

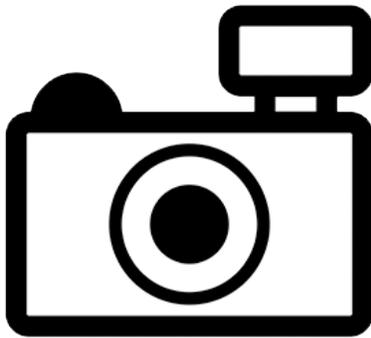
Leckie's Crayfish (*Cherax leckii*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, September 2011

Revised, September 2012, December 2017

Web Version, 5/18/2018



No Photo Available

1 Native Range and Status in the United States

Native Range

From Coughran (2010):

“This species is known only from a tributary of Koreelah Creek in the Koreelah National Park which can be found on the New South Wales/ Queensland Border in Australia (Coughran 2005).”

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 leckii* 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 2017).

From Washington Department of Fish & Wildlife (2017):

“(1) 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 list of prohibited aquatic animal species includes] 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 Coughran et al. (2008):

“Under the Fisheries Management Act 1994, conservation of aquatic fauna in New South Wales falls under the jurisdiction of New South Wales Fisheries, and the IUCN criteria are used in assessing conservation status. At present, with baseline data only just available, there is no means of identifying fluctuations in population size or range (thus precluding assessment under categories A and B). However, category D is of use in assessing the conservation status of *C. leckii*. *Cherax leckii* is known only from a single, highland site. It was not recorded at any of 70 other highland (> 200 m) sites in similar habitat (sclerophyll forest). The species can thus be classified as ‘Vulnerable’ under criterion D, giving a classification of VU D2.”

From Coughran (2010):

“There are a number of potential threats within this species' range: cattle trampling, pesticides and herbicides (used in park maintenance), and climate change (global temperature increase). A new and emerging threat is posed by specimen collection by hobbyists, especially for restricted range species such as this (J. Coughran pers. comm. 2010).”

2 Biology and Ecology

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 leckii</i> Coughran, 2005”

“SPECIES | ACCEPTED”

Size, Weight, and Age Range

From Coughran (2005):

“Size. Maximum OCL [occipital carapace length, i.e., distance between rear of eye socket to posterior edge of carapace] 26.5 mm.”

Environment

From Coughran (2010):

“Freshwater”

From Coughran (2005):

“Aside from occasional pools, most of the habitat was generally void of surface water during both collecting trips.”

Climate/Range

From Coughran (2005):

“The record of *Cherax leckii* from only one highland site (640 m) is unusual for the genus, and most records for *Cherax* are from elevations below 400 m (Short & Davie, 1993, and references therein).”

Distribution Outside the United States

Native

From Coughran (2010):

“This species is known only from a tributary of Koreelah Creek in the Koreelah National Park which can be found on the New South Wales/ Queensland Border in Australia (Coughran 2005).”

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 Coughran (2005):

“Cephalon smooth and finely punctate, lacking a median carina. Rostrum lacking distinct spines, with at most one poorly developed tubercle per side at the anterior terminus of the rostral carinae. Rostral carinae curved apically, and posteriorly not extending as far back as the anterior end of the postorbital ridges. Post-orbital ridges reduced. Mesial margin of antennal squame semi-circular in shape. Areola approximately 5 times longer than broad. Lateral margin of propodus calcified. Setation absent on merus, and very sparse or absent on carpus. 1 large, curved mesial carpal spine, and 0–2 small, secondary spines. Propodus with moderate setation along mesial margin, and 6–9 moderately developed tubercles extending to approximately 65–75% of the palm length. Keel high and sharp, with sides virtually parallel between LPr [lateral process to pereopod] 3 and LPr 4, and entire apart from a distinct notch at LPr 2. Posterior margins of LPr 4 angular, and with narrow openings present on postero-lateral surfaces.”

