

# Mitigating the Risks of Aquatic Invasive Species in Commerce

## Legal Case Study: Water Hyacinth



### Introduction

The introduction and spread of aquatic invasive species pose a threat to aquatic systems. One primary pathway by which aquatic invasive species are moved and introduced to new ecosystems is via commerce - the plant and animal trade. Reducing the risks of harmful aquatic invasive species in trade requires the cooperation and collaboration of each party in the supply chain, including producers, retailers, importers, buyers, and state and federal agencies. The National Sea Grant Law Center developed a case study series to explore the current legal framework governing commercial trade in several popular species and challenges to mitigating risks from this pathway.

### Species Background

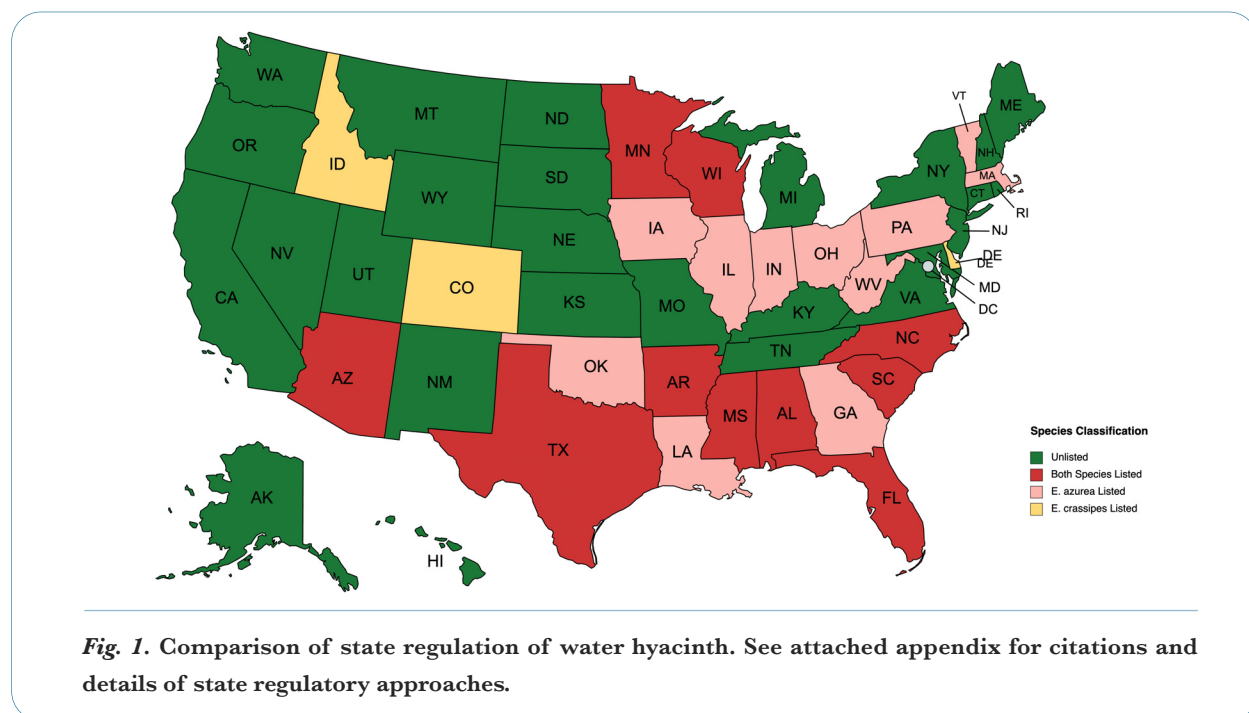
Water hyacinth is an invasive aquatic plant species native to the Amazon Basin in South America. Of the seven known species of water hyacinth, *Eichhornia crassipes* (*E. crassipes*), also known as common or floating water hyacinth, is the most widespread. Water hyacinth grows and reproduces quickly, and can spread to cover large portions of ponds, lakes, and other water bodies. Water hyacinth can outcompete native plants and block sunlight to the water column, negatively impacting biodiversity. Dense mats of water hyacinth impede boat traffic and reduce water flow.

Various accounts exist regarding how water hyacinth may have been introduced in the United States, but introduction likely occurred in the 1880s. By the turn of the 20th century, the plant was causing significant issues in the southeastern United States by outcompeting native species and clogging waterways.

