

## *Dreissena siouffi* (a mussel, no common name)

### Ecological Risk Screening Summary

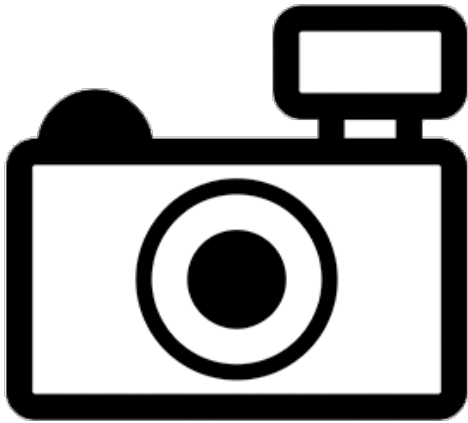
U.S. Fish & Wildlife Service, January 2022

Revised, February 2022

Web Version, 10/6/2022

Organism Type: Mollusk

Overall Risk Assessment Category: Uncertain



No Photo Available

## 1 Native Range and Status in the United States

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### Native Range

From Locard (2021):

“Iraq, Euphrates River nead [sic] Bagdad”

From Ozturk et al. (2012):

“*Dreissena siouffi*, an endemic species of Euphrates river has also been found in Birecik dam area near Halfeti [Turkey] (Ekrin et al., 2008).”

According to Gurlek et al. (2019), *Dreissena siouffi* has been found in the Firat river. The portion of the Euphrates River that flows through Turkey is commonly referred to as the Firat River in Turkish.

## Status in the United States

No records of *Dreissena siouffi* in trade or in the wild in the United States were found.

From Arizona Office of the Secretary of State (2013):

“Mollusks listed below are considered restricted live wildlife: [...]

2. All species of the family Dreissenidae. Common names include: zebra and quagga mussel.”

From California Department of Fish and Wildlife (2019):

“It shall be unlawful to import, transport, or possess live animals restricted in subsection (c) below except under permit issued by the department. [...]

Restricted species include: [...]

Class Bivalvia-Bivalves: All members of the genus *Dreissena* (zebra and quagga mussels)”

From State of Nevada (2018):

“Except as otherwise provided in this section and NAC 504.486, the importation, transportation or possession of the following species of live wildlife or hybrids thereof, including viable embryos or gametes, is prohibited: [...]

Zebra and quagga mussels [...] All species in the genus *Dreissena*”

From Oregon Secretary of State (2022):

“Except as otherwise provided in these rules or other rules of the commission, live wildlife listed below may not be imported, possessed, sold, purchased, exchanged or transported in the state: [...]

(ii) Zebra mussel, Quagga mussel – Dreissenidae – All species (whether live or dead)”

From Texas Parks and Wildlife (2020):

“The organisms listed here are legally classified as exotic, harmful, or potentially harmful. No person may possess or place them into water of this state except as authorized by the department. Permits are required for any individual to possess, sell, import, export, transport or propagate listed species for zoological or research purposes; for aquaculture (allowed only for Blue, Nile, or Mozambique tilapia, Triploid Grass Carp, or Pacific White Shrimp); or for aquatic weed control (for example, Triploid Grass Carp in private ponds). [...]

Zebra and Quagga Mussels, Family Dreissenidae

All species of genus *Dreissena*, including but not limited to *Dreissena polymorpha* (Zebra mussel)”

From Washington State Senate (2019):

“The following species are classified as prohibited level 3 species: [...]

Family Dreissenidae: All members of the genus Dreissenid [sic] except the species zebra mussel, *Dreissena polymorpha*, and the quagga mussel, *Dreissena rostriformis bugensis*.”

## Means of Introductions in the United States

No records of *Dreissena siouffi* in the wild in the United States were found.

## Remarks

Locard 2021, lists *Dreissena elongate* as a synonym of *Dreissena siouffi* and research was conducted under each of these names.

