

Shrubby Primrose-Willow (*Ludwigia suffruticosa*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2021

Revised, May 2021

Web Version, 8/2/2021

Organism Type: Plant

Overall Risk Assessment Category: Uncertain



Photo: Sharp Jason. Licensed under CC BY-NC-SA 2.0. Available.
<https://www.flickr.com/photos/78235221@N05/7624471546/> (April 2021).

1 Native Range and Status in the United States

Native Range

From POWO (2021):

“Native to: Alabama, Florida, Georgia, Mexico Gulf, Mexico Southeast, Mexico Southwest, North Carolina, South Carolina”

Status in the United States

According to USDA-NRCS (2021), *Ludwigia suffruticosa* is native to Florida, Alabama, Georgia, South Carolina, and North Carolina.

From the University of Florida (2021):

“[...] it is located in marshes, wet flatwoods, and pond margins from the northern and central peninsula west to the central panhandle and Collier county [*sic*] [Florida].”

No evidence of trade within the United States could be found.

Means of Introductions in the United States

Ludwigia suffruticosa is native to parts of the United States. There are no records of non-native introductions within the United States.

Remarks

According to World Flora Online (2021), a similarly named species *Ludwigia suffruticosa* (L.) M.Gómez is in fact a synonym of *Ludwigia octovalvis* (Jacq.) Raven.

Information for this assessment was sought using the valid name *Ludwigia suffruticosa* Walter and the synonyms *Isnardia suffruticosa*, and *Isnardia capitata*.

According to Peng (1989). *L. suffruticosa* can hybridize with *L. alata*, *L. lanceolata*, and *L. pilosa*.

From Vascular Plants of North Carolina (2021):

“Locally uncommon in Brunswick County, but generally rare over its range, and quite restricted to scarce habitats. This is a State Threatened species [in North Carolina].”

Some sources have included *Jussiaea erecta* as a synonym of *Ludwigia suffruticosa* Walter (e.g. POWO 2021). This screening follows the taxonomy accepted by World Flora Online, which synonymizes *J. erecta* with *L. erecta*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From World Flora Online (2021)

“This name is reported by Onagraceae as an accepted name in the genus *Ludwigia* (family Onagraceae).”

“Synonyms

Isnardia capitata (Walter) DC.

Isnardia suffruticosa (Walter) Kuntze”

From ITIS (2021):

Kingdom Plantae
Subkingdom Viridiplantae
Infrakingdom Streptophyta
Superdivision Embryophyta
Division Tracheophyta
Subdivision Spermatophytina
Class Magnoliopsida
Superorder Rosanae
Order Myrtales
Family Onagraceae
Genus *Ludwigia* L.
Species *Ludwigia suffruticosa* Walter

Size, Weight, and Age Range

From Peng (1989):

“Plants bearing rhizomes and stolons. Stems erect, unbranched or slightly branched, (16-)30-90 cm tall [...]”

“Flowers in racemose inflorescence 1- 5(-12) cm long, 1-2 cm wide, terminal on the stems or branches [...]”

“Pedicels of *Ludwigia suffruticosa* and *L. sphaerocarpa* range 0.5-1.5(-2.3) mm long.”

“Sepals are greenish in most species, but they are creamy white on the adaxial surface in *L. alata*, *L. pilosa*, and *L. suffruticosa* [...]”

“The pattern of the distribution of hairs in *L. suffruticosa* is especially interesting: some plants are completely glabrous; some plants are hirtellous [minutely hairy] either on the terminal inflorescence or on the basal stems (including stolons/rhizomes), or both, but are otherwise glabrous.”

“The leaves on the rhizomes of *L. suffruticosa* are small and scalelike.”

“*Ludwigia suffruticosa* is exceptional in having a rounded to obtuse leaf base.”

Environment

From the University of Florida (2021):

“[...] it is located in marshes, wet flatwoods, and pond margins [...]”

From Vascular Plants of North Carolina (2021):

“This species is generally restricted to shallow pools with often variable water levels, mainly in limesink ponds and clay-based Carolina bays, which are rare and very small habitats on the landscape, and thus it grows mainly in high-quality natural places. It might grow in other shallow pools or wet spots in pine savannas, but normally in good quality habitats.”

Climate

No information on exact climate preferences, but it can be presumed this species prefers a tropical and subtropical environment based on its native regions in the southeastern United States.

Distribution Outside the United States

Native

Native range of *Ludwigia suffruticosa* is partially within the United States, see Native Range in Section 1.

From POWO (2021):

“Native to: [...] Mexico Gulf, Mexico Southeast, Mexico Southwest [...]”

Introduced

No records of introduction were found for *Ludwigia suffruticosa*.

Means of Introduction Outside the United States

No records of introduction were found for *Ludwigia suffruticosa*.

Short Description

From Vascular Plants of North Carolina (2021):

“This is a quite distinct *Ludwigia* when in bloom, but vegetatively it looks quite like many others. It has an erect stem, with a few branches, growing to 2-2.5 feet tall, being a smooth plant in general. The scattered alternate leaves are lanceolate, about 4 inches long but barely 2/5-inch wide. In this species, the flowers are all in a terminal cluster on branches, as opposed to leaf axils. This is a very tight cluster of several dozen flowers (a few in bloom at a time), only about 1-inch tall. Though the flowers have no petals, the sepals are colored light yellow and form a flower about 1/4-inch across, and thus the dense cluster of pale yellow color elevated above the rest of the branches and leaves is bound to attract attention of not only biologists but the public, as well. You may need to get you [*sic*] feet wet to see the species, however. Note that, at a distance, you can easily pass over the species as a sedge, a smartweed, or a plant in a number of other genera or families.”

Biology

From Peng (1989):

“Plants of *L. suffruticosa* grow in sandy ditches, along river marshes, in meadows, in limestone sinks, in cypress swamps, and in moist pineland.”

“Flowering from May to September; fruiting from June to October.”

“With its whitish creamy sepals, which are very showy in the dense flower aggregates, the cross-pollinating *L. suffruticosa* successfully attracts many insects, mostly bumblebees, honeybees, and wasps. It occurs with at least four species of *Ludwigia* (*L. alata*, *L. linearis*, *L. lanceolata*, and *L. pilosa*) in the field, hybridizing with all but *L. linearis*.”

Human Uses

No human uses are reported for *Ludwigia suffruticosa*.

Diseases

Poelen et al. (2014) list *Ludwigia suffruticosa* as a host of the fungus *Puccinia jussiaeae*.

Threat to Humans

No threats to humans have been reported for *Ludwigia suffruticosa*.

3 Impacts of Introductions

No records of introductions were found for *Ludwigia suffruticosa*; therefore, there is no information on impacts of introduction.

4 History of Invasiveness

There are no known introductions or nonnative populations of *Ludwigia suffruticosa* reported in the literature; therefore, there is no information on impacts of introduction. The history of invasiveness is classified as No Known Nonnative Population.

5 Global Distribution



Figure 1. Known global distribution of *Ludwigia suffruticosa*. Observations are reported from the southeastern United States, Mexico, Western Africa, Madagascar, and Sweden. Map from GBIF Secretariat (2021). Observations in Honduras are geographically close enough to the described native range that they were determined to be reasonable observations and were included in the climate match. The observations in Louisiana and Texas could not be corroborated in the literature and were not used to select source points for the climate match.

Locations in Brazil, Sweden, Ghana, Burkina Faso, Senegal, Madagascar and Nigeria do not represent established populations and were therefore not used for climate matching analysis. Although nothing detailed in those records indicate they are inaccurate, the literature review for this species did not return records of introduced, wild, or established populations in those geographic regions. It is possible they may be referring to *Ludwigia octovalvis* (Jacq.) Raven, a synonym of *Ludwigia suffruticosa* M.Gómez, which has a widely cosmopolitan range encompassing those regions.

