

Marsh pondsnail (*Stagnicola palustris*)

Ecological Risk Screening Summary

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1 Native Range and Status in the United States

Native Range

From Cordeiro and Perez (2012):

“Hubendick (1951) lists the North American range of *Lymnaea palustris* (now recognized as *Stagnicola elodes* [both now currently recognized as junior synonyms of *Stagnicola palustris*, see Remarks below] and distinct from Eurasian forms) as occurring from western Newfoundland to Alaska with a likely isolated area of distribution in central Mexico and possibly northern Labrador. Burch (1989) cites New England west to Oregon and California, and south to New

Mexico; it is also widely distributed in the Canadian Interior Basin. It also occurs south to central Mexico (Thompson 2008).”

“*S. palustris* in Europe may be the same species, but this is uncertain (J. Cordeiro pers. comm. 2010). If this were the case, then the distribution would range over 3 million km².”

From NatureServe (2015):

“This species is widely distributed from New England west to Oregon and California, south to New Mexico; widely distributed in the Canadian Interior Basin. It also occurs south to central Mexico.”

Status in the United States

From NatureServe (2015):

“It has been documented in Alaska in the North Gulf Coast, central interior, southwest, and potentially other areas (Baxter, 1987). In Missouri, it is found only in Upper and Lower Missouri divisions of the Prairie Region, and the Lowland Region in Linn, Mercer, Saline, and Scott Cos. (Wu et al., 1997). In Indiana, Pyron et al. (2008) found it in 17 sites in the Wabash, Tippecanoe, St. Joseph, White, Ohio, and Big Blue drainages and Jokinen (2005) documented it in Indiana Dunes National Lakeshore. In Pennsylvania, it occurs in the Susquehanna basin at a single site (Evans and Ray, 2010). Freeman and Perkins (1992) documented it in Nebraska in the Platte River Valley, Sarpy Co. Freeman and Perkins (1997) found it in the Niobrara River, Nebraska on the western half.”

Means of Introductions in the United States

No records of introductions of *Stagnicola palustris* or any of its synonyms were found.

Remarks

There is some disagreement on nomenclature of this species. Bouchet et al. (2016) lists *Stagnicola palustris* (Muller, 1774) as the accepted name and only *Lymnaea palustris* (Muller, 1774) as a synonym. Cordiero and Perez (2012) list *Stagnicola elodes* (Say, 1821) as the accepted name with *Lymnaea elodes* (Say, 1821), *Lymnaea palustris* (Muller, 1774), *Stagnicola palustris* (Muller, 1774), and *Stagnicola reflexa* (Say, 1821) as synonyms.

For this assessment, *Stagnicola palustris* was treated as the senior synonym with information from North American databases on *Stagnicola elodes*.

From NatureServe (2015):

“Burch (1989) considers *Stagnicola reflexa* a morph of *Stagnicola elodes*. The genus *Stagnicola* Leach in Jeffreys, 1830, is based on the European *Buccinum palustre* Muller, 1774. Jackiewicz (1959) has shown that several distinct species have been erroneously listed under the name *palustris*. The anatomical type utilized by Muller for his species is not known and therefore, Burch (1989) and Turgeon et al. (1998) have chosen not to recognize *Stagnicola palustris* in

North America but to utilize the first name applied specifically [sic] to a North American *palustris*-like snail, Say's *Lymnaea elodes* (Say, 1821).”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From Bouchet et al. (2016):

“Accepted scientific name: *Stagnicola palustris* (O. F. Müller, 1774) (accepted name)

Synonyms: *Lymnaea paulstris* (O. F. Müller, 1774) (synonym)”

“Kingdom Animalia
Phylum Mollusca
Class Gastropoda
Order Hygrophila
Superfamily Lymnaeoidea
Family Lymnaeidae
Genus *Stagnicola*”

From ITIS (2016):

“Taxonomic Status:
Current Standing: valid”

“Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Protostomia
Superphylum Lophozoa
Phylum Mollusca
Class Gastropoda
Order Basommatophora
Family Lymnaeidae
Genus *Lymnaea*
Species *Lymnaea palustris*”

Size, Weight, and Age Range

No information on the size, weight, and age range of *Stagnicola palustris* was found.