“Body colour variable. Dorsally, usually brown, green-brown or blue-grey. Some individuals with blue in places (e.g. carapace margins). Ventrally, pale cream or blue-grey. Propodus dorsally green or brown. Lateral margin of propodus a striking orange-red, increasing in intensity apically. Chelae ventrally cream, orange or pale yellowbrown with a dark, chocolate mesial margin. Chelae often darker near cutting edges.”

Biology

From Coughran (2005):

“Aside from occasional pools, most of the habitat was generally void of surface water during both collecting trips. Farther upstream, where water was present in a pool overlying a solid bedrock section, a small specimen was observed to be in the process of moulting, directly in the stream body. Animals were caught from beneath rocks in shallow depressions and both simple and multi-chambered burrows. In one case, two animals were retrieved from one burrow. The undeveloped eggs of Leckie's crayfish are soft blue-grey in colour.”

“[...] it appears that females mature as they approach 20 mm OCL. An aberrant animal collected on the return visit to the site (not preserved) bore two male and two female gonopores. This animal had an OCL of 26.5 mm, and the female gonopores were still calcified.”

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.

The Florida Fish and Wildlife Conservation Commission (FFWCC 2017) and the Washington Department of Fish and Wildlife (2017) have listed this species as a prohibited species.

4 Global Distribution

No georeferenced occurrences of *C. leckii* were found.



Figure 1. Known global distribution of *Cherax leckii*. Map from GBIF Secretariat (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) was medium along the Atlantic Coast from Florida to southern New Jersey. Much of West Virginia also showed medium climate match. The climate match was low for the remainder of the contiguous U.S. Climate 6 score indicated that overall, the contiguous U.S. has a low climate match. The range of scores indicating a low climate match is 0.000-0.005; Climate 6 score for *Cherax leckii* was 0.000.

