

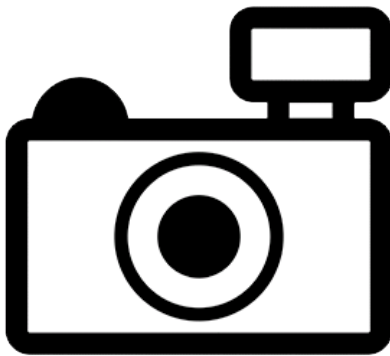
Sand Yabby (*Cherax robustus*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, November 2011

Revised, September 2012 and April 2018

Web Version, 5/23/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Marshall et al. (2011):

“It has been recorded from Fern Gully Lagoon on North Stradbroke Island, and from Fraser, Bribie and Moreton Islands (Riek, 1951; Bentley, 2007). It is endemic to southeastern Queensland [Australia] (Munasinghe et al., [2004]) [...]”

From Bentley (2014):

“[...] *C. robustus* is predominantly restricted to the four coastal sand islands off the South East Queensland coast, with the species presumed to be extremely rare or extinct on the mainland.”

Status in the United States

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

The Florida Fish and Wildlife Conservation Commission has listed the crayfish *Cherax robustus* 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 2018).

From Washington Department of Fish and Wildlife (2018):

“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.

Remarks

From Alletson (2000):

“It has been inferred that *C. robustus* is a micro-habitat specialist, and thus highly susceptible to displacement under anthropogenic pressures. Garvie (1998) located only two populations of *C. robustus*, on Bribie and Fraser Islands during field investigations. The absence of the animal at mainland sites where it was recorded 10 – 15 years ago has raised concerns that the mainland populations may be extinct, or under extreme pressure.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From WoRMS (2018):

“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 robustus* (Species)”

“Status accepted”

Size, Weight, and Age Range

From Queensland Museum (2018):

“Length to 90 mm.”

Environment

From Marshall et al. (2011):

“freshwater”

From Alletson (2000):

“It was proposed by Brooks [1987] that pH of water limits the distribution of the animal, which has a preference for low pH between 3.3 and 5.3, and for swamp rather than open water habitat.”

From Bentley (2014):

“[...] *C. robustus* is thought to be able to tolerate low levels of salinity (Wildlife of Greater Brisbane, 2007) [...]”

Climate/Range

From Alletson (2000):

“The local climate is sub-tropical, and rainfall is received in all months, but is summer dominant.”

Distribution Outside the United States

Native

From Marshall et al. (2011):

“It has been recorded from Fern Gully Lagoon on North Stradbroke Island, and from Fraser, Bribie and Moreton Islands (Riek, 1951; Bentley, 2007). It is endemic to southeastern Queensland [Australia] (Munasinghe et al., 2004a) [...]”

From Bentley (2014):

“[...] *C. robustus* is predominantly restricted to the four coastal sand islands off the South East Queensland coast, with the species presumed to be extremely rare or extinct on the mainland.”

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 Queensland Museum (2018):

“Deep blue to almost black; underside of claws vivid purple. Claws short and robust with a characteristic patch of long hairs on undersides of fixed fingers continuing slightly onto palms.”

Biology

From Munasinghe et al. (2004):

“[...] restricted to sandy, coastal aquatic habitats, mostly lakes and swamps that are often influenced by humic acids.”

From Alletson (2000):

“The wetlands that support *C. robustus* are found in wallum, Melaleuca and heathland communities. Heathland refers to low scrubby vegetation which grows on infertile soils, diversity is high, but most plants are stunted with small leaves.”

From Queensland Museum (2018):

“Semi-aquatic; burrows around perimeter of sand lakes or along small creeks. Found only in wallum heathlands; adapted to living in soft acidic waters in peaty sand areas.”

Human Uses

No information available.

Diseases

Longshaw and Stebbing (2016) report that *C. robustus* is a host of the temnocephalid worms *Temnosewellia christineae* and *Temnosewellia dendyi*, citing Cannon and Sewell (2001).

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

Threat to Humans

No information available.

3 Impacts of Introductions

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

The Florida Fish and Wildlife Conservation Commission (FFWCC 2018) and the Washington Department of Fish and Wildlife (2018) have listed this species as a prohibited species.

4 Global Distribution



Figure 1. Reported distribution of *C. robustus* in southeast Queensland, Australia. Map from GBIF Secretariat (2017).

5 Distribution within the United States

This species has not been recorded in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) for *Cherax robustus* was low for most of the contiguous United States except the Southeast, where matches were medium to high. The highest matches occurred in Florida and coastal Texas. The Climate 6 score of 0.023 indicated that the contiguous U.S. has a medium climate match overall. Scores between 0.005 and 0.103 are classified as medium match.

