

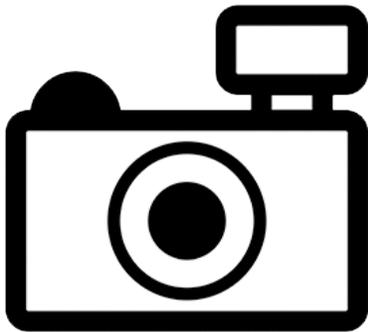
## ***Cherax paniaicus* (a crayfish, no common name)**

### **Ecological Risk Screening Summary**

U.S. Fish and Wildlife Service, September 2011

Revised, September 2012, December 2017

Web Version, 5/17/2018



No Photo Available

## **1 Native Range and Status in the United States**

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### **Native Range**

From Fransen et al. (1997):

“[...] Netherlands New Guinea (= Indonesia, Irian Jaya [now West Papua]), Lake Paniai [...]”

### **Status in the United States**

This species has not been reported as introduced or established in the United States. No evidence was found to suggest that the species is in trade in the United States.

The Florida Fish and Wildlife Conservation Commission has listed the crayfish *Cherax paniaicus* 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 following species are classified as prohibited animal species: [...] Family Parastacidae: Crayfish: All genera except *Engaeus*, and except the species *Cherax quadricarinatus* [*sic*], *Cherax papuanus*, and *Cherax tenuimanus*.”

## Means of Introduction into the United States

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

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From Crandall (2016):

“**Classification** Biota > Animalia (Kingdom) > Arthropoda (Phylum) > Crustacea (Subphylum) > Multicrustacea (Superclass) > Malacostraca (Class) > Eumalacostraca (Subclass) > Eucarida (Superorder) > Decapoda (Order) > Pleocyemata (Suborder) > Astacidea (Infraorder) > Parastacoidea (Superfamily) > Parastacidae (Family) > *Cherax* (Genus) > *Cherax paniaicus* (Species)

**Status** accepted”

### Size, Weight, and Age Range

No information available.

### Environment

From Holthuis (1958):

“In some places the shores of the [Wissel] lakes [of which Paniai Lake is one], of calcareous rocks, are very steep. The water is quite deep close inshore. In other localities, especially near the mouths of the rivers, the shores are low and swampy, and the depth increases very gradually from the shore. Large parts of Paniai Lake are quite deep, around 30 m. Greatest depth is 50 m.”

### Climate/Range

From Holthuis (1958):

“The altitude of Paniai Lake is 1742 m.”

## **Distribution Outside the United States**

### **Native**

From Fransen et al. (1997):

“[...] Netherlands New Guinea (= Indonesia, Irian Jaya [now West Papua]), Lake Paniai [...]”

### **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 Herbert (2008):

“Rostral teeth [...] 5-8”

“Chelae [...] more slender (3.5-4 x longer than broad); fingers 1.5 x longer than palm”

“Carapace [...] covered with small tubercles”

## **Biology**

From Holthuis (1958):

“The aquatic vegetation of the [Wissel] lakes in the shallow parts is quite dense, consisting mainly of what we took to be pond weeds (*Potamogeton*) and stoneworts (*Chara*), but of course our identifications cannot be trusted. The few plankton samples taken were rather poor.”

“There may be a migration which at times results in the absence of crayfish from shallow waters, but this is still one of the points about which we know little.”

## **Human Uses**

From Holthuis (1958):

“[...] crayfish are an important source of food in the Wissel Lakes area. With the pigs that are raised there, crayfish form practically the only source of protein for the native population.”

## **Diseases**

No information available.

## **Threat to Humans**

No information available.

### 3 Impacts of Introductions

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

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

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



**Figure 1.** The island of New Guinea, with a purple star indicating the approximate location of the Lake Paniai, the only place where *C. paniaicus* is known to be established (Fransen et al. 1997). Public domain map.