Environment

No information on the environmental conditions required by *Stagnicola palustris* was found.

Climate/Range

No information on the climate range of *Stagnicola palustris* was found.

Distribution Outside the United States

Native

Some of the native range of *Stagnicola palustris* is contained within the United States. See Section 1 for a description.

From NatureServe (2015):

“In Alberta it is found throughout the province (Lepitzki, 2001). It has been collected recently (2002) throughout Colin-Cornwall Lakes Wildlands Park in Alberta (Nordstrom, 2003). In Mexico it occurs in Coahuila (Saltillo), Hidalgo (Zimapan), Mexico (Tlalpam and Lago de Chalco), Morelos (Laguna de Quila near Zampoala) (Thompson, 2008).”

From von Proschwitz and Garcia (2012):

“This species is widespread throughout Europe. Fauna Europaea (Bank et al. 2006) records the species from Norway, Sweden, Denmark (mainland), Latvia, Poland, Lithuania, Republic of Ireland (Eire), Great Britain (UK), Netherlands, Belgium, Luxembourg, France (mainland), Germany, Switzerland, Austria, Czech Republic, Slovakia, Hungary, Italy (mainland), Sardinia (Italy), Sicily (Italy), Balearic Islands (Spain), Portugal (mainland), Bulgaria, Romania, Albania, Slovenia, Serbia, Montenegro, Croatia, the former Yugoslav Republic of Macedonia, and Ukraine. Kantor et al. (2009) note the species has a range extending to western Siberia.”

“This widespread and common palearctic species, which is rare and localised in Africa, reaches its southern limit in Morocco, where it is presently confined to the northwestern coastal region between Kenitra and Tanger (Ghamizi 1998). It has also been recorded from Algeria during the 19th Century (Brown 1994) but unlikely to still be there. It was once in Egypt in Lake Qaron (Fayoum) but no longer there because this is becoming highly salinised.”

“There is only one record of this species from south-western Saudi Arabia from the Sudah stream in the Kamis Mushayt-Abha area (Brown and Wright 1980), a locality that is far from its hitherto known distribution (Neubert 1998) and appears to be a relic subpopulation.”

From Cordeiro and Perez (2012):

“Hubendick (1951) lists the North American range of *Lymnaea palustris* (now recognized as *Stagnicola elodes* and distinct from Eurasian forms) as occurring from western Newfoundland to Alaska with a likely isolated area of distribution in central Mexico and possibly northern Labrador. [...] it is also widely distributed in the Canadian Interior Basin. It also occurs south to central Mexico (Thompson 2008).”

“*S. palustris* in Europe may be the same species, but this is uncertain (J. Cordeiro pers. comm. 2010). If this were the case, then the distribution would range over 3 million km².”

Introduced

No records of introductions of *Stagnicola palustris* or any of its synonyms were found.

Means of Introduction Outside the United States

No records of introductions of *Stagnicola palustris* or any of its synonyms were found.

Short Description

A short description of *Stagnicola palustris* was not found.

Biology

From Cordeiro and Perez (2012):

“This species occurs in freshwater lakes and rivers, and demonstrates tolerance to pollution (Thompson 2008, NatureServe 2009). It occurs principally in lakes, often at considerable depths; and occasionally in slow-moving rivers and pools (Clarke, 1981).”

From von Proschwitz and Garcia (2012):

“This species is found mostly in lowlands and basins, in pools, oxbow lakes, ponds, wetlands and along rivers.”

Human Uses

From Cordeiro and Perez (2012):

“This species is not utilized.”

Diseases

No records of OIE reportable diseases were found.

From Cort and Brackett (1938):

“They are both rather rare species found in *Stagnicola palustris elodes* (Say). For the larger of the two species, which has very large penetration glands, we propose the name *Cercaria macradena* n. sp. and for the other form in which these glands are unusually small we propose the name *Cercaria micradena* n. sp.”

