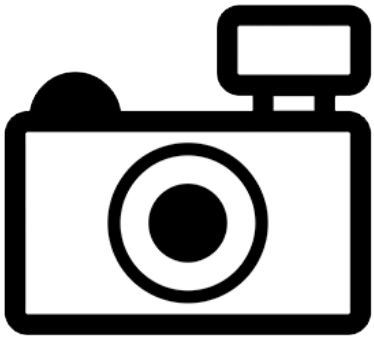
New Guinea Apricot Crayfish (*Cherax holthuisi*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, September 2011
Revised, September 2012, November 2017
Web Version, 5/18/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Austin (2010):

"This species is found along the shorelines of Aitinjo Lake in the Kais River Drainage on Irian Jaya (West New Guinea), Indonesia, situated about 20 km southeast of Ajamaroe. This species is known only from the type locality (Lukhaup and Pekny 2006)."

Status in the United States

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

From Rainforest Farms International (no date):

"Apricot Crayfish
~~$ 24.99~~ $ 19.99"

Rainforest Farms International is based in Bloomington, Indiana.

From Aquatic Arts (2017):

"EMERALD FIRE CRAYFISH (*CHERAX HOLTHUISI*)
$ 34.95"

Aquatic Arts only ships to U.S. addresses.

The Florida Fish and Wildlife Conservation Commission has listed the crayfish *Cherax holthuisi* as a prohibited species. Prohibited nonnative species "are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed or used for commercial activities" (FFWCC 2017).

From Washington Department of Fish & Wildlife (2017):

"(1) Prohibited aquatic animal species. RCW 77.12.020
These species are considered by the commission to have a high risk of becoming an invasive species and may not be possessed, imported, purchased, sold, propagated, transported, or released into state waters except as provided in RCW 77.15.253."

"[The list of prohibited aquatic animal species includes] Family Parastacidae: Crayfish: All genera except *Engaeus*, and except the species *Cherax quadricarninatus* [*sic*], *Cherax papuanus*, and *Cherax tenuimanus*."

Means of Introductions to the United States

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

Remarks

From Lukhaup and Pekny (2006):

"More and more Crayfish species are introduced by wholesalers to the European and Japanese pet market. Some of these species are collected in Irian Jaya and come to Germany as well. […] One of the newly introduced species was compared with nine specimens of an undescribed species collected by Dr M. Boeseman at the shorelines of the Aitinjo Lake […] in Western Irian Jaya, Indonesia in June 1952. These specimens perfectly match with this species introduced on the pet market."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF Secretariat (2017):

"Kingdom Animalia
Phylum Arthropoda
Class Malacostraca
Order Decapoda

Family Parastacidae
Genus *Cherax* Erichson, 1846
Species *Cherax holthuisi* Lukhaup & Pekny, 2006"

"SPECIES | ACCEPTED"

Size, Weight, and Age Range

From Lukhaup and Pekny (2006):

"The males examined have a carapax [*sic*] length between 37.1 and 42.2 mm, and a total length between 81.3 and 92.9 mm; the females have a carapax [*sic*] length between 37 and 39 mm and a total length between 81 and 85 mm."

Environment

From Lukhaup and Pekny (2006):

"[…] the water is clear [in Aitinjo Lake], pH about 6.5, flowing rather strongly only at the narrower parts of the lake, including the upper reaches."

Climate/Range

No information available.

Distribution Outside the United States

Native

From Austin (2010):

"This species is found along the shorelines of Aitinjo Lake in the Kais River Drainage on Irian Jaya (West New Guinea), Indonesia, situated about 20 km southeast of Ajamaroe. This species is known only from the type locality (Lukhaup and Pekny 2006)."

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short Description

From Lukhaup and Pekny (2006):

"The new crayfish differs from all the other crayfish of this subgenus in the shape of its rostrum, the size of the eyes, the shape of chelae and also in the coloration."

"Colour.—Pinkish to orange and sometimes pale yellow (M. Boeseman, pers. comm.)."

From Lukhaup and Herbert (2008):

“Rostral teeth […] 2 indentations, no spines”

“Chelae […] few short setae on cutting edges of chelae”

“Carapace […] smooth”

“small eyes […]”

Biology

From Lukhaup and Pekny (2006):

“The bottom [of Aitinjo Lake] is rocky, at most places covered with sand, stones or large rocks, but muddy at some places. Both the aquatic and terrestrial vegetation are dense, at least where the stony substratum allows growth.”

From Aquatic Arts (2017):

“The Emerald Fire Crayfish is an omnivorous scavenger and will eat most any meaty or plant-based foods.”

Human Uses

From Austin (2010):

“This species is collected for the aquarium trade (C.M. Austin pers. comm. 2008).”

Patoka et al. (2014a) describe the wholesale availability of *C. holthuisi* as “common” in the Czech Republic.

