

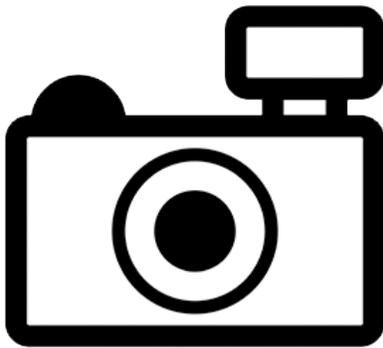
## Pearl Lobster (*Cherax pallidus*)

### 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 Austin (2010):

“This species has been collected from the Wissel Lakes (Paniai, Tage and Tigi) in the Sudirman Range of New Guinea, Indonesia.”

### Status in the United States

This species has not been reported as introduced or established in the United States. No evidence was found of trade in this species in the U.S.

The Florida Fish and Wildlife Conservation Commission has listed the crayfish *Cherax pallidus* 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 pallidus* (Species)”

“Status: accepted”

### Size, Weight, and Age Range

No information available.

### Environment

From Austin (2010):

“This species is confined to lakes (C.M. Austin pers. comm. 2008).”

“Freshwater”

From Holthuis (1958):

“In some places the shores of the lakes, 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. Tige Lake is on the whole also fairly deep. Tigi Lake is, however, for the larger part rather shallow.”

## **Climate/Range**

From Austin (2010):

“The lakes are located at an altitude of 1,750 m (C.M. Austin pers. comm. 2008). This species has a distribution of approximately 1,000 km<sup>2</sup>.”

## **Distribution Outside the United States**

Native

From Austin (2010):

“This species has been collected from the Wissel Lakes (Paniai, Tage and Tigi) in the Sudirman Range of New Guinea, Indonesia.”

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 [...] 2–4 (mostly 2–3)”

“Chelae [...] 6.5–8 x longer than broad; fingers 1.7 x longer than palm, extremely slender, tips crossing”

“Carapace [...] densely covered in tubercles”

“eyes extremely large and globular”

## **Biology**

From Holthuis (1958):

“The aquatic vegetation of the 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.”

From Austin (2010):

“There is no population information available for this species.”

## Human Uses

From Austin (2010):

“This species is harvested by subsistence fishers as a food source.”

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. pallidus* were found.



**Figure 1.** The island of New Guinea, with a purple star indicating the approximate location of the Wissel Lakes, the only place where *C. pallidus* is known to be established (Austin 2010). Public domain map.