From Stunkard (1946):

“The only known schistosome of native wild mammals is *Schistosomatium douthitti* (Cort, 1914) Price, 1929 (= *S. pathlocopticum* Tanabe, 1923). Price (1931) described the life cycle and found the larval stages in *Lymnaea stagnalis*, *Physa gyrina*, and *Stagnicola palustris*, while the adult stage developed in wild mice, white mice, white rats, and the cat.”

Threat to Humans

No information on threats to humans from *Stagnicola palustris* was found.

3 Impacts of Introductions

No records of introductions of *Stagnicola palustris* or any of its synonyms were found.

4 Global Distribution

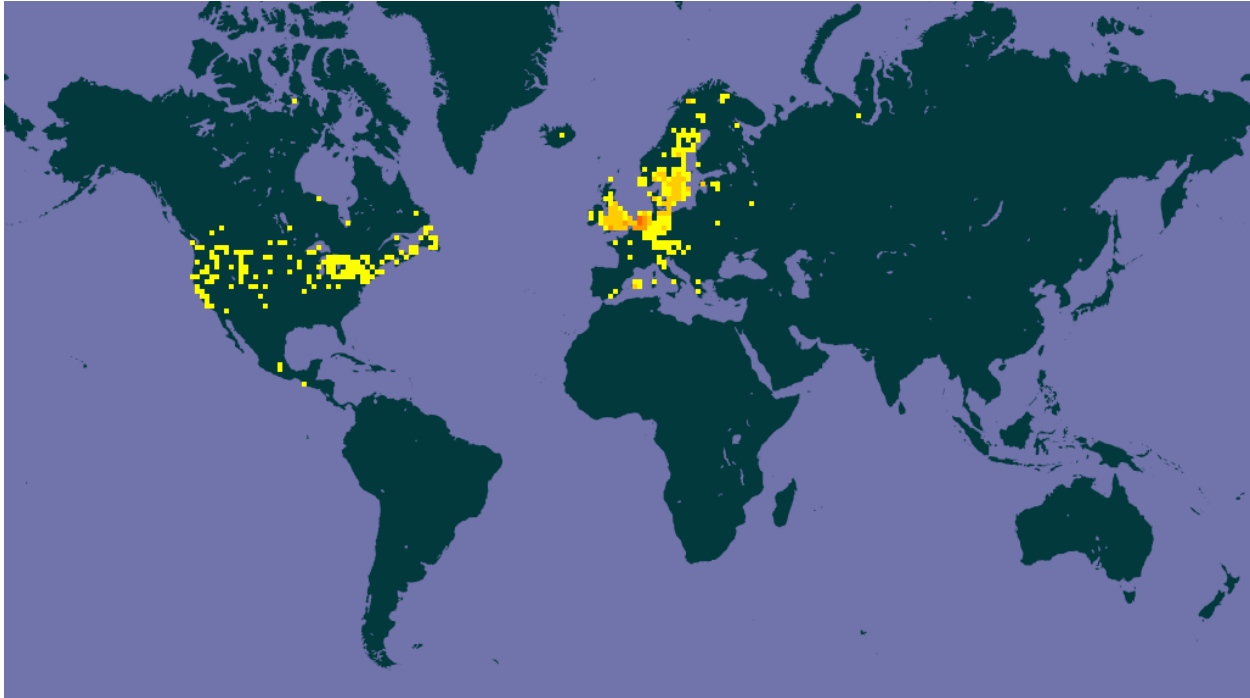


Figure 1. Known global distribution of *Stagnicola palustris*. Map from GBIF Secretariat (2016).

