

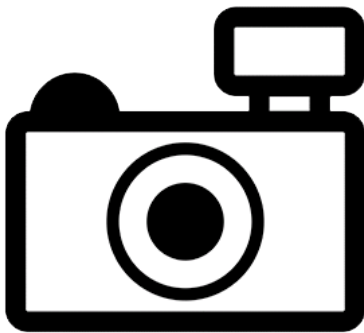
Bengal Caridina (*Caridina propinqua*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, July 2017

Revised, August 2017

Web Version, 11/17/2017



No Photo Available

1 Native Range and Status in the United States

Native Range

From De Grave and Cai (2013):

“The species is widespread from Bangladesh and India through to the Ryukyus and southwards to Singapore (Cai and Shokita 2006).”

“Bangladesh; India (Orissa); Japan; Malaysia (Peninsular Malaysia); Philippines; Singapore; Sri Lanka; Thailand”

Status in the United States

This species has not been reported as introduced or established in the United States. This species is in trade in the U.S.

From Bob’s Tropical Plants (2017):

“*Caridina* cf. *propinqua* orange shrimp [...] \$2.75 tax excl.”

“They are still relatively rare in the hobby, but are not difficult to maintain.”

Means of Introductions in the United States

This species has not been reported as introduced or established in the United States.

Remarks

From GBIF (2016):

“SYNONYMS

Caridina blancoi Chace, 1997

Caridina hainanensis Liang & Yan, 1983”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2017):

“Kingdom Animalia

Subkingdom Bilateria

Infrakingdom Protostomia

Superphylum Ecdysozoa

Phylum Arthropoda

Subphylum Crustacea

Class Malacostraca

Subclass Eumalacostraca

Superorder Eucarida

Order Decapoda

Suborder Pleocyemata

Infraorder Caridea

Superfamily Atyoidea

Family Atyidae

Genus *Caridina*

Species *Caridina propinqua* De Man, 1908 – bengal caridina”

“Taxonomic Status:

Current Standing: valid”

Size, Weight, and Age Range

From Cai and Shokita (2006):

“Material examined [...] 11 males, cl [carapace length] 2.6–3.3 mm, 6 females, cl 3.5–3.8 mm, 16 ovigerous females, cl 3.4–4.0 mm [...]”

Environment

From Cai and Shokita (2006):

“Lower reaches of rivers or mountain streams which discharge to the sea. Commonly found in mangrove creeks.”

From De Grave and Cai (2013):

“The species primarily lives in brackish water, mangrove areas, but is also known from more freshwater streams.”

From Johnson (1965):

“Certain species of *Caridina* are characteristic of oligohaline waters in Malaya and may occur there in great abundance. Species which I have found as adults in such waters include:

Caridina gracilirostris de Man

C. propinqua de Man

C. tonkinensis Bouvier

C. thambipillaii Johnson

The first three of these are especially characteristic of waters with salinities between 0-3 parts per thousand. [...] All have been found in habitats which, whilst tidal, had no detectable salinity. Only *C. propinqua*, the commonest of the three has been found in habitats unconnected with the sea [...] None of these species has been found in freshwater habitats at any great distance from the sea.”

Climate/Range

From De Grave and Cai (2013):

“The species is widespread from Bangladesh and India through to the Ryukyus and southwards to Singapore (Cai and Shokita 2006).”

Distribution Outside the United States

Native

From De Grave and Cai (2013):

“The species is widespread from Bangladesh and India through to the Ryukyus and southwards to Singapore (Cai and Shokita 2006).”

“Bangladesh; India (Orissa); Japan; Malaysia (Peninsular Malaysia); Philippines; Singapore; Sri Lanka; Thailand”

Introduced

This species has not been reported as introduced or established outside of its native range.

Means of Introduction Outside the United States

This species has not been reported as introduced or established outside of its native range.

Short Description

From Cai and Shokita (2006):

“Rostrum [...] straight or sloping ventrally anteriorly, reaching near middle of second segment of antennular peduncle, to end of third segment. [...] Suborbital angle acute, distinctly separated from antennal spines; pterygostomian margin rounded. Preanal carina [...] with a spine. Telson [...] with three to four pairs of dorsal spines and small posteromedial projection, lateral pair of spines longer than intermedial pairs. Antennular peduncle long, subequal to carapace length. Stylocerite reaching 0.8 times length of basal segment of antennular peduncle. Scaphocerite [...] 4.0 times as long as wide. First pereopod [...] with carpus 2.3 times as long as high, chela 2.5 times as long as broad, finger longer than palm. Second pereopod [...] with carpus 6.8 times as long as high, chela 4.1 times as long as broad, fingers 2.0 times as long as palm. Third pereopod [...] with propodus 3.2 times as long dactylus, propodus without enlargement. Dactylus ending in two claws, with one to four spines on flexor margin. Fifth pereopod [...] with propodus 2.5 times as long as dactylus; dactylus ending in one claw, with 57–76 spinules on flexor margin. Endopod of male first pleopod with no appendix interna. Uropodal diaeresis with 13–19 spinules.”