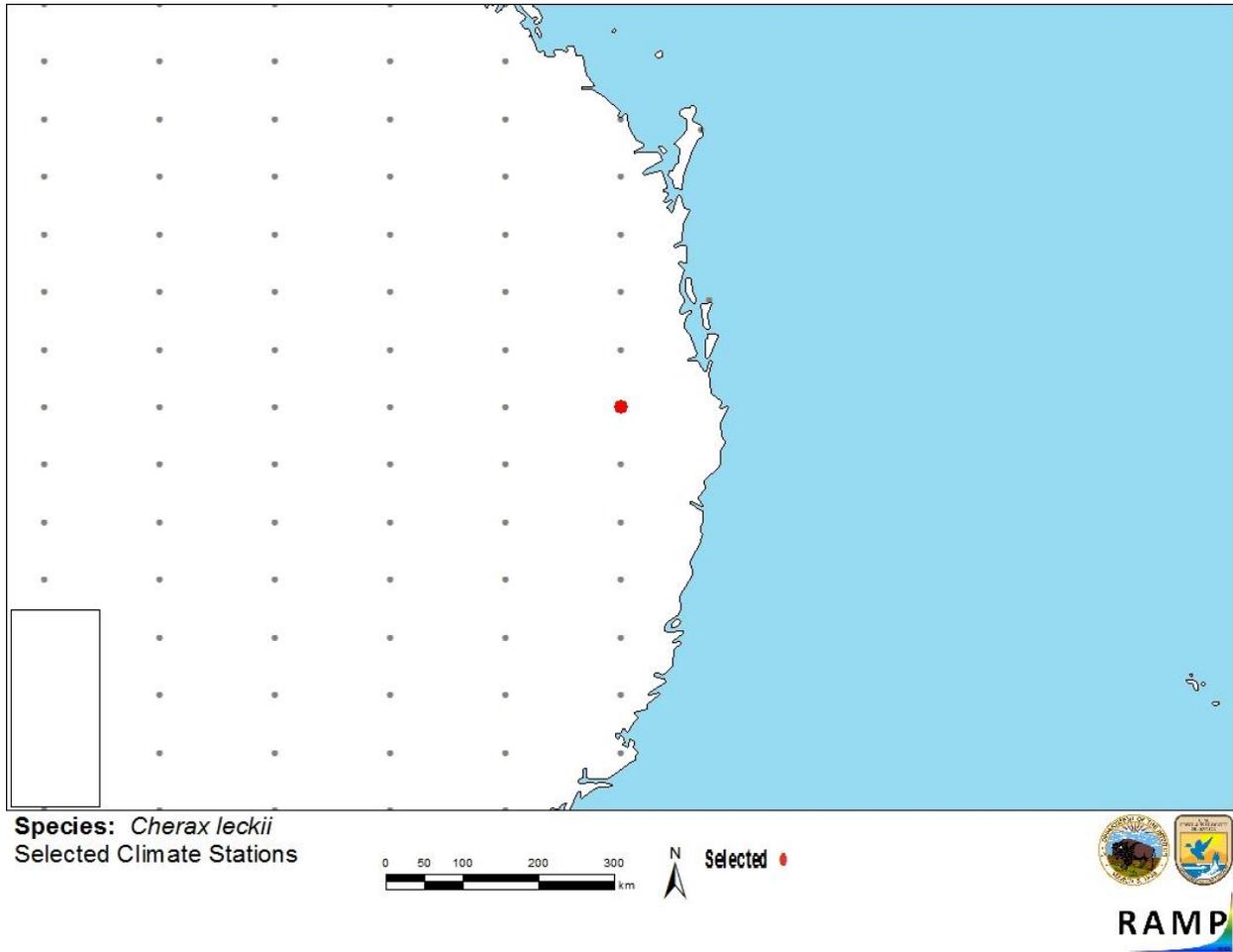


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *Cherax leckii* climate matching. Source locations from GBIF Secretariat (2017).