5 Distribution Within the United States

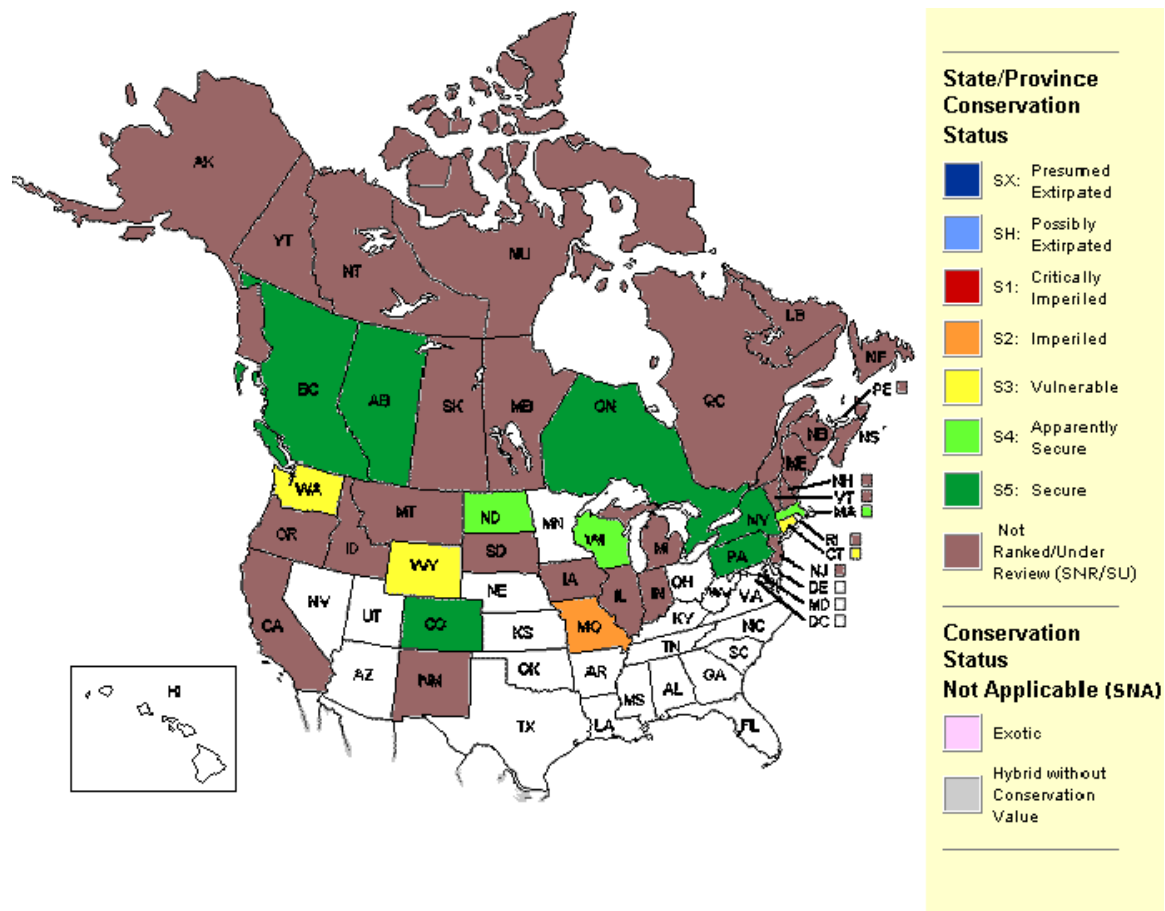


Figure 2. Known distribution and status by state of *Stagnicola palustris*. Map from NatureServe (2015; under the name *S. elodes*).

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Stagnicola palustris* was low for Florida, the Gulf Coast, and a small section of the Southwest. It was high almost everywhere else. *Stagnicola palustris* is native to most of the United States, especially where the highest climate matches occurred (Figure 3). The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous U.S. was 0.793, high, and it was individually high in Arizona, Arkansas, Connecticut, Delaware, Kansas, Kentucky, Maryland, Minnesota, Nebraska, Nevada, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Utah, Virginia, Washington D. C., and West Virginia. The climate match was also high in the following states in which it is also a native species: California, Colorado, Idaho, Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Vermont, Washington, Wisconsin, and Wyoming.