In June 1897, Congress ordered the Secretary of War, who subsequently delegated the authority to the U.S. Army Corps of Engineers (Corps), to investigate and report on obstructions of navigable waters of Florida, Louisiana, and other southeastern states by water hyacinth. In 1898, the Corps recommended that two boats be constructed (one for Florida and one for Louisiana) at a cost of \$25,000 each (the equivalent of nearly \$1 million in today's currency<sup>1</sup>) to remove the current obstructions and maintain navigability.<sup>2</sup> The problem and expense of water hyacinth management has been with us a long time.

Water hyacinth is a popular plant for ornamental ponds and water gardens due to its attractive purple flowers. Many nurseries promote the species to customers and encourage cultivation. E-commerce sales of water hyacinth plants and seeds are widespread. Unfortunately, escape from ponds and water gardens is a common way water hyacinths are introduced into the environment.

## Regulatory Context



Despite water hyacinth being identified as a problematic aquatic invasive species more than a century ago, the regulatory framework for these species remains patchwork at best. At the federal level, Congress took some early action enacting the Rivers and Harbors Act in 1899. The act authorized the construction and operation of “crusher boats” to remove water hyacinth from navigable waterways.<sup>3</sup> Three years later the Rivers and Harbors Act Amendment allowed for the eradication of water hyacinth by mechanical, chemical, or any other means.<sup>4</sup>

<sup>1</sup> \$919,003 according to the [CPI Inflation Calculator](#).

<sup>2</sup> Letter from the Acting Secretary of War transmitting, with a copy of a report, a letter from the Chief of Engineers relating to the obstruction of navigable waters of the South by the Water Hyacinth, U.S House of Representatives, 55th Congress, 3rd Session, Document No. 91 (Dec. 17, 1898).

<sup>3</sup> [U.S. Army Corps of Engineers, Jacksonville District, Aquatic Plant Control Program](#).

<sup>4</sup> *Id.*

In August 1956, Congress adopted Title 18 Section 46 of the U.S. Code. Section 46(a) made it a federal offense to transport *E. crassipes* or seeds via interstate commerce.<sup>5</sup> Congress also prohibited the knowing sale, purchase, or receipt of *E. crassipes* plants or seeds transported in violation of Section 46(a). This provision was codified as part of the general federal criminal code and identified the listed activities as a federal criminal offense. No federal agency was expressly charged with developing or enforcing regulations to implement this provision. Congress's failure to task an agency with responsibility created a significant enforcement gap. In contrast, Title 18 of the Lacey Act, which is also found in this section of the code,<sup>6</sup> authorizes the U.S. Fish and Wildlife Service with permitting and enforcement responsibilities for injurious species.

The Consolidated Appropriations Act for Fiscal Year 2021 repealed the Title 18 Section 46 prohibition on the sale and shipment of common water hyacinth plants and seeds.<sup>7</sup> Because Section 46 was often criticized as an example of Congressional overreach,<sup>8</sup> it is likely that the repeal was motivated by that belief. It is therefore no longer unlawful under federal law to transport *E. crassipes* plants or seeds via interstate commerce, or sell, purchase, or receive such plants or seeds.

Currently, the only federal restriction related to any water hyacinth species is the inclusion of anchored water hyacinth (*E. azurea*) on the federal noxious weed and weed seed list.<sup>9</sup> *E. azurea* is closely related to common water hyacinth (*E. crassipes*), but the plant is rooted rather than free floating. Although uncontrolled growth of both species has similar negative impacts on water bodies, the policy rationale for the distinction among species is unclear. Research conducted on the effectiveness of state legislative policies to prevent the introduction of other aquatic invasive species, such as the rusty crayfish, revealed that the most effective form of regulation is one that does not require individuals to distinguish between species, such as between *E. crassipes* and *E. azurea*,<sup>10</sup> particularly when the deleterious effects of aquatic invasive species within a family are similar.

As with federal regulations, the state regulatory regimes for water hyacinth are inconsistent. This is common in the arena of invasive species management as state policy priorities and agency capacity varies across the country. A study of regulated plant taxa across the United States assessing consistency among adjacent states' regulatory lists found an overlap of just 16.8% of regulated taxa among neighboring states.

Although twenty-four states have statutes or regulations prohibiting or restricting the import, sale, purchase, or possession of water hyacinth, there is significant variation among the states. The state of Florida prohibited release of water hyacinth in 1899. However, aquatic plant nurseries can apply

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<sup>5</sup> 18 U.S.C. § 46.

