

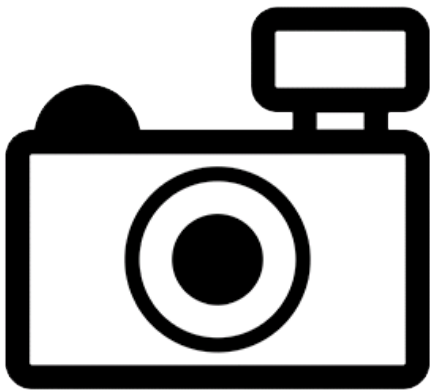
Little Basket Clam (*Corbicula australis*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, August 2011

Revised, August 2018

Web Version, 9/4/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Ponder et al. (2016):

“In river systems throughout mainland Australia. Although the southwest corner does not have any collection records on our map, a few specimens from that area have been seen.”

Status in the United States

This species has not been reported in the United States. There is no indication *Corbicula australis* is available in trade within the United States.

Means of Introductions in the United States

This species has not been reported in the United States.

Remarks

From Byrne et al. (2000):

“Although these clams are among the most important molluscs in freshwater systems, their taxonomy is poorly understood (McMahon, 1983; Morton, 1977; Komaru et al., 1997). Recent research indicates that their difficult systematics is due to the triploid chromosome number, hybrid status, clonality and unusual ameiotic breeding systems of many *Corbicula* species (Komaru et al., 1997, 1998).”

From Van Damme (2011):

“*Corbicula australis* has been assessed as Data Deficient. This is due to a lack of information regarding the habitat and threats facing this species. Further research into the range, abundance and threats to this species could be facing, before a more accurate assessment can be made.”

Graf and Cummings (2018) list *Cyrena australis* Deshayes, 1830; *Cyrena nepeanensis* Lesson, 1830; *Cyrena debilis* Gould, 1850; *Corbicula angasi* Prime, 1864; *Corbicula rivina* Clessin, 1879; *Corbicula sublaevigata* Smith, 1882; *Corbicula desolata* Tate, 1887; *Corbicula nepeansis* Prime, 1895; *Corbiculina aramita* Iredale, 1943; *Corbiculina maroubra* Iredale, 1943; *Corbiculina permerna* Iredale, 1943; *Corbiculina samara* Iredale, 1943; and *Corbiculina subovalina* Iredale, 1943 as synonyms for *Corbicula australis*.

Review of *Corbicula australis* included searches for synonymous species.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From MolluscaBase (2018):

“Biota> Animalia (Kingdom)> Mollusca (Phylum)> Bivalvia (Class)> Heterodonta (Subclass)> Euheterodonta (Infraclass)> Imparidentia (Superorder)> Venerida (Order)> Cyrenoidea (Superfamily)> Cyrenidae (Family)> *Corbicula* (Genus)> *Corbicula australis* (Species)”

“Status accepted”

Size, Weight, and Age Range

From Byrne et al. (2000):

“It has a maximum shell length of 25 mm [...]”

Environment

From Byrne et al. (2000):

“Water temperature maximum and minimum in 1997 were 26.9 and 10.4 °C recorded in January and July, respectively.”

“The onset of spawning by *Corbicula australis* in late September/early October 1995 and 1996 coincided with the period when water temperatures start to rise above approximately 20 °C.”

Climate/Range

From Byrne et al. (2000):

“Minimum temperatures (9.2 °C-10.4 °C) were recorded in July of each year and maximum temperatures (25.9 °C-29.8 °C) were recorded in January and February.”

Distribution Outside the United States

Native

From Ponder et al. (2016):

“In river systems throughout mainland Australia. Although the southwest corner does not have any collection records on our map, a few specimens from that area have been seen.”

Introduced

This species has not been reported beyond its native range.

Means of Introduction Outside the United States

This species has not been reported beyond its native range.

Short Description

From Ponder et al. (2016):

“This species differs from the invasive *C[orbicula] fluminea* in its thinner, often more oval shell with finer concentric sculpture.”

“Juveniles of this species are sometimes mistaken for members of the Sphaeriidae but differ in having a more solid shell that has distinct concentric sculpture. They can also be mistaken for young hyriids [*sic*], but again the closely-spaced concentric ridges are distinctive, as is the more oval shape and heterodont hinge.”

