Silver Bream (*Blicca bjoerkna*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, March 2014
Revised, February 2018
Web Version, 8/30/2018

Photo: A. Harka. Licensed under Creative Commons (CC-BY 3.0). Available: http://www.fishbase.org/photos/ThumbnailsSummary.php?Genus=Blicca&Species=bjoerkna# (February 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

"Europe and Asia: North, Baltic, White, Black (south to Rioni drainage) and Caspian Sea basins, Atlantic basin southward to Adour drainage (France; possibly introduced southward of Loire) and Mediterranean basin in France (Hérault and Rhône drainages). In Aral, Marmara and Anatolian Black Sea basins west of Ankara. Naturally absent from Iberian Peninsula, Italy,

Adriatic basin, Crimea, Great Britain (except southeast), Scandinavia north of Sundsvall (Sweden) and 65° N (Finland)."

Status in the United States

This species has not been reported in the United States.

Means of Introductions in the United States

This species has not been reported in the United States.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2018):

"Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Osteichthyes
Class Actinopterygii
Subclass Neopterygii
Infraclass Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cyprinoidea
Family *Cyprinidae*
Genus *Blicca*
Species *Blicca bjoerkna*"

"Taxonomic Status: valid"

Size, Weight, and Age Range

From Froese and Pauly (2017):

[…] Max length : 36.0 cm TL male/unsexed; [Gerstmeier and Romig 1998]; common length : 20.0 cm TL male/unsexed; [Muus and Dahlström 1968]; max. published weight: 1.0 kg [Billard 1997]"

Environment

From Froese and Pauly (2017):

"Freshwater; brackish; demersal; potamodromous [Riede 2004]; depth range 0 - ? m. […] 4°C - 20°C [Baensch and Riehl 1991; assumed to be recommended aquarium temperature range]"

Climate/Range

From Froese and Pauly (2017):

"Temperate; […] 65°N - 40°N"

Distribution Outside the United States

Native

From Froese and Pauly (2017):

"Europe and Asia: North, Baltic, White, Black (south to Rioni drainage) and Caspian Sea basins, Atlantic basin southward to Adour drainage (France; possibly introduced southward of Loire) and Mediterranean basin in France (Hérault and Rhône drainages). In Aral, Marmara and Anatolian Black Sea basins west of Ankara. Naturally absent from Iberian Peninsula, Italy, Adriatic basin, Crimea, Great Britain (except southeast), Scandinavia north of Sundsvall (Sweden) and 65° N (Finland)."

Introduced

From Froese and Pauly (2017):

"Locally introduced in Spain and northeastern Italy; in France, apparently introduced in small coastal drainages of Var."

"Recorded from the Ebro river basin [Spain] since 1995. There is an increasing trend of spread of this fish [Elvira 1998]."

From Welcomme (1988):

"*B.bjoerkna* is reported to have been accidentally introduced in Cyprus […]"

Means of Introduction Outside the United States

From Welcomme (1988):

"*B. bjoerkna* is reported to have been accidentally introduced in Cyprus with other cyprinid fishes."

Short Description
From Froese and Pauly (2017):

"Dorsal spines (total): 3; Dorsal soft rays (total): 8; Anal spines: 3; Anal soft rays: 19 - 22; Vertebrae: 39 - 40. The only species of the genus which can be diagnosed from similar species of genera *Ballerus*, *Blicca* and *Vimba* by having the following characters: mouth sub-inferior, which cannot be extended as a tube; scales on lateral line 43-46 + 2-3; anal fin with 19-23½ branched rays; eye diameter about equal to snout length in individuals larger than 10 cm SL; pharyngeal teeth 2,5-2,5; and orange or reddish base of paired fins. Caudal fin with 17-19 rays [Spillman 1961]."

Biology
From Froese and Pauly (2017):

"Gregarious and frequents stagnant waters of lakes and reservoirs, rivers and canals with calm waters. Occurs in a wide variety of shallow, warm lowland lakes and slow-flowing lower reaches of large rivers and canals. Frequently very abundant on bottom of large sandy rivers. Larvae live in still water bodies. Mainly nocturnal. Feeds on benthic invertebrates. Spawns along shores on submerged vegetations, roots or even on shallow gravel bottom [Kottelat and Freyhof 2007]. Reproduction takes place in May to July. Exhibits polyandry [Koli 1990]."

"Exhibits polyandry, with courting tactics developed by males. Trembling and splashing movements signal release of eggs and sperms on plant substratum [Koli 1990]. Eggs are sticky [Kottelat and Freyhof 2007]."

