

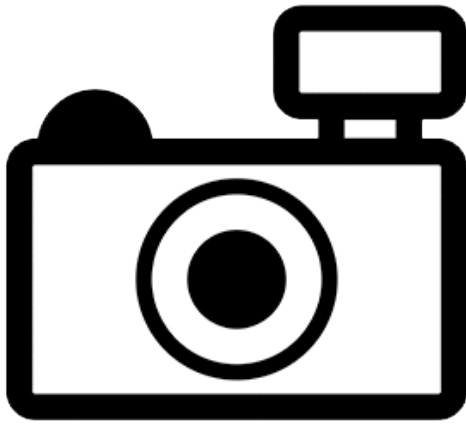
***Corbicula loehensis* (a clam, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, September 2011

Revised, February 2019

Web Version, 7/11/2019



No Photo Available

1 Native Range and Status in the United States

Native Range

From Djajasasmita (1977):

“The species of the genus *Corbicula* known from Indonesia are [...] *C. loehensis*, [...]”

“Distribution.- Southeast Celebes. Type-locality.- Loeha I., in Lake Tawuti, [...]; Lake Wawantoa, [...]; Lake Masapi, [...]; Lake Mahalona[...].”

Status in the United States

No records of *C. loehensis* in the wild or in trade were found in the United States.

Means of Introductions in the United States

No introductions have been recorded outside of their native range.

Remarks

Information searches for this ERSS were conducted using the valid name *Corbicula loehensis* and the synonym *C. masapensis*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Djajasasmita (1975):

“After examination of type specimens [...] the conclusion was made that only [...] *C. loehensis*, [...] have to be considered valid species, [...].”

According to Djajasasmita (1975) *C. masapensis* is now considered to be a synonym of *C. loehensis*.

From GBIF Secretariat (2019):

“Kingdom Animalia
Phylum Mollusca
Class Bivalvia
Order Venerida
Family Cyrenidae
Genus *Corbicula*
Species *Corbicula loehensis* Kruimel, 1913”

Size, Weight, and Age Range

From Djajasasmita (1975):

“The average measurements of 7 specimens examined of the form formerly called *C. masapensis*: length 24.7 mm, height 20.5 mm, diameter 11.6 mm. For the 'typical form' *C. loehensis* these figures for 18 specimens are respectively 19-2, 14.5, and 5-5 mm.”

Environment

No information on environment was found.

Climate/Range

No information on climate or range was found.

Distribution Outside the United States

Native

From Djajasasmita (1977):

“The species of the genus *Corbicula* known from Indonesia are [...] *C. loehensis*, [...].”

“Distribution.- Southeast Celebes. Type-locality.- Loeha I., in Lake Tawuti, [...]; Lake Wawantoa, [...]; Lake Masapi, [...]; Lake Mahalona, [...].”

Introduced

C. loehensis has not been reported anywhere outside of its native range.

Means of Introduction Outside the United States

C. loehensis has not been reported anywhere outside of its native range.

Short Description

From Djajasasmita (1977):

“This thin-shelled corbiculid clam has fine concentric ribs. The adult shell has sometimes an elongate posterior side.”

From Djajasasmita (1975):

“Shell ovate to elongate trigonal, inflated, shining, thin and somewhat transparent. Dorsal margin generally sloping steeper in front of umbo than behind it. On some shells posterior part strongly elongated, anterior margin rounded to truncate-roundish, sometimes angular at transition of dorsal and basal margin. Ventral margin arched. Concentric ribs generally fine and regular, sometimes weakly impressed and closely placed, becoming irregular on posterior part. Periostracum yellowish or ochreous. Umbo tumid. Ligament small. Lunula distinct. Inner surface of valve whitish violet, hinge area lighter in colour. Muscle scars and palliai line impressed. Hinge teeth normal, cardinal and lateral teeth not strongly developed.”

Biology

From Korniusshin and Glaubrecht (2003):

“[...] in the following taxa that incubate their young in their inner demibranchs only until the stage of juveniles with straight-hinged shells (D-shaped): [...] *C. loehensis* Kruimel, 1913 from Lake Masapi (all on Sulawesi) [...].”