Biology

From Byrne (2000):

“The suite of life history traits exhibited by *C. australis*: hermaphroditism, potential for self-fertilization/androgenesis, brooding progeny to the crawl-away juvenile stage and a high reproductive output, provide for rapid colonization and population growth in this clam which typically inhabits disturbance prone sandy lotic habitats.”

“*Corbicula australis* had young in the interlamellar spaces of the inner demibranchs during the warmer months of the year from October to May. The smallest brooding specimen encountered

had a shell length of 10.9 mm. In brooding *C. australis* the inner marsupial demibranchs were distinctly swollen. Marsupia laden with early embryos were white and, as development proceeded, assumed the pale tan colour of the larval shell.”

“*Corbicula australis* is a simultaneous hermaphrodite [...] The ovotestes are diffuse organs consisting of highly branched acini surrounded by connective tissue [...] Each ascinus had regions of oogenic and spermatogenic tissue. The spermatogenic regions were usually located in the terminal portion of the ascini along the edge of the visceral mass with a few scattered sperm in other regions [...] Although a few of the ascini appeared to be either male or female, serial sections usually revealed that they were also hermaphroditic.”

From Ponder et al. (2016):

“Shallow burrower in sand and gravel in rivers. Sometimes a pest because it can clog irrigation pipes. The biology of this species has been studied (Tham, 1971) and like other corbiculids it is a suspension feeder and the larvae are brooded.”

Human Uses

No information available.

Diseases

No information available. No OIE-reportable diseases have been documented for this species.

Threat to Humans

From Ponder et al. (2016):

“Sometimes a pest because it can clog irrigation pipes.”

3 Impacts of Introductions

No information available. This species has not been reported beyond its native range.

4 Global Distribution

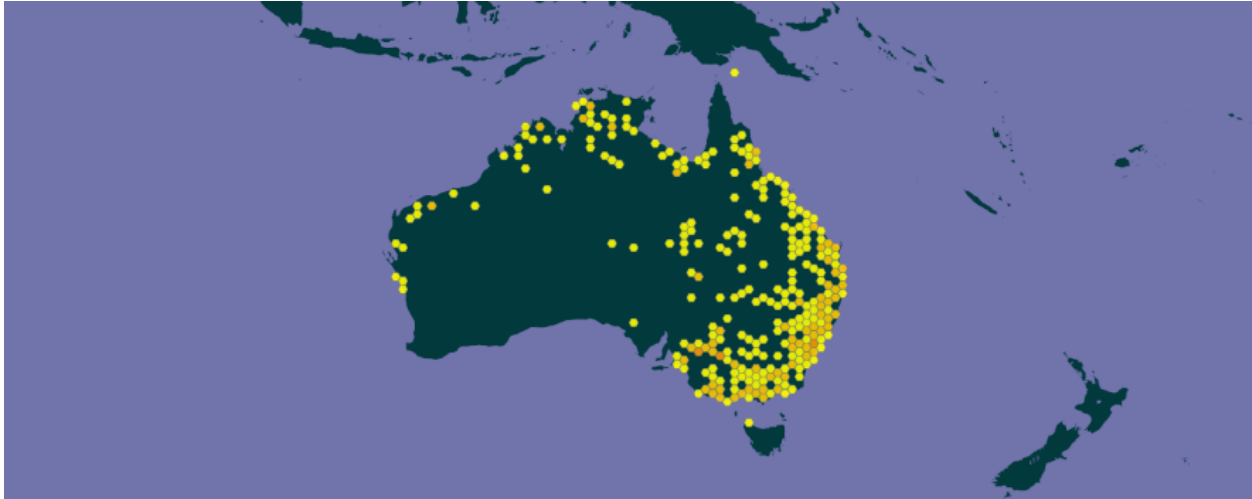


Figure 1. Known global distribution of *Corbicula australis*. Map from GBIF Secretariat (2018). Although not in mainland Australia, the occurrences in the Torres Strait (Murray Island, Australia) and Tasmania appear valid.

5 Distribution Within the United States

This species has not been reported in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.151, representing a high climate match. Climate 6 scores of 0.103 or greater indicate a high match. The areas with high climate matches included Florida, western Washington near Seattle, and most of the southwestern states stretching from Texas to California. Climate matches were low in the northern-central United States stretching southwest into the Rocky Mountains. The remainder of the contiguous United States had medium climate matches.

