Cuban Bulrush (*Cyperus blepharoleptos*)
Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2023
Revised, April 2023
Web Version, 4/29/2025

Organism Type: Flowering Plant
Overall Risk Assessment Category: High

Photo: Tela Botanica − Sylvain PIRY. Licensed Under: CC BY-SA 4.0. Available: https://identify.plantnet.org/namerica/observations/1001027581 (April 2023).

1 Native Range and Status in the United States

Native Range

From McLaurin et al. (2025):

"**Native Range:** Cuban bulrush is native to South America and the West Indies."

GISD (2023) lists *Cyperus blepharoleptos* as native to Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, United States, and Venezuela.

Status in the United States

From Squires et al. (2024):

"The first record of Cuban bulrush in the United States was in 1878 on the eastern side of Mobile Bay in Alabama (SERNEC 2022 McNeal UNA00001491; Mohr UNA00001486); however, it is also thought to have arrived in Florida around the same time (Chapman 1889)."

From McLaurin et al. (2025):

"Cuban bulrush […] is currently established in only six states in the southeastern United States (Bryson 2008)."

McLaurin et al. (2025) lists *Cyperus blepharoleptos* as established in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas.

No records of *Cyperus blepharoleptos* in trade in the United States were found.

Regulations

No species-specific regulations on possession or trade were found within the United States.

Means of Introductions within the United States

From McLaurin et al. (2025):

"Cuban bulrush was likely introduced via ship ballasts and by achenes ingested and transported by migratory birds (Bryson 2008). Once in drainage, Cuban bulrush floating islands (or tussocks; Mallison et al. 2001) or seeds (Markwith et al. 2014) can disperse the plant downstream."

Remarks

This ERSS was previously published in August 2019 under the synonym *Oxycaryum cubense*. Revisions were completed to incorporate new information and conform to updated standards.

Different sources present *Cyperus blepharoleptos* as native (GISD 2023) or introduced (GISD 2023; McLaurin et al. 2025) to the United States. This assessment presents the contradictory information as accurately as possible.

From Bryson et al. (2008):

"The taxonomic placement of *O. cubense* has been disputed. It possesses spirally arranged scales and thus has been treated as *Scirpus cubensis* Poepp. & Kunth (e.g., Correll and Johnston 1970; Godfrey and Wooten 1979; Wunderlin 1998). Molecular analysis by Muasya et al. (2002)

supports classification of *Oxycaryum* in tribe Cypereae. Two forms of *O. cubense* are recognized and they differ from one another by inflorescence features […]. Plants with umbellate inflorescences are *O. cubense* forma *cubense*, while those with monocephalous inflorescences are *O. cubense* forma *paraguayense* (Maury) Pedersen (Barros 1960; Pedersen 1995)."

The following synonyms of *Cyperus blepharoleptos* were used to search for information for this report: *Oxycaryum cubense*, *Scirpus cubense* (WFO 2025).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2023):

Kingdom Plantae
Subkingdom Viridiplantae
Infrakingdom Streptophyta
Superdivision Embryophyta
Division Tracheophyta
Subdivision Spermatophytina
Class Magnoliopsida
Superorder Lilianae
Order Poales
Family Cyperaceae
Genus *Oxycaryum*
Species *Oxycaryum cubense* (Poepp. & Kunth) Lye

According to WFO (2025), *Cyperus blepharoleptos* Steud. is the current valid name for this species.

Size, Weight, and Age Range

From McLaurin et al. (2025):

"**Size:** Stems can range from 30 to 92 cm in height (Godfrey 1979)."

Environment

From McLaurin et al. (2025):

"This species commonly establishes in freshwater ditches, marshes, ponds, lakes, rivers, and swamps (Bryson 2008)."

Climate

No information was found on climate used by *Cyperus blepharoleptos*.

Distribution Outside the United States

Native

From McLaurin et al. (2025):

"**Native Range:** Cuban bulrush is native to South America and the West Indies."

GISD (2023) lists *Cyperus blepharoleptos* as native to Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, and Venezuela.

Introduced

From McLaurin et al. (2025):

"Cuban bulrush is widespread throughout tropical and subtropical areas of Africa […] (Bryson 2008)."

GISD (2023) lists *Cyperus blepharoleptos* as nonnative to Botswana, Burkina Faso, Cameroon, The Democratic Republic of Congo, Ghana, Madagascar, Mexico, Nigeria, South Africa, and Zambia.

Means of Introduction Outside the United States

No information was found on means of introduction outside the United States for *Cyperus blepharoleptos*.

Short Description

From McLaurin et al. (2025):

"Cuban bulrush is a floating, epiphytic perennial herb (sedge), with a slender, erect triangular stem that is 30 to 92 cm in height. Slender leaves form at the base of the stem and extend above the water surface (Godfrey 1979). The reddish runners form mass together or with the roots/rhizomes of other plants to form floating mats (tussocks; Mallison et al. 2001, Bryson 2008)."

