

***Dikerogammarus aralychensis* (an amphipod, no common name)**

Ecological Risk Screening Summary

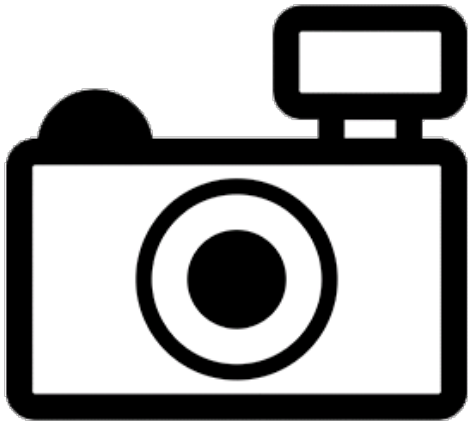
U.S. Fish & Wildlife Service, February 2022

Revised, March 2022

Web Version, 7/28/2022

Organism Type: Amphipod

Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

According to Copilas-Ciocianu and Sidorov (2022) the distribution basin for *Dikerogammarus aralychensis* is the Caucasus basin.

From Bojko (2020):

“The genus *Dikerogammarus* (Gammaridea) contains freshwater and brackish amphipods and was first described by Stebbing (1899). The genus contains nine species to date: *D. aralychensis*, [...] These species are naturally distributed around the Ponto-Caspian region (Black Sea, Caspian Sea and Sea of Azov) [...]”

Status in the United States

No records of *Dikerogammarus aralychensis* in trade or in the wild in the United States were found.

Means of Introductions in the United States

No records of *Dikerogammarus aralychensis* in the wild in the United States were found.

Remarks

There is significant taxonomic confusion when it comes to the accepted name for *Dikerogammarus aralychensis*. One scientific source, Copilas-Ciocianu and Sidorov (2022), lists *D. aralychensis* taxonomic status as doubtful and remarks that it is “Probably [a] junior synonym of *Pontogammarus setosus* (Schäferna, 1914). Further research needed.” No other sources could be found disputing or confirming what Copilas-Ciocianu and Sidorov (2022) was stating, so this assessment will follow World Register of Marine Species (WoRMS; Valls Domedel 2019) in treating *D. aralychensis* as a valid species. There was very little to no information available in regard to the correct scientific name outside of those two sources, in addition to a general lack of information for this species. The taxonomic authorities used in this ERSS are defined in the SOP for the ERSS process and can be found online (<https://fws.gov/library/categories/ecological-risk-screening>).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Valls Domedel (2019):

“Animalia (Kingdom) > Arthropoda (Phylum) > Crustacea (Subphylum) > Multicrustacea (Superclass) > Malacostraca (Class) > Eumalacostraca (Subclass) > Peracarida (Superorder) > Amphipoda (Order) > Senticaudata (Suborder) > Gammarida (Infraorder) > Gammaridira (Parvorder) > Gammaroidea (Superfamily) > Gammaridae (Family) > *Dikerogammarus* (Genus) > *Dikerogammarus aralychensis* (Species)”

“Status accepted”

Size, Weight, and Age Range

No information was found on size, weight, and age range for *Dikerogammarus aralychensis*.

Environment

From Bojko (2020):

“The genus *Dikerogammarus* (Gammaridea) contains freshwater and brackish amphipods and was first described by Stebbing (1899). The genus contains nine species to date: *D. aralychensis*, [...]”

Climate

No information was found on the climate for *Dikerogammarus aralychensis*.

Distribution Outside the United States

Native

According to Copilas-Ciocianu and Sidorov (2022) the distribution basin for *Dikerogammarus aralychensis* is the Caucasus basin, between the Black and Caspian seas.

From Bojko (2020):

“The genus *Dikerogammarus* (Gammaridea) contains freshwater and brackish amphipods and was first described by Stebbing (1899). The genus contains nine species to date: *D. aralychensis*, [...] These species are naturally distributed around the Ponto-Caspian region (Black Sea, Caspian Sea and Sea of Azov) [...]”

Introduced

No records of introductions were found for *Dikerogammarus aralychensis*.

Means of Introduction Outside the United States

No records of introductions were found for *Dikerogammarus aralychensis*.

Short Description

From Copilas-Ciocianu and Sidorov (2022):

“Propodi of gnathopods 1 and 2 with mid-palmar spine [...] *D. aralychensis*”

From Özbek and Özkan (2011):

“*D. aralychensis* has Gammarus-like gnathopod 1 (sloping palm and mid-palmar spines) [...]”

Biology

No information on biology was found for *Dikerogammarus aralychensis*.

Human Uses

No information on human uses was found for *Dikerogammarus aralychensis*.

Diseases

No records of OIE-reportable diseases (OIE 2022) were found for *Dikerogammarus aralychensis*. No information on diseases was found for *D. aralychensis*.

Threat to Humans

No information on threats to humans was found for *Dikerogammarus aralychensis*.

3 Impacts of Introductions

Dikerogammarus aralychensis has not been introduced outside of its native range, therefore there are no impacts of introductions to report.

4 History of Invasiveness

The history of invasiveness for *Dikerogammarus aralychensis* is classified as No Known Nonnative Population. There are no records of introduction of *D. aralychensis* outside of its native range. There is also no trade history associated with *D. aralychensis*.

5 Global Distribution



Figure 1. Known global distribution of *Dikerogammarus aralychensis*. Observation is reported from Armenia. Map from GBIF Secretariat (2022).

6 Distribution Within the United States

No records of *Dikerogammarus aralychensis* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

There are several areas of high and low match throughout the contiguous United States. High matches can be found around the Great Lakes States and throughout the Rocky Mountain range, while the lowest matches can be found along the West Coast and in the Southeast. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.374, high (scores equal to or greater than 0.103 are classified as high). All States had a high individual Climate 6 score except for Kansas, Massachusetts, Maryland, Montana, North Dakota, Nebraska, South Dakota, and Virginia, which had a medium individual Climate 6 score, and Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, New Jersey, Rhode Island, South Carolina, and Tennessee, which had a low individual Climate 6 score.