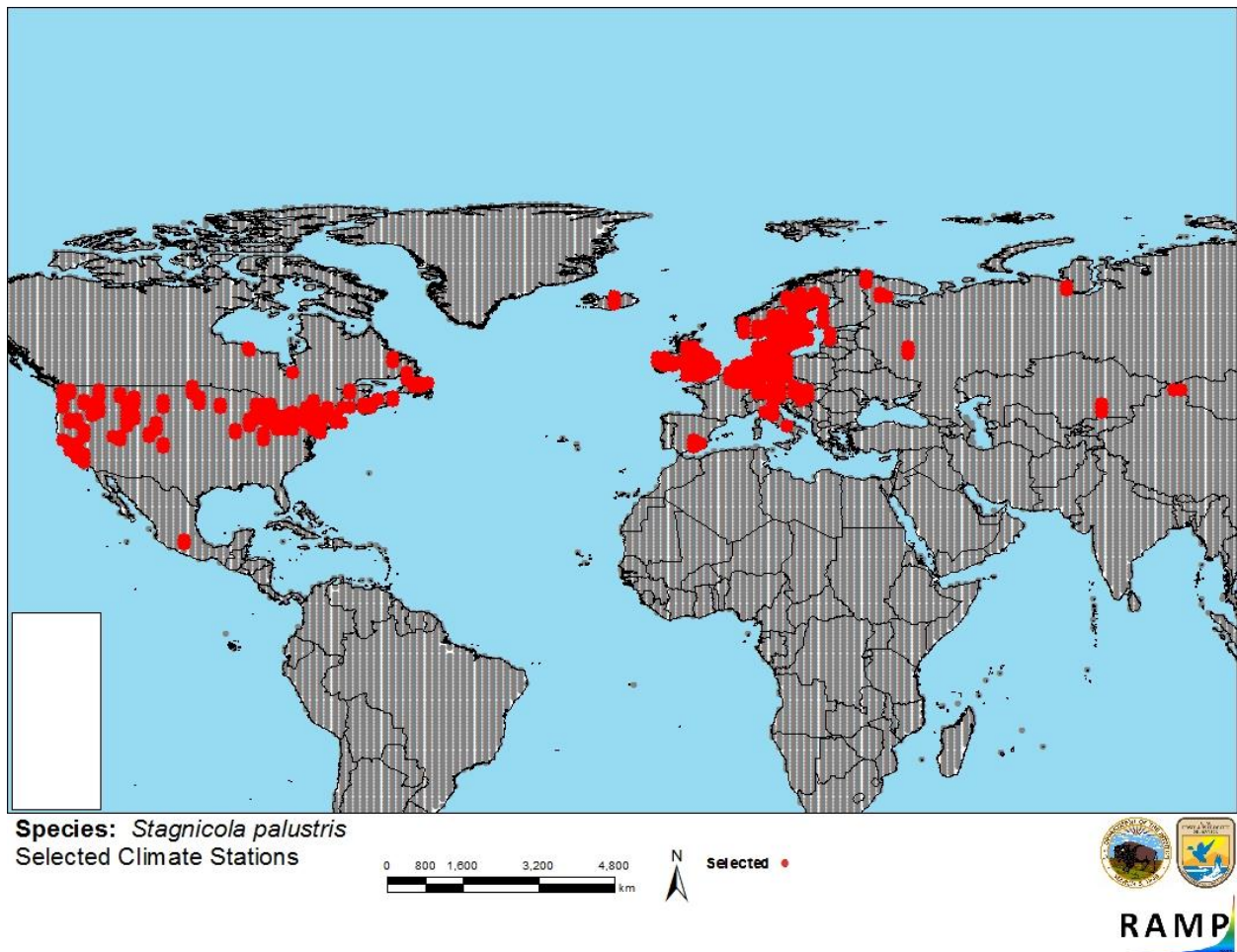


Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (grey) for *Stagnicola palustris* climate matching. Source locations from GBIF Secretariat (2016).

