Koonac (*Cherax preissii*)
Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, September 2011
Revised, September 2012 and April 2018
Web Version, 5/21/2018

Native Range and Status in the United States

**Native Range**
From Austin (2010):

“This species is endemic to south-west coastal areas of Western Australia and has a relatively uniform distribution due to its ability to tolerate a range of habitat types (Morgan and Beatty 2005). This species ranges from Cannington near Perth, to Albany.”

**Status in the United States**
This species has not been reported in the United States.
The Florida Fish and Wildlife Conservation Commission has listed the crayfish *Cherax preissii* 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 & Wildlife (2018):

“(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 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 in the United States.

**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 preissii* (Species)”

“Status accepted”

**Size, Weight, and Age Range**

From Department of Fisheries (2011):

“[…] growing up to 200 mm in total length.”

At four different wetlands in the Swan Coastal Plain of southwestern Western Australia, Emery-Butcher (2016) reports average lengths of *C. preissii* ranging from 30.0 to 41.1 (occipital carapace length in mm).
**Environment**
From Austin (2010):

“This is a burrowing species and is found in a range of habitat types including rivers, streams, ponds and swamps indicating that it is a habitat generalist. It occurs in both permanent and temporary freshwater systems (Morgan and Beatty 2005).”

From Emery-Butcher (2016):

“Substrates high in fine organic particles may also remove dissolved oxygen from the water which can be detrimental to species like *C. preissii* that prefer higher concentrations of dissolved oxygen (Austin 2010).”

“[…] generally prefers ephemeral lentic habitats.”

**Climate/Range**
From Department of Fisheries (2011):

“[…] their distribution is further inland than that of marron [*C. cainii, C. tenuimanus*]”

**Distribution Outside the United States**
Native
From Austin (2010):

“This species is endemic to south-west coastal areas of Western Australia and has a relatively uniform distribution due to its ability to tolerate a range of habitat types (Morgan and Beatty 2005). This species ranges from Cannington near Perth, to Albany.”

Introduced
No introductions into natural systems have been reported.

**Short Description**
From Department of Fisheries (2011):

“Koonacs have four keels on the head and two are very prominent. Koonacs have no spines on the rostrum or telson. The chelipeds (claws) are unique, being very broad and serrated on the inside edge. Koonacs are usually very dark in colour, ranging from blue-black to mottled brown-black.”
**Biology**
From Austin (2010):

“It has an active dispersal rate and is able to survive extended periods out of water (Gouws, Stewart and Daniels 2006).”

“This species is locally threatened by competition from both *Cherax destructor* and *Cherax quinquecarinatus* to a lesser degree (Lynas *et al.* 2007). It is also likely to be impacted by drought in areas of water abstraction, urbanization, and land conversion for agriculture (C.M. Austin pers. comm. 2008). However, this species is widespread and common throughout much of its range implying it may only be locally threatened. This species is undergoing more significant declines in the northerly extent of its range, around Perth, where it is threatened by intense urbanization (C.M. Austin pers. comm. 2008).”

From Emery-Butcher (2016):

“*Cherax preissii* was found only in the absence of other crayfish.”

**Human Uses**
Faulkes (2015) reports the presence of *C. preissii* in the pet trade of Germany and the Czech Republic, citing Chucholl (2013) and Patoka *et al.* (2014, 2015), respectively.

From Patoka *et al.* (2015):

“The highest recorded retail price per individual [ornamental crayfish in the Czech Republic] was slightly above €25 (for *Cherax cainii*, *C. preissii* and *C*. sp. Blue Moon).”

**Diseases**
Longshaw and Stebbing (2016) report that *C. preissii* is a host for *Temnocephala chaeopsis*.

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

**Threat to Humans**
No data or information available.

**3 Impacts of Introductions**
No introductions into natural systems have been reported.

Patoka *et al.* (2014) use the Freshwater Invertebrate Invasiveness Scoring Kit (FI-ISK) to estimate a potential invasiveness (FI-ISK score) of 3 and a risk category (FI-ISK category) of medium for *C. preissii* in the Czech Republic.
From Patoka et al. (2014):

“The FI-ISK score for NICS [non-indigenous crayfish species] ranged between 3 and 27 […] No species were classified into the low-risk category but 21 species were classified as medium-risk, and five species were classified as high-risk in accordance with FI-ISK calibration (Tricarico et al. 2010) […]”

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

![Map of Australia with Cherax preissii distribution points](image)

**Figure 1.** Reported global distribution of *Cherax preissii*. Map from GBIF Secretariat (2017).

5 Distribution within the United States

This species has not been reported 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 in California and parts of the Pacific Northwest. The remainder of the contiguous U.S. showed low climate match. Climate 6 score indicated that the contiguous U.S. has a low climate match overall. Climate 6 scores of 0.005 and below are classified as low match; Climate 6 score for C. preissii was 0.004.

Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations in Australia selected as source locations (red; southwestern Australia) and non-source locations (gray) for Cherax preissii climate matching. Source locations from GBIF Secretariat (2017).
Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *Cherax preissii* in the contiguous United States based on source locations reported by 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:

<table>
<thead>
<tr>
<th>Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)</th>
<th>Climate Match Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000≤X≤0.005</td>
<td>Low</td>
</tr>
<tr>
<td>0.005&lt;X≤0.103</td>
<td>Medium</td>
</tr>
<tr>
<td>≥0.103</td>
<td>High</td>
</tr>
</tbody>
</table>

7 Certainty of Assessment

Limited information is available in biology, ecology, and distribution of *Cherax preissii*. No introductions of this species have been reported, so impacts of introduction remain unknown. The certainty of this assessment is low.
8 Risk Assessment

Summary of Risk to the Contiguous United States

*Cerax preissii* is a crayfish species native to southwestern Australia. It is present in the pet trade in Germany and the Czech Republic, but no introductions into natural habitats have been reported. Because of the lack of introduction history, history of invasiveness is rated “uncertain” for this risk screening summary. However, the States of Florida and Washington have prohibited the trade, transport, and possession of this species along with most other *Cerax* species because of expected risks to the ecology and people of those states. Climate match to the contiguous U.S. is low, with highest match occurring in California. Overall risk posed by *C. preissii* to the contiguous U.S. 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 9.


Emery-Butcher, H. 2016. The distribution and habitat association of native and introduced crayfish in urban wetlands. Honors thesis. Murdoch University, Western Australia, Australia.


### 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.