<sup>6</sup> 18 U.S.C. § 42.

<sup>7</sup> Consolidated Appropriations Act for Fiscal Year 2021, Title X (H.R. 133), Pub. Law 116-260 (Dec. 27, 2020).

<sup>8</sup> See, e.g., Roger Miner, "Dealing with the Appellate Caseload Crisis": the Report of the Federal Courts Study Committee Revisited, 57 N.Y.L. Sch. L. Rev. 517, 525 (2012/2013).

<sup>9</sup> 7 C.F.R. § 360.200(a); 7 C.F.R. § 361.6.

<sup>10</sup> Cassie Dressler and Bradley Swanson, Preemptive legislation inhibits the anthropogenic spread of an aquatic invasive species, the rusty crayfish (*Orconectes rusticus*), Biological Invasions 15:1049–1056 (2013).

for a special permit to grow and export water hyacinth, meaning it may be legally propagated in Florida for sale to other states.<sup>11</sup>

The differences in species regulations observed at the federal level exist at the state level as well.

- Ten states restrict both *E. crassipes* and *E. azurea*: Alabama, Arizona, Arkansas, Florida, Minnesota, Mississippi, North Carolina, South Carolina, Texas, and Wisconsin. Florida lists water hyacinth at the genus level (i.e., *Eichhorina spp.*). South Carolina's restrictions refer to water hyacinth by their common name only.
- In three states, only *E. crassipes* is listed: Colorado, Delaware, Idaho.
- Six states list only *E. azurea*: Illinois, Indiana, Louisiana, Massachusetts, Ohio, and Oklahoma. An additional five states prohibit *E. azurea* through incorporation of the federal noxious weed list in state laws or regulations: Georgia, Iowa, Pennsylvania, Vermont, and West Virginia.

There is a regional pattern with respect to state regulation of water hyacinth. The majority of states that prohibit both *E. crassipes* and *E. azurea* are located in the Southeast, the region impacted by water hyacinth introductions for the longest period of time. Yet twenty-seven states have no restrictions at all despite the species' lack of a native range in the United States, its well-known invasive risk, and climate and other scientific data which indicate the species could establish and thrive. These inconsistencies result in seller and consumer confusion, as well as enforcement challenges.

### **Regulating Water Hyacinth in Commerce – Key Takeaways**

Despite being a well-known threat by 1898, consistent federal and state legal restrictions for water hyacinth remain non-existent. Species such as water hyacinth, which has no native range in any state and are deemed a high invasive risk, are an excellent candidate to propose for harmonizing across state invasive species lists.

Increased interstate consistency is critical in the case of water hyacinth because federal law restricts only anchored water hyacinth as a noxious weed, leaving regulation of common water hyacinth to the states. Additionally, the federal restrictions that once existed for common water hyacinth have been repealed, despite no measurable success in reducing its presence in the United States during the past 125 years. With less than half the states having any restrictions on water hyacinth in place, and only ten states restricting both species, there are significant regulatory gaps creating unrestricted movement of water hyacinth in commerce.

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<sup>11</sup> Fla. Stat. Ann. § 581.145.

## Appendix

### Summary of State Regulation of Water Hyacinth

#### **Alabama: Listed - Both Species**

Both *E. azurea* and *E. crassipes* are classified as noxious weeds in Alabama. Alabama incorporates the federal noxious weed list by reference, thereby listing *E. azurea* as a “Class A” noxious weed under state law. *E. crassipes* is a listed “Class C” noxious weed. Ala. Admin. Code r. 80-10-14-.04. The movement of Class A or C noxious weeds or any regulated article infested with such weeds into or within Alabama is prohibited. Ala. Admin. Code 80-10-14-.05.

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#### **Alaska: Unlisted**

#### **Arizona: Listed - Both Species**

*E. crassipes* is classified as a “Class A” noxious weed in Arizona. Ariz. Admin. Code foll. R3-4-245, Tbl. 4. No Class A noxious weed or commodity infested or contaminated with such weed shall be admitted into the state unless otherwise authorized by the Arizona Department of Agriculture. Ariz. Admin. Code R3-4-245. *E. crassipes* is also classified as a restricted noxious weed seed. Ariz. Admin. Code R3-4-403.