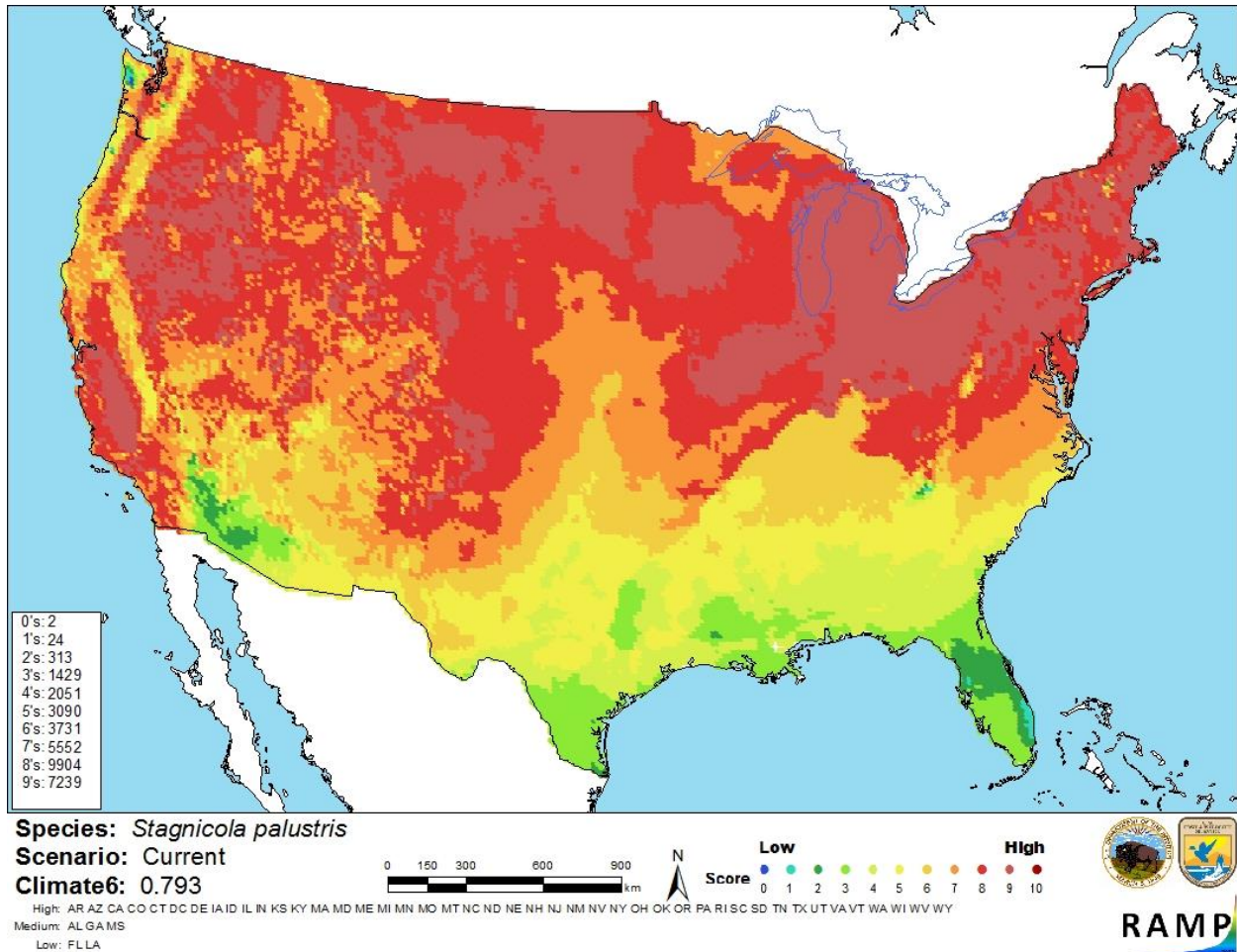


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Stagnicola palustris* in the contiguous United States based on source locations reported by GBIF Secretariat (2016). 0 = Lowest match, 10 = Highest match.

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
$0.000 \leq X < 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of assessment for *Stagnicola palustris* is low. There is much disagreement on the taxonomy and nomenclature of this species. This assessment treated *Stagnicola palustris* as the accepted name and the North American and European populations as the same species. There was very little general biological and ecological information available. No records of introductions under any synonym were found.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The history of invasiveness for *Stagnicola palustris* is uncertain. There were no records of introductions found under the accepted name or any of the synonyms. The climate match was high. The vast majority of areas with a high climate match are inside the native range of the species. The certainty of assessment is low. The overall risk assessment is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): High**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information** No additional remarks.
- **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.

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