

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

Ecological Risk Screening Summary

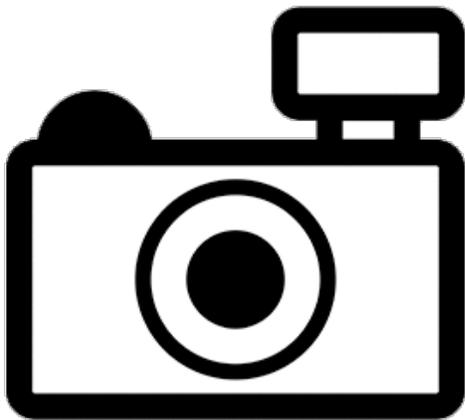
U.S. Fish & Wildlife Service, January 2022

Revised, January 2022

Web Version, 10/1/2022

Organism Type: Crustacean

Overall Risk Assessment Category: Uncertain



No Photo Available

1 Native Range and Status in the United States

Native Range

From Özbek and Özkan (2011):

“A new amphipod species, *Dikerogammarus istanbulensis* sp. nov., is described. Specimens were collected from a reservoir, near Silivri district, İstanbul province, Turkey.”

From Özbek et al. (2017):

“*Dikerogammarus istanbulensis* is an endemic species which was identified recently by the first and second author of this study. The type locality of the species was reported as Silivri District, İstanbul Province (Özbek & Özkan 2011). The species is reported for the first time from the localities other than its type locality. The new records of the species are the Terkos, Büyük Çekmece and Küçük Çekmece Lakes. All of the given lakes have brackish character and are located on the coast of the Black Sea, İstanbul Province.”

Status in the United States

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

Means of Introductions in the United States

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

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Horton et al. (2021), *Dikerogammarus istanbulensis* is the accepted name for this species.

From Horton et al. (2021):

“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 istanbulensis* (Species)”

Size, Weight, and Age Range

From Özbek and Özkan (2011):

“Holotype male, 15 mm (ESFM-MALI/00-02); Çanta Reservoir (41°10' 23"N, 28°01'12"E), Silivri District, İstanbul, Turkey (fig. 1), 16 Sept. 2000; collected by Dr. N. Özkan. Allotype female, 9 mm (ESFM MALI/00-03), ovigerous (with 14 eggs), same data as holotype. 15 paratypes (some extremities are absent): 6 juveniles (4 to 5 mm), 6 males (8 to 17 mm) and 3 females (7 to 9 mm) (ESFM-MALI/00-04).”

Environment

From Horton et al. (2021):

“Environment: [...] fresh, [...]”

From Özbek and Özkan (2011):

“Specimens were collected with a fine-mesh hand-net from the littoral zone of the Çanta Reservoir,”

“Type specimens were collected from a reservoir with muddy sediment.”

From Özbek et al. (2017):

“The new records of the species are the Terkos, Büyük Çekmece and Küçük Çekmece Lakes. All of the given lakes have brackish character and are located on the coast of the Black Sea, Istanbul Province.”

Climate

No information on climate was found for *Dikerogammarus istanbulensis*.

Distribution Outside the United States

Native

From Özbek and Özkan (2011):

“A new amphipod species, *Dikerogammarus istanbulensis* sp. nov., is described. Specimens were collected from a reservoir, near Silivri district, İstanbul province, Turkey.”

From Özbek et al. (2017):

“*Dikerogammarus istanbulensis* is an endemic species which was identified recently by the first and second author of this study. The type locality of the species was reported as Silivri District, Istanbul Province (Özbek & Özkan 2011). The species is reported for the first time from the localities other than its type locality. The new records of the species are the Terkos, Büyük Çekmece and Küçük Çekmece Lakes. All of the given lakes have brackish character and are located on the coast of the Black Sea, Istanbul Province.”

Introduced

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

Means of Introduction Outside the United States

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

Short Description

From Özbek and Özkan (2011):

“Body large. Similar to *D. bispinosus* Martynov, 1925 except for the presence of setae on inner surface of basal segment of pereopod 7 in both sexes and absence of long setae on the ventral side of second peduncle segment of A1. In addition, epimeral plate 2 has many setae along the ventral margin in both sexes.”

