

# ***Cipangopaludina lecythis* (a gastropod, no common name)**

## **Ecological Risk Screening Summary**

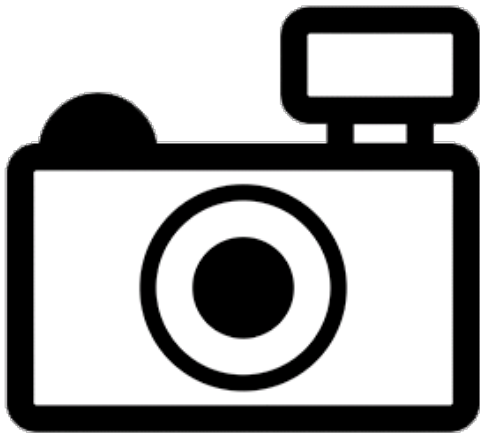
U.S. Fish & Wildlife Service, March 2022

Revised, March 2022

Web Version, 7/28/2022

Organism Type: Gastropod

Overall Risk Assessment Category: Uncertain



No Photo Available

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

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### **Native Range**

From Lu et al. (2014):

“Distribution: Yunnan, China. Burma (Kobelt, 1909).”

### **Status in the United States**

No records of *Cipangopaludina lecythis* in trade or in the wild in the United States were found.

### **Means of Introductions in the United States**

No records of *Cipangopaludina lecythis* in the wild in the United States were found.

## Remarks

Synonymized names for this species are *C. ampulliformis* (Lu et al. 2014) and *Paludina lecythis* Benson, 1836 (Bouchet 2014).

From Lu et al. (2014):

“Typically, viviparid species inhabit lakes, ponds, and lentic rivers of temperate to tropical region (Strong et al, 2008; Ying et al, 2013), explaining their wide global distribution across every continent save for South America and Antarctica (Brown, 1994). In China, the existing taxonomy for Viviparidae includes approximately 61 recognized species in 9 genera (Du et al, 2011; Liu, 1991; Wang & Xie, 2005; Yen, 1943): *Viviparus* Montfort, 1810, *Bellamyia* Jousseaume, 1886, *Filopaudina* Habe, 1964, *Mekongia* Crosse et Fischer, 1876, *Angulyagra* Benson, 1836, *Margarya* Nevill, 1877, *Rivularia* Heude, 1890 and *Trochotaia* Brandt, 1974, *Cipangopaludina* Hannibal, 1912. The last genus, *Cipangopaludina* is particularly interesting as a diverse genus mainly distributed in China, Japan, Korea, Thailand, Vietnam, Laos, India, Burma and Malaya (Brandt, 1974; Liu et al, 1993) that is comprising of 35 species and subspecies (Global Names Index; <http://gni.Globalnames.org>), there has been substantial debate on the taxonomy of *Cipangopaludina*. Hannibal (1912) had previously proposed *Cipangopaludina* as a subgenus of *Idiopoma*, based on invasive specimens collected in California which were identified as *Paludina malleata* Reeve. Meanwhile, Annandale (1920) proposed *Lecythoconcha* as a distinct genus for *Paludina lecythis* Benson while Prashad (1928) argued that *Lecythoconcha* was invalid and adopted the name *Cipangopaludina*.”

“Kobelt (1909) list *C. lecythis ampulliformis* (Souleyet) as a subspecies of *C. lecythis*, which are distributed in both Burma and Yunnan, China. According to Kobelt (1909) it is difficult to distinguish between these two species, so we opted to treat *C. lecythis ampulliformis* as synonymous with *C. lecythis*.”

“Finally, *Cipangopaludina wingatei* and *C. ampulliformis* were found to be synonyms of *C. chinensis* and *C. lecythis*, respectively.”

## 2 Biology and Ecology

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### Taxonomic Hierarchy and Taxonomic Standing

From Bouchet (2014):

“Animalia (Kingdom) > Mollusca (Phylum) > Gastropoda (Class) > Caenogastropoda (Subclass) > Architaenioglossa (Order) > Viviparoidea (Superfamily) > Viviparidae (Family) > Bellamyinae (Subfamily) > *Cipangopaludina* (Genus) > *Cipangopaludina lecythis* (Species)”

“Status            accepted”

## Size, Weight, and Age Range

From Lu et al. (2014):

“Shell larger, up to 60 mm”

## Environment

From Bouchet (2014):

“Fresh [water]”

## Climate

No information available on climate for this species.

