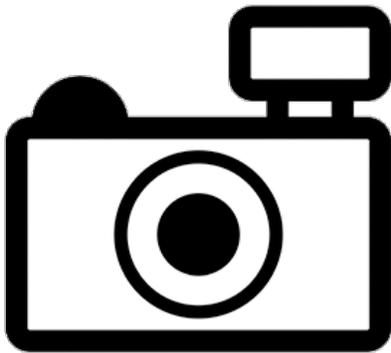


## ***Cherax communis* (a crayfish, no common name)**

### **Ecological Risk Screening Summary**

U.S. Fish & Wildlife Service, September 2011  
Revised, September 2012 and October 2017  
Web Version, 12/14/2017



No Photo Available

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

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### **Native Range**

From Crandall and De Grave (2017):

“[Type locality:] ‘Paniai Lake’ [Papua Province, Indonesia]”

From Holthuis (1950):

“[...] from the Wissel Lakes [now known as the Paniai Lakes (Paniai, Tigi, and Tage)].”

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

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

From Washington Department of Fish and Wildlife (2017):

“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*, *Cherax papuanus*, and *Cherax tenuimanus*.”

From FFWCC (2017):

“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. Very limited exceptions may be made by permit from the Executive Director [...]

[List of prohibited species includes:]

Crayfish – Genus *Cherax* [...]

*Cherax communis*”

## Means of Introductions to 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 GBIF Secretariat (2017):

“Kingdom	Animalia
Phylum	Arthropoda
Class	Malacostraca
Order	Decapoda
Family	Parastacidae
Genus	<i>Cherax</i> Erichson, 1846
Species	<i>Cherax communis</i> Holthuis, 1949”

“SPECIES | ACCEPTED”

### Size, Weight, and Age Range

No information available.

### Environment

From Yogi et al. (2008a):

“Lake Paniai [type locality of *C. communis*], area 154 km<sup>2</sup>, recently shows an near oligotrophic condition, its maximum water depth is 44 m, while Lake Tage shows a weak stratification and a depth of 52 m. Field measurements in Lake Paniai in 2006 at various sample points shows a slight increase in water conductivity from 158 on the surface to 170 micro-Siemens at the bottom. While Lake Tage shows figures between 198 at the surface down to 220 mikro-S at the bottom [Tjiptasmara et al. 2007].”

## **Climate/Range**

From Yogi et al. (2008a):

“Lake Paniai [type locality of *C. communis*], is a pristine ancient lake located at 1,752 meters above sea level near the backbone of Central Papua Island mountain range, at 3°45’S and 136°40’E.”

“At the airport observation station near Lake Paniai the rainfall shows a range, measurements in 2006 was 2040 mm annually, March to June was the wettest month. Air temperature was 15.8° to 18.5°C with an average of 17.2°C [Anonymous 2001-2002].”

## **Distribution Outside the United States**

Native

From Crandall and De Grave (2017):

“[Type locality:] ‘Paniai Lake’ [Papua Province, Indonesia]”

From Holthuis (1950):

“[...] from the Wissel Lakes [now known as the Paniai Lakes (Paniai, Tigi, and Tage)].”

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 [...] 5-7”

“Chelae [...] broader, few setae on ventral cutting edge”

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

“larger eyes; scaphocerite broad”

## **Biology**

No information available.

## Human Uses

From Yogi et al. (2008b):

“The large black and tasty shrimp (*Cherax communis*) is a protein source that is needed by this high mountain people [who live around Lakes Paniai and Tage].”

## Diseases

From Tavakol et al. (2016):

“*Diceratocephala boschmai* Baer, 1953 (Temnocephalida: Diceratocephalidae) [...]

*Type hosts*: [...] *Cherax communis* [...]

*Site of infection*: Cephalothorax, abdomen, carapace, pleopods, walking legs, antennae, branchial chamber.”

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

## Threat to Humans

No information available.

## 3 Impacts of Introductions

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

From Washington Department of Fish and Wildlife (2017):

“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: [...]

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“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. Very limited exceptions may be made by permit from the Executive Director [...]

[List of prohibited species includes:]

Crayfish – Genus *Cherax* [...]