“Variability. In males, setation of flagellar segments of antenna 2 and gnathopod 2 are age dependent; larger specimens have more setose flagellar segment of antenna 2 and palm of gnathopod 2. Larger male specimens have more elevated process on their urosomites. Number of setae on inner surface of pereopod 7 can be increase by age.”

Biology

No information was found regarding the biology of *Dikerogammarus istanbulensis*.

Human Uses

No records of human uses were found for *Dikerogammarus istanbulensis*.

Diseases

No records of OIE-reportable diseases (OIE 2021) were found for *Dikerogammarus istanbulensis*. No information on diseases associated with *D. istanbulensis* was found.

Threat to Humans

No information regarding threats to humans posed by *Dikerogammarus istanbulensis* was found.

3 Impacts of Introductions

No records of introductions or establishment outside of its native range were found for *Dikerogammarus istanbulensis*; therefore, there is no information on impacts of introduction.

4 History of Invasiveness

Dikerogammarus istanbulensis have not been reported as introduced outside its native range. Therefore, the history of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution



Figure 1. Known global distribution of *Dikerogammarus istanbulensis*. Observations are reported from northwest Turkey. Map from Google (2022) based on locations reported by Özbek et al. (2017).

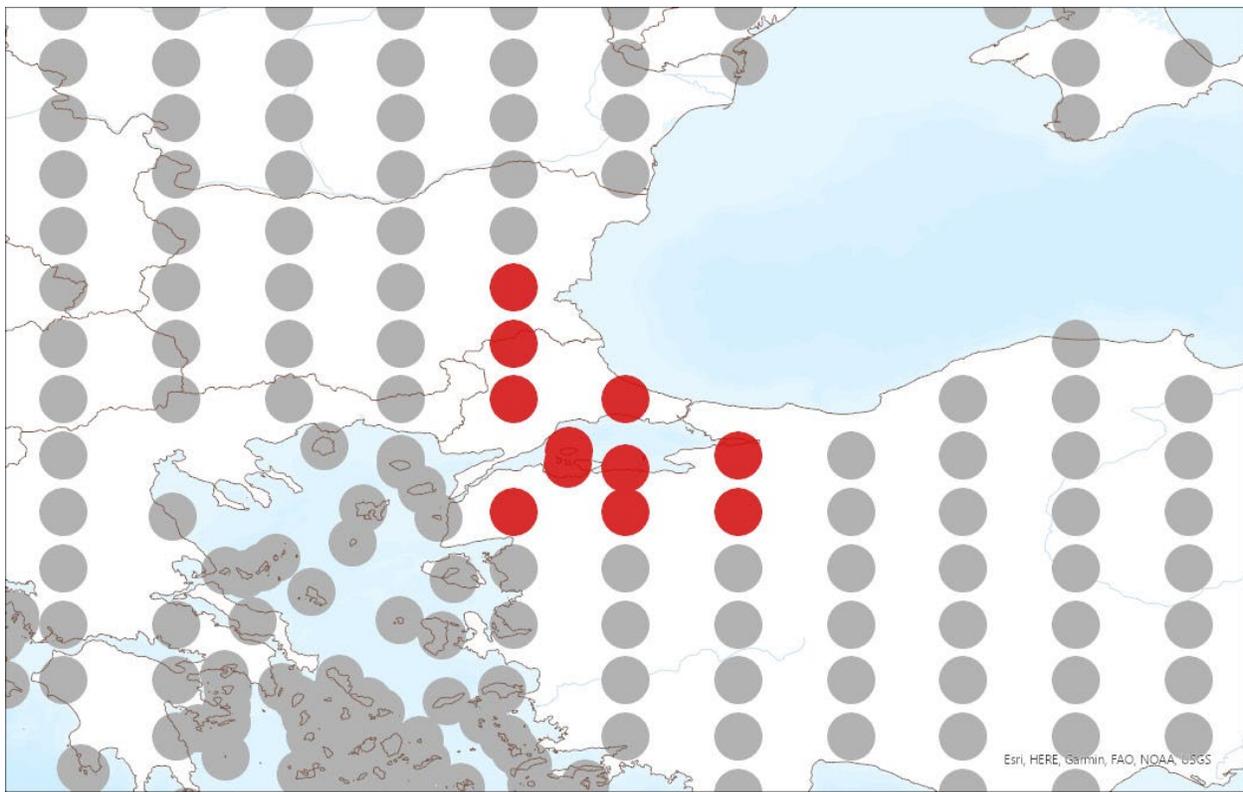
6 Distribution Within the United States

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

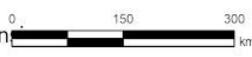
7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Dikerogammarus istanbulensis* was generally medium for most of the contiguous United States with areas of high match primarily in the Intermountain West; southern California; central Texas and Oklahoma; Great Lakes basin; and in small, isolated portions of Appalachia. The largest areas of low match were found in the Pacific Northwest; northern Great Plains; New England; and in the coastal portion of the Southeast. The overall Climate 6 score (Sanders et al. 2021; 16 variables; Euclidean distance) was 0.329, High (scores greater than or equal to 0.103, are classified as high). The following States had high individual Climate 6 scores: Alabama, Arizona, Arkansas, California, Colorado, Georgia, Idaho, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nevada, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin. The following States had medium individual Climate 6 scores: Iowa, Louisiana, Maine, New Jersey, North Carolina, South Dakota, Vermont, and Wyoming. All other States had low scores.



Species: *Dikerogammarus istanbulensis*
Selected Climate Stations



Selected ●



RAMP

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Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in northwest Turkey and southeast Bulgaria selected as source locations (red) and non-source locations (gray) for *Dikerogammarus istanbulensis* climate matching. Source locations based on occurrences reported by Özbek et al. (2017). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

