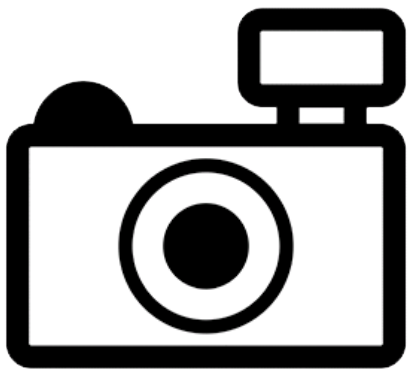


***Cherax boesemani* (a crayfish, no common name)**

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, October 2011
Revised, September 2012 and October 2017
Web Version, 12/13/2017



No Photo Available

1 Native Range and Status in the United States

Native Range

From Lukhaup and Pekny (2008):

“[...] from the Amajaru [*sic*] Lakes, in the Kais River Drainage in the centre of the Vogelkop Peninsula, West Irian Jaya, Indonesia [...]”

Status in the United States

This species has not been reported in the United States. This species is present in trade in the United States.

From Aquatic Arts (2017):

“SUPERNOVA CRAYFISH (*CHERAX BOESEMANI*)
Sold Out”

Aquatic Arts only ships within 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 [...]

Aquatic Invertebrates [...]

Crayfish – Genus *Cherax* [...]

Cherax boesemani [sic]”

Means of Introductions to the United States

This species has not been reported in the United States.

Remarks

From Aquatic Arts (2017):

“The Supernova Crayfish (*Cherax boesemani*) [...] is also commonly known as the Blue Moon or Blue Marble Freshwater Lobster [...]

From Patoka et al. (2014):

“Trade names [in the Czech pet trade] Red Chilli, Red Brick Papua”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF Secretariat (2016):

“Kingdom	Animalia
Phylum	Arthropoda
Class	Malacostraca
Order	Decapoda
Family	Parastacidae
Genus	<i>Cherax</i> Erichson, 1846
Species	<i>Cherax boesemani</i> Lukhaup & Pekny, 2008”

“SPECIES | ACCEPTED”

Size, Weight, and Age Range

From Lukhaup and Pekny (2008):

“The males examined have a carapax length of 25-57 mm, and a total length of 55-123 mm (n = 10); the females have a carapax length of 26-46 mm and a total length of 55–103 mm. (n = 19).”

Environment

From Austin (2010):

“Freshwater”

From Lukhaup and Pekny (2008):

“[The Ajamaru Lakes have] a depth of nearly [*sic*] more than 3 meters, clear water almost stagnant except [*sic*] near entering rivers and outlets, pH approximately 6.4, a soft muddy bottom mostly covered with rich aquatic vegetation [...]”

Climate/Range

From Polak (2000):

“The climate [in the central Vogelkop Peninsula, West Papua, Indonesia] can be characterised as wet tropical [...] with an average annual rainfall of 5000-5500 mm/year (Ridder 1995) [...]”

From Lukhaup and Pekny (2008):

“The lakes are surrounded by low marsh, and beyond that by hills and mountains reaching 1500 m in height, which are covered by forest.”

“Several small streams enter the lakes, which have an altitude of 250 m above sea level [...]”

Distribution Outside the United States

Native

From Lukhaup and Pekny (2008):

“[...] from the Amajaru [*sic*] Lakes, in the Kais River Drainage in the centre of the Vogelkop Peninsula, West Irian Jaya, Indonesia [...]”

Introduced

This species has not been documented as introduced or established outside its native range. However, the species is present in trade outside its native range.

From Patoka et al. (2015):

“The vast majority of live ornamental crayfish imported into the EU originate from farms and wholesalers in Southeast Asia [...] Based on interviews, [the] vast majority of crayfish imported from Indonesia belongs to the genus *Cherax*. These crayfish species originated from farm production (*C. destructor*, *C. quadricarinatus*) and from field captures in West Papua (*C. boesemani*, *C. holthuisi*[,] *C. peknyi*, *C. sp.* Blue Moon, *C.sp.* Hoa Creek, and *C.sp.* Red Tips).”

Means of Introduction Outside the United States

From Patoka et al. (2015):

“The vast majority of live ornamental crayfish imported into the EU originate from farms and wholesalers in Southeast Asia [...]”

