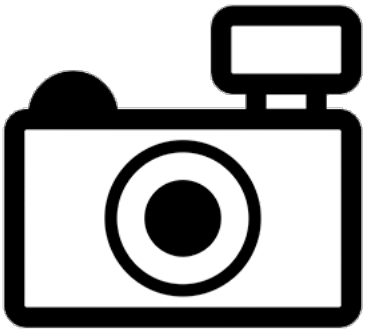
Cherax cairnsensis (a crayfish, no common name)
Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, August 2011
Revised, September 2012 and October 2017
Web Version, 12/13/2017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1 Native Range and Status in the United States

Native Range

From Austin (1996):

"[…] extensive distribution along most of the east coast of Queensland from just north of Cairns to just north of Brisbane."

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 quadricarninatus*, *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 […]
[Included on the prohibited species list:]
Crayfish – Genus *Cherax* […]
Cherax cairnsensis"

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

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 cairnsensis* Riek, 1969"

"SPECIES | ACCEPTED"

Size, Weight, and Age Range

From Wet Tropics Management Authority (2012):

"[…] 7cm long […]

Environment

From Fetzner (2017):

"[…] freshwater. Tea tree swamps, lentic waters."

From Wet Tropics Management Authority (2012):

"[…] rocky, rainforest streams […]"

Climate/Range
From Wet Tropics Management Authority (2012):

"[…] both lowland and upland areas."

Distribution Outside the United States
Native
From Austin (1996):

"[…] extensive distribution along most of the east coast of Queensland from just north of Cairns to just north of Brisbane."

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
No data or information available

Biology
From Fetzner (2017):

"Burrowing […]"

From Wet Tropics Management Authority (2012):

"Timid and noctural, the smooth crayfish (*Cherax cairnsensis*) lives in rocky, rainforest streams in both lowland and upland areas."

From Coughlan et al. (2010):

"We monitored litter input and retention in a Queensland rainforest stream to determine availability of litter in different seasons, and we conducted experiments to test the hypothesis that crayfish were important contributors to litter processing. […] The crayfish, *Cherax cairnsensis*, readily fed on leaves. Its processing rate was related negatively to leaf toughness and positively to leaf nitrogen content. The crayfish assimilated up to 28.5% of the material processed at 24°C, and none at 11°C."

"The population density of *C. cairnsensis* in Birthday Creek was estimated to be ~0.5 animals per m^2, using mark-recapture and random benthic sampling techniques (J. F. Coughlan, unpubl. data). Given the breakdown rates determined in the present study, it is estimated that ~1% of the detritus entering Birthday Creek is processed by the crayfish."

Human Uses
No information available.

Diseases
No information available.

Threat to Humans
No information available.

3 Impacts of Introductions
No information available. No introductions of this species have been reported.

From Washington Department of Fish and Wildlife (2017):

"Prohibited aquatic animal species. RCW 77.12.020
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Cherax cairnsensis"

4 Global Distribution

Figure 1. Map of Australia showing known global distribution of *Cherax cairnsensis*. Map from GBIF Secretariat (2017). Although the range description from Austin (1996) suggests a broader distribution, no georeferenced occurrences were found beyond those shown on this 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) was low for most of the contiguous United States. The match was highest in Florida and southern Texas, where the climate match was medium. Climate 6 score indicated that the contiguous U.S. has a medium climate match overall. The range of scores indicating a medium match is 0.005-0.103; Climate 6 score for *Cherax cairnsensis* was 0.017.