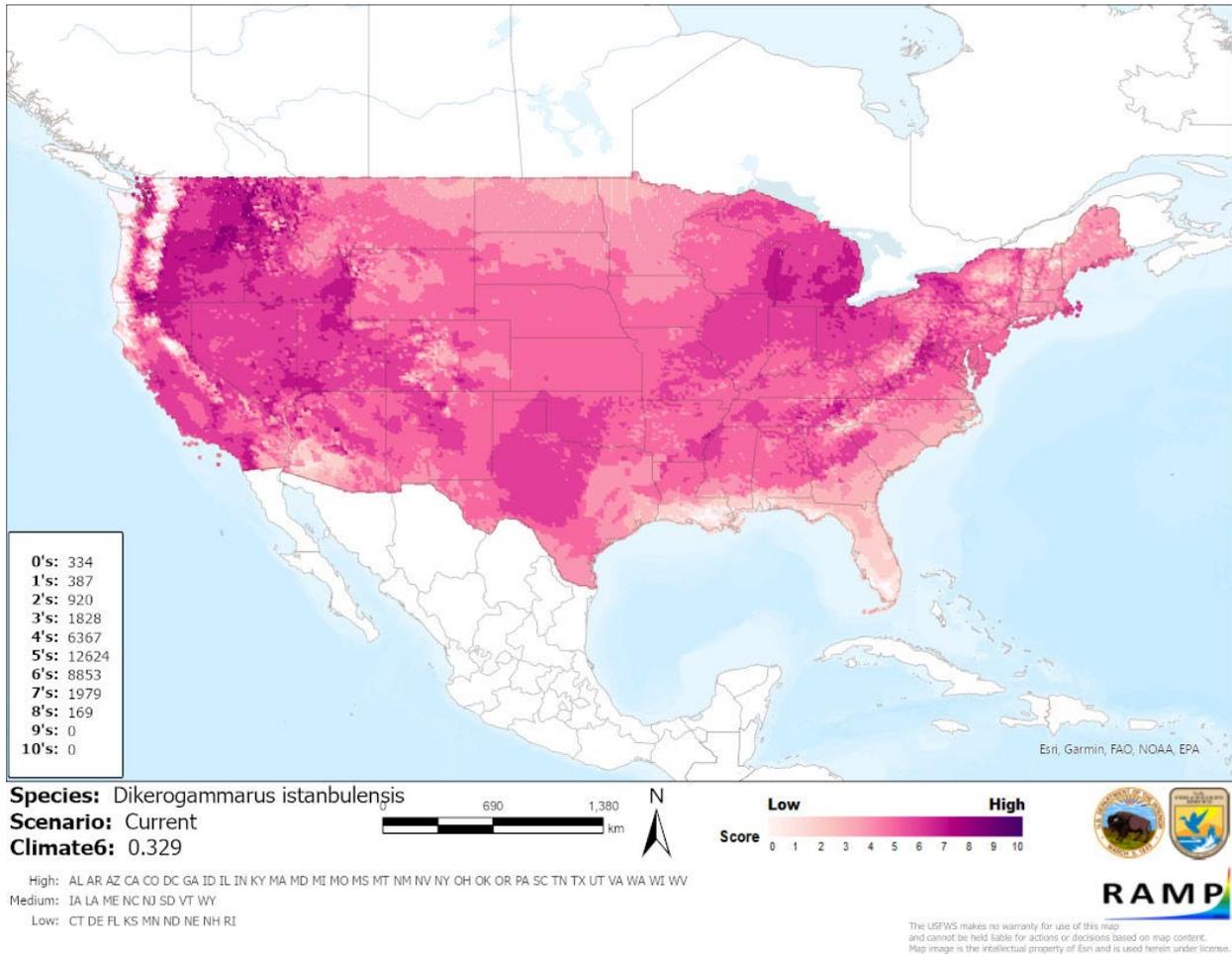


Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Dikerogammarus istanbulensis* in the contiguous United States based on source locations reported by Özbek et al. (2017). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest match.

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 is low. There was minimal biological information available for this species. There were no records of introductions found, so impacts of introduction are unknown.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Dikerogammarus istanbulensis is an amphipod that is native to Turkey. This species was recently described to science. There were no records of introduction and no indication this species is in trade. Therefore, the history of invasiveness is classified as No Known Nonnative Population. The climate match for the contiguous United States was High. Most of the contiguous United States had a locally high or medium match, areas of locally low match could be found along the Pacific Coast, the desert southwest, the Gulf and South Atlantic coasts, and in patches in New England. The certainty of assessment is Low due to a lack of information. The overall risk assessment category 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:** No additional remarks.
- **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.