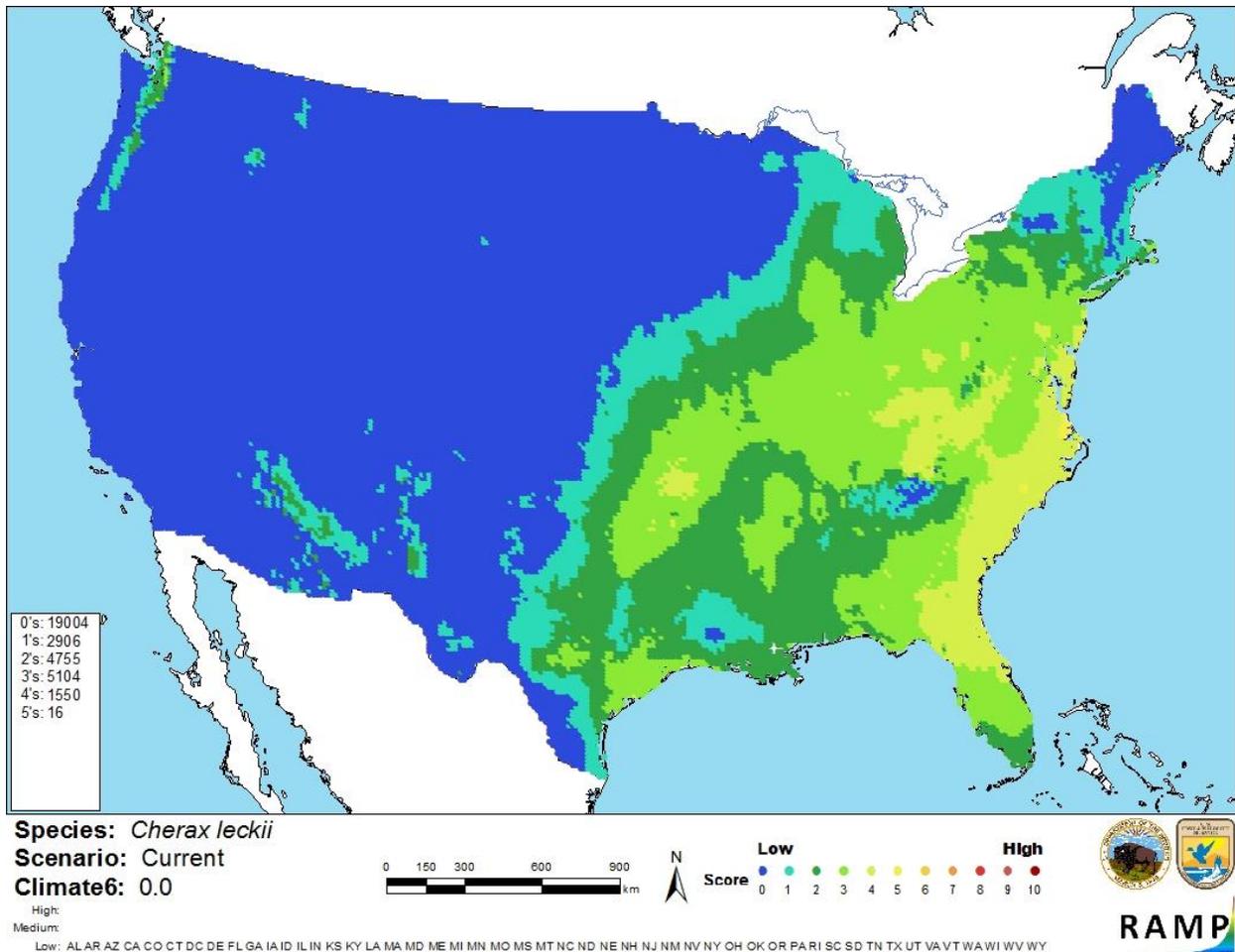


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cherax leckii* in the contiguous United States based on source locations reported by GBIF Secretariat (2017). 0=Lowest match, 10=Highest match.

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
≥ 0.103	High

7 Certainty of Assessment

Information on the biology, ecology, and distribution of *C. leckii* is mostly limited to just two recent papers written about the species. No introductions of the species have been reported, so impacts of introduction remain unknown. Without further information, the certainty of this assessment is low.

8 Risk Assessment

Summary of Risk to the Contiguous United States

Cherax leckii is a crayfish species with a restricted native distribution in northern New South Wales, Australia. The climate matching analysis indicated a low match overall to the contiguous U.S., although medium matches occurred in some eastern states. This species was discovered relatively recently with a very limited range, so the history of invasiveness is likely nonexistent. However, without evidence to the contrary, the potential for injurious impact is still present. Florida and Washington prohibit the possession or trade of *C. leckii*. 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

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

Coughran, J. 2005. *Cherax leckii* n. sp. (Decapoda: Parastacidae): a new crayfish from coastal, northeastern New South Wales. *Fishes of Sahul* 19(4):191-196.

Coughran, J., S. Leckie, and D. Gartside. 2008. Distribution, habitat and conservation status of the freshwater crayfishes, *Cherax cuspidatus* Riek and *Cherax leckii* Coughran (Decapoda: Parastacidae). *Freshwater Crayfish* 16:19-26.

Coughran, J. 2010. *Cherax leckii*. The IUCN Red List of Threatened Species 2010: e.T184424A8274399. Available: <http://www.iucnredlist.org/details/full/184424/0>. (December 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/>. (November 2017).

GBIF Secretariat. 2017. GBIF backbone taxonomy: *Cherax leckii* Coughran, 2005. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5789929>. (December 2017).

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>. (November 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.

Short, J. W., and P. J. F. Davie. 1993. Two new species of freshwater crayfish (Crustacea: Decapoda: Parastacidae) from northeastern Queensland rainforest. *Memoirs of the Queensland Museum* 34(1):69-80.