According to Glaubrecht et al. (2006), *C. loehensis* can incubate several hundred larvae within their inner demibranchs.

According to Korniusshin and Glaubrecht (2003), *C. loehensis* brood their larvae in their inner demibranchs until the larvae become D-shaped and reach a size of 0.35mm to be released as juveniles. This type of brooding is called synchronous.

Human Uses

No information was found regarding human uses of *C. loehensis*.

Diseases

No information was found on diseases. **No OIE-reportable diseases (OIE 2019) were found to be associated with *Corbicula loehensis*.**

Threat to Humans

No information on threats to humans was found.

3 Impacts of Introductions

No introductions of *Corbicula loehensis* have been recorded.

4 Global Distribution



Figure 1. Map of Sulawesi, Indonesia where Lake Towuti, Lake Mahalona, Lake Masapi and Lake Wawantoa are found. According to Djajasasmita (1977), *Corbicula loehensis* has been reported as established in Lake Towuti, Lake Mahalona, Lake Masapi and Lake Wawantoa. Map from Google Inc (2019). No georeferenced observations were available for *Corbicula loehensis* to use in selecting source locations for the climate match. Source points for the climate match were chosen to represent the recorded localities.

5 Distribution Within the United States

No records of *Corbicula possoensis* were found in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for the contiguous United States was generally very low. A small area of medium match was found along the southeastern coast of Florida. There are no areas of high or medium match. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.000, a low climate score (scores between 0.000 and 0.005, inclusive, are considered low). All States had low individual Climate 6 scores. No georeferenced locations were available for climate matching, so collection locations reported in the literature were used.