Biology

From Starr (2015):

“The largest and most widespread atyid genus is *Caridina* [...] These small shrimps are important consumers of fine organic materials in small and large rivers. They use their pincer-like claws, known as chelae, to brush the substratum or sift the passing water current. (MRC, undated, and Sangpradub et al., 2006.)”

From Hart (1981):

“[...] *C. propinqua* breed perennially in neotropical waters in India (Babu 1963) [...]”

From Cai and Shokita (2006):

“Egg size of this species is quite variable. It is $0.39\text{--}0.45 \times 0.24\text{--}0.27$ mm in specimens from Hainan (Liang and Yan 1983), 0.54×0.36 mm in populations from Malaysia (Johnson 1961) and $0.38\text{--}0.48 \times 0.25\text{--}0.30$ mm in the present specimens from the Ryukyus.”

Human Uses

From Starr (2015):

“The Bengal caridina (*Caridina propinqua*) was found in markets in Bangladesh but said to be never eaten in Malaysia. It was nevertheless considered as having good farming potential in Malaysia [...]”

From Lipták and Vitázková (2015):

“The availability and frequency of the identified species in the Slovak aquarium pet trade in 2013-2014 [...]

Caridina propinqua [...] Very rare”

Diseases

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

Threat to Humans

No information available.

3 Impacts of Introductions

This species has not been reported as introduced or established outside of its native range.

4 Global Distribution



Figure 1. Known global distribution of *Caridina propinqua*. Map from GBIF (2016). A point in Irian Jaya was excluded from the map because it is outside the described range of *C. propinqua* and GBIF (2016) found issues with interpreting the data.

5 Distribution Within the United States

This species has not been reported as introduced or established in the United States.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean distance) was high in southern Florida, medium across the rest of peninsular Florida, and low elsewhere in the contiguous U.S. Climate 6 score indicated a low climate match for the contiguous U.S. overall. Scores of 0.005 and less are classified as low match; Climate 6 score for *C. propinqua* was 0.005.