Human Uses
From Froese and Pauly (2017):

"Fisheries: minor commercial; aquarium: public aquariums; bait: occasionally"

Diseases
Froese and Pauly (2017) report that *B. bjoerkna* is a host of Black Spot Disease 1 (Diplostomiasis) which is a parasitic infestation (Schäperclaus 1979). No OIE reportable diseases have been documented for this species.

Threat to Humans
From Froese and Pauly (2017):

"Harmless"

3 Impacts of Introductions
Data on the impacts of introductions are lacking. More scientific studies are needed to understand the impacts *B. bjoerkna* has on introduced areas.

From Froese and Pauly (2017):

“Regularly hybridizes with *Vimba vimba* [Kottelat and Freyhof 2007]. […] Unpopular with commercial fishers due to its small size and competition with more desired species.”

“Interferes with native cyprinids [in Italy; Bianco 2013].”

4 Global Distribution

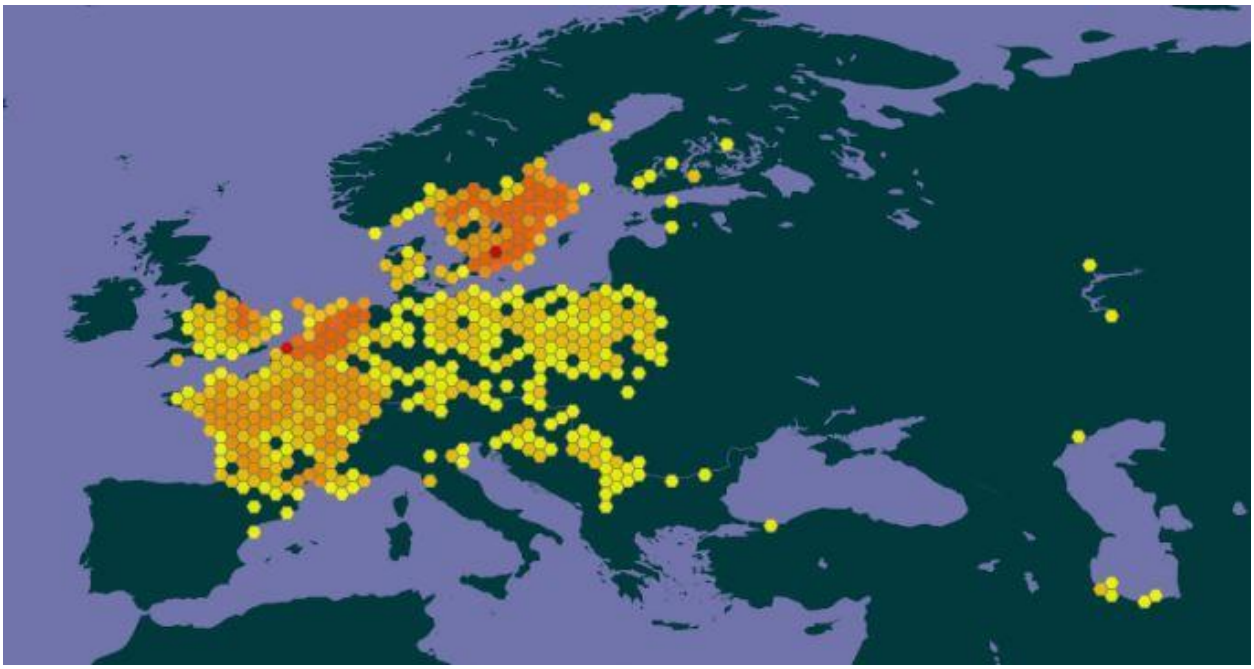

Figure 1. Map of known global distribution of *Blicca bjoerkna*, reported from Europe and western Asia. Map from GBIF Secretariat (2017). A small number of marine occurrences scattered along European coastlines were excluded from the climate matching analysis because *B. bjoerkna* is restricted to fresh and brackish water environments.

5 Distribution Within the United States

This species has not been reported as established or introduced in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was high in the Great Lakes basin and in limited portions of the Mississippi River and Ohio River basins. There were isolated locations in the interior West that also produced high scores. Much of the northeastern and southeastern United States had medium and low scores. Low matches were recorded for the Gulf States, Southwest, and coastal Pacific Northwest. Climate 6 match

indicated that the contiguous U.S. has a high climate match. The range for a high climate match is 0.103 and greater; climate match of *B. bjoerkna* is 0.394.