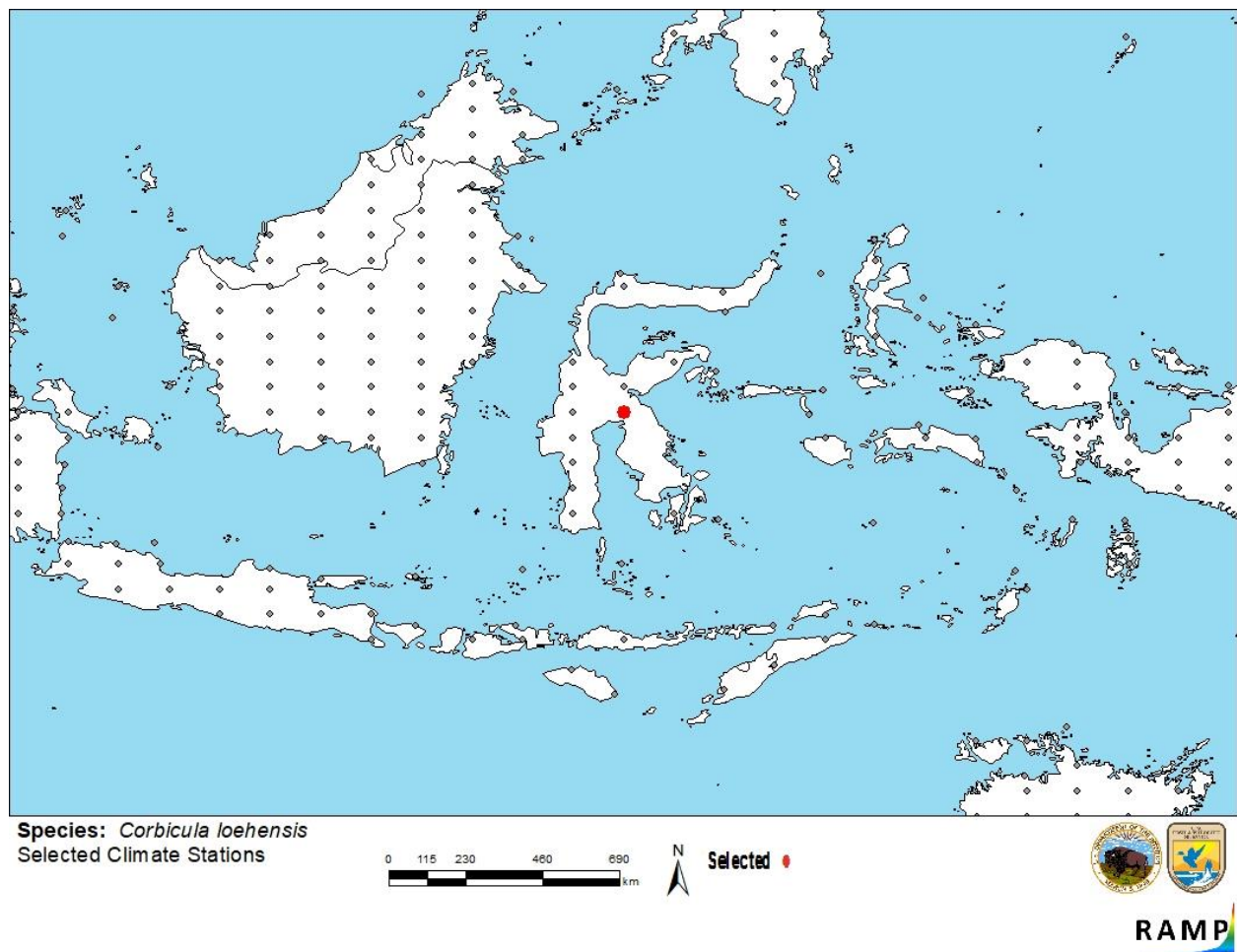


Figure 2. RAMP (Sanders et al. 2018) source map showing weather station in Sulawesi, Indonesia selected as source location (red) and non-source locations (gray) for *Corbicula loehensis* climate matching. Source point selected based on the distribution described in Djajasmita (1977).