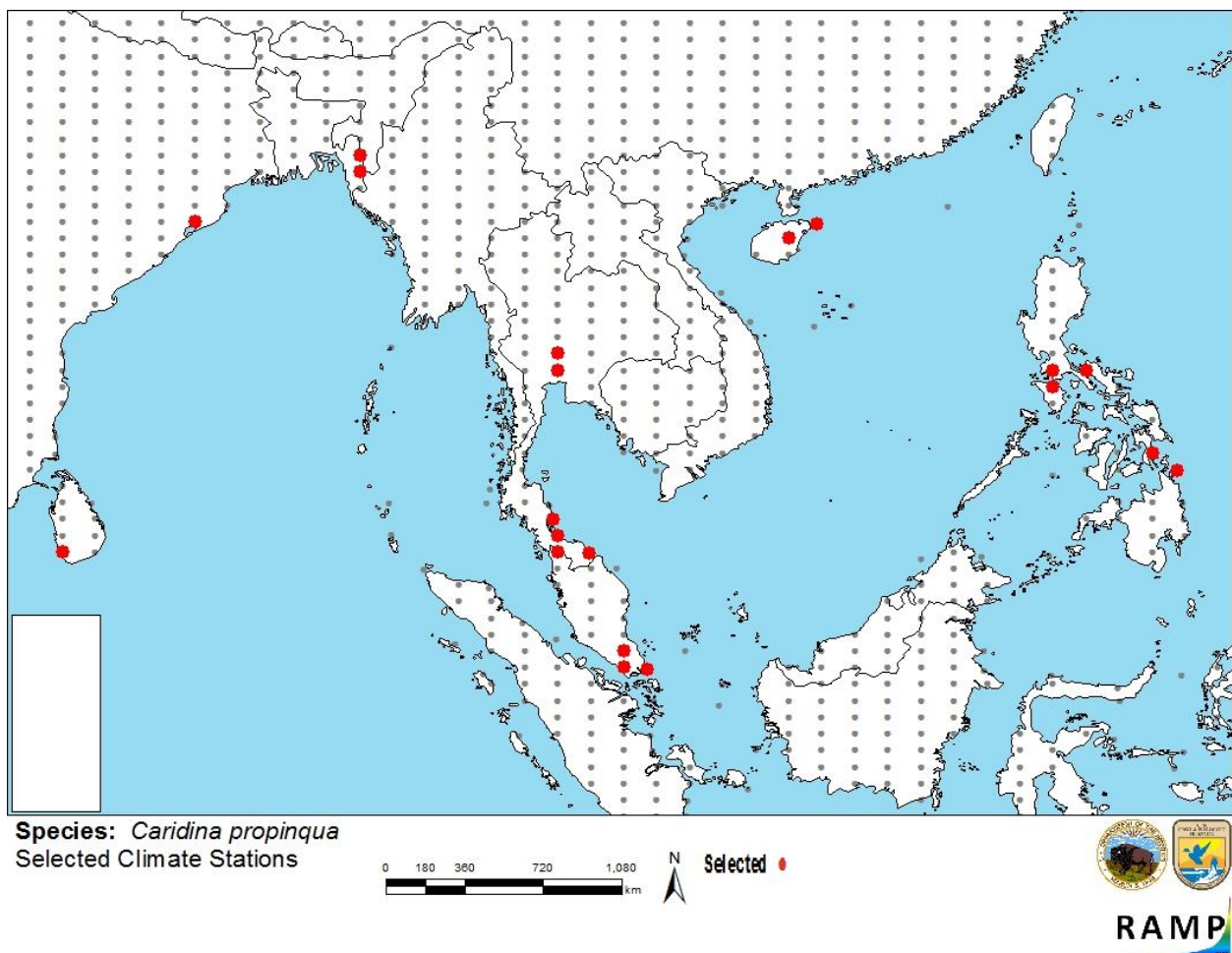


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Caridina propinqua* climate matching. Source locations from GBIF (2016).