Short Description

From Lukhaup and Pekny (2008):

“The new species, *Cherax (Astaconephrops) boesemani*, differs from all other crayfish of this subgenus [*Astaconephrops*] in the shape of its rostrum, the shape of its chelae and also in its coloration.”

“Rostrum slender, reaching about to end of ultimate antennular peduncle and about twice as long as wide at base (6 mm at base, 13 mm long). Upper surface smooth, without hairs; lateral margins of rostrum almost straight in basal part, distally rather strongly tapering towards apex.”

“Chelae 5.4 times as long as high, 2.45 times as long as deep, strongly compressed.”

“The living animals [...] were noted by Dr M. Boeseman to be coloured as follows: ‘beige, beige olivaceous, brown olivaceous, green olivaceous, reddish brown, purplish red. Distal margin of tail-fan pale orange. Legs (except for 1st pair) bright blue, first pair variable in colour, pale blue with orange-yellow or blue-green with orange-yellow, sometimes purple with orange-yellow, blue with pinkish purple with dark purple legs of purplish brown individuals’.”

Biology

From Lukhaup and Pekny (2008):

“Several small streams enter the lakes which have [...] a soft muddy bottom mostly covered with rich aquatic vegetation, while the low shores and costal [*sic*] plains are usually covered with secondary vegetation consisting primarily of grasses and low shrubs.”

“Size of eggs: 3 mm long, 2 mm wide. One female (96 mm total length) had a total of 74 eggs. According to Dr. Boeseman, the female with eggs has been collected between the 3rd and 6th of March, 1955.”

From Austin (2010):

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

Human Uses

From Lukhaup and Pekny (2008):

“Over the last years, crayfish species have been introduced by wholesalers to the European, Japanese and USA pet market. Some of these species [including newly-described *C. boesemani*] are collected in Irian Jaya and come to Germany as well.”

From Patoka et al. (2014):

“Wholesale availability [in the Czech Republic:] Common”

Diseases

No information available.

Threat to Humans

No information available.

3 Impacts of Introductions

No information available. This species has not been documented as introduced or established outside its native range.

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):

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Executive Director [...]

Aquatic Invertebrates [...]

Crayfish – Genus *Cherax* [...]

Cherax boesemani [sic]”

4 Global Distribution



Figure 1. The island of New Guinea and the Vogelkop Peninsula in the northwest, where *C. boesemani* has its native distribution (Lukhaup and Pekny 2008). The Ajamaru Lakes are located approximately at the position of the “P” in “Peninsula”. Map credit: W. Wolny. Public domain. Available: https://commons.wikimedia.org/wiki/File:New_Guinea.png. (October 2017).

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 boesemani* was low throughout the contiguous United States, reflected in a Climate 6 score of 0.000. The range of scores indicating a low climate match is 0.000-0.005. This low climate match with the contiguous U.S. likely reflects the singular source location near the equator.