"Multiple inflorescences, either umbellate (short flower stalks which spread from a common point) or monocephalous (a single flower head which is unbranched) depending on form, are produced at the apical portion of each stem. Inflorescences are comprised of one to thirteen spherical heads that are 1-2 cm in diameter. The inflorescence is surrounded by 2 to 6 long leaf-like bracts. Seeds are in the form of spiked, buoyant ale or red-brown achenes (small, dry one-seeded fruit), which form in the spring through fall (Godfrey 1979, Bryson 2008)."

Biology

From Bryson et al. (2008):

"*O. cubense* is a vigorous invasive aquatic plant similar in vegetative reproductive capability to *Salvinia molesta*, *Pistia stratiotes L.*, and other invasive aquatic weeds (Tur 1971). It forms transient floating mats and rafts in lakes in Africa (Holm et al. 1977; Okali and Hall 1974), Argentina (Tur 1971), and the United States (Mallison et al. 2001). Although not stated directly (Tur 1971), there are some implications of aquatic succession in mat or raft formation since *O. cubense* depends upon the preexistence of other aquatic species, such as *E. crassipes*, for establishment."

"This characteristic identified *O. cubense* as an aquatic epiphyte by Tur (1971). The corky, buoyant achenes of *O. cubense* are adapted to dispersal by moving water. Its mat-forming, floating habit facilitates asexual reproduction and transport of vegetative fragments by moving water (Haines and Lye 1983)."

From GISD (2023):

"*Oxycaryum cubense* (Cuban bulrush) is a perennial that may grow from a seed or a rhizome."

"*Oxycaryum cubense* (Cuban bulrush) is an obligate wetland species (USDA, 2007) and is found in rivers, streams, swamps, marshes, ponds and other forms of standing water. It may be on the water's edge (up to 50m from the coast) or may detach from the land and float freely (eFloras, 2007)."

Human Uses

No information was found on human uses of *Cyperus blepharoleptos*.

Diseases

No information was found on diseases associated with *Cyperus blepharoleptos*.

Threat to Humans

No information was found on threats to humans from *Cyperus blepharoleptos*.

3 Impacts of Introductions

From McLaurin et al. (2025):

"Cuban bulrush is known to form large floating islands (tussocks) that have numerous economic and ecological impacts on the waterbody. The tussocks have been observed blocking boat launches and impede navigation and recreation within waterbodies (Mallison et al. 2001, Bryson et al. 2008) and accumulating along shorelines (Mallison et al. 2001). The tussocks can also exclude and shades [sic] out desirable submersed vegetation (Mallison et al. 2001, Robles et al. 2007, Bryson et al. 1996, 2008). Cuban bulrush is thought to be able to compete with other emergent plants (water hyacinth, water lettuce, and mosquito ferns) due to its tall epiphytic

growth habit (Tur 1971, Robles et al. 2007). Underneath the floating mats, water quality can rapidly degrade due to increased organic matter and low dissolved oxygen (Mallison et al. 2001)."

There were no species-specific state regulations for *Cyperus blepharoleptos*.

4 History of Invasiveness

The History of Invasiveness for *Cyperus blepharoleptos* is classified as High. Populations of *Cyperus blepharoleptos* have been introduced and established outside their native range. This species has negatively impacted navigation and recreation, water quality, and can exclude submerged vegetation under the floating mats.