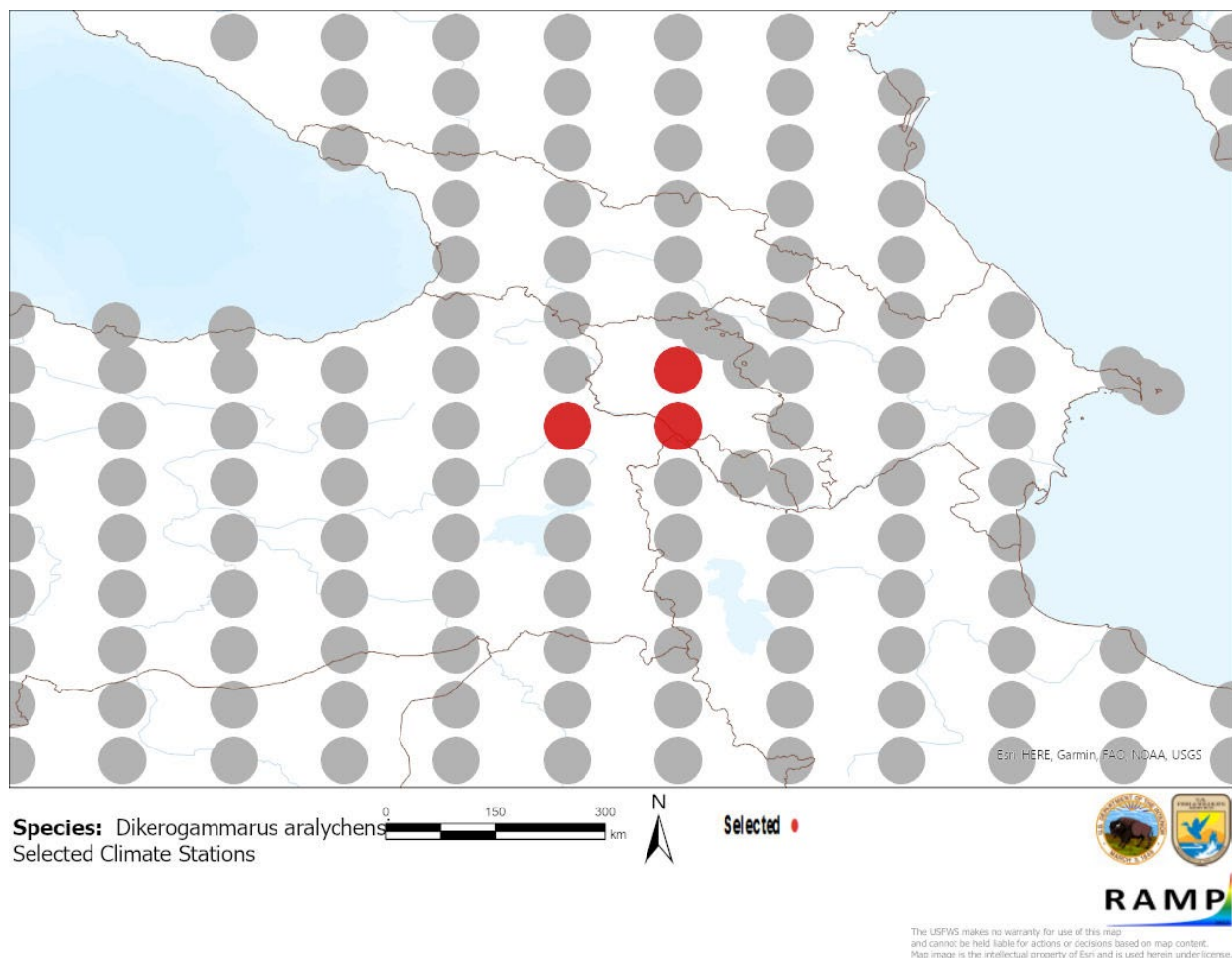


Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in Armenia and Turkey selected as source locations (red; Armenia, Turkey) and non-source locations (gray) for *Dikerogammarus aralychensis* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

