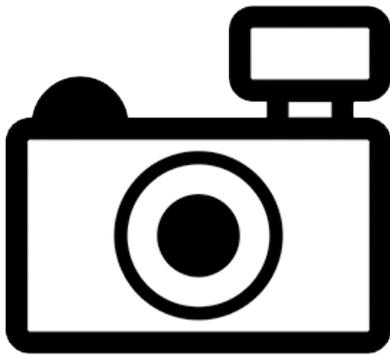


# ***Cherax bicarinatus* (a crayfish, no common name)**

## **Ecological Risk Screening Summary**

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



No Photo Available

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

---

### **Native Range**

From Austin (2010):

“This species is endemic to Australia, and is found in the Northern Territory. It has a patchy distribution and has been recorded in the Blythe River, Maningrida, Arafwa swamp, Blue Mud Bay and Wessel Island (C. Austin pers. comm. 2008). However, its distribution is likely to be greater (C. Austin pers. comm. 2008).”

From Crandall and De Grave (2017):

“ ‘Port Essington, N.T.’ [Northern Territory, Australia]”

### **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 bicarinatus*”

## Means of Introduction into the United States

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

## Remarks

From Austin (2010):

“This species was previously known as *Astacus bicarinatus* (Gray 1845, Erichson 1846)”

From Eprilurahman (2014):

“The identity, of *Cherax bicarinatus*, one of the first described species of *Cherax* has long been perplexing (Clark 1936; Riek 1969; Short 1991; Short & Davie 1993). Described by Gray (1845) as *Astacus bicarinatus* with a type locality of Port Essington (central northern of Northern Territory) it has been variously associated with entirely different species from central and eastern Australia and also from the south west of Western Australia.”

## 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 bicarinatus</i> (Gray in Eyre, 1845)”

“SPECIES | ACCEPTED”

## **Size, Weight, and Age Range**

No information available.

## **Environment**

From Austin (2010):

“[...] found in coastal streams, swamps, and freshwater pools and streams (C. Austin pers. comm. 2008).”

## **Climate/Range**

No information available.

## **Distribution Outside the United States**

Native

From Austin (2010):

“This species is endemic to Australia, and is found in the Northern Territory. It has a patchy distribution and has been recorded in the Blythe River, Maningrida, Arafwa swamp, Blue Mud Bay and Wessel Island (C. Austin pers. comm. 2008). However, its distribution is likely to be greater (C. Austin pers. comm. 2008).”

From Crandall and De Grave (2017):

“ ‘Port Essington, N.T.’ [Northern Territory, Australia]”

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 Riek (1951):

“Sternal keel sharp; areola wide, two and one-half times as long as broad; rostrum two times as long as broad at base, with two pairs of small, lateral spines towards the apex.”

## Biology

From Austin (2010):

“This is a burrowing species [...]”

“In areas where it is located this species is usually locally abundant (C. Austin pers. comm. 2008).”

From Eprilurahman (2014):

“*Cherax bicarinatus* show much less geographic diversity than *C. quadricarinatus* which may indicate it has greater powers of dispersal. This may be due to exploitation of shallow lentic environments such as large freshwater swamps and the ability to burrow in order to survive seasonal droughts.”

## Human Uses

No information available.

## Diseases

From Cannon and Sewell (1995):

“We have recognised the Craspedellinae and include in it 3 genera [*Craspedella*, *Heptacraspedella*, and *Zygopella*] comprising a total of 11 species of temnocephalans, all from the branchial chamber of crayfish and characterised by possession of crenulate tentacles and one or more transverse dorsal papillate ridges.”

“*Zygopella stenota* sp. nov. [...]”

Hosts. *Cherax* c.f. *bicarinatus* (Gray, 1845) [...]”

No OIE-listed diseases have been reported for this species.

## Threat to Humans

No information available.

## 3 Impacts of Introductions

---

No introductions of this species have been reported.

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 [...]