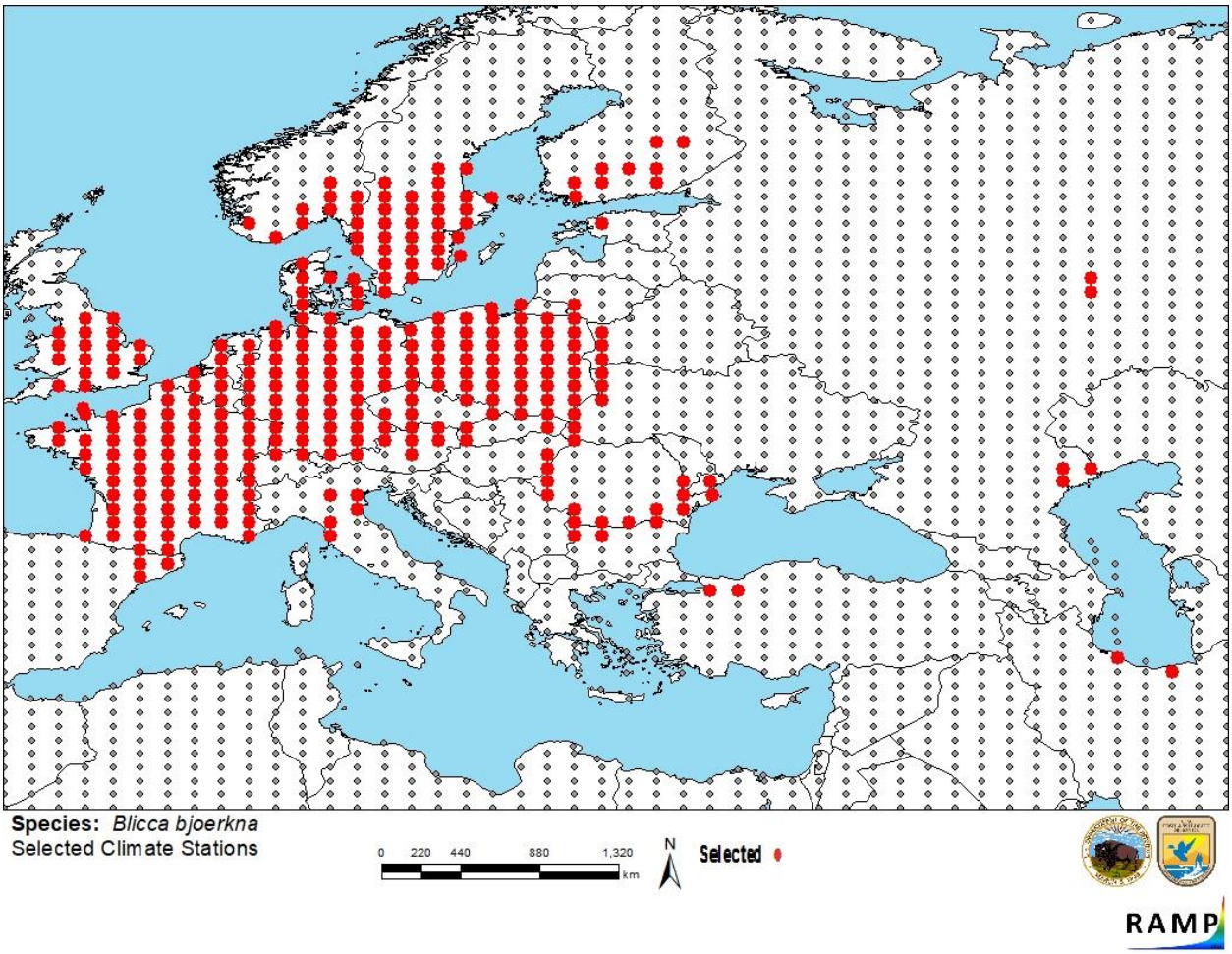

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Europe and western Asia selected as source locations (red; United Kingdom, France, Spain, Belgium, Netherlands, Germany, Denmark, Norway, Sweden, Finland, Italy, Switzerland, Austria, Hungary, Poland, Czech Republic, Slovakia, Romania, Bulgaria, Ukraine, Belarus, Lithuania, Estonia, Russia, Moldova, Iran) and non-source locations (gray) for *Blicca bjoerkna* climate matching. Source locations from GBIF Secretariat (2017).