## Distribution Outside the United States

Native

From Lu et al. (2014):

“Distribution: Yunnan, China. Burma (Kobelt, 1909).”

Introduced

No records of introductions were found for *Cipangopaludina lecythis*.

## Means of Introduction Outside the United States

No records of introductions were found for *Cipangopaludina lecythis*.

## Short Description

From Lu et al. (2014):

“Shell larger, up to 60 mm, brown greenish, with 7 whorls. Apex pointed. Spiral whorl depth shorter than aperture depth. Whorls inflated, with a shoulder. Aperture ellipse, the upper of aperture form a straight shoulder. Umbilicus small or closed. Osphradium ridge-like, shorter than length from anterior tip of osphradium to mantle border. Gill filaments same with *C. chinensis* [Gill filaments very tall and narrow, arched towards right and apex slightly pointed, close to food groove.]. Vas deferens with 2 main branches and the first anterior branch with 4 parallel secondary branches. Vas deferens opens in last 1/4 of testis. Pouch filled with about 37 embryos in various stages of development. Embryos with 3-4 whorls, body whorl with 2 chaetae and other whorls with 1 chaetae.”

“*Cipangopaludina lecythis* can be distinguished from other species of this genus by its special aperture shape, the upper of aperture straight and form a flat shoulder.”

“Similarly, *Cipangopaludina ampullacea* and *C. lecythis*, *C. fluminalis* and *C. chinensis* can be distinguished by shell characteristics, but they do not appear to possess any obviously distinctive

anatomy, placing *C. ampullacea* and *C. fluminalis* as a subspecies of *C. lecythis* and *C. chinensis*, respectively.”

## **Biology**

From Bouchet (2014):

“Feedingtype grazer [...] filter feeder”

## **Human Uses**

No information on human uses was found for *Cipangopaludina lecythis*.

## **Diseases**

**No records of OIE-reportable diseases (OIE 2022) were found for *Cipangopaludina lecythis*.**

No information on diseases was found for *Cipangopaludina lecythis*.

## **Threat to Humans**

No information on threat to humans was found for *Cipangopaludina lecythis*.

## **3 Impacts of Introductions**

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*Cipangopaludina lecythis* has not been reported as introduced or established outside of its native range; therefore, impacts of introductions are unknown.