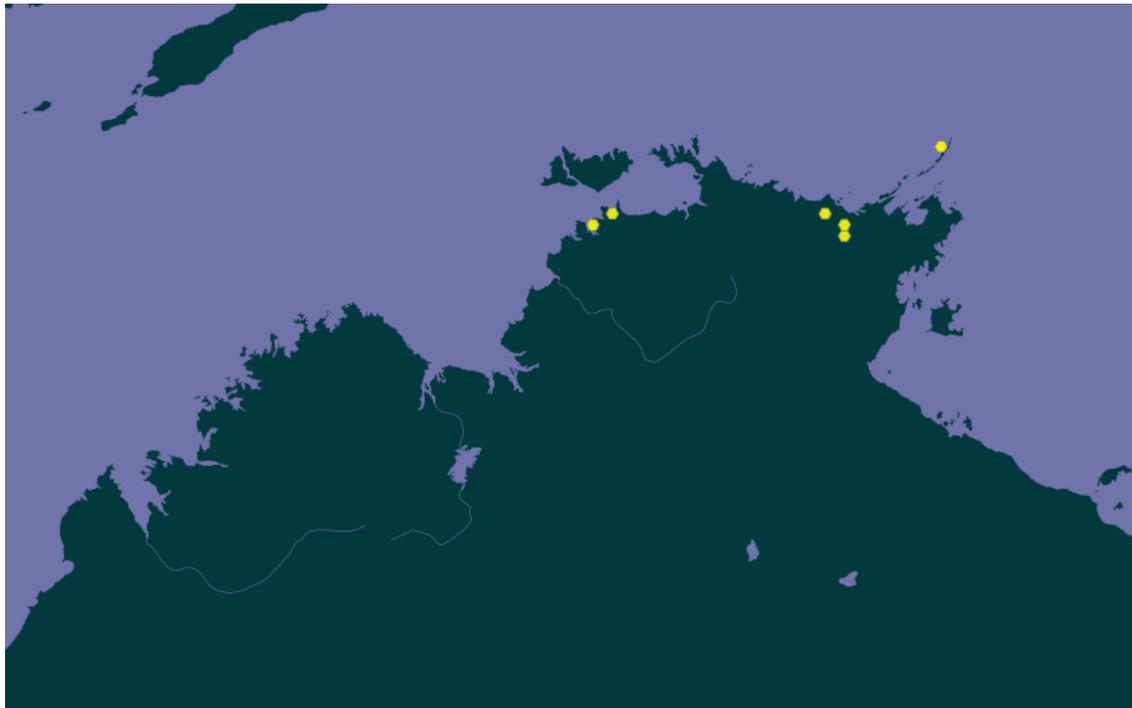
[List of prohibited species includes:]

Crayfish – Genus *Cherax* [...]

*Cherax bicarinatus*”

## 4 Global Distribution

---



**Figure 1.** Map of northern Australia showing known global distribution of *C. bicarinatus*. Map from GBIF Secretariat (2016).

Reliable sources (Austin 2010, Crandall and De Grave 2017) limit the distribution of *C. bicarinatus* to the Northern Territory, Australia. Because of a history of taxonomic confusion surrounding *C. bicarinatus*, locations reported by GBIF Secretariat (2016) in Queensland, New South Wales, Victoria, and South Australia were excluded from the global distribution map (Fig. 1) and from the climate matching analysis.

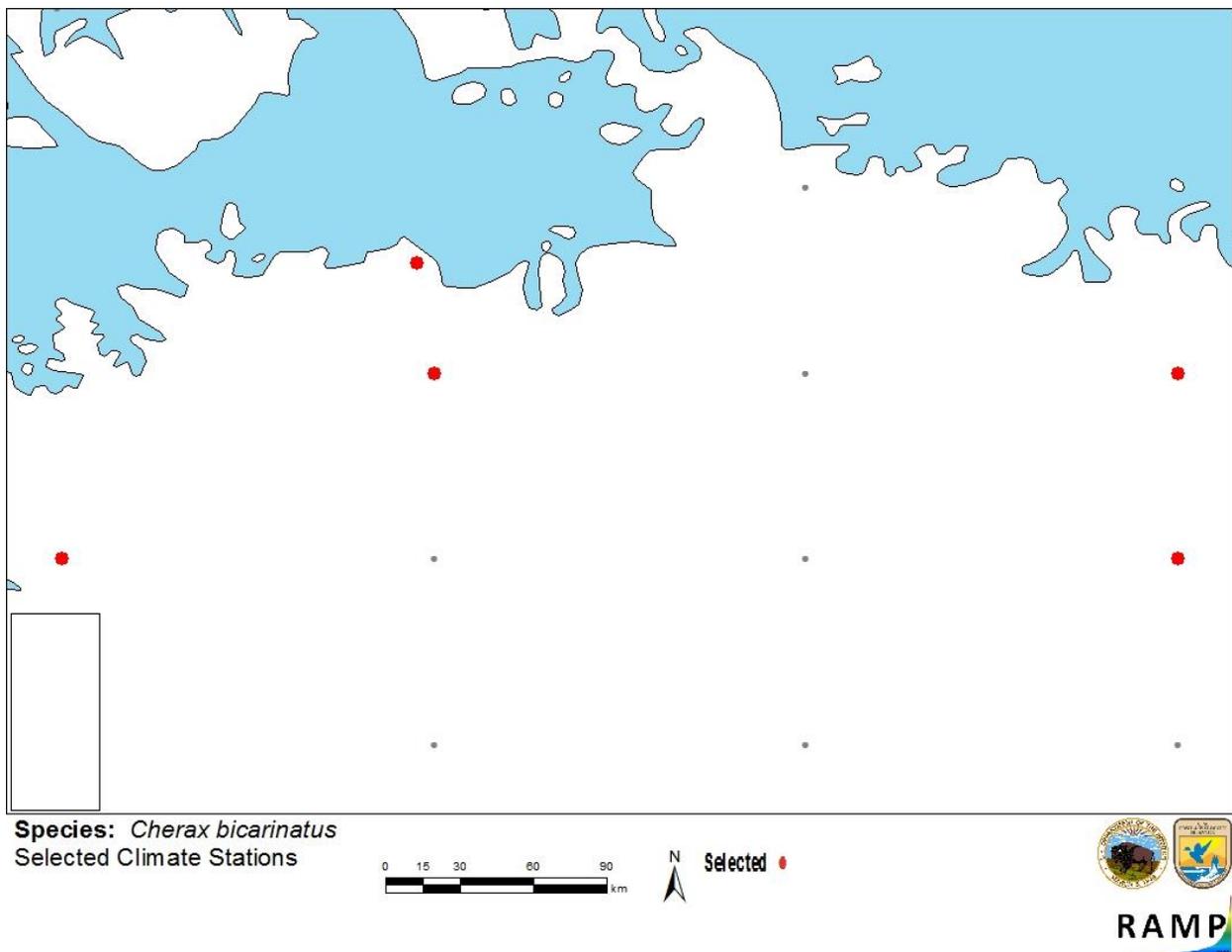
## 5 Distribution Within the United States