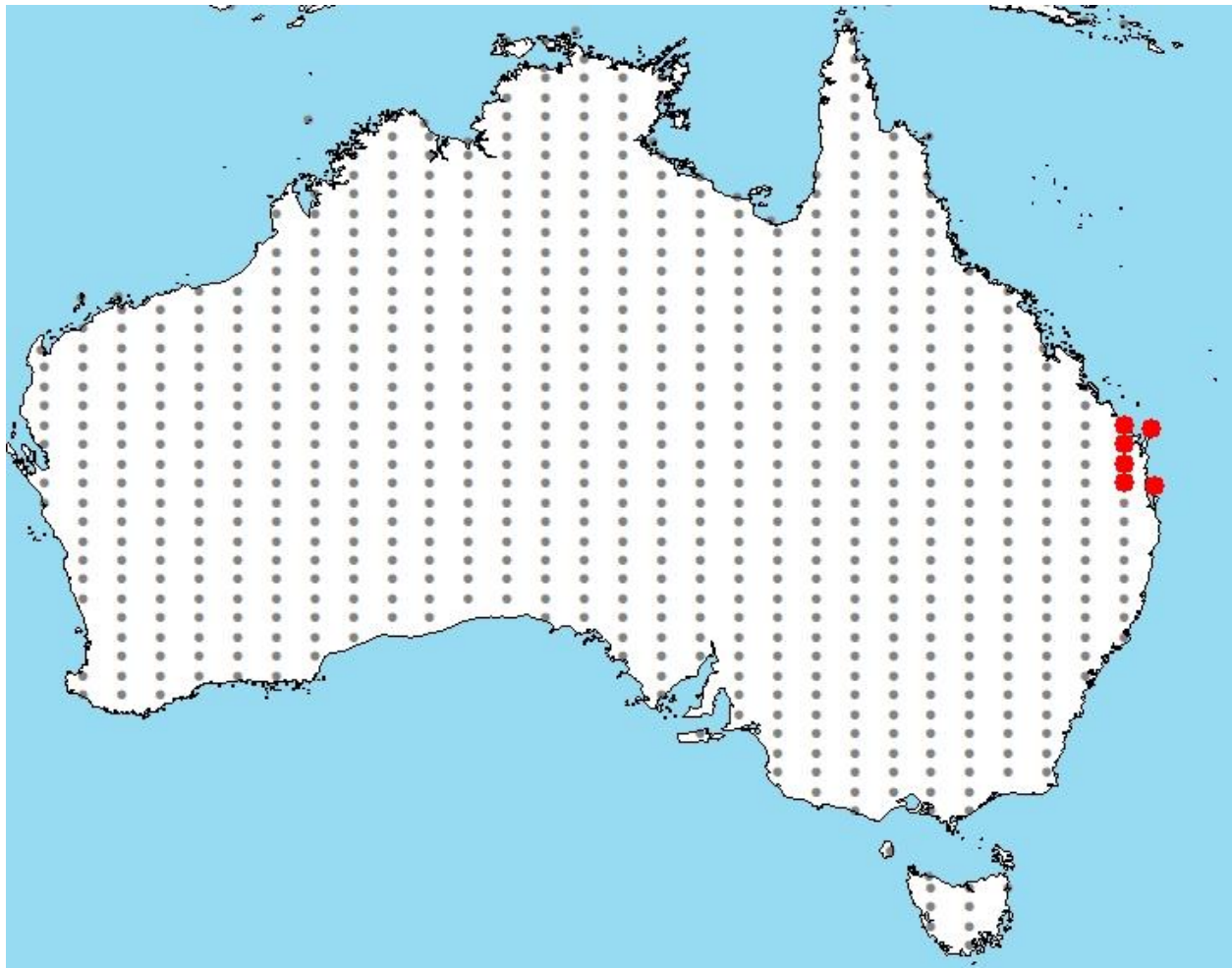


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Cherax robustus* climate matching. Source locations from GBIF Secretariat (2017).