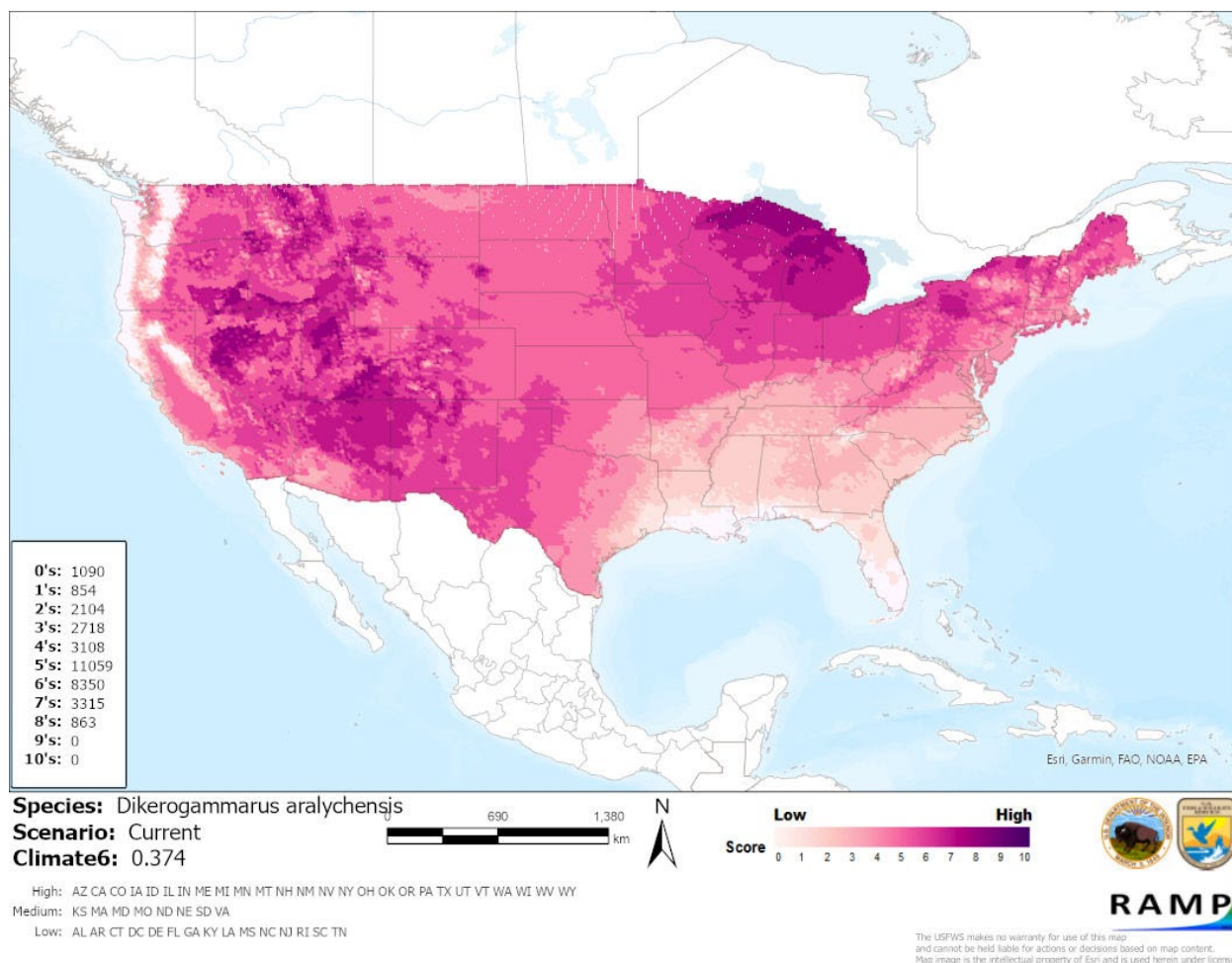


Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Dikerogammarus aralychensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest 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
≥ 0.103	High

8 Certainty of Assessment

The certainty of assessment for *Dikerogammarus aralychensis* is Low. There is almost no information available on this species, and the quality of the information that was found is poor. Information found in the published literature listed *D. aralychensis* briefly in a list of species within the genus *Dikerogammarus* and any information found in those lists was limited. The

distribution for *D. aralychensis* found was also very vague, with this species only having been recorded once. In addition, the taxonomic validity of the species is called into question in Copilas-Ciocianu and Sidorov (2022), where they state that the taxonomic status is doubtful and remarks that it is “Probably [a] junior synonym of *Pontogammarus setosus* (Schäferna, 1914)”.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Dikerogammarus aralychensis is an amphipod native to the Caucasus basin. Very little information was found on *D. aralychensis*, other than a general range description and a vague short description. *D. aralychensis* has not been found outside of its native range and no information on a potential trade history was found. The history of invasiveness is therefore classified as No Known Nonnative Population. The Climate 6 score for *D. aralychensis* was High, with the Great Lakes States and the Rocky Mountain range having the highest match. The certainty of assessment is Low because of the general lack of information found for this species and the absence of a history of invasiveness. The overall risk assessment category for *D. aralychensis* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks: Important additional information:** Significant taxonomic confusion was found for *Dikerogammarus aralychensis*. One scientific source, Copilas-Ciocianu and Sidorov (2022), lists *D. aralychensis* taxonomic status as doubtful and remark that it is “Probably [a] junior synonym of *Pontogammarus setosus*”
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

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

Bojko J. 2020. The mitochondrial genome of UK (non-native) *Dikerogammarus haemobaphes* (Amphipoda: Gammaridae) informs upon *Dikerogammarus* evolution, invasions and associated microparasites. *Hydrobiologia* 847:229–242.

Copilaș-Ciocianu D, Sidorov D. 2022. Taxonomic, ecological and morphological diversity of Ponto-Caspian gammaridean amphipods: a review. *Organisms Diversity & Evolution* 22:285–315.

GBIF Secretariat. 2022. GBIF backbone taxonomy: *Dikerogammarus aralychensis* (Birstein, 1932). Copenhagen: Global Biodiversity Information Facility. Available: <https://doi.org/10.15468/dl.jqv4w8> (March 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/> (March 2022).
- Özbek M, Özkan N. 2011. *Dikerogammarus istanbulensis* sp. n., a new amphipod species (Amphipoda: Gammaridae) from Turkey with a key for the genus. *Zootaxa* 2813:55–64.
- Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.
- Valls Domedel G. 2019. *Dikerogammarus aralychensis*. World Register of Marine Species. Available: <https://www.marinespecies.org/aphia.php?p=taxdetails&id=489977> (March 2022).

11 Literature Cited in Quoted Material

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.

- Stebbing TRR. 1899. Amphipoda from the Copenhagen Museum and other sources, part II. The Transactions of the Linnean Society of London: Zoology (series 2) 8:395–432.