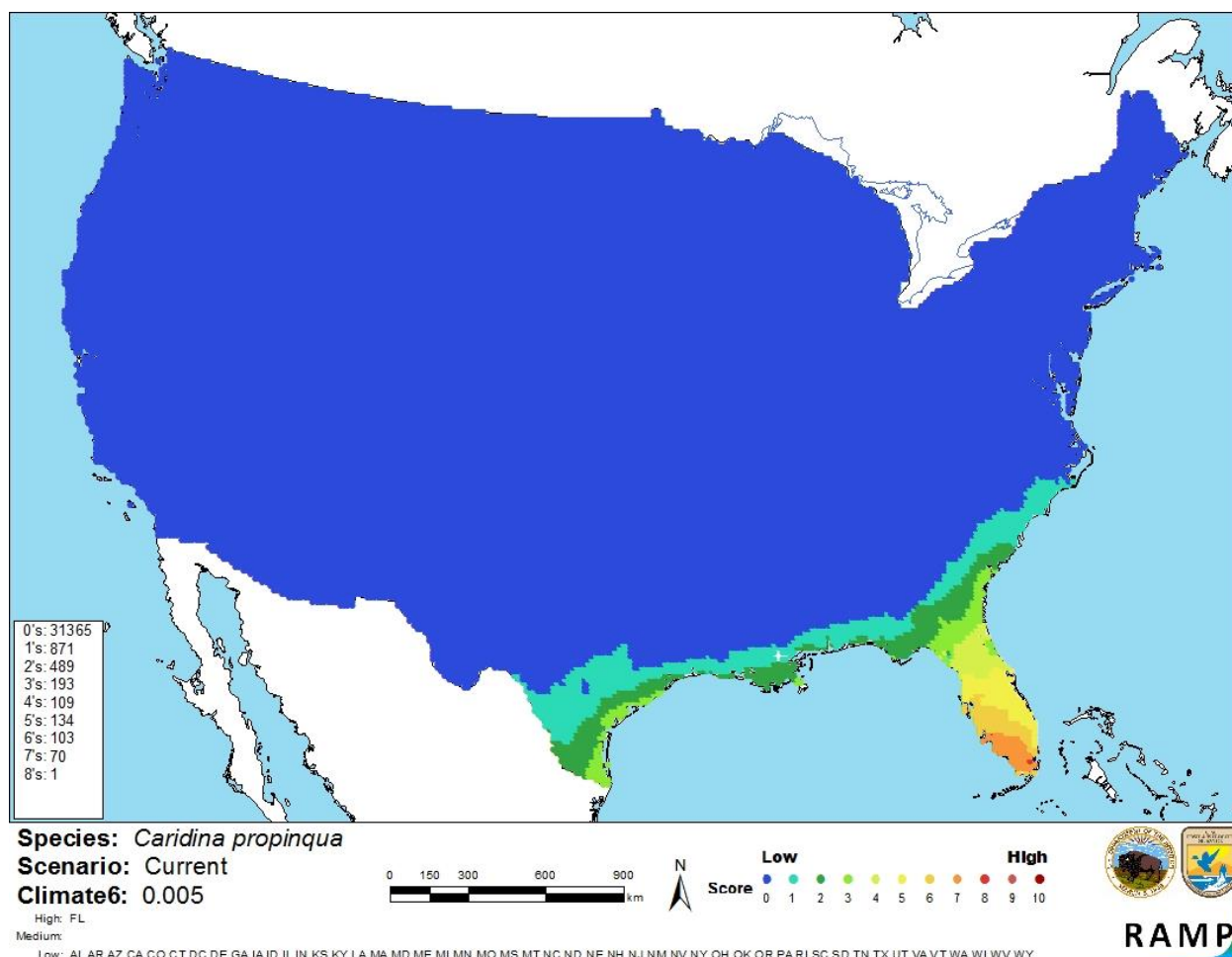


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Caridina propinqua* in the contiguous United States based on source locations reported by GBIF (2016). 0=Lowest match, 10=Highest match.

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

Caridina propinqua has not been well-studied. There is little information available on the biology of this species. The global distribution, however, has been well-documented. It has no documented history of introduction outside its native range. More information is needed to adequately assess the risk this species poses. Certainty of assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Caridina propinqua is a small freshwater shrimp native to Asia. This species is in the aquarium trade; however, it has never been reported as introduced or established outside of its native range. *C. propinqua* has a low climate match with the United States, with medium to high climate match scores occurring in Florida. More information is needed to assess the risk this species poses, so certainty of this assessment is low, and the overall risk assessment category is uncertain.

Assessment Elements

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

- Bob's Tropical Plants. 2017. *Caridina* cf. *propinqua* orange shrimp. Available: <https://www.bobstropicalplants.com/shop/en/shrimp/88-caridina-cf-propinqua-orange-shrimp.html>. (July 2017).
- Cai, Y., and S. Shokita. 2006. Atyid shrimps (Crustacea: Decapoda: Caridea) of the Ryukyu Islands, southern Japan, with descriptions of two new species. *Journal of Natural History* 40(38-40):2123-2172.
- De Grave, S., and X. Cai. 2013. *Caridina propinqua*. The IUCN Red List of Threatened Species 2013: e.T197665A2495247. Available: <http://www.iucnredlist.org/details/full/197665/0>. (July 2017).
- GBIF (Global Biodiversity Information Facility). 2017. GBIF backbone taxonomy: *Caridina propinqua* De Man, 1908. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5178427>. (July 2017).
- Hart, R. C. 1981. Population dynamics and production of the tropical freshwater shrimp *Caridina nilotica* (Decapoda: Atyidae) in the littoral of Lake Sibaya. *Freshwater Biology* 11(6):531-547.
- Johnson, D. S. 1965. A review of the brackish water prawns of Malaya. *Bulletin of the National Museum of Singapore* 33(2):7-11.

- Lipták, B., and B. Vitázková. 2015. Beautiful, but also potentially invasive. *Ekológia* (Bratislava) 34(2):155-162.
- ITIS (Integrated Taxonomic Information System). 2017. *Caridina propinqua* De Man, 1908. Integrated Taxonomic Information System, Reston, Virginia. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=97263#null. (July 2017).
- Sanders, S., C. Castiglione, and M. H. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.
- Starr, P., editor. 2015. Harvesting small shrimps (*Caradina* spp.). Catch and Culture (Mekong River Commission) 21(3):18-23.

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.

- Babu, N. 1963. Observations on the biology of *Caridina propinqua* De Man. *Indian Journal of Fisheries* 10:107-117.
- Johnson, D. S. 1961. Notes on the freshwater Crustacea of Malaya, I. The Atyidae. *Bulletin of the Raffles Museum, Singapore* 26:120-153.
- Liang, X.-Q., and S.-L. Yan. 1983. New species and new records of freshwater shrimps (Crustacea Decapoda) from Hainan Island, China. *Oceanologia et Limnologia Sinica* 14:211-216.
- MRC [Mekong River Commission]. No date. Mekong River awareness kit. Mekong River Commission. Available: <http://mekong.riverawarenesskit.org>. (May 2015).
- Sangpradub, N., and B. Boonsong. 2006. Identification of freshwater invertebrates of the Mekong River and its tributaries. Mekong River Commission, Vientiane, Laos.