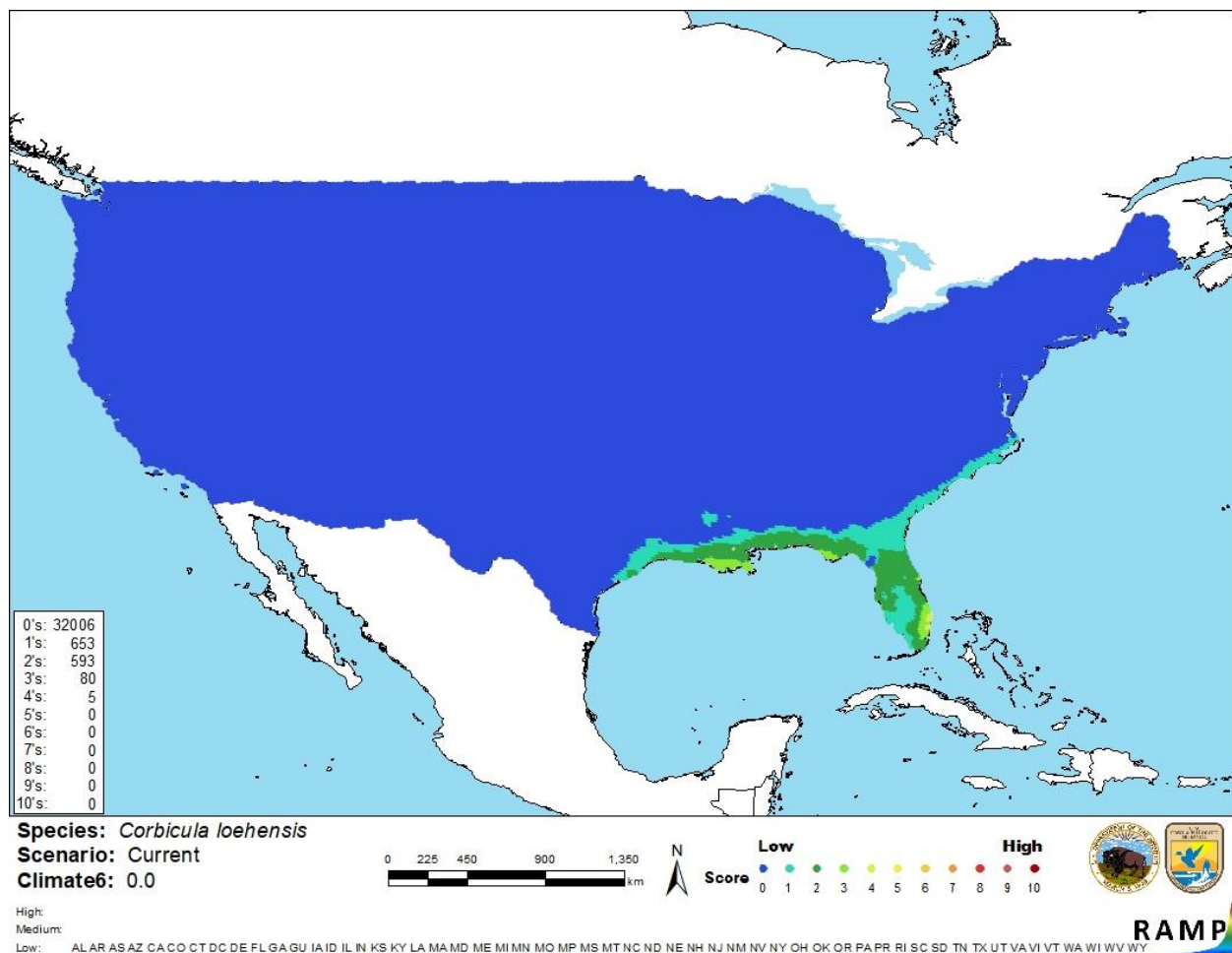


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Corbicula loehensis* in the contiguous United States based on source locations reported by Djajasasmita (1977). 0 = Lowest match, 10 = Highest match.

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 assessment is low. Limited information is available for this species. No records of introduction have been found for *Corbicula loehensis* so impacts of introduction cannot be determined.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Corbicula loehensis is a freshwater bivalve found in Sulawesi, Indonesia. According to Djajasasmita (1977), *C. loehensis* is found in Lake Towuti, Lake Mahalona, Lake Masapi and Lake Wawantoa. *C. loehensis* has an uncertain history of invasiveness; it has not been reported outside of its native range and is not in trade. The climate match for the contiguous United States was low with all individual states scoring a low match. No georeferenced locations were available for climate matching, so collection locations reported in the literature were used to select source points. The certainty of assessment is low because of lack of information. The overall risk assessment for *Corbicula loehensis* is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **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.

- Djajasasmita, M. 1975. On the species of the genus *Corbicula* from Celebes, Indonesia (Mollusca: Corbiculidae). Bulletin Zoologisch Museum 4(10):83–87.
- Djajasasmita, M. 1977. An annotated list of the species of the genus *Corbicula* from Indonesia (Mollusca: Corbiculidae). Bulletin Zoologisch Museum 6(1):1–9.
- GBIF Secretariat. 2019. GBIF backbone taxonomy: *Corbicula loehensis* Kruimel, 1913. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/8341779>. (February 2019).
- Glaubrecht, M., Z. Feher, and T. von Rintelen. 2006. Brooding in *Corbicula madagascariensis* (Bivalvia, Corbiculidae) and the repeated evolution of viviparity in corbiculids. Zoologica Scripta 35(6):641–654.
- Google Earth. 2019. Map of Sulawesi, Indonesia. Google Earth Pro. Google Inc.
- Korniushin, T. V., and M. Glaubrecht. 2003. Novel reproductive modes in freshwater clams: brooding and larval morphology in Southeast Asian taxa of *Corbicula* (Mollusca, Bivalvia, Corbiculidae). Acta Zoologica 84(4):293–315.

OIE (World Organisation for Animal Health). 2019. OIE-listed diseases, infections and infestations in force in 2019. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2019/>. (February 2019).

Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. 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.

No references in this section.