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

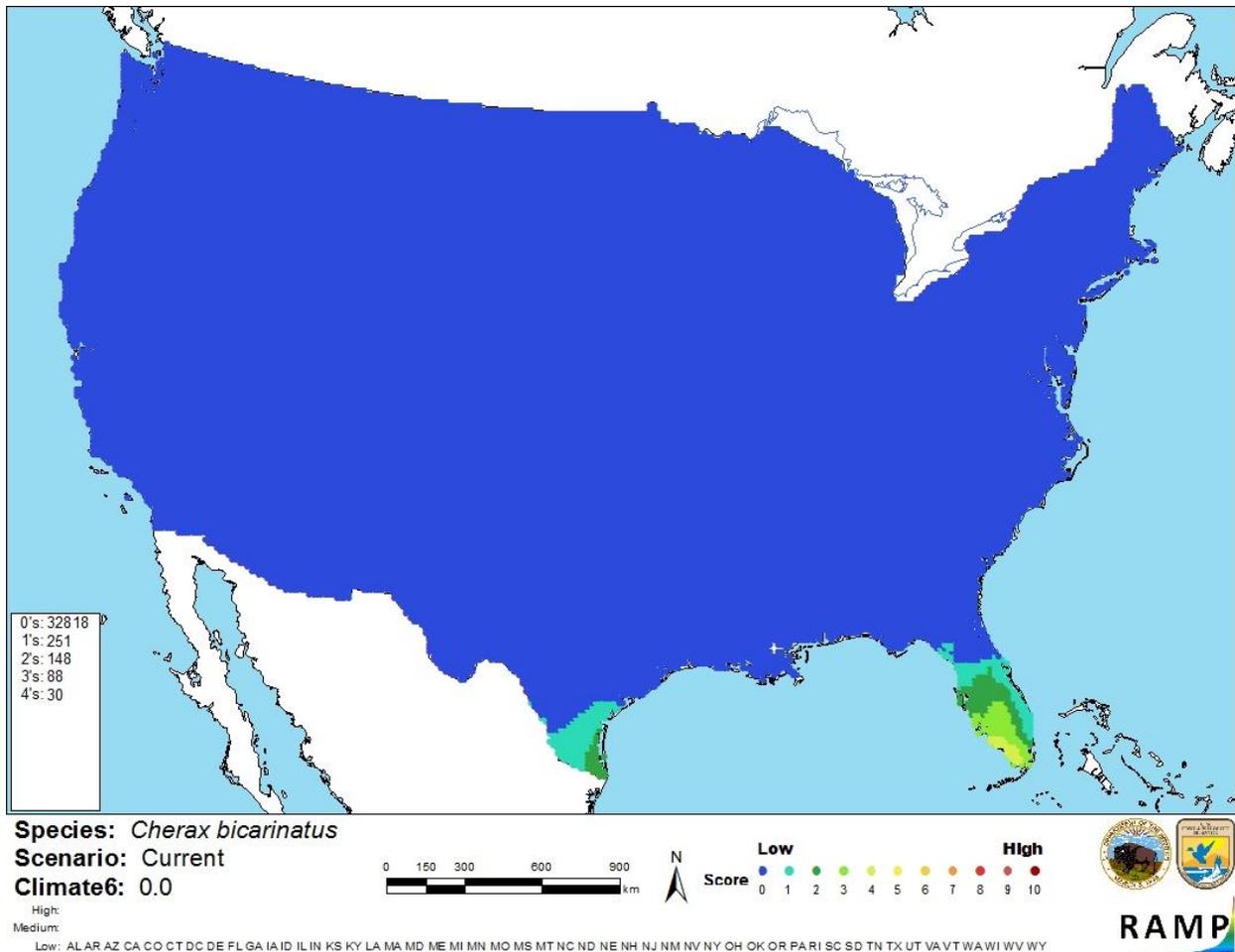
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low for nearly all of the contiguous United States. Only southern Florida showed a medium climate match. Climate 6 score indicated that the contiguous U.S. has a low climate match overall. The range of scores classified as low match is 0.000-0.005; Climate 6 score for *Cherax bicarinatus* was 0.000.