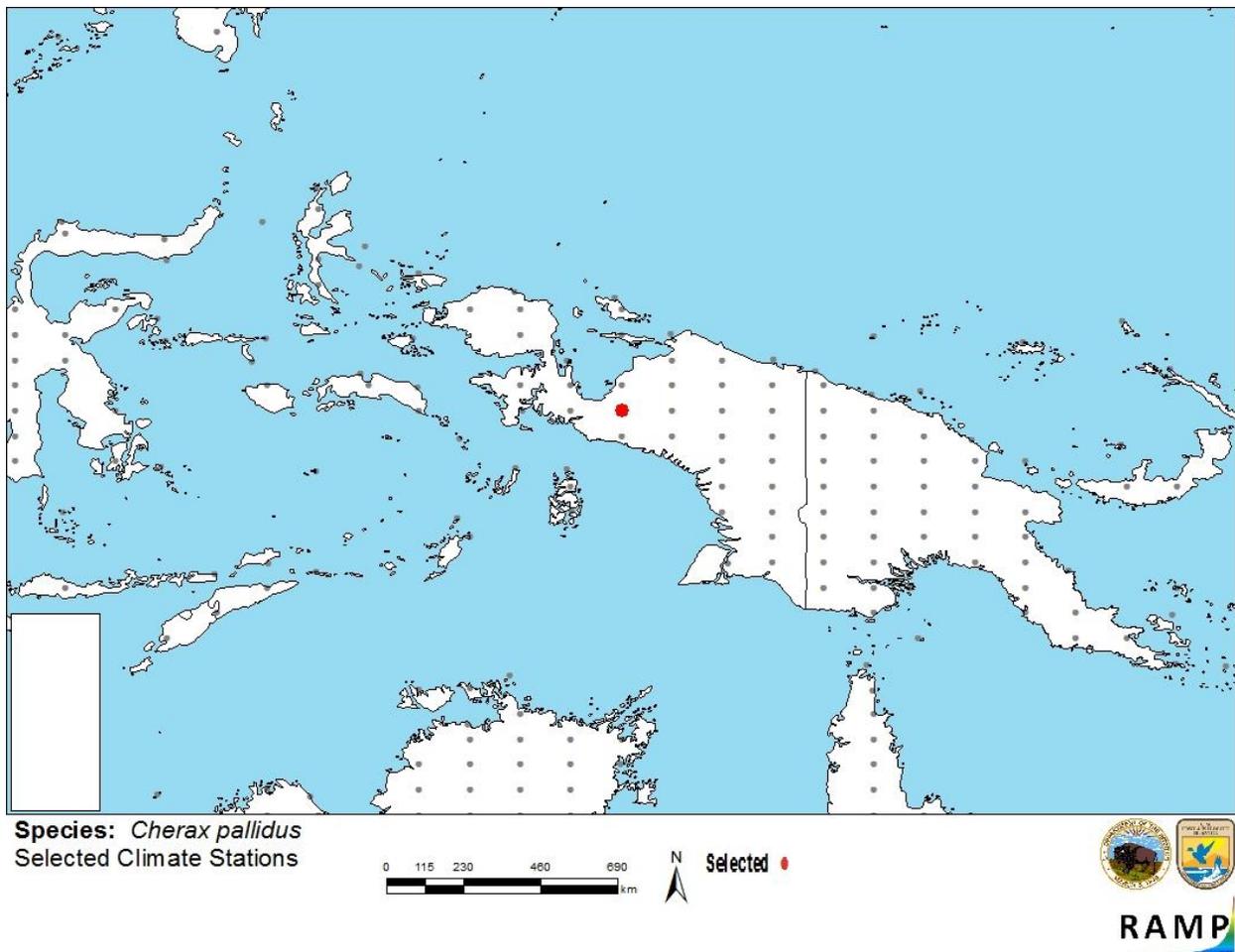
## 5 Distribution within the United States

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

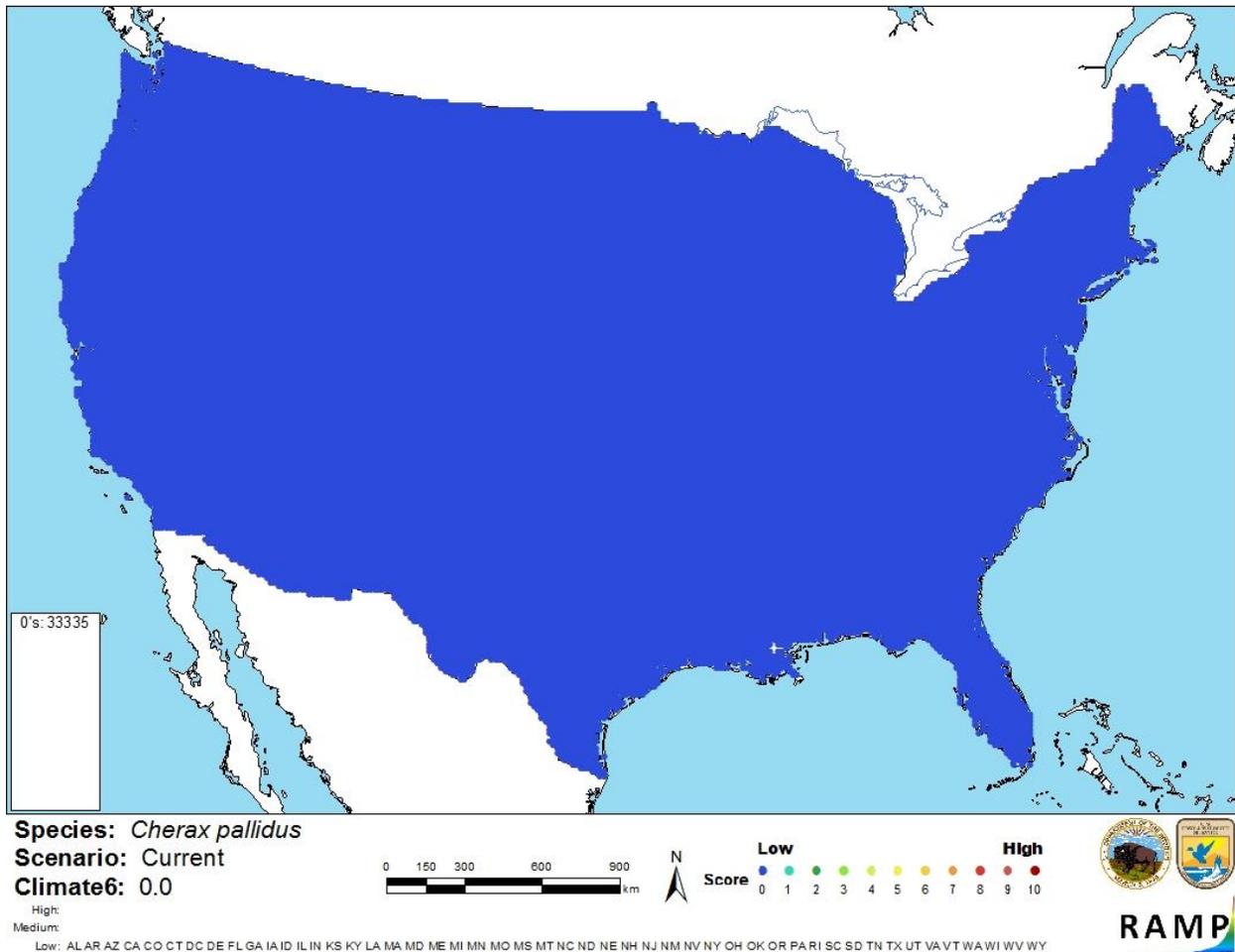
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Cherax pallidus* 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 pallidus* 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 pallidus* climate matching. Because no georeferenced occurrences were found, source location was chosen as the closest station to the native range (Wissel Lakes, New Guinea), as described in Austin (2010).



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Cherax pallidus* in the contiguous United States based on source location estimated from the range description provided 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
$0.000 \leq X \leq 0.005$	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 pallidus*. Without a history of introduction, impacts of introduction of *C. pallidus* remain unknown. Certainty of this assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Cherax pallidus* is a crayfish species only recorded from the Wissel Lakes 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 possession or trade of *C. pallidus*. 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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- Crandall, K. A. 2016. *Cherax pallidus* Holthuis, 1949. World Register of Marine Species. Available: <http://www.marinespecies.org/traits/aphia.php?p=taxdetails&id=885564>. (December 2017).
- FFWCC (Florida Fish and Wildlife Conservation Commission). 2017. Prohibited species list. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. Available: <http://myfwc.com/wildlifehabitats/nonnatives/regulations/prohibited/>. (December 2017).
- Holthuis, L. B. 1958. Freshwater crayfish in Netherlands New Guinea mountains. South Pacific Commission, Noumea, New Caledonia. SPC Quarterly Bulletin 8(2):36-39.
- Lukhaup, C., and B. Herbert. 2008. A new species of crayfish (Crustacea: Decapoda: Parastacidae) from the Fly River Drainage, Western Province, Papua New Guinea. *Memoirs of the Queensland Museum* 52:213–219.
- 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).