5 Global Distribution

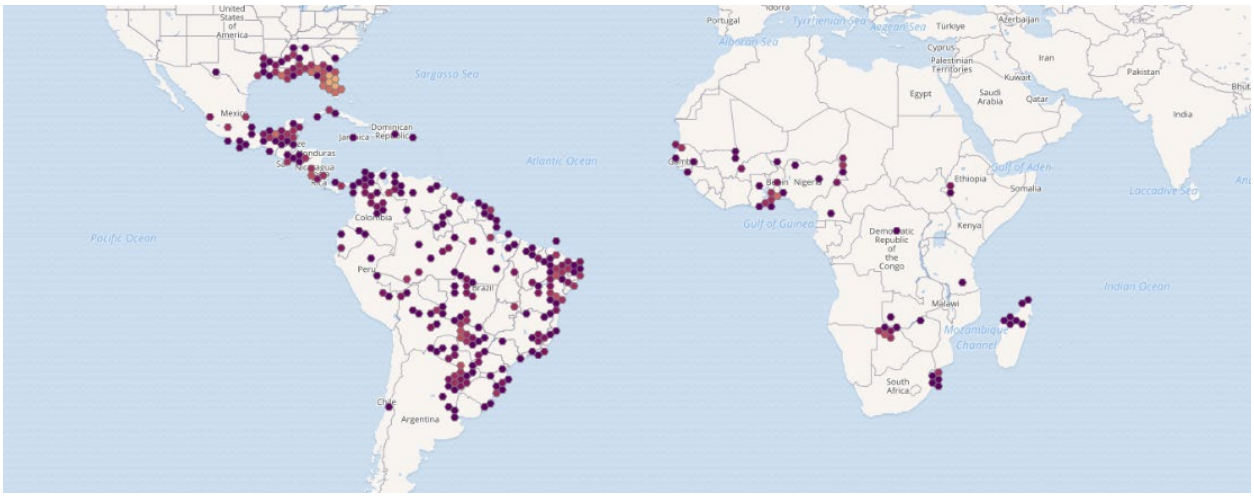

Figure 1. Reported global distribution of *Cyperus blepharoleptos*. Map from GBIF Secretariat (2022). Observations are reported from North America, South America, and Africa.

6 Distribution Within the United States

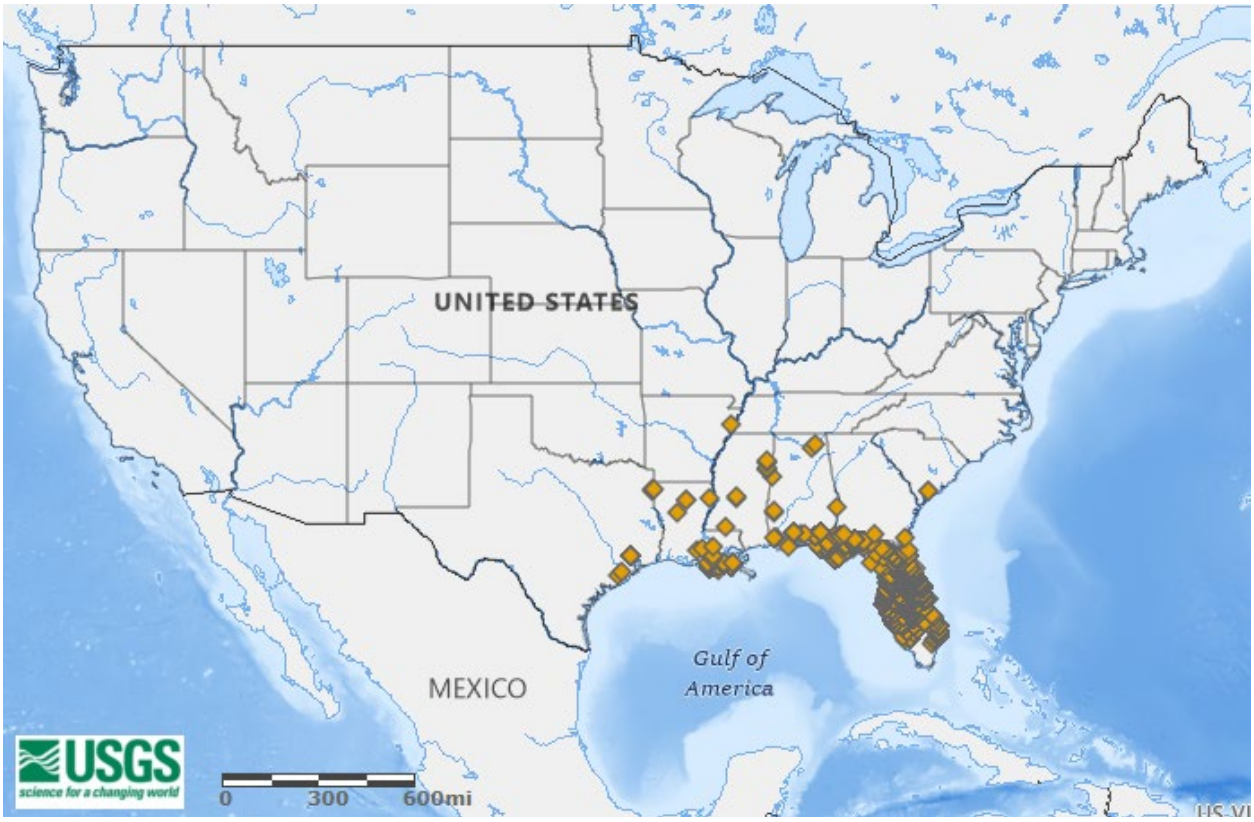

Figure 2. Reported distribution of *Cyperus blepharoleptos* in the United States. Map from McLaurin et al. (2025). Observations are reported from Arkansas, Texas, Louisiana, Alabama, Mississippi, Florida, Georgia, and South Carolina.