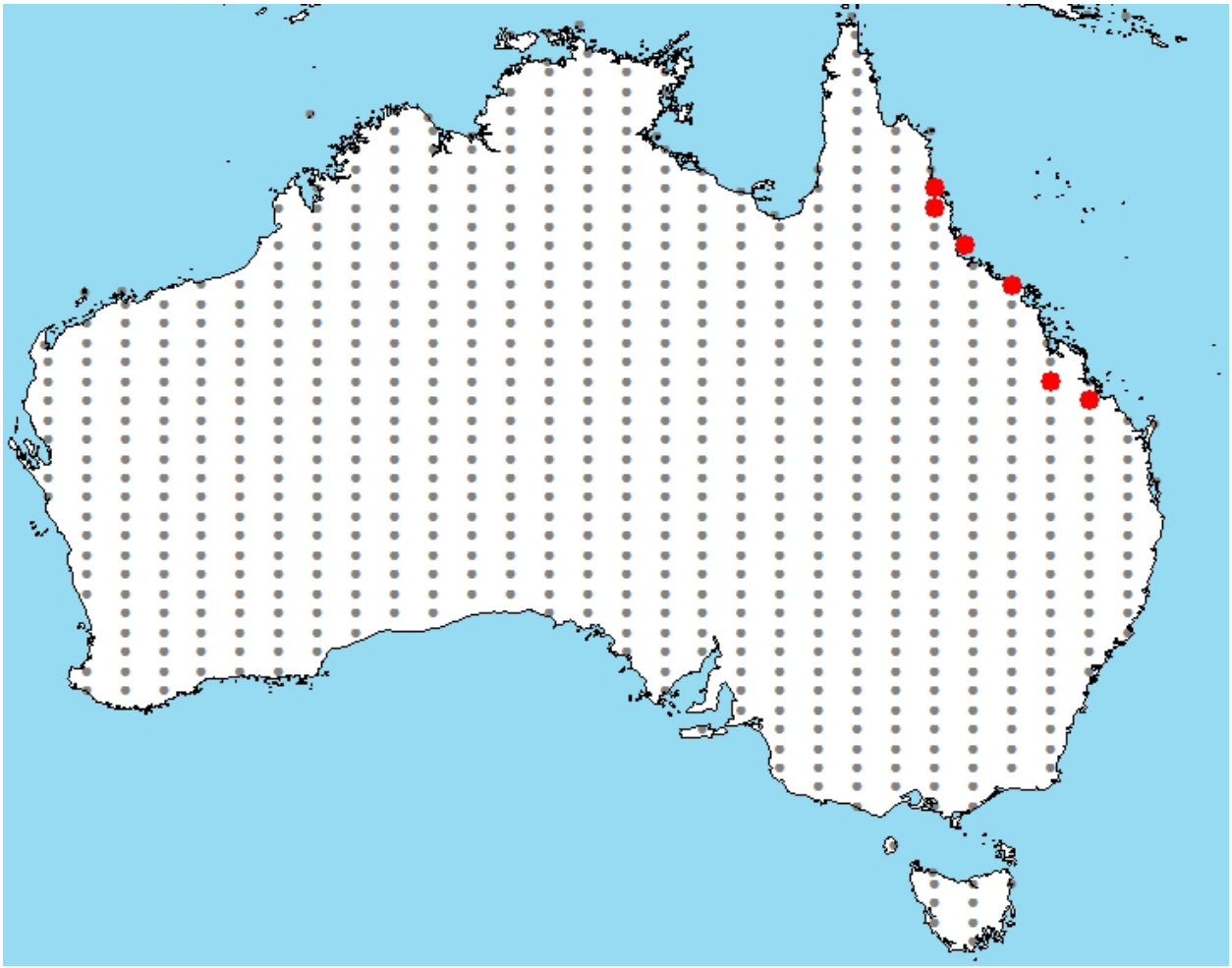

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Cherax cairnsensis* climate matching source locations based on source locations from GBIF Secretariat (2017). Additional locations from Munasinghe et al. (2004; near Gladstone, Proserpine, Mt. Charlton, and Rockhampton, Queensland) and Coughlan et al. (2010; near Townsville, Queensland).

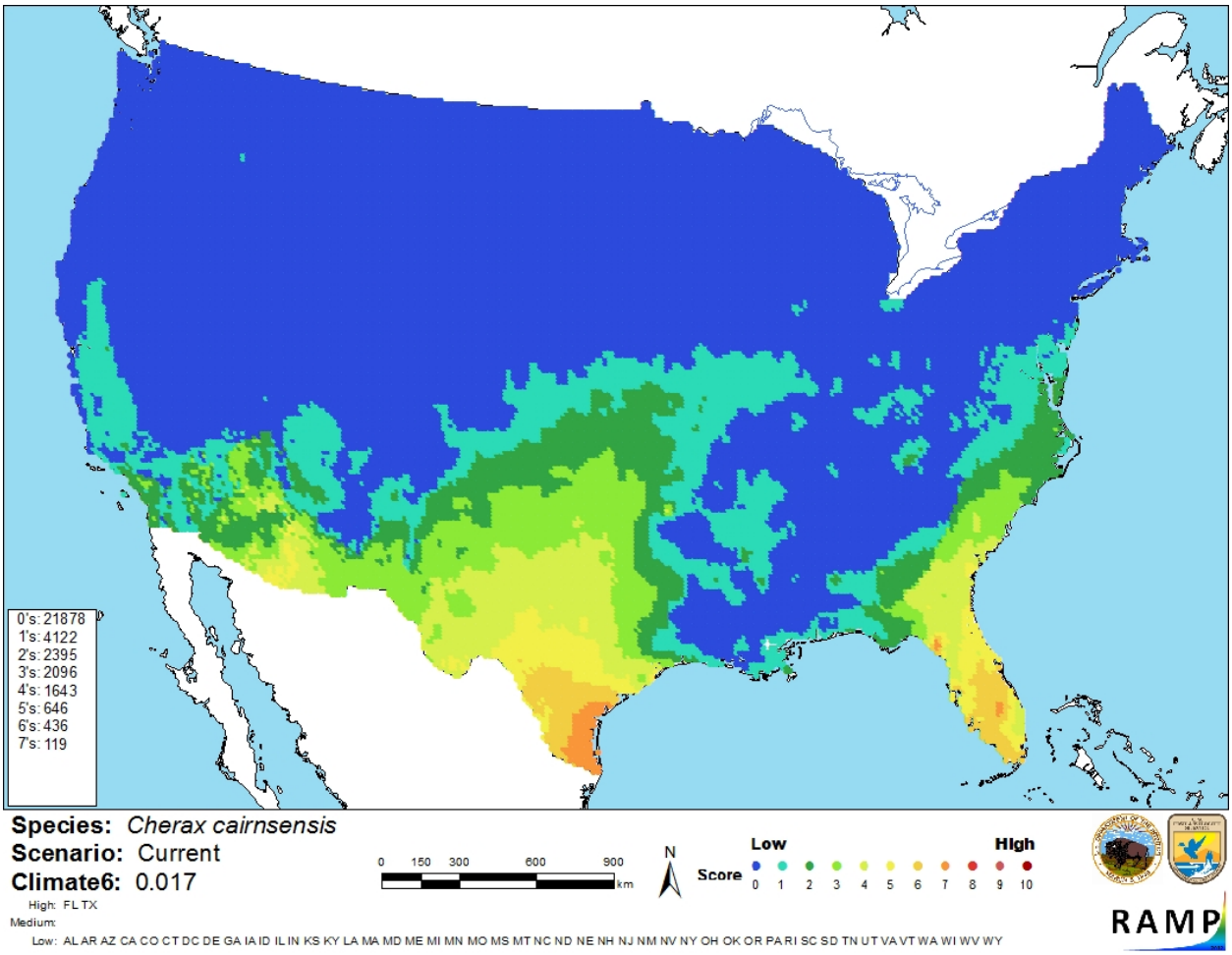

Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cherax cairnsensis* in the contiguous United States based on source locations reported by GBIF Secretariat (2017), Munasinghe et al. (2004) and Coughlan et al. (2010). 0=Lowest match, 10=Highest match.

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

Little information was available on the biology and ecology of *C. cairnsensis*, and information on distribution was patchy. No introductions of this species have been reported, so no information was available on impacts of introduction. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cherax cairnsensis is an Australian crayfish species with a broad distribution in coastal Queensland. No introductions of this species have been reported; without the experience of introductions elsewhere, further information is necessary to estimate potential impacts of introduction to the contiguous U.S. Climate match to the contiguous U.S. was medium overall, with Florida and Texas showing the highest matches. Overall risk posed by *Cherax cairnsensis* is uncertain due to lack of data.

Assessment Elements

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

9 References

Austin, C. M. 1996. Systematics of the freshwater crayfish genus *Cherax* Erichson (Decapoda: Parastacidae) in northern and eastern Australia: electrophoretic and morphological variation. Australian Journal of Zoology 44:259-296.

Coughlan, J. F., R. G. Pearson, and L. Boyero. 2010. Crayfish process leaf litter in tropical streams even when shredding insects are common. Marine and Freshwater Research 61:541-548.

Fetzner, J. 2017. *Cherax cairnsensis* Riek, 1969. The Crayfish & Lobster Taxonomy Browser. Carnegie Museum of Zoology, Pittsburgh, Pennsylvania. Available: http://iz.carnegiemnh.org/crayfish/NewAstacidea/species.asp?g=Cherax&s=cairnsensis&ssp=. (October 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/. (September 2017).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Cherax cairnsensis* Riek, 1969. Global Biodiversity Information Facility, Copenhagen. Available: https://www.gbif.org/species/4648615. (October 2017).

Munasinghe, D. H. N., C. P. Burridge, and C. M. Austin. 2004. The systematics of freshwater crayfish of the genus *Cherax* Erichson (Decapoda:Parastacidae) in eastern Australia re-examined using nucleotide sequences from *12S* rRNA and *16S* rRNA genes. Invertebrate Systematics 18:215-225.

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