6 Distribution Within the United States

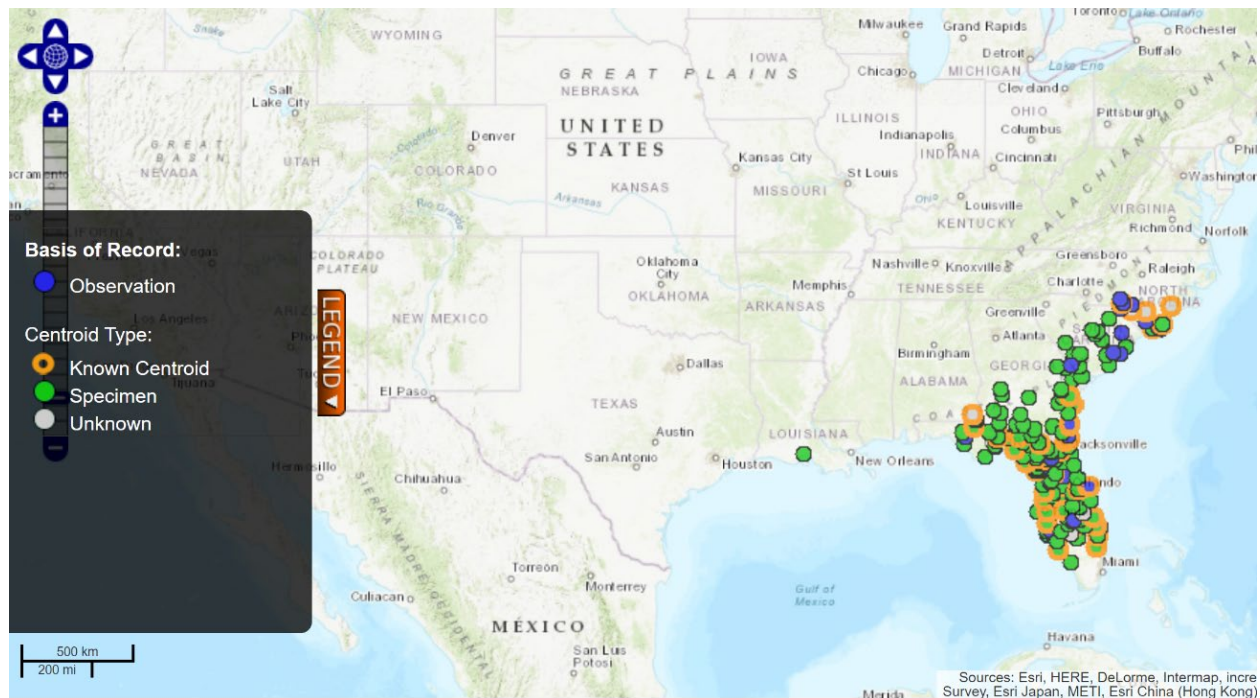


Figure 2. Known distribution of *Ludwigia suffruticosa* in the United States. Map from BISON (2021). The observation in Louisiana could not be confirmed by another source and was not used to select source points for the climate match.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Ludwigia suffruticosa* was high in the Southeastern United States, Southern Atlantic, and Gulf of Mexico. This area includes part of the native range of this species. High climate match transitioned into medium then low climate match in a northwestern gradient, with the lowest match in the Northwest and northern United States. There was one patch of medium match in the Pacific Northwest, around the Puget Sound. Additional small areas of medium match were found along the southern California coast, and along the border with Mexico. The overall Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.201, high. (Scores of 0.103 or greater are classified as high.) The following States had high individual Climate 6 scores: Alabama, Arkansas, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, New Jersey, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The following States had medium individual Climate 6 scores: Illinois, Missouri, Ohio, and Pennsylvania. All other States had low individual Climate 6 scores.