7 Climate Matching

Summary of Climate Matching Analysis

The climate matching analysis for *Cyperus blepharoleptos* to the contiguous United States found areas of high match where this species is currently established: the southeastern states and into Texas. Other areas of high match are in the Southwest and the lower Midwest states. The Northeast, northern Midwest, Pacific Northwest, and areas in the Colorado Plateau, Great Basin, and Western Mountains had low climate matches. The overall Climate 6 score (Sanders et al. 2023; 16 climate variables; Euclidean distance) for the contiguous United States was 0.536, indicating that Yes, there is establishment concern for this species. The Climate 6 score is calculated as: (count of target points with scores ≥ 6)/(count of all target points). Establishment concern is warranted for Climate 6 scores greater than or equal to 0.002 based on an analysis of the establishment success of 356 nonnative aquatic species introduced to the United States (USFWS 2024).

Projected climate matches in the contiguous United States under future climate scenarios are available for *Cyperus blepharoleptos* (see Appendix). These projected climate matches are

provided as additional context for the reader; future climate scenarios are not factored into the Overall Risk Assessment Category.

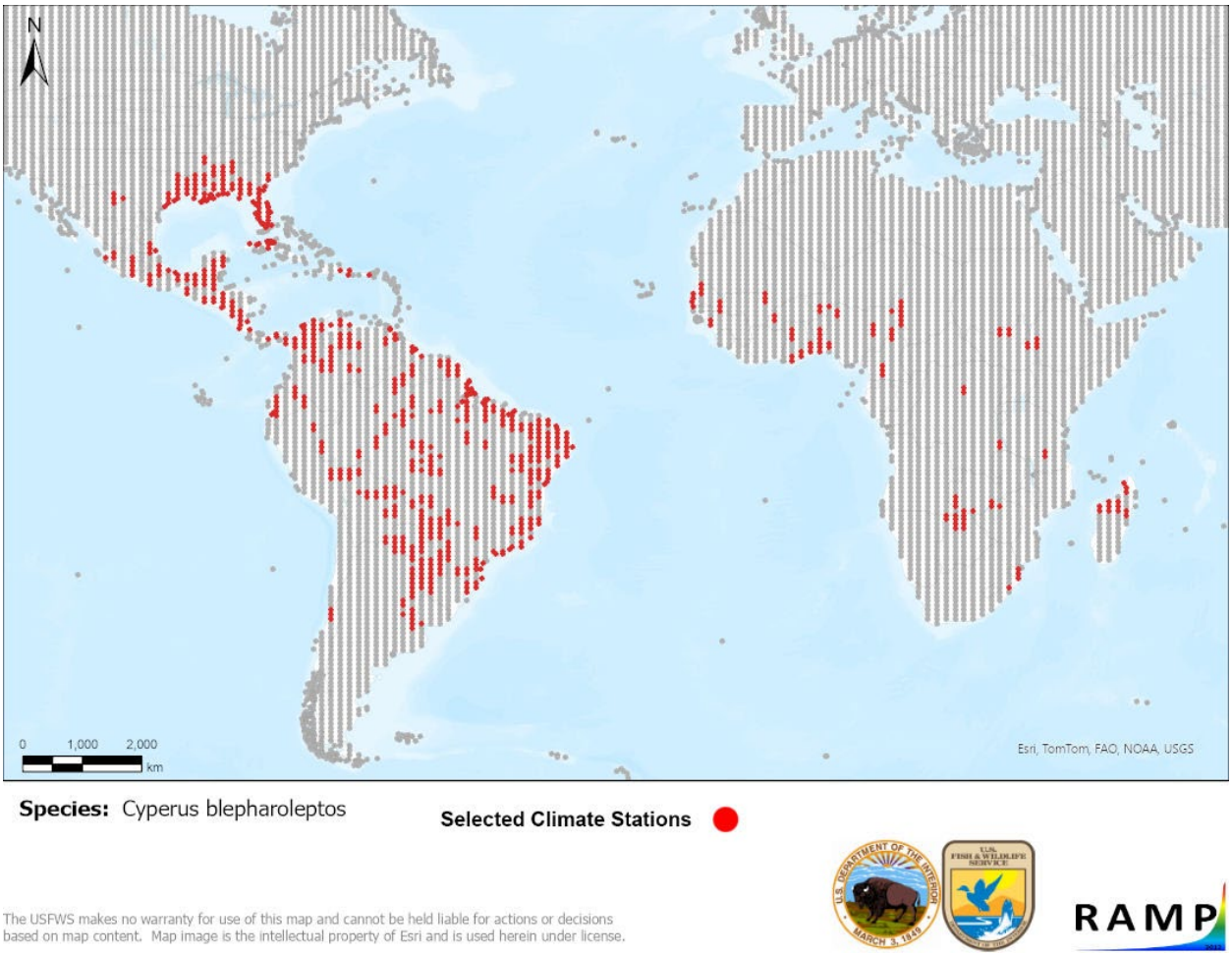

Figure 3. RAMP (Sanders et al. 2023) source map showing weather stations in North America, South America, and Africa selected as source locations (red; United States, Mexico, Central America, Cuba, Jamaica, Dominican Republic, Colombia, Ecuador, Peru, Brazil, Venezuela, Bolivia, Chili, Argentina, Paraguay, Uruguay, Senegal, Guinea, Burkina Faso, Mali, Niger, Nigeria, Ghana, Togo, Benin, Cameroon, Chad, Democratic Republic of Congo, Ethiopia, Tanzania, Madagascar, Zambia, Zimbabwe, Botswana, and South Africa) and non-source locations (gray) for *Cyperus blepharoleptos* climate matching. Source locations from GBIF Secretariat (2022) and McLaurin et al. (2025). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