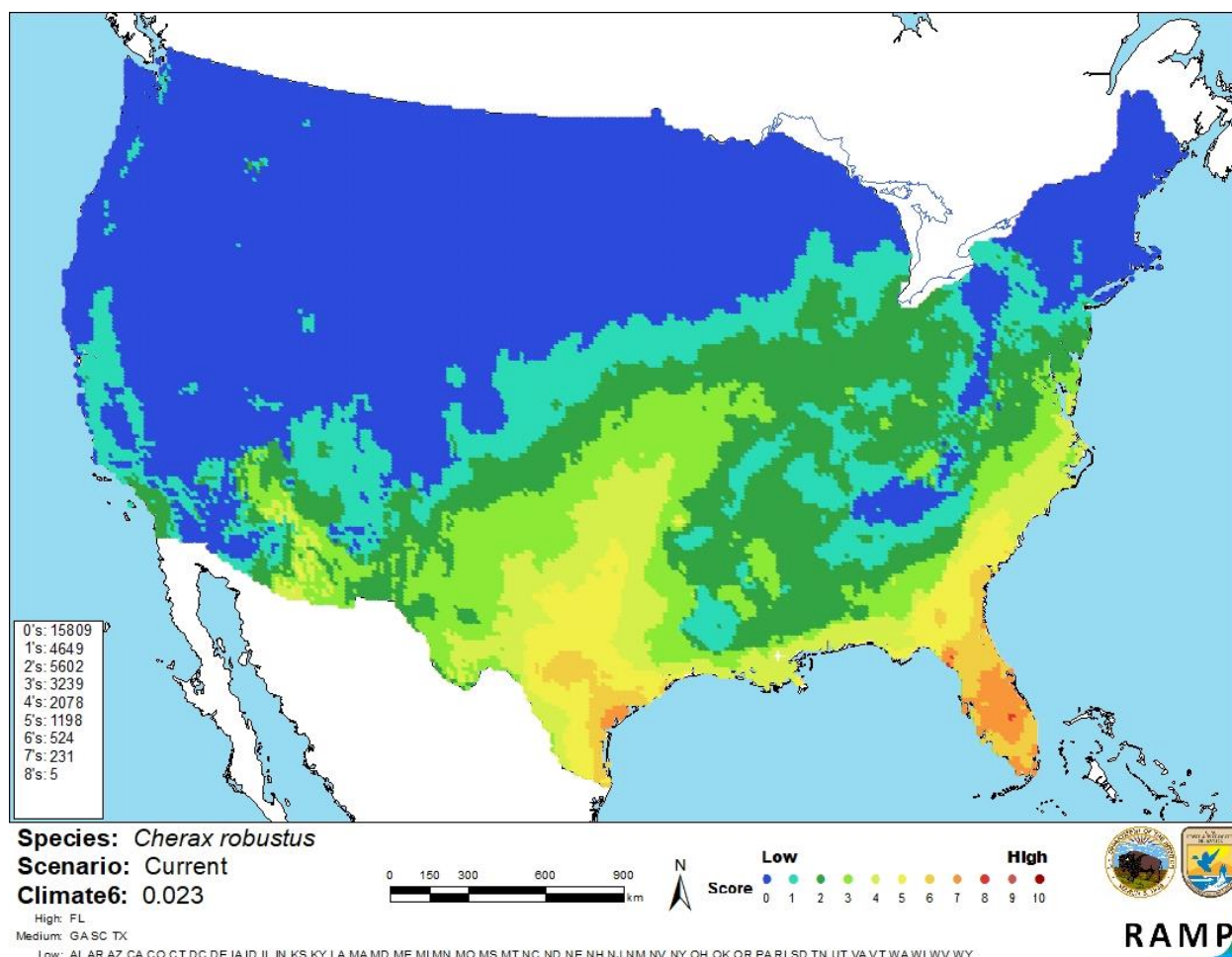


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cherax robustus* in the contiguous United States based on source locations reported from GBIF Secretariat (2017). 0=Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

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
≥ 0.103	High

7 Certainty of Assessment

Little information is available about the biology and ecology of *Cherax robustus*, and there is uncertainty about its current distribution relative to its former distribution. No impacts of introduction are known because no introductions have been reported. Certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cherax robustus is a crayfish endemic to southeast Queensland, Australia. It occupies sandy, acidic heathland habitats and its distribution is mostly limited to four islands. Climate match to the contiguous U.S. is medium, with highest match occurring in Florida. No introductions are known, so the history of invasiveness is uncertain. The States of Florida and Washington have included this species on their respective lists of prohibited nonnative species, along with nearly all other *Cherax* crayfish. Given the lack of introduction history, overall risk assessment category for *C. robustus* is Uncertain.

Assessment Elements

- **History of Invasiveness: Uncertain**
- **Climate Match: Medium**
- **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.

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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.

- Bentley, A. I. 2007. Phylogeographic structure of freshwater crayfish of the genus *Cherax* (Decapoda: Parastacidae) on the mainland and islands of southeast Queensland. Honors thesis. Griffith University, Brisbane, Australia.
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- Cannon, L. R. G., and K. B. Sewell. 2001. A review of *Temnosewellia* (Platyhelminthes) ectosymbionts of *Cherax* (Crustacea: Parastacidae) in Australia. *Memoirs of the Queensland Museum* 46(2):385-399.
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