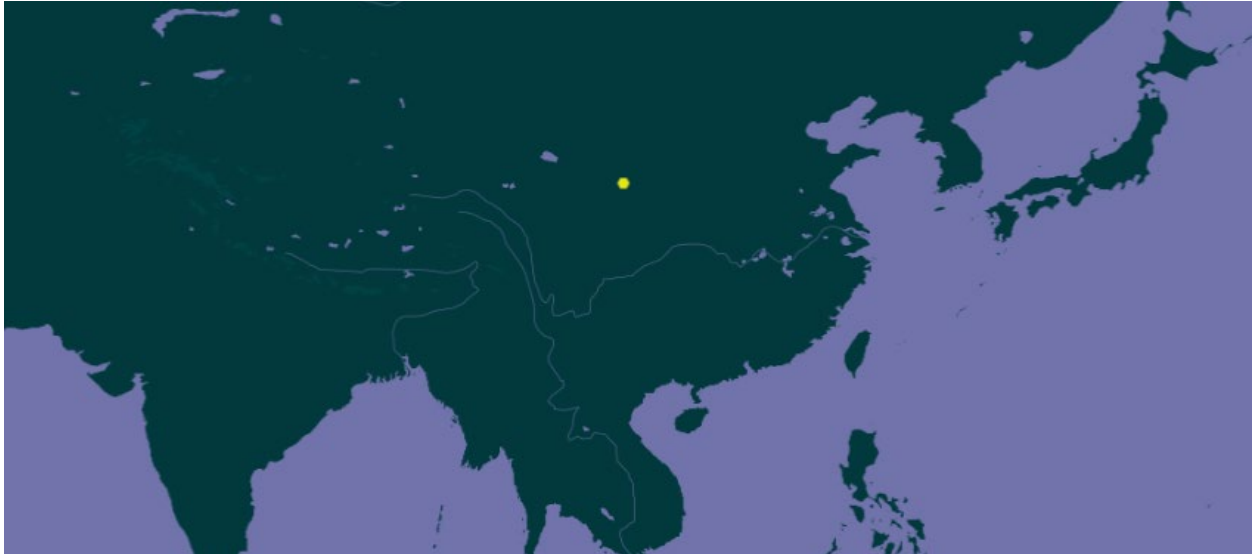
## **4 History of Invasiveness**

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*Cipangopaludina lecythis* has not been reported as introduced or established outside of its native range. This species is not present in trade. The history of invasiveness is classified as No Known Nonnative Population.

## 5 Global Distribution

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**Figure 1.** Known global distribution of *Cipangopaludina lecythis*. Observations are reported from China. Map from GBIF Secretariat (2022). Other locations (India and Burma) were described for this species but no evidence on establishment was found, and no georeferenced locations were found for those locations; they were excluded from the climate match analysis.

## 6 Distribution Within the United States

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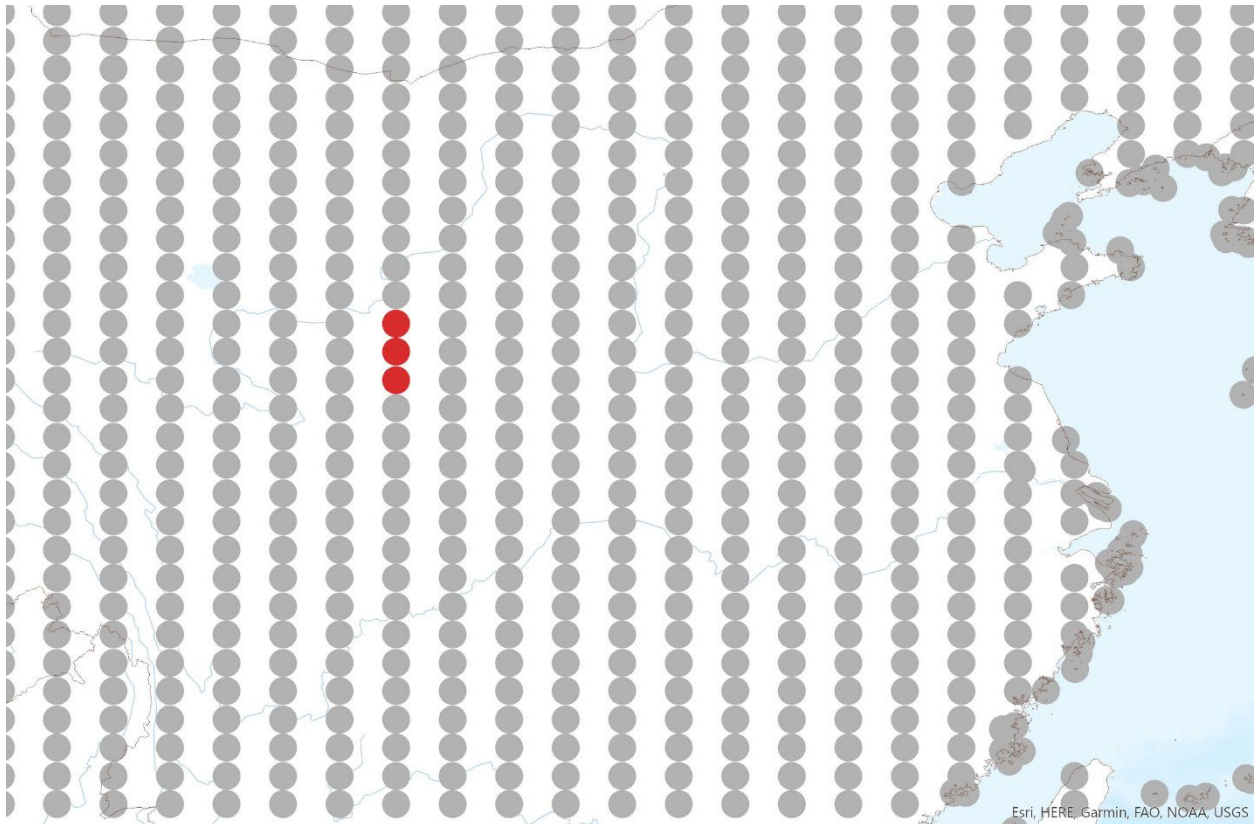
*Cipangopaludina lecythis* has not been reported in the wild within the United States.