From Patoka et al. (2014b):

“Ornamental crayfish keepers living in the Czech Republic were interviewed with a questionnaire. […] species [that] are kept in less than 10% of cases: […] *Cher. holthuisi* […]”

Diseases

Mrugała et al. (2015) report that the crayfish plague agent, *Aphanomyces astaci*, and the white spot syndrome virus were not detected in five individual *C. holthuisi* tested in a German pet shop.

Threat to Humans

No information available.

3 Impacts of Introductions

No information available. No introductions of this species have been documented.

The Florida Fish and Wildlife Conservation Commission (FFWCC 2017) and the Washington Department of Fish and Wildlife (2017) have listed this species as a prohibited species.

4 Global Distribution

No georeferenced occurrences of *C. holthuisi* were found.

Figure 1. The island of New Guinea, with a purple star indicating approximately the type locality of *C. holthuisi* in Aitinjo Lake as described by Austin (2010). Public domain map.

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) for *Cherax holthuisi* is low for all of the contiguous United States, reflected in a categorically low Climate 6 score of 0.000. The range of scores indicating low match is 0.000-0.005.

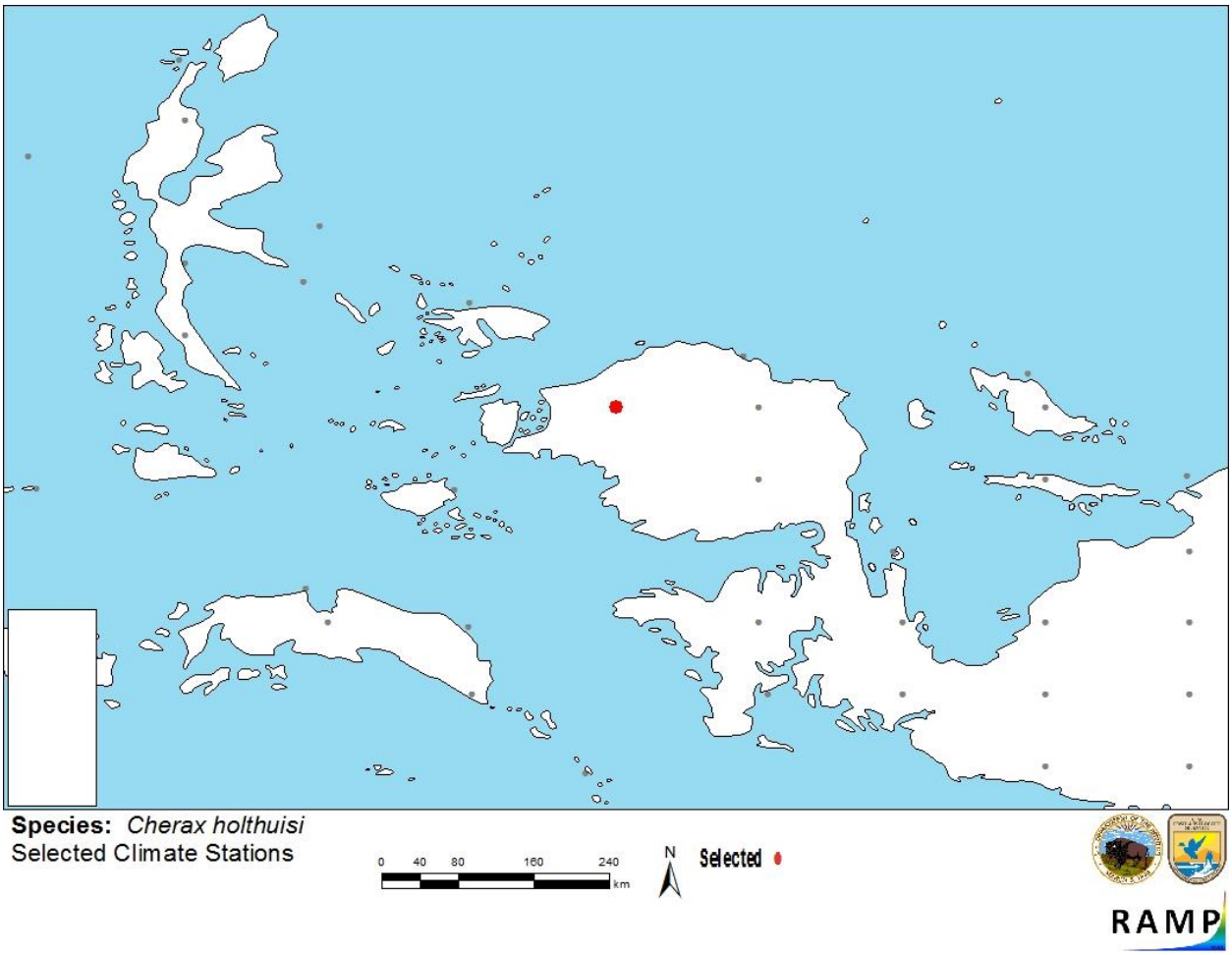


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in eastern Indonesia selected as source locations (red) and non-source locations (gray) for *Cherax holthuisi* climate matching. Source location was approximated from the verbal description of the type locality (Austin 2010).