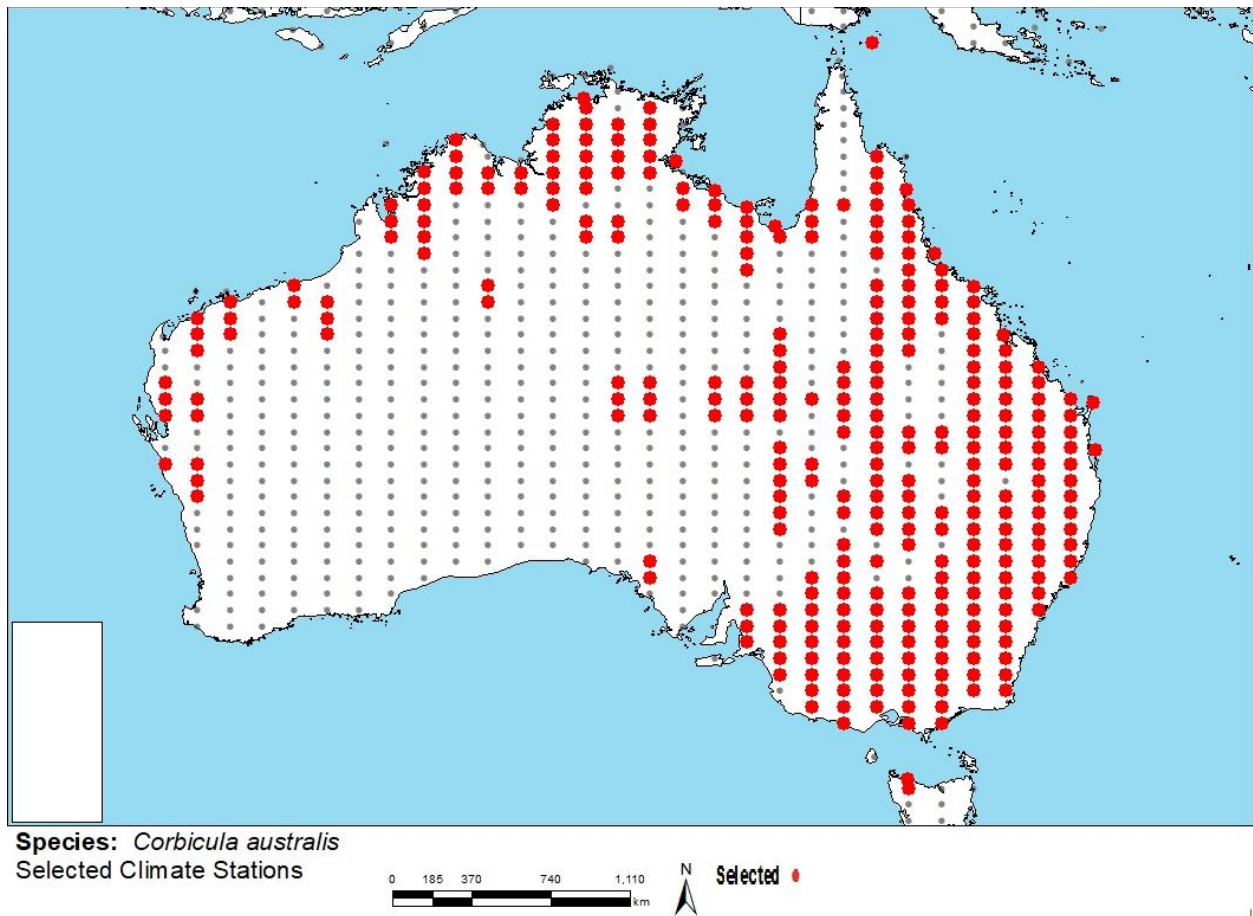


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red; Australia) and non-source locations (gray) for *Corbicula australis* climate matching. Source locations from GBIF Secretariat (2018).