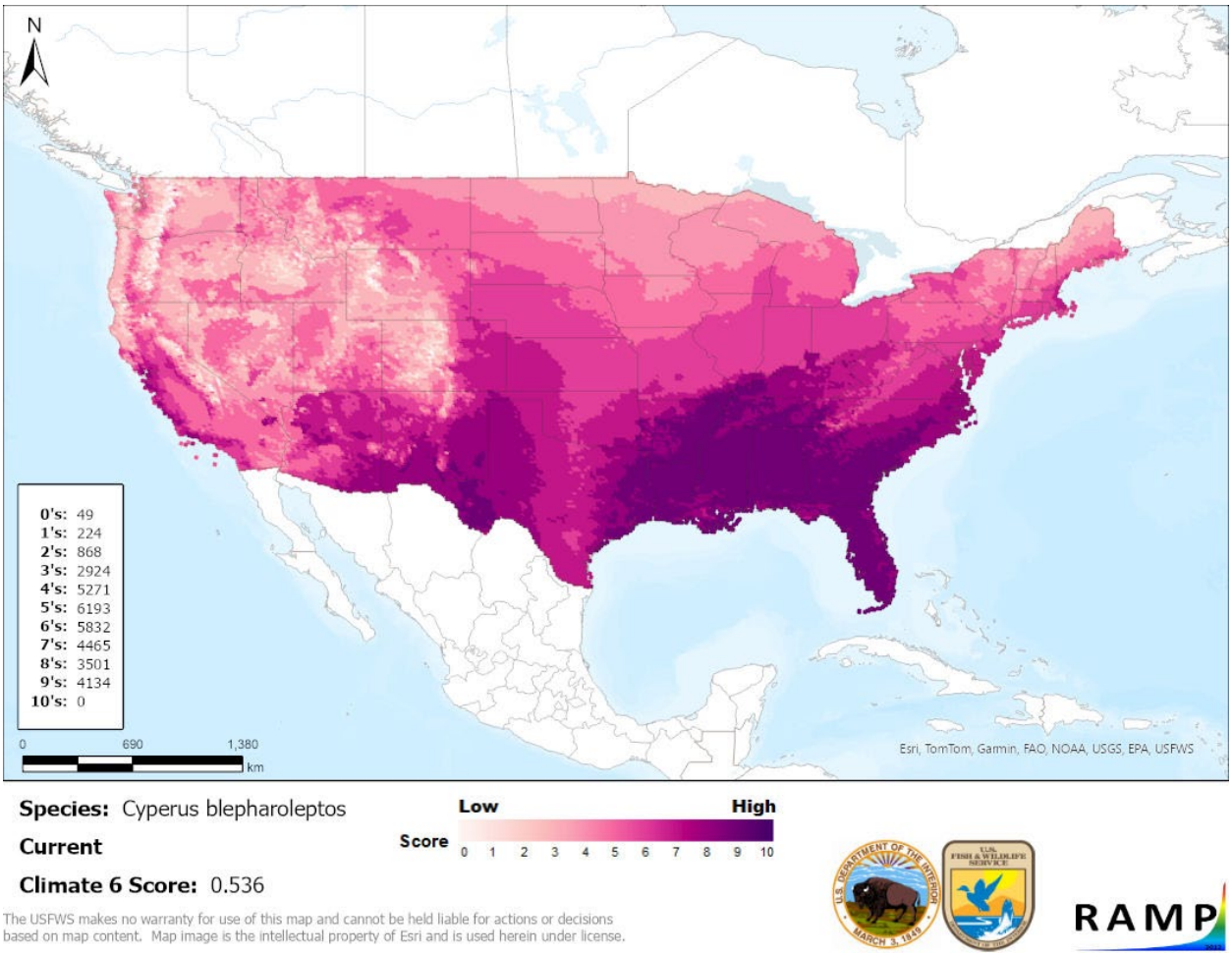

Figure 4. Map of RAMP (Sanders et al. 2023) climate matches for *Cyperus blepharoleptos* in the contiguous United States based on source locations reported by GBIF Secretariat (2022) and McLaurin et al. (2025). Counts of climate match scores are tabulated on the left. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