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From Locard (2021):

“Animalia (Kingdom) > Mollusca (Phylum) > Bivalvia (Class) > Autobranchia (Subclass) > Heteroconchia (Infraclass) > Euheterodonta (Subterclass) > Imparidentia (Superorder) > Myida (Order) > Dreissenoida (Superfamily) > Dreissenidae (Family) > Dreisseninae (Subfamily) > *Dreissena* (Genus) > *Dreissena siouffi* (Species)”

“Status accepted  
Rank Species”

### Size, Weight, and Age Range

From Locard (2021):

“Body size (qualitative) 2.0 - 200 mm”

### Environment

According to Locard (2021), *Dreissena siouffi* is a freshwater species.

### Climate

No information on climate was found for *Dreissena siouffi*.

### Distribution Outside the United States

Native

From Locard (2021):

“Iraq, Euphrates River nead [sic] Bagdad”

From Ozturk et al. (2012):

“*Dreissena siouffi*, an endemic species of Euphrates river has also been found in Birecik dam area near Halfeti [Turkey] (Ekrin et al., 2008).”

According to Gurlek et al. (2019), *Dreissena siouffi* has been found in the Fırat river. The portion of the Euphrates river that flows through Turkey is commonly referred to as the Fırat River in Turkish.

### Introduced

No records of introductions were found for *Dreissena siouffi*.

### Means of Introduction Outside the United States

No records of introductions were found for *Dreissena siouffi*.

### Short Description

No description was found for *Dreissena siouffi*.

### Biology

No information on biology was found for *Dreissena siouffi*.

### Human Uses

No information on human uses of *Dreissena siouffi* was found.

### Diseases

No records of OIE-reportable diseases (OIE 2022) were found for *Dreissena siouffi*. No information on diseases was found for *Dreissena siouffi*.

### Threat to Humans

No information on threats to humans was found for *Dreissena siouffi*.

## 3 Impacts of Introductions

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No records of introductions were found for *Dreissena siouffi*; therefore, there is no information on impacts of introduction.

## 4 History of Invasiveness

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There are no records of introductions of *Dreissena siouffi* outside of its native range, and therefore no information on impacts of introductions. There are also no records of *D. siouffi* in trade. The history of invasiveness for this species is classified as No Known Nonnative Population.

## 5 Global Distribution

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**Figure 1.** Approximate locations where *Dreissena siouffi* is found based on verbal descriptions in Ozturk et al. (2012) and Locard (2021). The red icons represent the areas in which *D. siouffi* has been found. The locations are the Euphrates River near the city of Baghdad, Iraq and the Birecik dam area near Halfeti in southern Turkey. Map created with ArcPro v2.8.3 ©Esri.

The location of the Firat Rriver from Gurlek et al. (2019) is too broad to use to select source locations for the climate match.