### 5 Distribution Within the United States

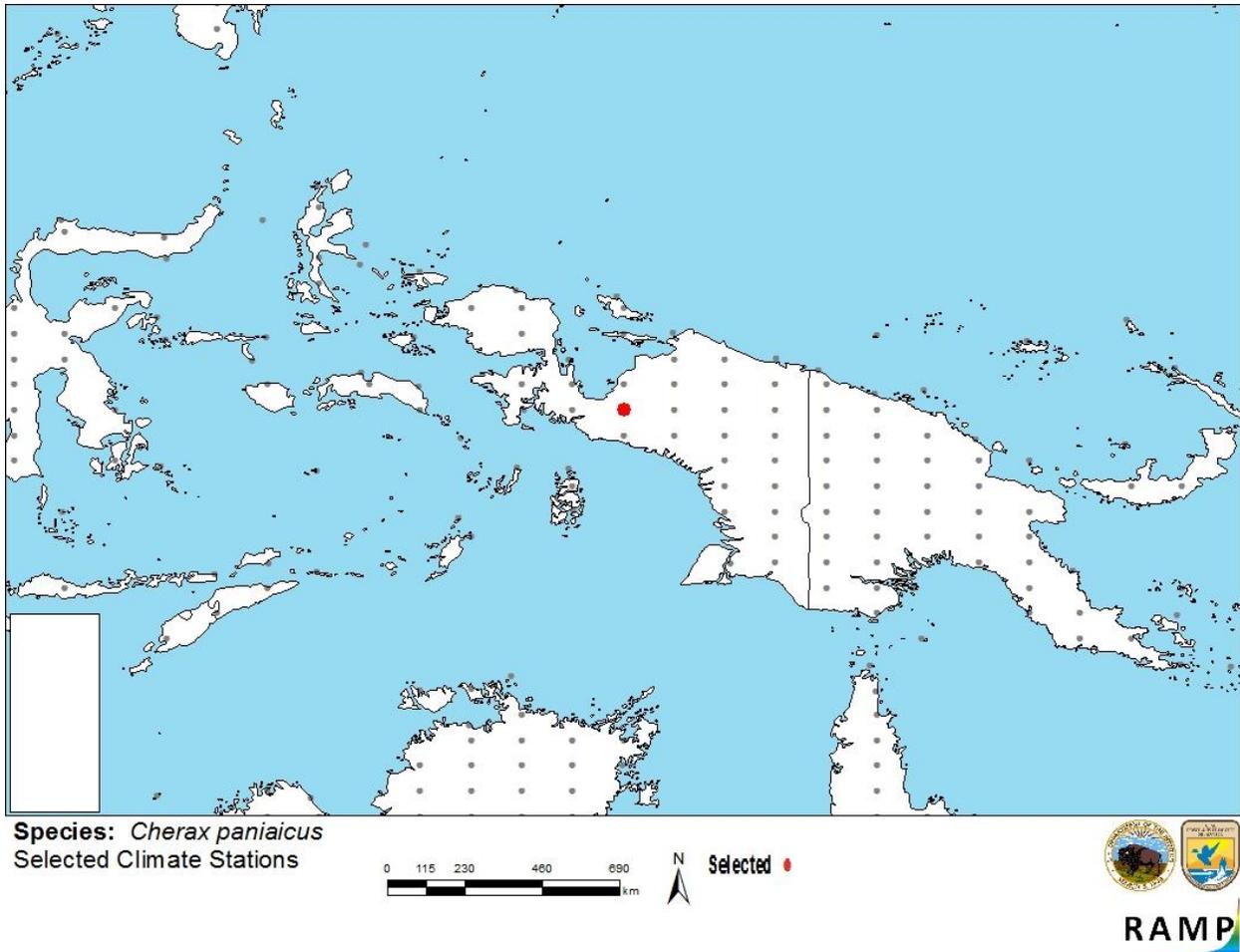
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This species has not been reported in the United States.