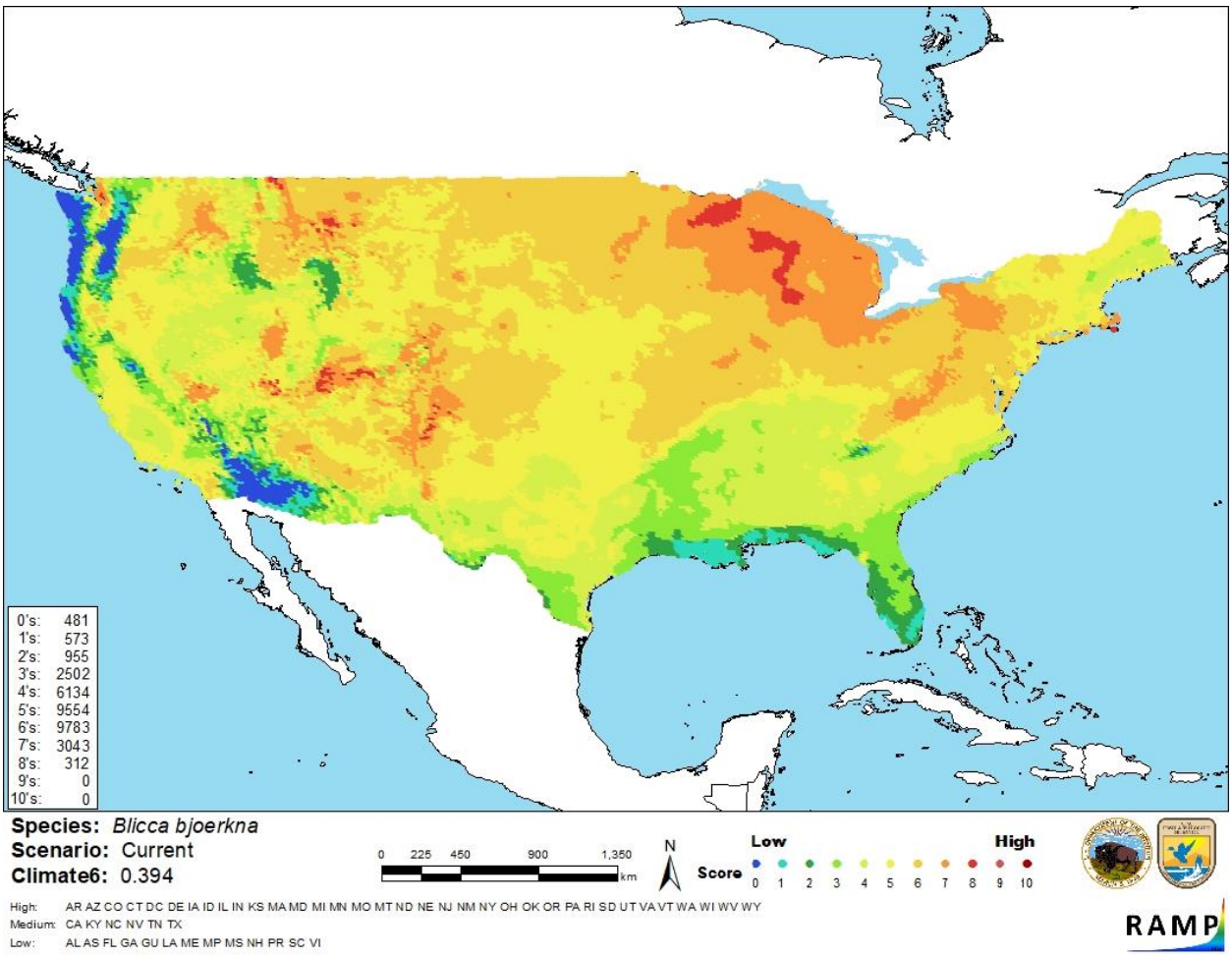

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Blicca bjoerkna* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0= Lowest match, 10= Highest match. Counts of climate match scores are tabulated on the left.

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 on the biology and distribution of *B. bjoerkna* is available, however, scientific data on the impacts of introductions are lacking. More studies are needed to fully understand the potential and actual impacts the species could be having in introduced areas; absence of this research makes the certainty of this assessment low.

8 Risk Assessment

Summary of Risk to the Continental United States

B. bjoerkna is a fish native to Europe and Asia. It frequents stagnant waters of lakes and reservoirs, rivers and canals with calm waters. The species was introduced in Spain, northeastern Italy, and France. It is reported to spread in areas where introduced. *B. bjoerkna* is reported to be unpopular with commercial fishers and anglers due to small size and competition with more desired species and it regularly hybridizes with *Vimba vimba*. More research on the impacts from introductions of this species is needed; absence of this research makes the certainty of this assessment low. Climate match with the United States is high. Overall risk posed by this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3):** None Documented
- **Climate Match (Sec.6):** High
- **Certainty of Assessment (Sec. 7):** Low
- **Remarks/Important additional information** *B. bjoerkna* is reported to be a host of Black Spot Disease 1 (Diplostomiasis). Regularly hybridizes with *Vimba vimba*.
- **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.

Froese, R., and D. Pauly, editors. 2017. *Blicca bjoerkna* (Linnaeus, 1758). FishBase. Available: http://www.fishbase.us/summary/Blicca-bjoerkna.html. (February 2018).

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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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