Google. 2022. Google Earth desktop. Map data from SIO, NOAA, U.S. Navy, NGA, GEBCO, Landsat/Copernicus.

Horton T, Lowry J, De Broyer C, Bellan-Santini D, Coleman CO, Corbari L, Costello MJ, Daneliya M, Dauvin J-C, Fišer C, Gasca R, Grabowski M, Guerra-García JM, Hendrycks E, Hughes L, Jaime D, Jazdzewski K, Kim Y-H, King R, Krapp-Schickel T, LeCroy S, Lörz A-N, Mamos T, Senna AR, Serejo C, Sket B, Souza-Filho JF, Tandberg AH, Thomas JD, Thurston M, Vader W, Väinölä R, Vonk R, White K, Zeidler W. 2021. *Dikerogammarus istanbulensis* Özbek, 2011. World Amphipoda Database accessed through World Register of Marine Species. Available: <https://www.marinespecies.org/aphia.php?p=taxdetails&id=734457> (January 2022).

[OIE] World Organisation for Animal Health. 2021. OIE-listed diseases, infections and infestations in force in 2021. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2021/> (December 2021).

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.

Özbek M, Özkan N, Çamur-Elipek B. 2017. Freshwater and brackish amphipods (Crustacea: Amphipoda) from Turkish Thrace Region (including Çanakkale Province). *Acta Zoologica Bulgarica* 69(4):493–499.

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

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.

No references in this section.