## 7 Climate Matching

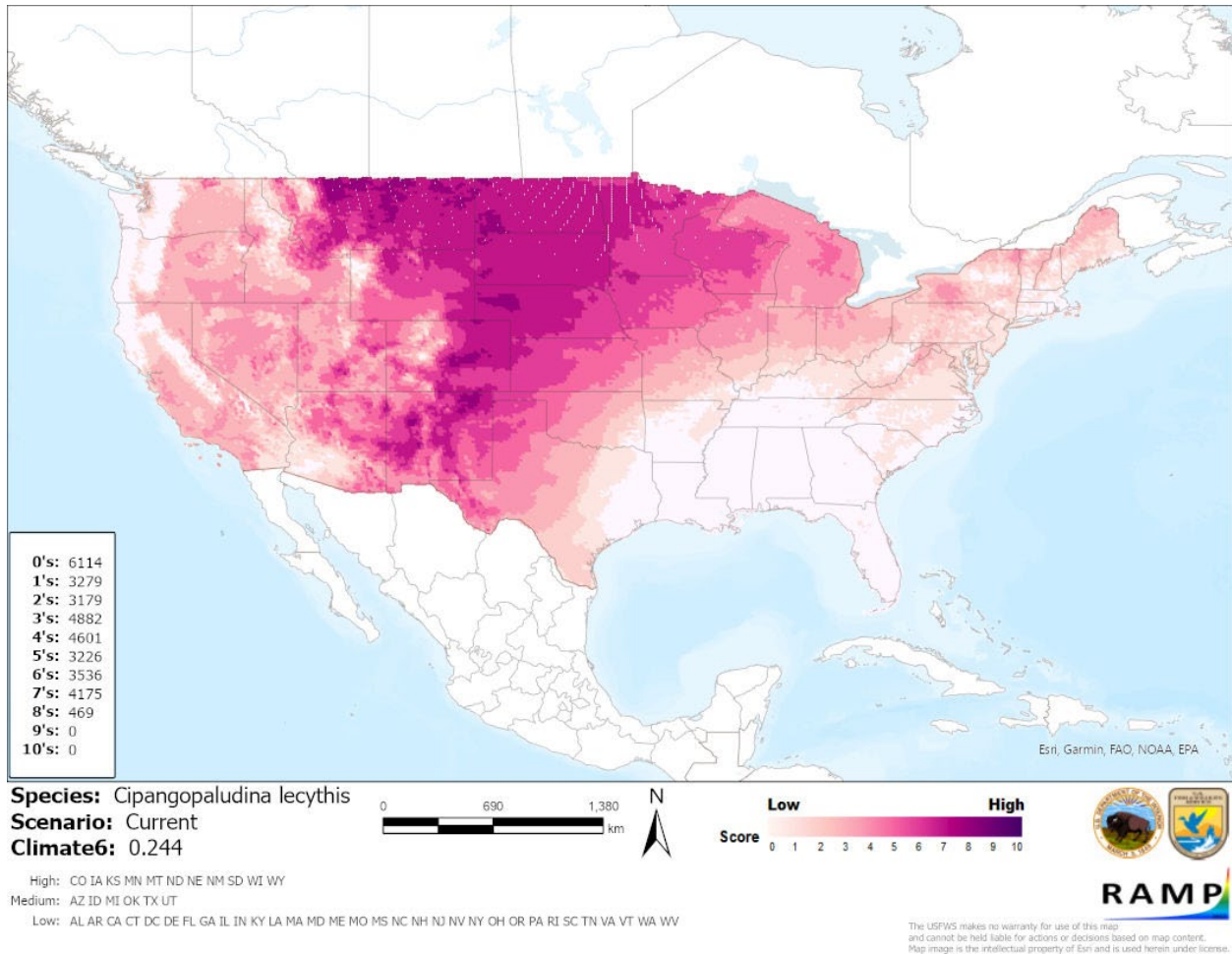
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### Summary of Climate Matching Analysis