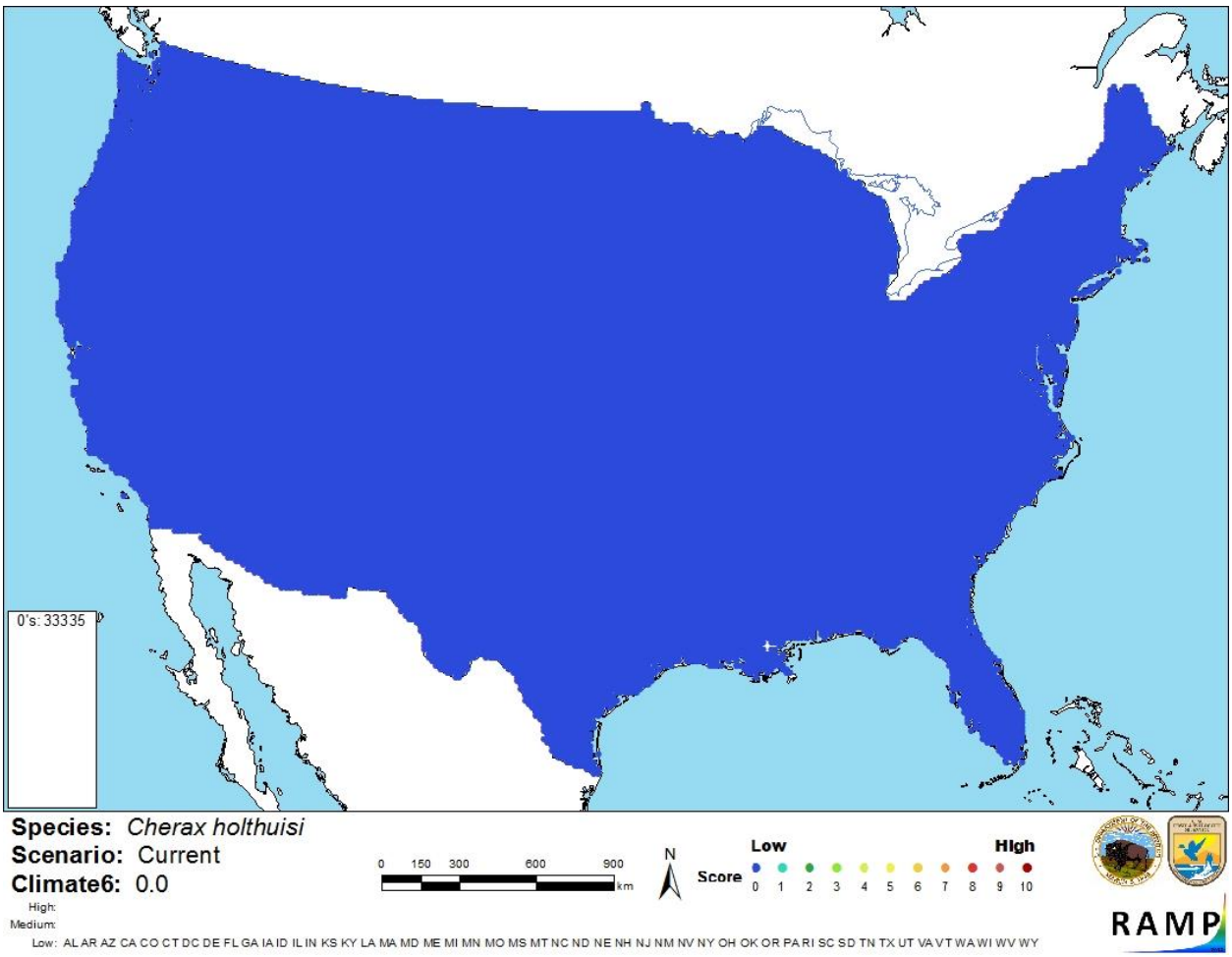


Figure 3. RAMP (Sanders et al. 2014) map of climate matches for *Cherax holthuisi* in the contiguous United States based on source location reported by Austin (2010). 0=Lowest match, 10=Highest match.

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≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

7 Certainty of Assessment

Relatively little information is available on the biology, ecology, and distribution of *Cherax holthuisi*. Impacts of introduction remain unknown because no introductions of this species have been reported. Without further information, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cherax holthuisi is a New Guinean crayfish known only from its type locality. It is traded in several countries, including the United States, as part of the aquarium industry; wholesale availability is reported to be common in parts of Europe. *Cherax holthuisi* has a low climate match to the contiguous United States and there is no history of introduction. Florida and Washington prohibit possession or trade of *C. holthuisi.* The overall risk assessment is uncertain because of the lack of information on impacts of introduction and the low climate match.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: Low**
- **Overall Risk Assessment Category: Uncertain**

9 References

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