8 Certainty of Assessment

The Certainty of Assessment for *Cyperus blepharoleptos* is classified as Medium. There is a reasonable amount of information pertaining to species distribution and history of invasiveness. However, sources do contradict regarding species native status in the United States. Impact information was available from a single source.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Cyperus blepharoleptos, Cuban Bulrush, is a flowering aquatic epiphyte plant that is native to Central and South America. It has been introduced and become established in Africa and the United States. *Cyperus blepharoleptos* forms dense mats on the surface of bodies of water. *Cyperus blepharoleptos* is dependent on a preexistent aquatic vegetation to form floating mats or "tussocks." Historically, this species was likely introduced through ship ballast. It may also be

spread by migratory birds ingesting and transporting achenes or seeds. *Cyperus blepharoleptos* tussocks impede water navigation as well as recreational activities. *Cyperus blepharoleptos* also outcompetes submersed aquatic plants for light and degrades water quality from increased organic matter and decreasing oxygen levels. The History of Invasiveness for *Cyperus blepharoleptos* is classified as High due to its history of introductions and establishment and its economic and ecological impact. The climate matching analysis indicates establishment concern for this species. Areas of high match were found in the Southeast and Southwest. The Certainty of Assessment for this ERSS is classified as Medium due to the contradicting information regarding this species native distribution. The Overall Risk Assessment Category for *Cyperus blepharoleptos* in the contiguous United States is High.

Assessment Elements

- **History of Invasiveness (see section 4): High**
- **Establishment Concern (see section 7): Yes**
- **Certainty of Assessment (see section 8): Medium**
- **Remarks, Important additional information: None**
- **Overall Risk Assessment Category: High**

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.

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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.

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Appendix

Summary of Future Climate Matching Analysis

Future climate projections represent two Shared Socioeconomic Pathways (SSP) developed by the Intergovernmental Panel on Climate Change (IPCC 2021): SSP5, in which emissions triple by the end of the century; and SSP3, in which emissions double by the end of the century. Future climate matches were based on source locations reported by GBIF Secretariat (2022) and McLaurin et al. (2025).

Under the future climate scenarios (figure A1), on average, high climate match for *Cyperus blepharoleptos* was projected to occur in the Appalachian Range, Gulf Coast, Mid-Atlantic, Southeast, Southern Atlantic Coast, and Southern Florida regions of the contiguous United States. Areas of low match were projected in small patches throughout the Pacific Northwest, Western Mountains, Great Basin, Colorado Plateau, and the Southwest. The Climate 6 scores for the individual future scenario models (figure A2) ranged from a low of 0.544 (model: MPI-ESM1-2-HR, SSP5, 2085) to a high of 0.750 (model: GFDL-ESM4, SSP5, 2085). All future scenario Climate 6 scores were above the Establishment Concern threshold, indicating that Yes, there is establishment concern for this species under future scenarios. The Climate 6 score for the current climate match (0.536, figure 4) falls below the range of scores for future projections. The time step and climate scenario with the most change relative to current conditions was SSP5, 2085, the most extreme climate change scenario. Under one or more time step and climate scenarios, areas within the Appalachian Range, Great Lakes, Northeast, and Northern Plains saw a large increase in the climate match relative to current conditions. Additionally, areas within the Colorado Plateau, Great Basin, Mid-Atlantic, Northern Pacific Coast, Southeast, and Western Mountains saw a moderate increase in the climate match relative to current conditions. Under one or more time step and climate scenarios, areas within the Appalachian Range, California, Great Basin, Gulf Coast, Southeast, Southern Atlantic Coast, Southern Florida, and Southwest saw a moderate decrease in the climate match relative to current conditions. No large decreases were observed regardless of time step and climate scenarios. The magnitude of change from current conditions was more pronounced in time step 2085 than in time step 2055 under both scenarios, SSP3 and SSP5. Additional, very small areas of large or moderate change may be visible on the maps (figure A3).