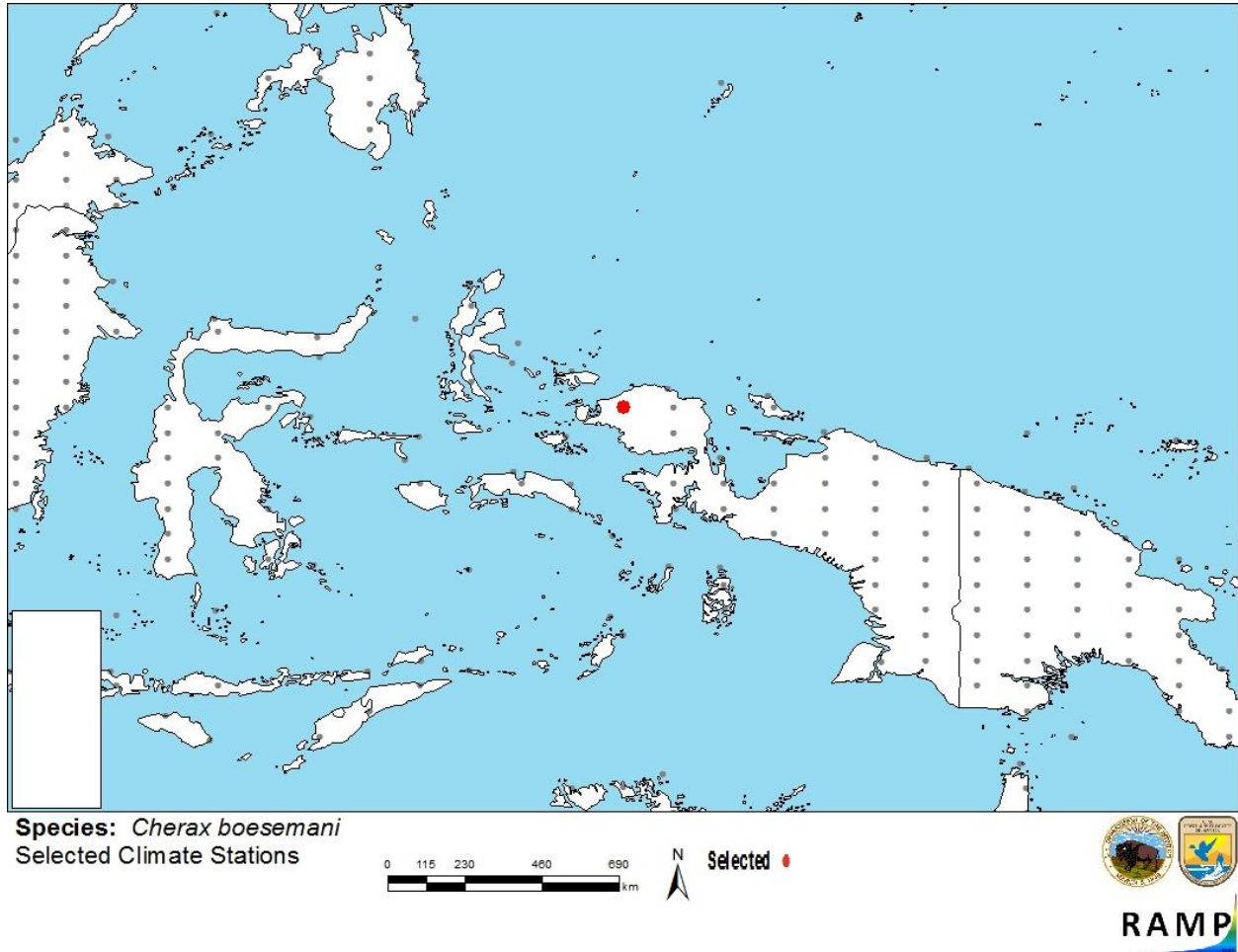


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source location (red) and non-source locations (gray) for *Cherax boesemani* climate matching. Source location from Lukhaup and Pekny (2008).

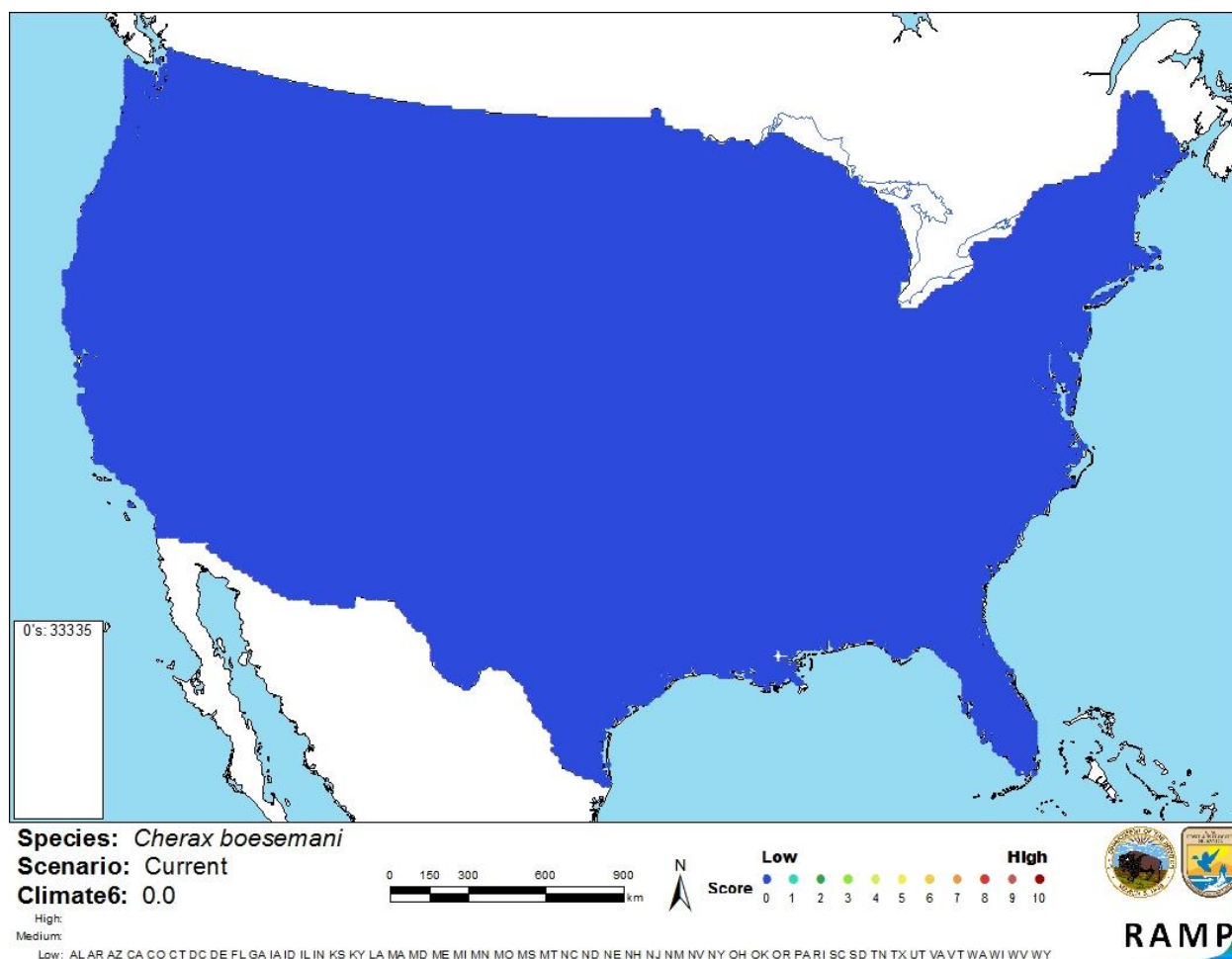


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cherax boesemani* in the contiguous United States based on one source location reported by Lukhaup and Pekny (2008). 0=Lowest match, 10=Highest match.

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
$0.000 < X \leq 0.005$	Low
$0.005 < X \leq 0.103$	Medium
> 0.103	High

7 Certainty of Assessment

Some information is available on the biology, ecology, and distribution of *Cherax boesemani*. However, the species is not known to be introduced or established outside its native range, so potential impacts of introduction to the contiguous U.S. remain unknown. The certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cherax boesemani is a New Guinean crayfish known only from a single drainage in West Papua. The aquarium industry has interest in this species, with the species commonly available in parts of Europe and available at least rarely in the United States. However, there is no record of introductions or invasiveness. *C. boesemani* has an overall low climate match for the contiguous United States. The overall risk assessment is uncertain because, although *C. boesemani* has limited range, a low climate match, and no history of invasiveness, popularity among aquarists does expand the opportunity for introductions, and invasiveness cannot be judged conclusively until there is a record of introduction.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Low**
- **Certainty of Assessment: 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.

- Aquatic Arts. 2017. Supernova crayfish (*Cherax boesemani*). Available: <https://aquaticarts.com/products/supernova-crayfish>. (October 2017).
- Austin, C. M. 2010. *Cherax boesemani*. The IUCN Red List of Threatened Species 2010: e.T165920A6163786. Available: <http://www.iucnredlist.org/details/full/165920/0>. (October 2017).
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- Lukhaup, C., and R. Pekny. 2008. *Cherax (Astaconephrops) boesemani*, a new species of crayfish (Crustacea: Decapoda: Parastacidae) from the centre of the Vogelkop Peninsula in Irian Jaya (West New Guinea), Indonesia. Zoologische Mededelingen Leiden 82:331-340.
- Patoka, J., L. Kalous, and O. Kopecký. 2014. Risk assessment of the crayfish pet trade based on data from the Czech Republic. Biological Invasions 16:2489-2494.

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Polak, M. 2000. The botanical diversity in the Ayawasi area, Irian Jaya, Indonesia. *Biodiversity and Conservation* 9:1345-1375.

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

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).

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.

Ridder, T. B. 1995. Rainfall in New Guinea (Irian Jaya). KNMI-publication 183-1. Koninklijk Nederlands Meteorologisch Instituut, De Bilt, The Netherlands.