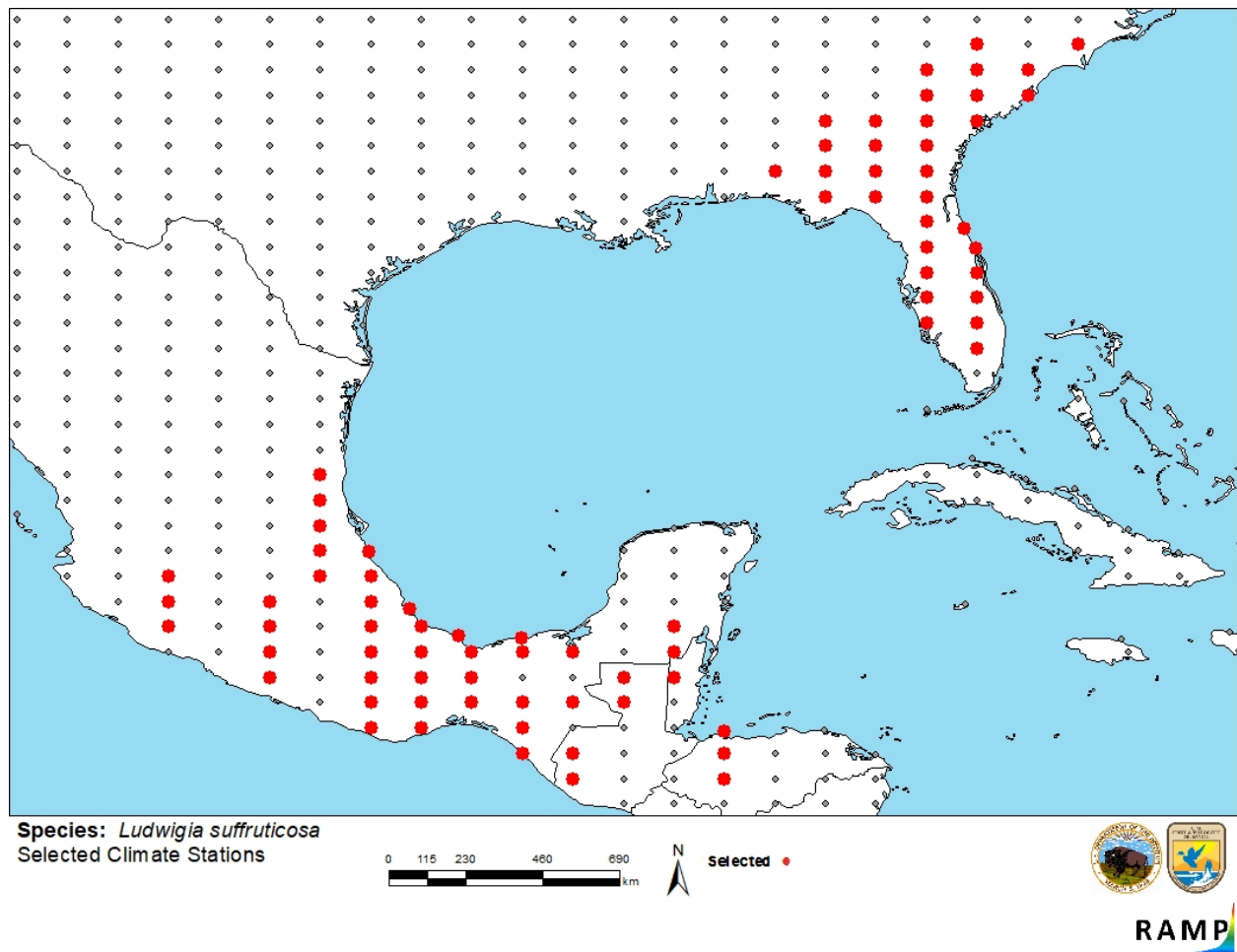


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in the southeastern United States and Central America selected as source locations (red: Alabama, Georgia, Florida, South Carolina, North Carolina, Mexico, Belize, Guatemala, Honduras) and non-source locations (gray) for *Ludwigia suffruticosa* climate matching. Source locations from GBIF Secretariat (2021). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

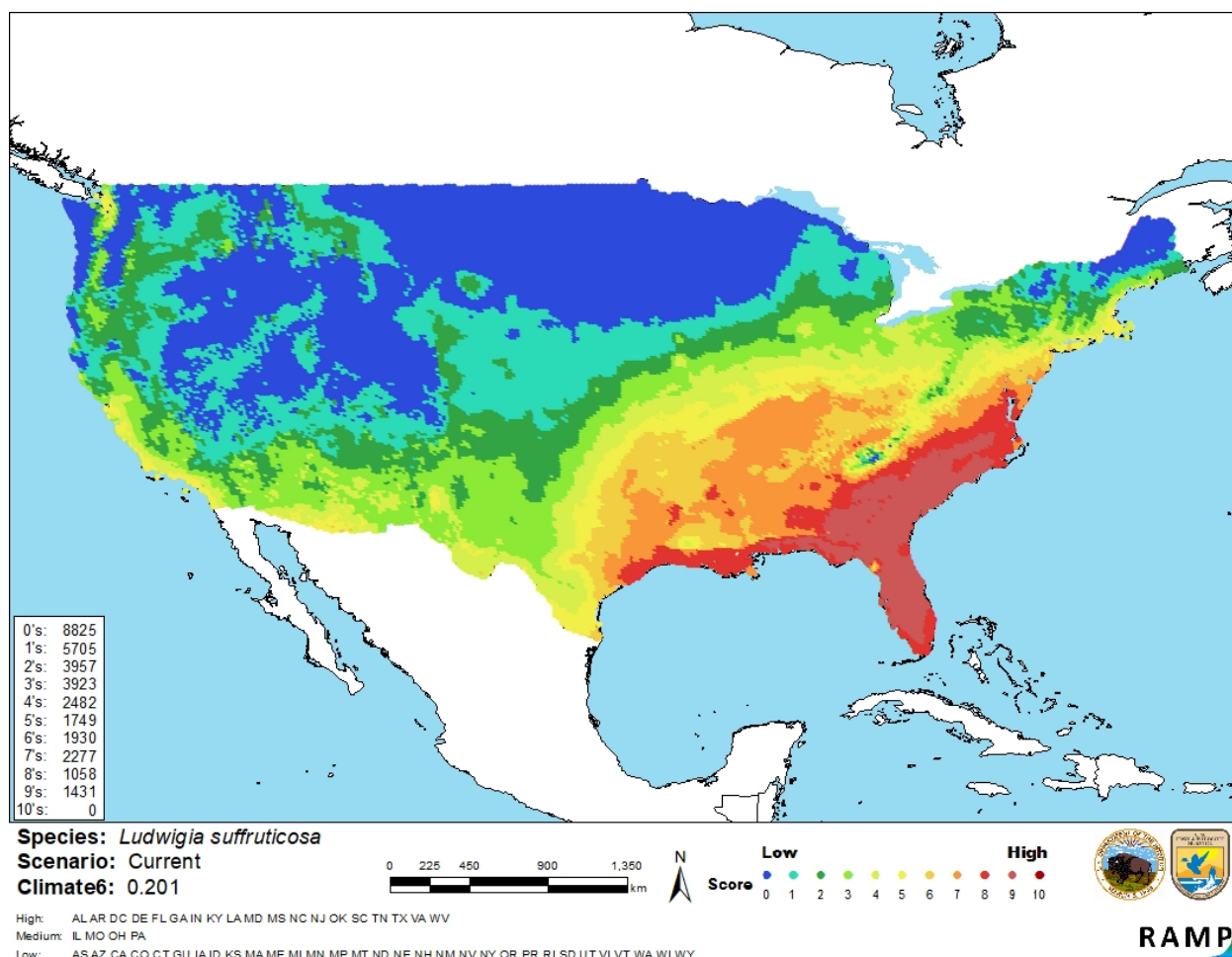


Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Ludwigia suffruticosa* in the contiguous United States based on source locations reported by GBIF Secretariat (2021). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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 |
| ≥ 0.103 | High |