*E. crassipes* is included on the state’s list of aquatic invasive species. [Arizona Game and Fish Department Director’s Order 1](#). It is unlawful to possess, import, ship or transport an aquatic invasive species into or within Arizona without authorization from the Arizona Game and Fish Department. Ariz. Rev. Stat. Ann. § 17-255.02

Arizona incorporates the federal noxious weed list by reference, thereby listing *E. azurea* as a prohibited noxious weed seed under state law. Admin. Code R3-4-403. *E. crassipes* is a listed prohibited noxious weed seed. Ariz. Admin. Code R3-4-403. The sale of agricultural, vegetable, or ornamental plant seed containing any prohibited noxious weed seed is prohibited.

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#### **Arkansas: Listed - Both Species**

Both *E. azurea* and *E. crassipes* have been declared a public nuisance in Arkansas and included on the state’s prohibited plant list. No plant, seed or any reproductive structure of a prohibited plant may be sold or utilized in plantings in Arkansas. Ark. Code R. 209.02.1-I.

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#### **California: Unlisted**

#### **Colorado: Listed - *E. crassipes***

*E. crassipes* is a listed “aquatic nuisance species” in Colorado. 2 Colo. Code Regs. § 405-8:800. Except as authorized by the Colorado Parks and Wildlife, it unlawful for any person to possess, import, export, ship, transport, release, place, plant, or cause to be released, placed, or planted into the waters of the state any aquatic nuisance species. 2 Colo. Code Regs. § 405-8:801.



## **Connecticut: *Unlisted***

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### **Delaware: *Unlisted***

*E. crassipes* is included on the state's Invasive Plant List. Del. Code Ann. tit. 3, § 2904. It is unlawful to import, export, buy, sell, transport, distribute, or propagate any viable portion, including seeds, of a plant on the Invasive Plant List, without approval from the Delaware Department of Agriculture. Del. Code Ann. tit. 3, § 2903.

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### **Florida: *Listed - Both Species (Genus Level)***

Water hyacinths are included on the state's noxious weed list at the genus level. (*Eichhornia spp.*). Fla. Admin. Code r. 5B-57.007. It is unlawful to introduce, multiply, possess, move, or release a noxious weed except under permit issued by the Florida Department of Agriculture and Consumer Services (FDCAS). Fla. Admin. Code Ann. r. 5B-57.004.

Water hyacinths are also listed as "Class 1 Prohibited Aquatic Plants" at the genus level (*Eichhornia spp.*). Possession, collection, transportation, cultivation, and importation of Class 1 Prohibited Aquatic Plants is prohibited except as authorized by permit. Fla. Admin. Code r. 5B-64.011.

The FDACS may issue permits to aquaculture producers to engage in the business of transporting and selling water hyacinths (*Eichhornia spp.*) only to other states or countries that permit such transportation and sale when such aquaculture activities have been certified by the Department of Agriculture and Consumer Services. A Florida aquaculture producer may not ship water hyacinths to other states or countries under such a permit for the purpose of importing water hyacinths back into Florida. Fla. Stat. Ann. § 581.145.

It is unlawful to place or cause to be placed any water hyacinths in state waters. Fla. Stat. Ann. § 861.04.

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### **Georgia: *Listed - E. azurea***

Georgia incorporates the federal noxious weed list by reference, thereby listing *E. azurea* as a noxious weed seed under state law. All seed and vegetative propagules of weeds listed in 7 C.F.R. 360 are prohibited to be intermixed or commingled with any agriculture, vegetable, or ornamental seed. Ga. Comp. R. & Regs. 40-12-4-.01.

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### **Hawaii: *Unlisted***

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### **Idaho: *Unlisted***

Water hyacinths are not listed as a prohibited aquatic invasive species in Idaho, although *E. crassipes* is listed on the Statewide EDRR Noxious Weed List. If listed plants are found to occur in Idaho, they must be reported to the Idaho Department of Agriculture within 10 days and eradicated during the same growing season as identified. Idaho Admin. Code r. 02.06.09.220. Articles infested with designated noxious weeds may not be moved from designated premises until treated or written permission received from a control authority. Idaho Code Ann. § 22-2407.

**Illinois: Listed - *E. azurea***

*E. azurea* is a listed injurious species in Illinois. Ill. Admin. Code tit. 17, § 805.20. Injurious species may not be possessed, propagated, bought, sold, bartered, transported, traded, transferred or loaned to any other person or institution without a permit from the Illinois Department of Natural Resources. