-source locations (gray) for *Luciobarbus graellsii* climate matching. Source locations from Carosi et al. (2017), and GBIF Secretariat (2017).

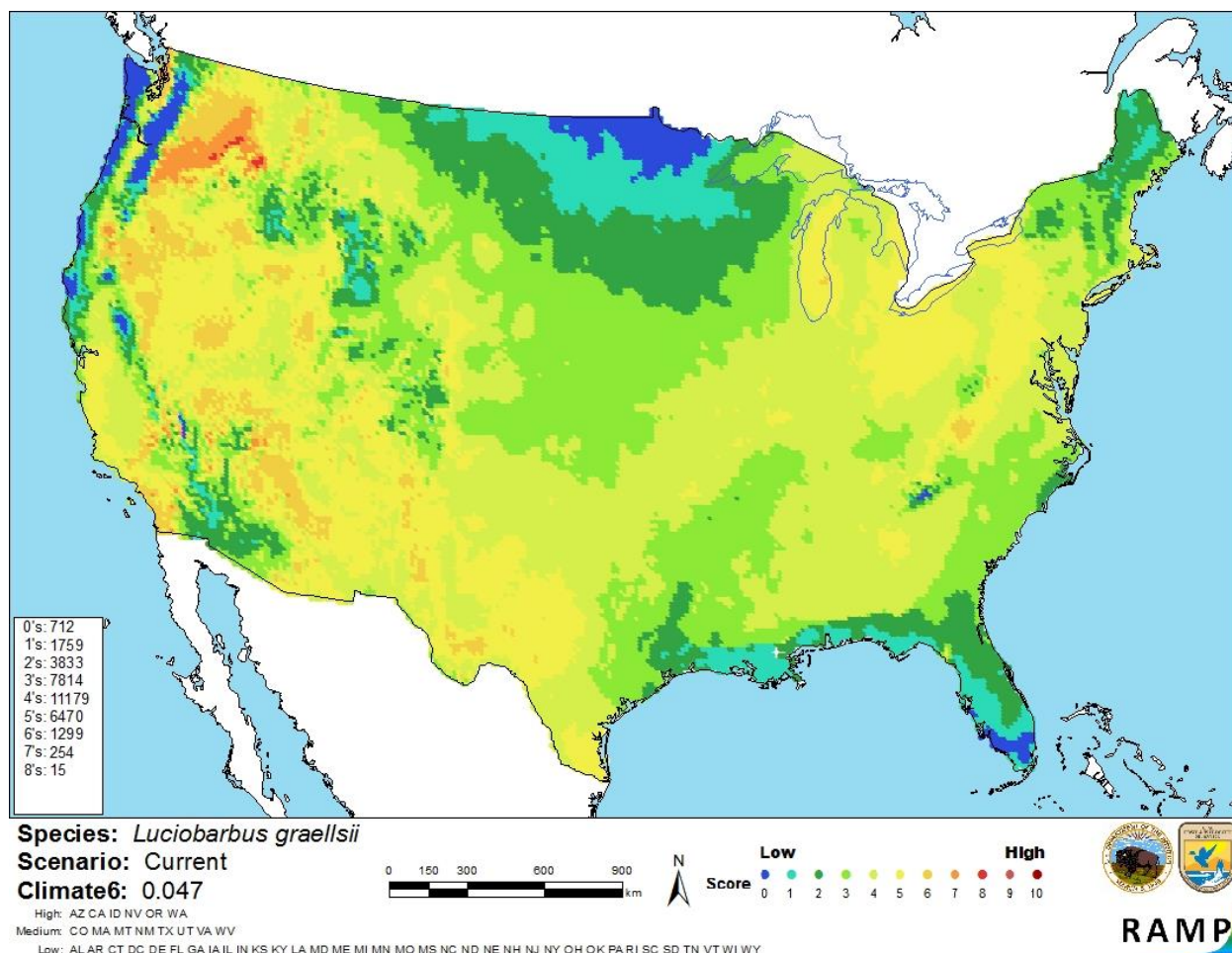


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Luciobarbus graellsii* in the contiguous United States based on source locations reported by Carosi et al. (2017), and GBIF Secretariat (2017). 0 = Lowest match, 10 = Highest match.

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

7 Certainty of Assessment

The certainty of this assessment is medium. There was adequate, high quality ecological information available for *Luciobarbus graellsii*. Records of introductions and establishment were found. No information on documented impacts of introduction were found, there was some information on potential impacts.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Ebro Barbel (*Luciobarbus graellsii*) is a freshwater fish native to river drainages in northern Spain. *L. graellsii* is a sportfish in Europe. The history of invasiveness for *L. graellsii* is not documented. *L. graellsii* has become established in Italy. It is theorized that this species could detrimentally impact the native barb, *Barbus tyberinus*, which is already threatened by another introduced *Barbus* sp. Negative impacts on *B. tyberinus* from the presence of *L. graellsii* have not been scientifically documented. The climate match with the contiguous United States is medium. Six States had high individual climate scores. The certainty of assessment is medium. Records of introductions and establishments were found and there is some information on potential impacts. However, no records of documented impacts were found. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): None Documented**
- **Climate Match (Sec. 6): Medium**
- **Certainty of Assessment (Sec. 7): Medium**
- **Remarks/Important additional information** No additional remarks.
- **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.

- Bianco, P. G., and V. Ketmaier. 2001. Anthropogenic changes in the freshwater fish of Italy with reference to the central region and *Barbus graellsii*, a newly established alien species of Iberian origin. *Journal of Fish Biology* 59(Supplement A):190–208.
- Buonerba, L., L. Pompei, and M. Lorenzoni. 2013. First record of Iberian barbel *Luciobarbus graellsii* (Steindachner, 1866) in the Tiber River (Central Italy). *BioInvasions Records* 2(4):1–5.
- Carosi, A., L. Ghetti, C. Cauzillo, L. Pompei, and M. Lorenzoni. 2017. Occurrence and distribution of exotic fishes in the Tiber River basin (Umbria, central Italy). *Journal of Applied Ichthyology* 33:274–283.
- Eschmeyer, W. N., R. Fricke, and R. van der Laan, editors. 2017. *Catalog of fishes: genera, species, references*. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (November 2017).

- Freyhof, J., and M. Kottelat. 2008. *Luciobarbus graellsii*. The IUCN red list of threatened species 2008: e.T2587A9458917. Available: <http://www.iucnredlist.org/details/full/2587/0>. (April 2015).
- Froese, R., and D. Pauly, editors. 2017. *Luciobarbus graellsii* (Steindachner, 1866). FishBase. Available: <http://www.fishbase.org/summary/Luciobarbus-graellsii.html>. (November 2017).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Luciobarbus graellsii* (Steindachner, 1866). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/2363097>. (November 2017).
- ITIS (Integrated Taxonomic Information System). 2017. *Barbus graellsii* Steindachner, 1866. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=688565. (November 2017).
- Poelen, J. H., J. D. Simons, and C. J. Mungall. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. *Ecological Informatics* 24:148–159.
- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk assessment mapping program: RAMP. U.S. Fish and Wildlife Service.

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.

- Bianco, P. G. 1995. A revision of Italian species of *Barbus*. *Ichthyological Exploration of Freshwaters* 6:305–324.
- Crivelli, A. J. 1996. The freshwater fish endemic to the Mediterranean region. An action plan for their conservation. Tour du Valat Publication.
- Doadrio, I., B. Elvira, and Y. Bernat. 1991. Cyprinidae. Pages 31–79 in I. Doadrio, B. Elvira, and Y. Bernat, editors. *Peces continentales españoles: inventario y clasificación de zonas fluviales*. Colección Técnica, ICONA, Madrid.
- Giannetto, D., A. Carosi, E. Franchi, L. Ghetti, G. Pedicillo, L. Pompei, and M. Lorenzoni. 2012. Assessing the impact of non-native freshwater fishes on native species using relative weight. *Knowledge and Management of Aquatic Ecosystems* 404:03.
- Kottelat, M. 1997. European freshwater fishes. *Biologia (Bratislava)* 52(supplement 5):1–271.

Kottelat, M., and J. Freyhof. 2007. Handbook of European freshwater fishes. Publications Kottelat, Cornol, Switzerland, and Freyhof, Berlin.

Lorenzoni, M., A. Carosi, V. Angeli, A. Bicchi, G. Pedicillo, and P. Viali. 2006b. Individuazione e riconoscimento dei barbi autoctoni nel bacino del fiume Paglia. Terni: Arti grafiche Tiezzi.

Zerunian, S. 2001. Condannati all'estinzione? Biodiversità, biologia, minacce e strategie di conservazione dei pesci d'acqua dolce indigeni in Italia. Edagricole, Bologna, Italy.