*Cherax communis*”

## 4 Global Distribution

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**Figure 1.** Location of Paniai Lake in Papua Province, Indonesia. The lake is indicated with the red pin; it is the type locality of *Cherax communis*. Map from Great Barrier Marine Park Authority and Google. Available: <https://www.google.com/maps/place/Danau+Paniai/@-4.592927,134.2840909,7z/data=!4m5!3m4!1s0x68221884715c6a27:0x3ab182ea3071e7af!8m2!3d-3.9022222!4d136.3177778>. (October 2017).

## 5 Distribution within the United States

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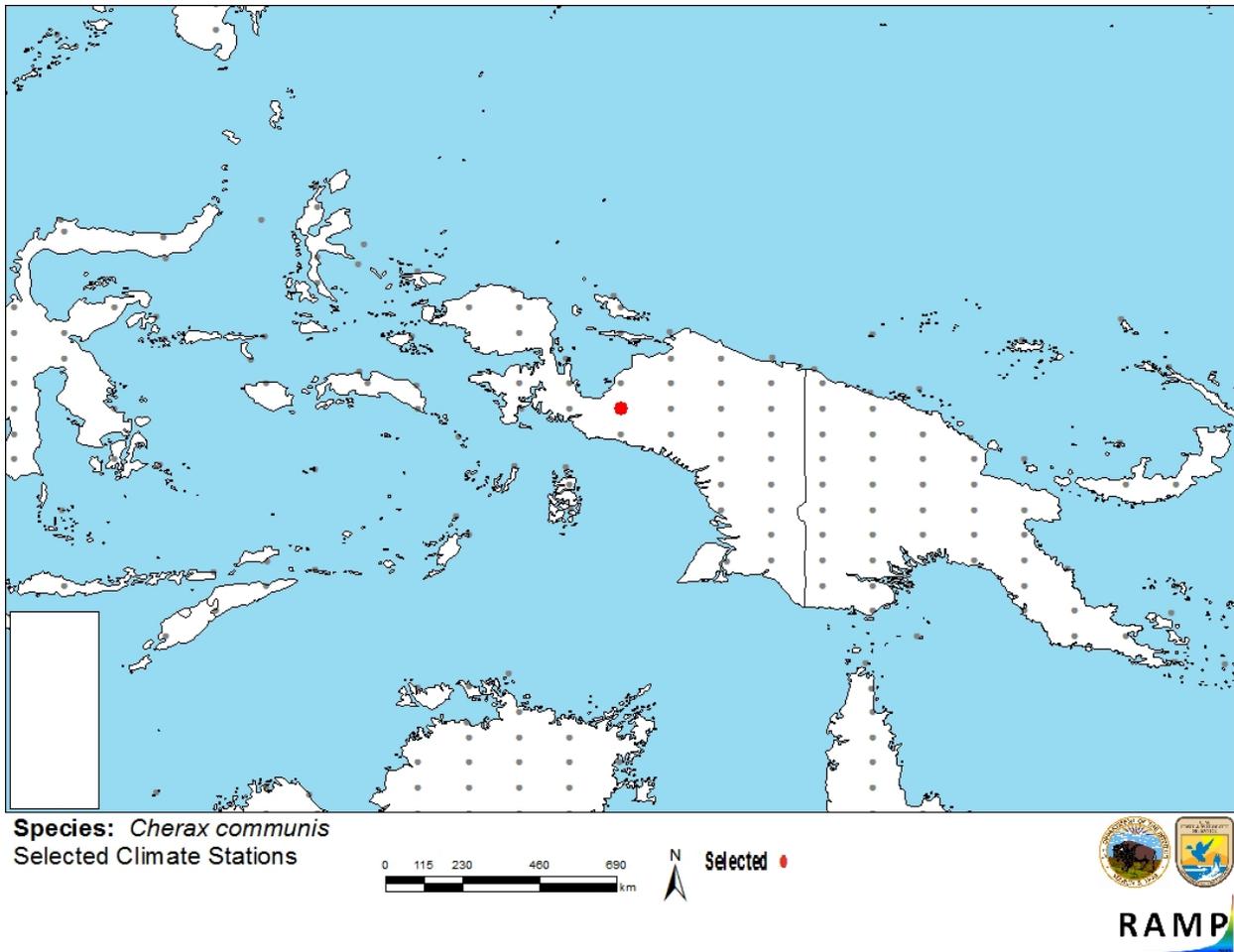
This species has not been reported as introduced or established in the United States.

