

Blyxa (*Blyxa octandra*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, March 2021

Revised, June 2021

Web Version, 7/23/2021

Organism Type: Plant

Overall Risk Assessment Category: Uncertain



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1 Native Range and Status in the United States

Native Range

From POWO (2021):

“[...] its native range is India to S. China and N. Australia.”

“Native to:

Andaman Is., Bangladesh, China South-Central, China Southeast, India, Myanmar, New Guinea, Northern Territory, Queensland, Sri Lanka, Vietnam, Western Australia”

From Juffe Bignoli (2011):

“This plant is found from India to northern Australia. It has been recorded from Bangladesh, India, Sri Lanka, Myanmar, Thailand, and Viet Nam.”

“Australia (Coral Sea Is. Territory, Western Australia, Northern Territory); Bangladesh; India; Myanmar (Myanmar (mainland)); Papua New Guinea (Papua New Guinea (main island group)); Sri Lanka; Viet Nam”

Status in the United States

Blyxa octandra has not been reported as introduced or established in the wild within the United States. No evidence of this species in trade in the United States was found.

Means of Introductions in the United States

Blyxa octandra has not been reported as introduced or established in the wild within the United States.

Remarks

According to WFO (2021), *Blyxa octandra* has the synonymys *B. roxburghii*, *B. saivala*, and *Vallisneria octandra*. These synonyms along with the valid name *Blyxa octandra* were used to conduct literature searches for this assessment.

From Juffe Bignoli (2011):

“Although its geographic range is wide it is not clear whether this species is common or not.”

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From WFO (2021):

“*Blyxa octandra* (Roxb.) Planch. ex Thwaites”

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

From ITIS (2021):

Kingdom Plantae
Subkingdom Viridiplantae
Infrakingdom Streptophyta
Superdivision Embryophyta
Division Tracheophyta
Subdivision Spermatophytina
Class Magnoliopsida

Superorder Lillanae
Order Alismatales
Family Hydrocharitaceae
Genus *Blyxa*
Species *Blyxa octandra* (Roxb.) Planch. ex Thwaites

Size, Weight, and Age Range

From WFO (2021):

“Leaves [...], 6-60 cm × 5-7 mm, [...] Spathes 6-10 cm, with a long peduncle 20-120 cm. [...] Sepals [...] 9-10 × ca. 1.5 mm. Petals 2-2.5 cm or longer. Stamens 9; filaments 2-5 mm; anthers 1-2 mm. Ovary narrowly cylindric, 6-9 cm, with a beak 8-10 cm; styles ca. 2 cm, hairy. Fruit 7.5-10 cm. Seeds numerous, oblong-elliptic, 1-2 × 0.5-1 mm, with up to 12 longitudinal ridges bearing 8 rows of ± blunt spines ca. 0.5 mm, [...] [eFloras 2008]”

Environment

From Juffe Bignoli (2011):

“It grows totally submerged with emergent flowers. It can be found in rice fields and channels, also in marshy grounds.”

From Cook et al. (1981):

“*Blyxa octandra* (Roxb.) Planchon ex Thwaites is a dioecious aquatic plant.”

Climate

No information on climate was available.

Distribution Outside the United States

Native

From POWO (2021):

“[...] its native range is India to S. China and N. Australia.”

“Native to:

Andaman Is., Bangladesh, China South-Central, China Southeast, India, Myanmar, New Guinea, Northern Territory, Queensland, Sri Lanka, Vietnam, Western Australia”

From Juffe Bignoli (2011):

“This plant is found from India to northern Australia. It has been recorded from Bangladesh, India, Sri Lanka, Myanmar, Thailand, and Viet Nam.”

“Australia (Coral Sea Is. Territory, Western Australia, Northern Territory); Bangladesh; India; Myanmar (Myanmar (mainland)); Papua New Guinea (Papua New Guinea (main island group)); Sri Lanka; Viet Nam”

Introduced

B. octandra has not been reported as introduced outside of its native range.

Means of Introduction Outside the United States

B. octandra has not been reported as introduced outside of its native range.

Short Description

From WFO (2021):

“Stems shortened or absent. Leaves all in basal rosette, linear, 6-60 cm × 5-7 mm, veins faint, 20 or more, spiny toward apex. Spathes 6-10 cm, with a long peduncle 20-120 cm. Plants dioecious; flowers unisexual, 1 female or 5-10 male flowers in a spathe. Sepals reddish, linear, 9-10 × ca. 1.5 mm. Petals 2-2.5 cm or longer. Stamens 9; filaments 2-5 mm; anthers 1-2 mm. Ovary narrowly cylindric, 6-9 cm, with a beak 8-10 cm; styles ca. 2 cm, hairy. Fruit 7.5-10 cm. Seeds numerous, oblong-elliptic, 1-2 × 0.5-1 mm, with up to 12 longitudinal ridges bearing 8 rows of ± blunt spines ca. 0.5 mm, without filiform projections. 2n = 16, 32. [eFloras 2008]”

From De Thabrew (2014):

“The narrow leaves are more grass-like and slightly smaller than those of *Blyxa echinosperma*. Altogether the plant is smaller than the preceding species. The ribbon-like leaves are pale green, with a prominent midrib and usually two lateral veins on either side. Unlike *Blyxa echinosperma*, *Blyxa octandra* [...] develops a mass of greyish-white fleshy roots.”

Biology

From Juffe Bignoli (2011):

“It grows totally submerged with emergent flowers. It can be found in rice fields and channels, also in marshy grounds.”

From Cook et al. (1981):

“*Blyxa octandra* (Roxb.) Planchon ex Thwaites is a dioecious aquatic plant. In the male flower the pollen is deposited on the adaxial surfaces of the petals whilst it is in bud. The petals elongate and spread, thus presenting the pollen to pollinating insects. The female flower only superficially resembles the male; the petals are much smaller and the stigmas are spreading and petal-like. The attractive function of the petals in the male is, therefore, transferred to the stigmas in the female. Between 09.30 and 10.00 h the petals in the male and the stigmas in the female exude water-like droplets. The flowers are visited by various Diptera and Odonata who transfer pollen on their feet. By midday the flowers dry out and wither.”

From De Thabrew (2014):

“[...] *Blyxa octandra* grows quickly and develops a mass of greyish-white fleshy roots.”

Human Uses

From Juffe Bignoli (2011):

“The genus *Blyxa* is used for aquariums. However, there is no specific use for this particular species.”

Diseases

No information available on diseases associated with this species.

Threat to Humans

No information available on threat to humans.

3 Impacts of Introductions

Blyxa octandra has not been reported as introduced outside of its native range, therefore no impacts of introduction have been documented.

4 History of Invasiveness

The history of invasiveness is classified as No Known Nonnative Population. *Blyxa octandra* has not been reported as introduced outside of its native range, therefore no impacts of introduction have been documented. This species was not found for sale through the aquarium trade.

5 Global Distribution



Figure 1. Known global distribution of *Blyxa octandra*. Observations are reported from India, Sri Lanka, Thailand, and Northern Australia. Map from GBIF Secretariat (2021). According to POWO (2021) and Juffe Bignoli (2011), *B. octandra* has a much wider native range in Southeast Asia, however no documented occurrence locations were found to be used in the climate match.

6 Distribution Within the United States

Blyxa octandra has not been reported in the wild in the United States.

7 Climate Matching

Summary of Climate Matching Analysis

The overall Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.015, medium (scores between 0.005 and 0.103, exclusive, are classified as medium). Areas of high match can be found in peninsular Florida and southeast Texas. Small patches of medium match are found along the United States and Mexico border, as well as just north of Florida in Georgia. Everywhere else had a low match. Florida was the only State to receive a high individual Climate 6 score. Texas received the only medium individual Climate 6 scores. All remaining States received low individual scores.