The climate match for *Cipangopaludina lecythis* to the contiguous United States was the highest in Northern Midwest with high to medium areas throughout the Midwestern region. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.244, High. (Scores equal to or greater than 0.103 are classified as high.) The following States had high individual Climate 6 scores: Colorado, Iowa, Kansas, Minnesota, Montana, North Dakota, Nebraska, New Mexico, South Dakota, Wisconsin, and Wyoming. The following States had medium individual scores: Arizona, Idaho, Mississippi, Oklahoma, Texas, and Utah. All other States had low individual scores. Georeferenced locations were limited to use for the climate match and the native distribution of this species is relatively unknown.



**Figure 2.** RAMP (Sanders et al. 2021) source map showing weather stations in China selected as source locations (red; China) and non-source locations (gray) for *Cipangopaludina lecythis* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.



**Figure 3.** Map of RAMP (Sanders et al. 2021) climate matches for *Cipangopaludina lecythis* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 8 Certainty of Assessment

The certainty of assessment is Low. No records of introductions were found for *Cipangopaludina lecythis*; therefore, there is no information on impacts of introduction. Georeferenced observations are limited to generate the climate match. This may reduce the

certainty in the interpretation of the climate match results. Additionally, the bulk of the scientific literature for this species was not available in English, further reducing certainty of assessment.

## 9 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Cipangopaludina lecythis* is a freshwater gastropod native to Yunnan, China. The actual distribution of this species is uncertain; there are reports of this species being found in India and Burma, but these reports were not conclusive, and the locations were not used in the climate match analysis. *Cipangopaludina lecythis* is not present in trade anywhere in the world. No introductions outside of its native range have been reported; the history of invasiveness is classified as No Known Nonnative Population. Overall climate match with the contiguous United States is High. Areas of high match were found mainly in the center of the country and along the northern to southern borders. The certainty of this assessment is Low due to a lack of information regarding this species' history of invasiveness and the overall lack of information on this species. The overall risk assessment category for *Cipangopaludina lecythis* is Uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information:** There is a lot of uncertainty on this species' distribution and taxonomy.
- **Overall Risk Assessment Category: Uncertain**

## 10 Literature Cited

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.**

Bouchet P. 2014. *Cipangopaludina lecythis* (Benson, 1836). World Register of Marine Species. Available: <https://www.marinespecies.org/aphia.php?p=taxdetails&id=827262#attributes> (March 2022).

Lu HF, Du LN, Li Zhi-Qiang, Chen XY, Yang JX. 2014. Morphological analysis of the Chinese *Cipangopaludina* species (Gastropoda; Caenogastropoda: Viviparidae). *Zoological Research* 35(6):510–527.

GBIF Secretariat. 2022. GBIF backbone taxonomy: *Cipangopaludina lecythis* (Benson, 1836). Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/species/5783946/metrics/6525791> (March 2022).

[OIE] World Organisation for Animal Health. 2022. Animal diseases. Available: [https://www.oie.int/en/?s=&\\_search=Cipangopaludina+lecythis](https://www.oie.int/en/?s=&_search=Cipangopaludina+lecythis) (March 2022).

Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

## 11 Literature Cited in Quoted Material

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**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.**

Annandale N. 1920. The Indian genera of Viviparidae. Records of the Indian Museum 19:114–115.

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Strong EE, Gargominy O, Ponder WF, Bouchet P. 2008. Global diversity of gastropods (Gastropoda: Mollusca) in freshwater. Hydrobiologia 595:149–166.

Wang S, Xie Y. 2005. China species Red List (Volume III). Invertebrates. Beijing: Higher Education Press. (In Chinese.)

Yen TC. 1943. A preliminary revision of the recent species of Chinese Viviparidae. The Nautilus 56(4):124–130.

Ying T, Fürsich FT, Schneider S. 2013. Giant Viviparidae (Gastropoda: Architaenioglossa) from the early Oligocene of the Nanning Basin (Guangxi, SE China). *Neues Jahrbuch für Geologie und Paläontologie* 267:75–87.