## 6 Climate Matching

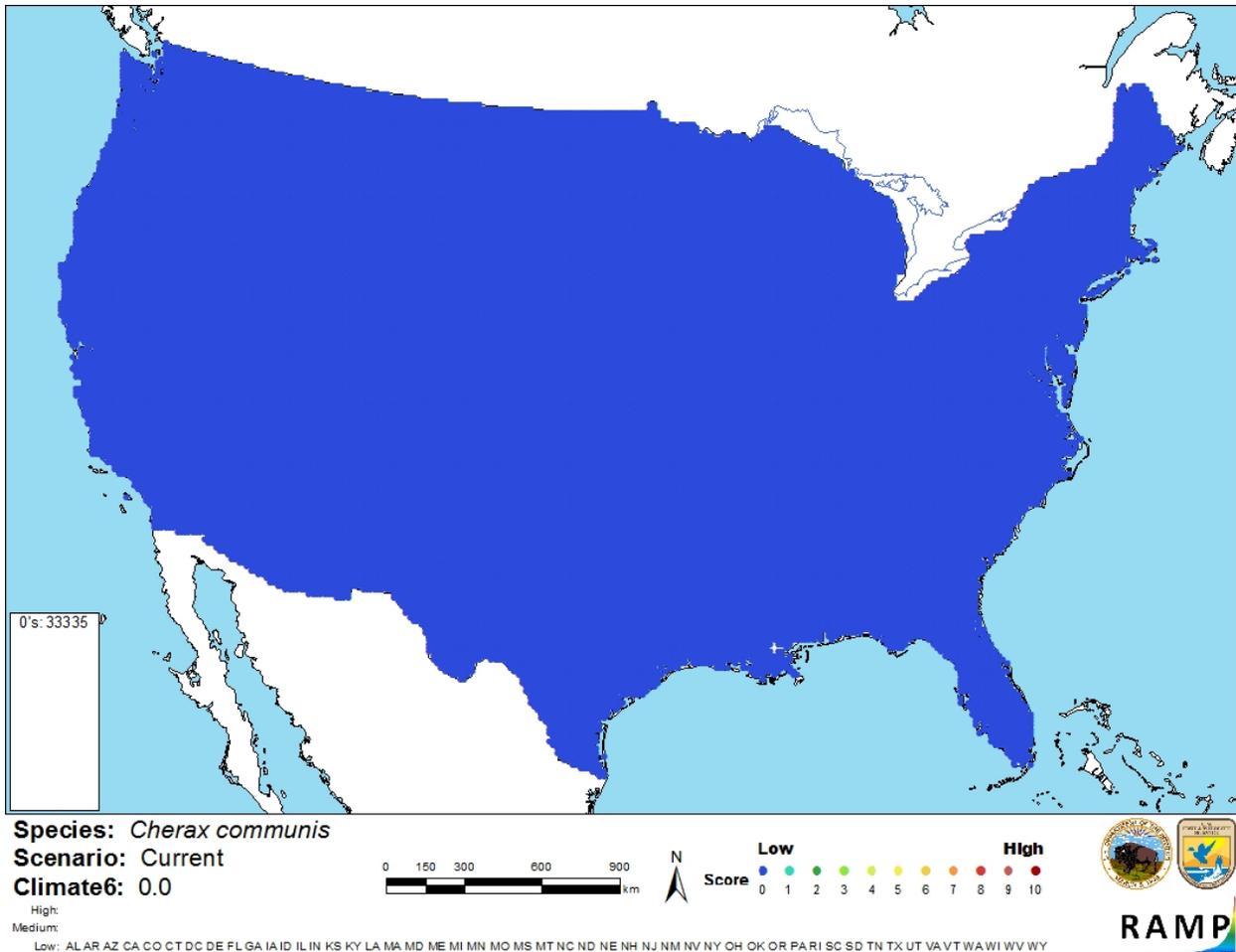
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### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Cherax communis* is low for all of the contiguous United States. These results were reflected in a Climate 6 score of 0.000, which also indicates a low match; the range of scores indicating a low climate match is 0.000-0.005. It is important to note that this climate match was based on a single source location near the equator, which reduce the variation of the climate match.