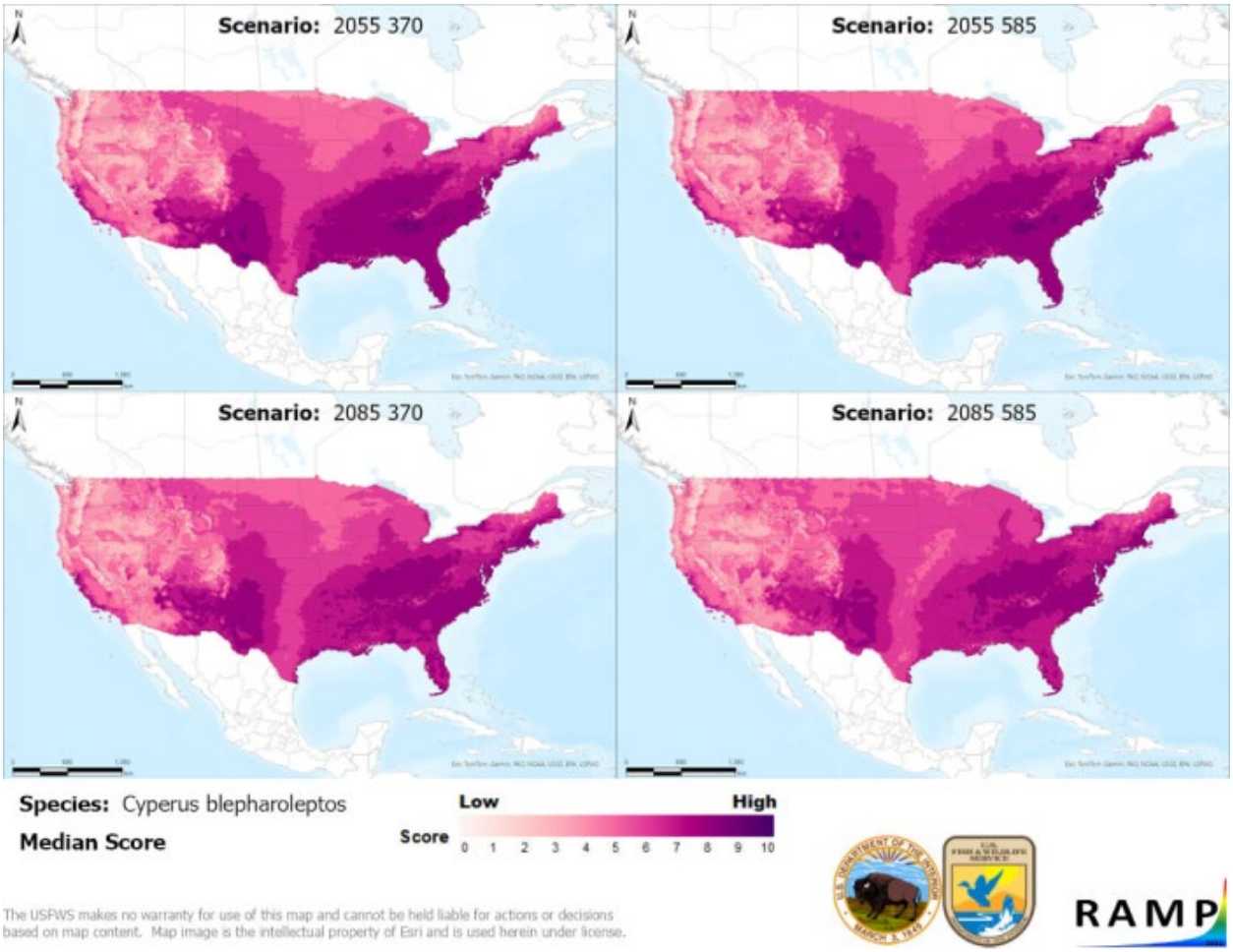

Figure A1. Maps of median RAMP (Sanders et al. 2023) climate matches projected under potential future climate conditions using five global climate models for *Cyperus blepharoleptos* in the contiguous United States. Climate matching is based on source locations reported by GBIF Secretariat (2022) and McLaurin et al. (2025). Shared Socioeconomic Pathways (SSPs) used (from left to right): SSP3, SSP5 (IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global climate models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

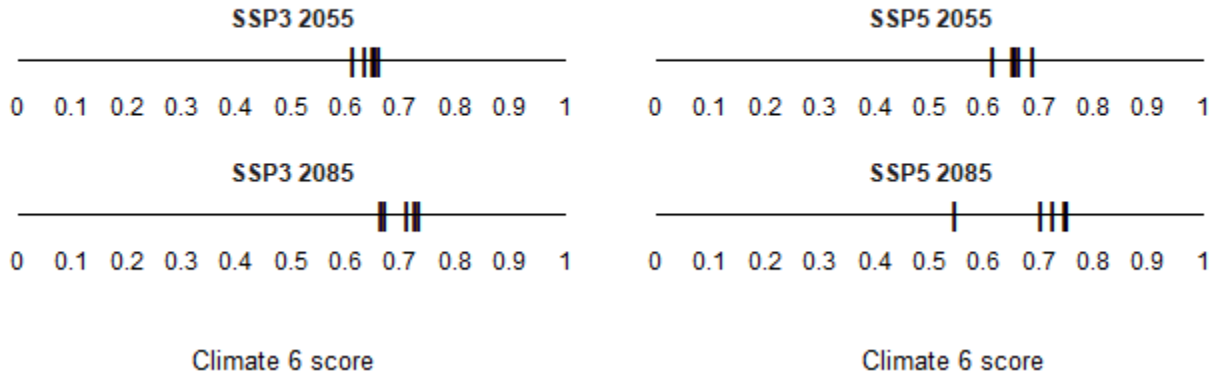

Figure A2. Comparison of projected future Climate 6 scores for *Cyperus blepharoleptos* in the contiguous United States for each of five global climate models under four combinations of Shared Socioeconomic Pathway (SSP) and time step. SSPs used (from left to right): SSP3, SSP5 (Karger et al. 2017, 2018; IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global climate models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0.