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



**Figure 3.** Map of RAMP (Sanders et al. 2014) climate matches for *Cherax bicarinatus* in the contiguous United States based on source locations reported by GBIF Secretariat (2016). 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 is available on the biology, ecology, and distribution of *Cherax bicarinatus*. No introductions of this species have been reported, so potential impacts of introduction to the U.S. remain unknown. Furthermore, taxonomic uncertainty and confusion has been an issue for this species. Certainty of this assessment is low.

## 8 Risk Assessment

---

### Summary of Risk to the Contiguous United States

*Cherax bicarinatus* is an Australian crayfish native to the Northern Territory. No introductions of this species have been reported, and little is known about its biology although it is a host for a temnocephalan ectoparasite. Climate match to the contiguous U.S. is low. With no known history of introduction outside its native range, *C. bicarinatus* has an overall risk assessment of “Uncertain” for the contiguous U.S.

### 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.**

- Austin, C. M. 2010. *Cherax bicarinatus*. The IUCN Red List of Threatened Species 2010: e.T153665A4529014. Available: <http://www.iucnredlist.org/details/full/153665/0>. (October 2017).
- Cannon, L. R. G., and K. B. Sewell. 1995. Craspedellinae Baer, 1931 (Platyhelminthes: Temnocephalida) ectosymbionts from the branchial chamber of Australian crayfish (Crustacea: Parastacidae). *Memoirs of the Queensland Museum* 38(2):397-418.
- 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.
- Eprilurahman, R. 2014. Molecular taxonomy and evolution of freshwater crayfish of the genus *Cherax* (Decapoda: Parastacidae) from northern Australia and New Guinea. Master’s thesis. Charles Darwin University, Northern Territory, Australia.
- 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. 2016. GBIF backbone taxonomy: *Cherax bicarinatus* (Gray in Eyre, 1845). Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/4648620>. (October 2017).

Riek, E. F. 1951. The freshwater crayfish (family Parastacidae) of Queensland. Records of the Australian Museum 22(4):368-388.

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.**

Clark, E. 1936. The freshwater and land crayfishes of Australia. Memoirs of the National Museum of Victoria 10:5-58.

Erichson, W. F. 1846. Uebersicht der Arten der Gattung *Astacus*. Archiv für Naturgeschichte Berlin xii 88:86-103,375-377.

Gray, J. E. 1845. New species of the genus *Astacus*. Pages 405-411 in E. J. Eyre, editor. Journal of expedition of discovery into Central Australia. T. and W. Boone, London.

Riek, E. F. 1969. The Australian freshwater crayfish (Crustacea: Decapoda: Parastacidae), with descriptions of new species. Australian Journal of Zoology 17:855-918.

Short, J. W. 1991. *Cherax nucifraga*, a new species of freshwater crayfish (Crustacea: Decapoda: Parastacidae) from the Northern Territory, Australia. The Beagle, Records of the Northern Territory Museum of Arts and Science 8:115-120.

Short, J. W., and P. J. F. Davie. 1993. Two species of freshwater crayfish (Crustacea: Decapoda: Parastacidae) from northeastern Queensland rainforest. Memoirs of the Queensland Museum 33:69-80.