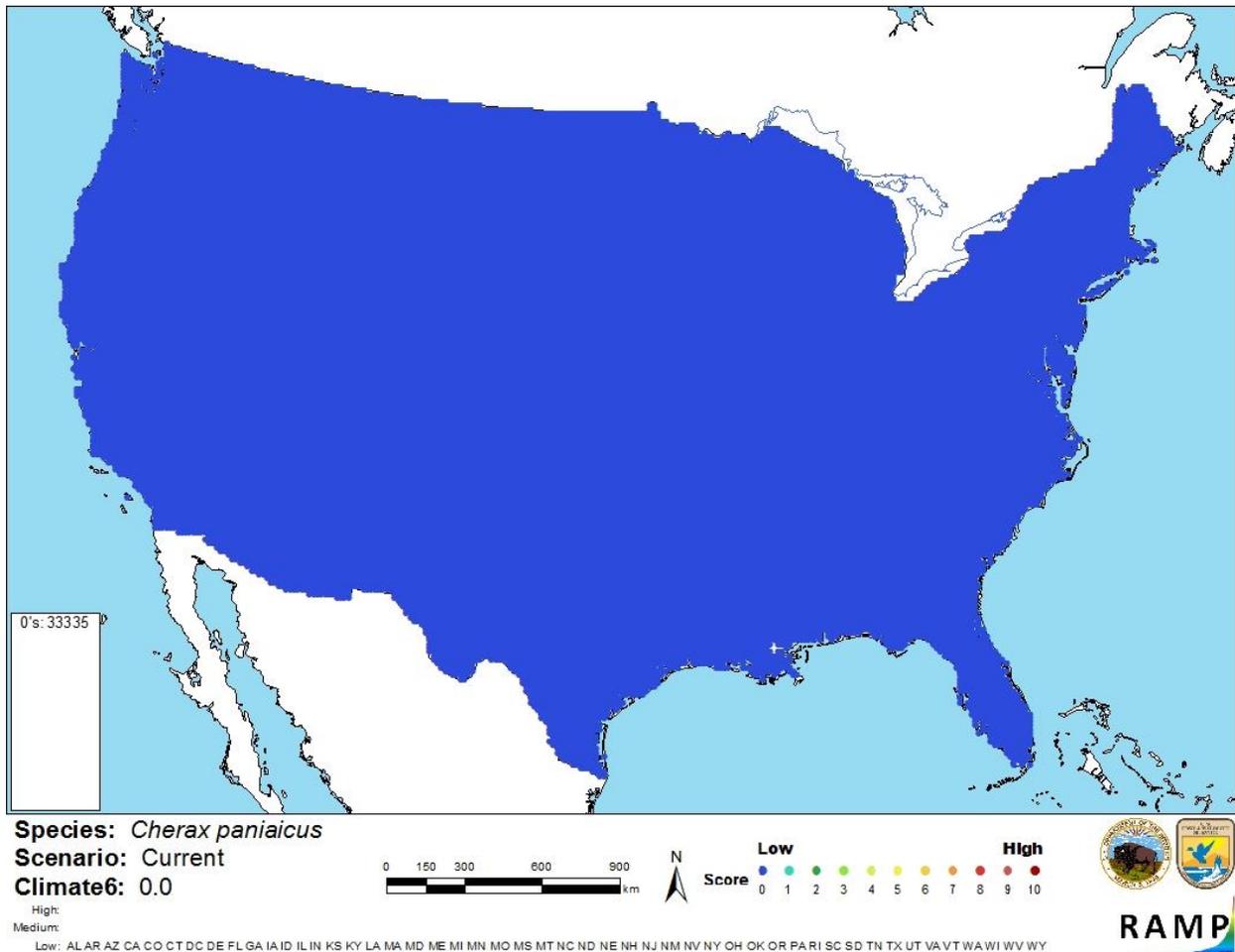
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Cherax paniaicus* is low for all of the contiguous United States, reflected in a Climate6 score for the contiguous U.S. of 0.000. The range of Climate6 scores classified as low match is 0.000-0.005. Climate6 score for *Cherax paniaicus* was 0.000. The low climate match reflects the single source location from a tropical island, as compared to the more temperate contiguous U.S.



**Figure 2.** RAMP (Sanders et al. 2014) source map showing weather stations in eastern Indonesia selected as source location (red) and non-source locations (gray) for *Cherax paniaicus* climate matching. Because no georeferenced occurrences were found, source location was chosen as the closest station to the native range (Lake Paniai, New Guinea), as described in Fransen et al. (2011).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Cherax paniaicus* in the contiguous United States based on source location estimated from the range description provided by Fransen et al. (1997). 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
$\geq 0.103$	High

## 7 Certainty of Assessment

Very limited information is available on the biology, ecology, and distribution of *Cherax paniaicus*. Without a history of introduction, impacts of introduction of *C. paniaicus* remain unknown. Certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Cherax paniaicus* is a crayfish species only recorded from Lake Paniai in West Papua, Indonesia. It has an overall low climate match to the contiguous U.S. and there is no recorded history of introduction outside its native range. Florida and Washington prohibit the possession or trade of *C. paniaicus*. The overall risk assessment is uncertain because of the significant lack of information about the species, including its potential to cause harm if introduced to a new location.

### Assessment Elements

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

## 9 References

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- Fransen, C. H. J. M., L. B. Holthuis, and J. P. H. M. Adema. 1997. Type-catalogue of the Decapod Crustacea in the collections of the Nationaal Natuurhistorisch Museum, with appendices of pre-1900 collectors and material. *Zoologische Verhandelingen Leiden* 311:i-xvi, 1-344.
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- Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish & Wildlife Service.
- Washington Department of Fish & Wildlife. 2017. WAC 220-12-090 Classification - Nonnative aquatic animal species. Washington Department of Fish & Wildlife, Olympia, Washington. Available: <http://wdfw.wa.gov/ais/wac.html>. (December 2017).