## 6 Distribution Within the United States

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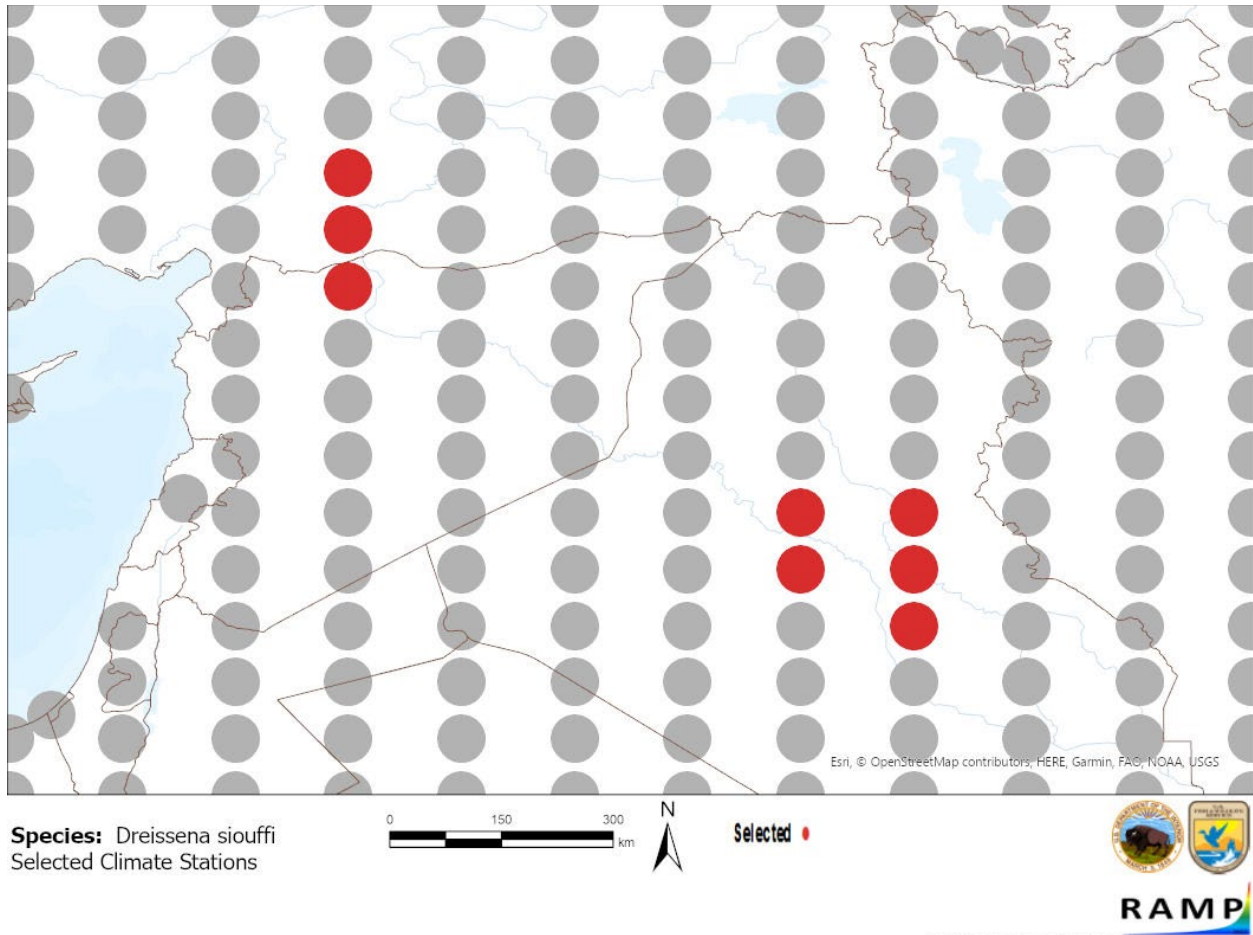
No records of *Dreissena siouffi* in the wild in the United States were found.