**Figure 2.** RAMP (Sanders et al. 2014) source map of eastern Indonesia and Papua Province showing the weather stations selected as source location (red) and non-source locations (gray) for *Cherax communis* climate matching. Source location from Crandall and De Grave (2017).



**Figure 2.** RAMP (Sanders et al. 2014) map of climate matches for *Cherax communis* in the contiguous United States based on one source location reported by Crandall and De Grave (2017). 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
$\geq 0.103$	High

## 7 Certainty of Assessment

Very little information is available on the biology, ecology, or distribution of *Cherax communis*. No introductions of this species have been reported, so potential impacts of introductions remain unknown. Certainty of assessment is low due to the lack of information.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Cherax communis* is a crayfish from Papua Province, Indonesia. *C. communis* has an overall low climate match to the contiguous United States, although climate match variability may have been reduced by the availability of only a single source location near the equator. The species has no history of introduction outside its native range. Further information is needed to understand the potential impacts of an introduction of *C. communis* into the United States. The overall risk assessment category is “uncertain”.

### Assessment Elements

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

## 9 References

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 9.**

- Crandall, K. A., and S. De Grave. 2017. An updated classification of the freshwater crayfishes (Decapoda: Astacidea) of the world, with a complete species list. *Journal of Crustacean Biology* 37(5):615-653.
- 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/>. (September 2017).
- GBIF Secretariat. 2017. GBIF backbone taxonomy: *Cherax communis* Holthuis, 1949. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/8822905>. (October 2017).
- Holthuis, L. B. 1950. The Crustacea Decapoda Macrura collected by the Archbold New Guinea expeditions. Results of the Archbold Expeditions no. 63. *American Museum Novitates* 1461.
- 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 and Wildlife Service.

Tavakol, S., W. J. Luus-Powell, W. J. Smit, C. Baker, A. Hoffman, and A. Halajian. 2016. First introduction of two Australian temnocephalan species into Africa with an alien host: double trouble. *Journal of Parasitology* 102(6):653-658.

Washington Department of Fish and Wildlife. 2017. WAC 220-12-090 classification – nonnative aquatic animal species. Washington Department of Fish and Wildlife, Olympia, Washington. Available: <http://wdfw.wa.gov/ais/wac.html>. (September 2017).

Yogi, N., E. Rantetasak, G. S. Haryani, and P. E. Hehanussa. 2008a. A pristine high-elevated ancient lake complex, Lake Paniai, Papua, Indonesia. *In* M. Sengupta, and R. Dalwani, editors. *Proceedings of Taal2007: the 12<sup>th</sup> World Lake Conference*. Available: [http://wldb.ilec.or.jp/data/ilec/WLC13\\_Papers/S17/s17-8.pdf](http://wldb.ilec.or.jp/data/ilec/WLC13_Papers/S17/s17-8.pdf). (October 2017).

Yogi, N., E. Rante Tasak, G. S. Haryani, and P. E. Hehanussa. 2008b. Muna Duma, the goddess guard of Lake Paniai, Papua, Indonesia. Pages 1229-1231 *in* M. Sengupta, and R. Dalwani, editors. *Proceedings of Taal2007: the 12<sup>th</sup> World Lake Conference*. Available: <http://wldb.ilec.or.jp/data/ilec/wlc12/O%20-%20Social%20Cultural%20Aspects%20Participation%20for%20Management/O-6.pdf>. (October 2017).

## 10 References Quoted But Not Accessed

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**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.**

Anonymous. 2001-2002. Kabupaten Paniai dalam angka. Biro Pusat Statistik, Statistics of District of Paniai, Papua. (In Indonesian.)

Tjiptasmara, G. S. Haryani, S. Sembiring, Firdaus, and P. E. Hehanussa. 2007. Potensi Danau Paniai, Danau Tage, dan Danau Tigi, Kabupaten Paniai, Papua. [The potentials of Lakes Paniai, Tage, and Tigi, a technical report.] [*Source did not provide complete citation for this reference.*]