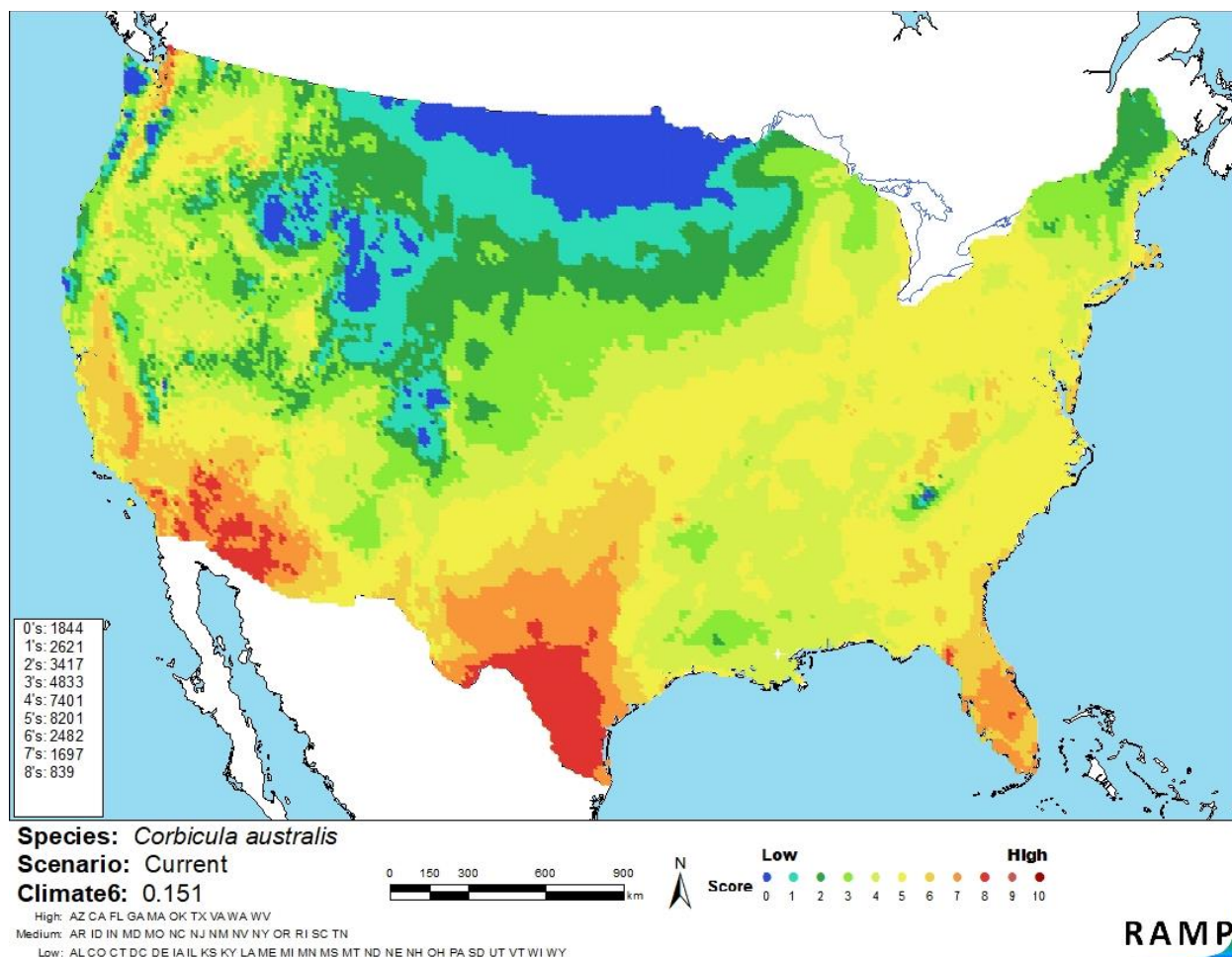


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Corbicula australis* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). 0=Lowest match, 10=Highest match.

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

Corbicula taxonomy is poorly understood. Some informative research on reproduction and baseline biology exists for *Corbicula australis*, however more research is needed to clarify distribution and taxonomy. No introductions of this species have been reported, so impacts of introduction are unknown. Given existing information gaps, certainty of assessment for *C. australis* is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Little Basket Clam (*Corbicula australis*) is a freshwater clam native to lotic habitats in Australia. It is sometimes considered a pest because it can clog irrigation pipes. *C. australis* is a simultaneous hermaphrodite and capable of self-fertilization, which could facilitate rapid colonization and population growth in new habitats. To date, *C. australis* has not been reported outside of its native range so no information is available to evaluate history of invasiveness. More research is needed to clarify the distribution and taxonomy of this species. Certainty of assessment is low. The climate match within the contiguous United States is high overall, with the highest matches occurring in southern Texas, southern Arizona and California, and northwestern Washington. Overall risk assessment for *Corbicula australis* is uncertain.

Assessment Elements

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

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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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