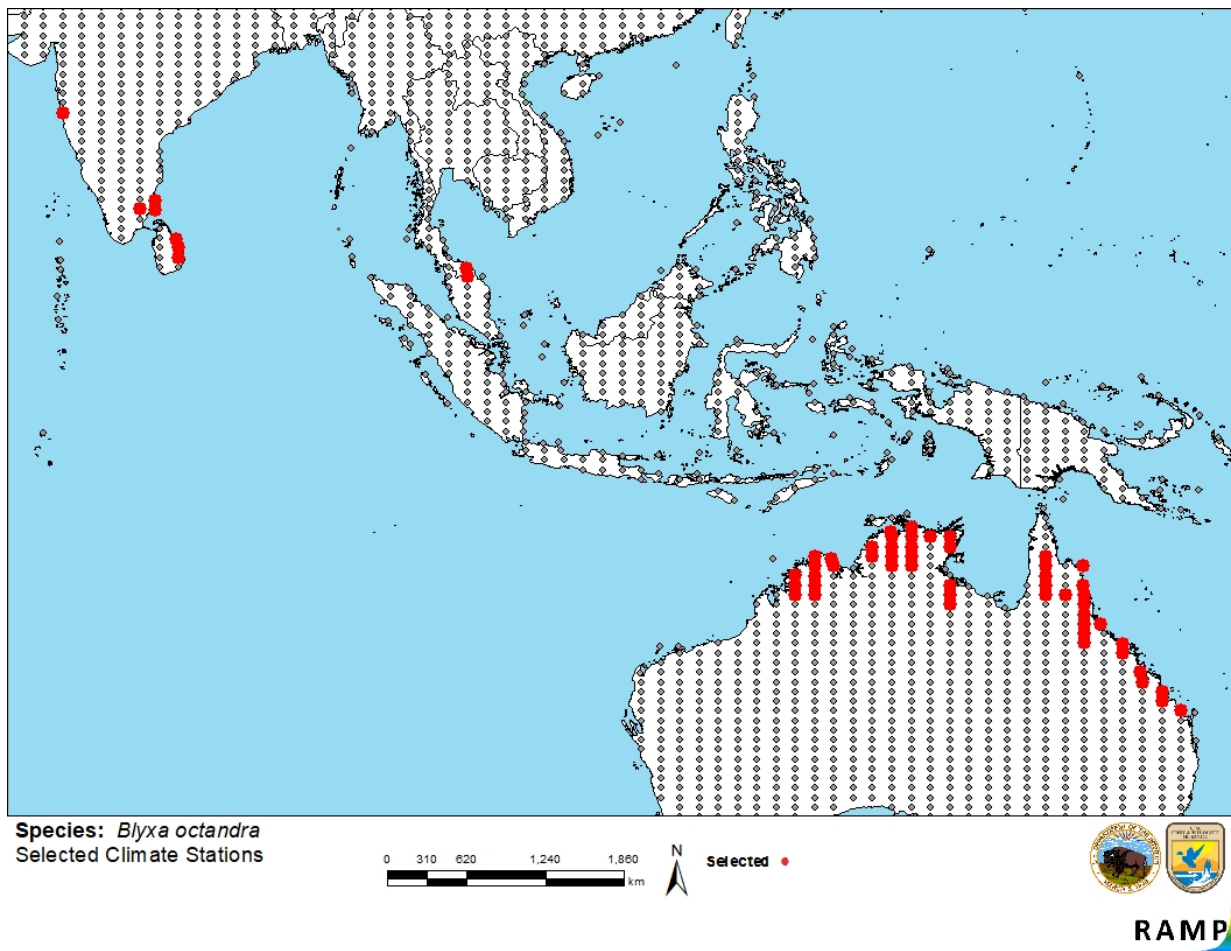


Figure 2. RAMP (Sanders et al. 2018) source map showing weather stations in Northern Australia and Southern Asia selected as source locations (red; Australia, Thailand, Malaysia, Sri Lanka, and India) and non-source locations (gray) for *Blyxa octandra* climate matching. Source locations from GBIF Secretariat (2021). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