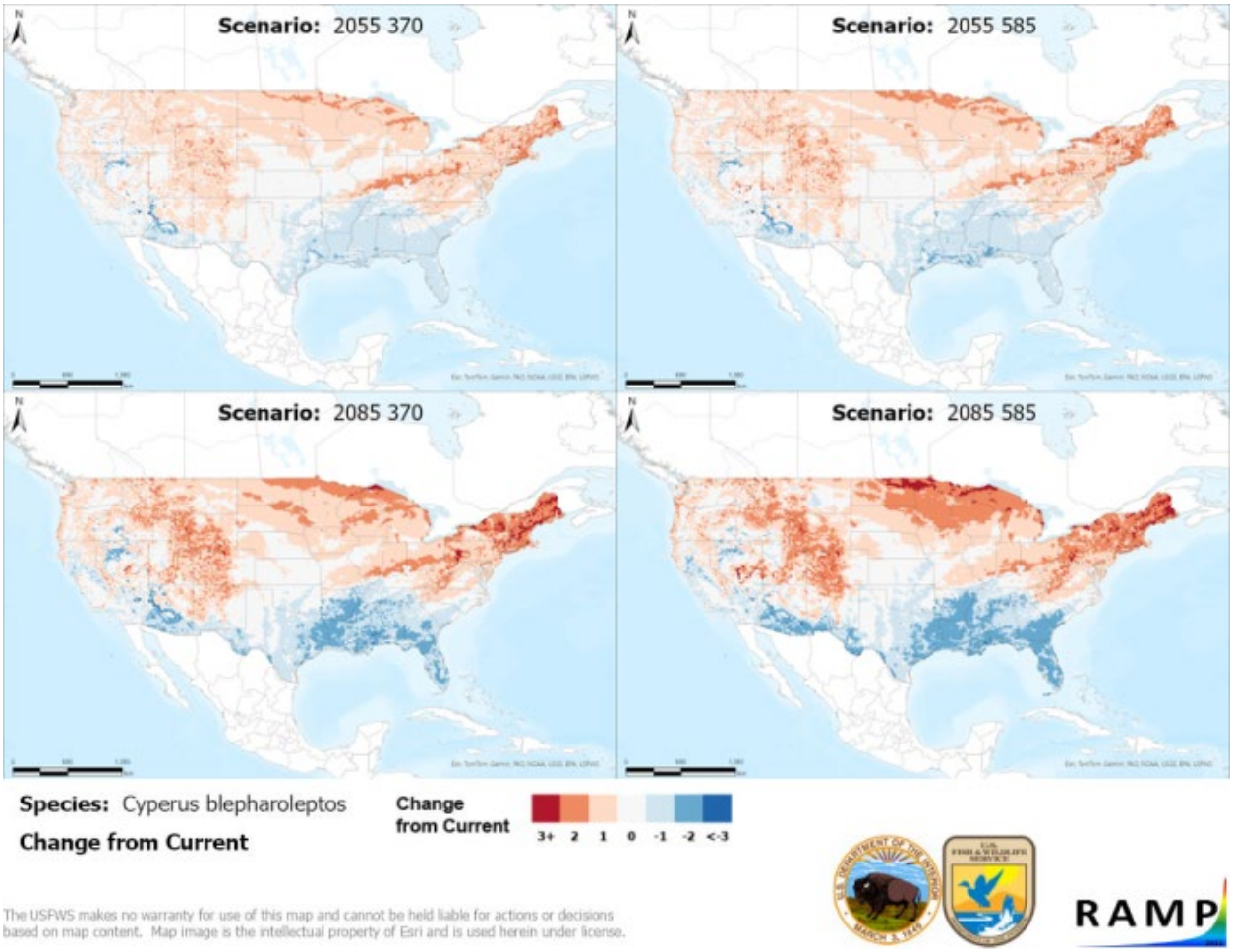

Figure A3. RAMP (Sanders et al. 2023) maps of the contiguous United States showing the difference between the current climate match target point score (figure 4) and the median target point score for future climate scenarios (figure A1) for *Cyperus blepharoleptos* based on source locations reported by GBIF Secretariat (2022) and McLaurin et al. (2025). Shared Socioeconomic Pathways (SSPs) used (from left to right): SSP3, SSP5 (IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0. Shades of blue indicate a lower target point score under future scenarios than under current conditions. Shades of red indicate a higher target point score under future scenarios than under current conditions. Darker shades indicate greater change.

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