## 7 Climate Matching

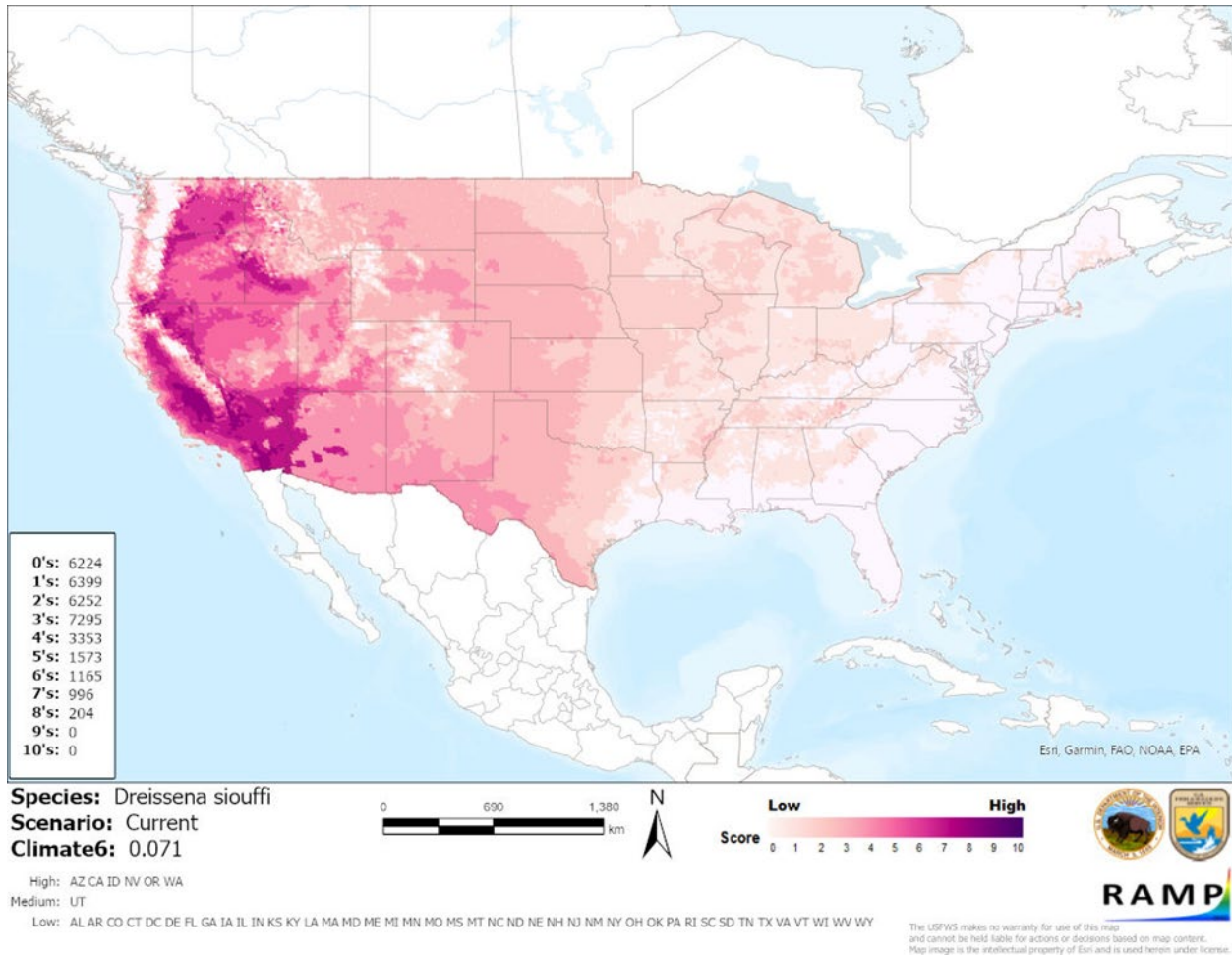
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### Summary of Climate Matching Analysis

The climate match for *Dreissena siouffi* was generally low in the eastern half of the contiguous United States and throughout the Great Plains states. Areas of high match were concentrated in the southern portion of California, areas surrounding the Sierra Nevada Mountains extending north into Washington and Idaho, and the Mojave Desert. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.071, Medium. (Scores greater than 0.005 and less than 0.103, exclusive, are classified as medium.) Arizona, California, Idaho, Nevada, Oregon, and Washington had high individual Climate 6 scores. Utah had a medium Climate 6 score. The remainder of the States had low individual Climate 6 scores. Georeferenced observations were not available to use in choosing source points for the climate match, reducing the certainty in the interpretation of the climate match results.



**Figure 2.** Map of RAMP (Sanders et al. 2021) source map showing weather stations in central Iraq, southern Turkey, and northern Syria used as source locations (red; Turkey, Iraq, Syria) and non-source locations (gray) for *Dreissena siouffi* climate matching. Source locations from Locard (2021), and Ozturk et al. (2012). Selected source locations are within 100 km of species occurrences.



**Figure 3.** Map of RAMP (Sanders et al. 2021) climate matches for *Dreissena siouffi* in the contiguous United States based on source locations reported by Locard (2021), and Ozturk et al. (2012). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 8 Certainty of Assessment

The certainty of assessment is Low. Limited information is available on the biology and ecology of *Dreissena siouffi*. There were no reported introductions of *D. siouffi*, and therefore no information on impacts due to introductions. No georeferenced observations were available to use in selecting source points for the climate match.

## 9 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Dreissena siouffi* is a freshwater mussel native the Euphrates River, in central Iraq and southern Turkey. *D siouffi* has not been reported outside of its native range and there was no indication this species is in trade. The history of invasiveness is classified as No Known Nonnative Population. The overall climate match for the contiguous United States was Medium. The climate match for *Dreissena siouffi* was generally low in the east half of the contiguous United States and in the Great Plains. Areas of high match were concentrated in the southern portion of California, areas surrounding the Sierra Nevada mountains and extending north into Washington and Idaho, and the Mojave Desert. The certainty of assessment is Low due to a lack of information regarding biology, ecology, and history of invasiveness. The lack of georeferenced observations to use in choosing source points for the climate match also contributes to the low certainty. The overall risk assessment category for *D. siouffi* is Uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information:** No additional remarks
- **Overall Risk Assessment Category: Uncertain**

## 10 Literature Cited

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.**

Arizona Office of the Secretary of State. 2013. Live wildlife. Arizona Administrative Code, Game and Fish Commission, Title 12, Chapter 4, Article 4.

California Department of Fish and Wildlife. 2019. Restricted species laws and regulations manual. Available: <https://wildlife.ca.gov/Conservation/Invasives/Regulations> (January 2022).

Esri. 2021. ArcGIS Pro. Version 2.8.3. Esri Inc. Available: <https://www.esri.com/en-us/arcgis/products/arcgis-pro/overview>.

Gurlek ME, Sahin SK, Dokumcu N, Yildirim MZ. 2019. Checklist of the freshwater Mollusca of Turkey (Mollusca: Gastropoda, Bivalvia). *Fresenius Environmental Bulletin*. 28:2992–3013.

Locard A. 2021. *Dreissena siouffi* (Locard, 1893). World Register of Marine Species. Available: <https://www.marinespecies.org/aphia.php?p=taxdetails&id=505323> (January 2022).

[OIE] World Organisation for Animal Health. 2022. Animal diseases. Available: <https://www.oie.int/en/what-we-do/animal-health-and-welfare/animal-diseases/> (January 2022).

Oregon Secretary of State. 2022. Importation, possession, confinement, transportation and sale of nonnative wildlife. Chapter 635, Division 56 in Oregon Administrative Rules Database. Available: <https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=2948> (March 2022).

Ozturk M, Kebapci U, Gucl S, Cetin EE, Altundag E. 2012. Biodiversity and land degradation in the lower Euphrates subregion of Turkey. *Journal of Environmental Biology* 33:311–323.

Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

State of Nevada. 2018. Restrictions on importation, transportation and possession of certain species. Nevada Administrative Code, Chapter 503, Section 110.

Texas Parks and Wildlife. 2020. Invasive, prohibited and exotic species. Austin: Texas Parks and Wildlife. Available: [https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited\\_aquatic.phtml](https://tpwd.texas.gov/huntwild/wild/species/exotic/prohibited_aquatic.phtml) (January 2022).

Washington State Senate. 2019. Invasive/nonnative species. Washington Administrative Code, Chapter 220-640.

## 11 Literature Cited in Quoted Material

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**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.**

Ekin I, Bashan M, Sesen R. 2008. *Dreissena siouffi* (Locard 1893) (Bivalvia: Dreissenidae) collected from Euphrates and its fatty acid composition. *Journal of Science and Engineering of Firat University* 20:243–250.