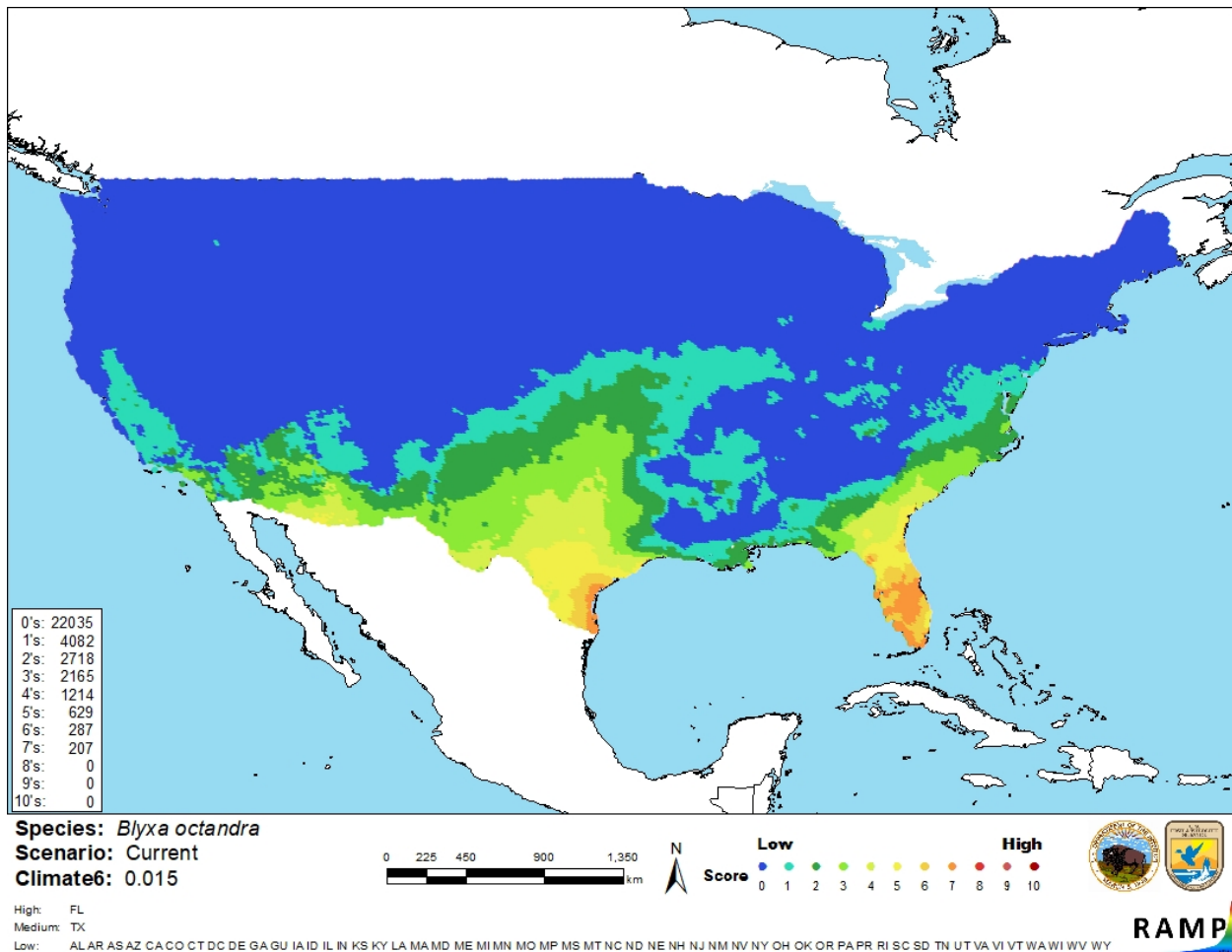


Figure 3. Map of RAMP (Sanders et al. 2018) climate matches for *Blyxa octandra* in the contiguous United States based on source locations reported by GBIF Secretariat (2021). Counts of Climate Match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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 classified as Low. Limited information on the biology, ecology, and native range distribution is available for *Blyxa octandra*. This species has not been reported as introduced outside of its native range, therefore no information is available on impacts of introduction.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Blyxa, *Blyxa octandra*, is an aquatic plant of the tape grass family, native to Northern Australia and Southern and Southeast Asia. Limited information is available on this species. No introductions have been reported outside of its native range, therefore no information on impacts of introduction is available. *B. octandra* has not been reported in the aquarium trade. The history of invasiveness is classified as No Known Nonnative Population. The overall climate match for the contiguous United States is Medium, with areas of high match being found in peninsular Florida and southeast Texas. Due to limited information on the biology, native range distribution, and no impacts of introduction, the certainty of this assessment is classified as Low. The overall risk assessment category for *Blyxa octandra* is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Medium**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks/Important additional information: No additional information**
- **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.

Cook CDK, Lüönd R, Nair B. 1981. Floral biology of *Blyxa octandra* (Roxb.) Planchon ex Thwaites (hydrocharitaceae). Aquatic Botany 10:61–68.

De Thabrew WV. 2014. A manual of water plants. Bloomington, Indiana: Author House UK.

GBIF Secretariat. 2021. GBIF backbone taxonomy: *Blyxa octandra* (Roxb.) Planch. ex Thwaites. Copenhagen: Global Biodiversity Information Facility. Available: <https://www.gbif.org/species/2865948> (June 2021).

[ITIS] Integrated Taxonomic Information System. 2021. *Blyxa octandra* (Roxb.) Planch. ex Thwaites. Reston, Virginia: Integrated Taxonomic Information System. Available: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=507275#null (June 2021).

Juffe Bignoli D. 2011. *Blyxa octandra*. The IUCN Red List of Threatened Species 2011: e.T169029A6564343. Available: <https://www.iucnredlist.org/species/169029/6564343> (June 2021).

[POWO] Plants of the World Online. 2021. *Blyxa octandra* (Roxb.) Planch. ex Thwaites. Available: <http://www.plantsoftheworldonline.org/taxon/urn:lsid:ipni.org:names:1048814-2> (June 2021).

Sanders S, Castiglione C, Hoff M. 2018. Risk Assessment Mapping Program: RAMP. Version 3.1. U.S. Fish and Wildlife Service.

[WFO] World Flora Online 2021. World Flora Online— a project of the World Flora Online Consortium. Available: <http://www.worldfloraonline.org/taxon/wfo-0000770620> (March 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.

eFloras. 2008. Flora of China. St. Louis: Missouri Botanical Garden; Cambridge, Massachusetts: Harvard University Herbaria. Available: http://www.efloras.org/flora_page.aspx?flora_id=2.