8 Certainty of Assessment

The certainty of assessment is low. There was minimal biological information available for this species. There were no records of introductions found, so impacts of introduction are unknown. There is some uncertainty regarding the species range due to a closely named species (*Ludwigia suffruticosa* (L.) M.Gómez), accepted name *Ludwigia octovalvis*, having a much more

cosmopolitan and global distribution. Some information sources also included *Jussiaea erecta* as a synonym of *L. suffruticosa* Walter, however, *J. erecta* is considered a synonym of *L. erecta* by World Flora Online.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Shrubby primrose-willow (*Ludwigia suffruticosa* Walter) is a plant found in marshes and along pond edges native to the Southeastern United States (Florida, Alabama, Georgia, South Carolina, and North Carolina) and Mexico. *Ludwigia suffruticosa* has not been reported as introduced or established anywhere outside of its native range. The history of invasiveness is classified as No Known Nonnative Population. The climate match for the contiguous United States is High. The entire Southeast region of the United States had a high climate match, including the states where it is native. The certainty of the assessment is Low due to a lack of information, possible confusion with a closely named species, and taxonomic uncertainty regarding possible synonyms. The overall risk assessment category for *Ludwigia suffruticosa* 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:** Where information sources have not included the authorship *L. suffruticosa*, it may be possible they are referring to *L. octovalis*, which has the synonym *L. suffruticosa* (L.) M.Gómez, and not the accepted species *L. suffruticosa* Walter.
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

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

BISON. 2021. Biodiversity Information Serving Our Nation. U.S. Geological Survey. Available: <https://bison.usgs.gov> (May 2021).

GBIF Secretariat. 2021. GBIF backbone taxonomy: *Ludwigia suffruticosa* Walter. Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/species/5420999> (May 2021).

[ITIS] Integrated Taxonomic Information System. 2021. *Ludwigia suffruticosa*. Reston, Virginia: Integrated Taxonomic Information System. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=27364#null (April 2021).

- Peng C. 1989. The systematics and evolution of *Ludwigia* Sect. *Microcarpium* (Onagraceae). *Annals of the Missouri Botanical Garden* 76:221–302.
- POWO. 2021. *Ludwigia suffruticosa* Walter. Plants of the World Online. Royal Botanic Gardens, Kew. Available: <http://www.plantsoftheworldonline.org/taxon/urn:lsid:ipni.org:names:144436-2> (April 2021).
- Poelen JH, Simons JD, Mungall CJ. 2014. Global Biotic Interactions: an open infrastructure to share and analyze species-interaction datasets. *Ecological Informatics* 24:148–159.
- Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.
- University of Florida. 2021. *Ludwigia suffruticosa*. Center For Aquatic and Invasive Plants. Available: <https://plants.ifas.ufl.edu/plant-directory/Ludwigia-suffruticosa/#> (May 2021).
- USDA, NRCS. 2021. *Ludwigia suffruticosa* Walter. Shrubby primrose-willow. The PLANTS database. Greensboro, North Carolina: National Plant Data Team. Available: <https://plants.usda.gov/core/profile?symbol=LUSU11> (April 2021).
- World Flora Online. 2021. *Ludwigia suffruticosa* Walter. World Flora Online – a project of the World Flora Online Consortium. Available: <http://www.worldfloraonline.org/taxon/wfo-0001087437> (April 2021).

11 Literature Cited in Quoted Material

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.

No additional references.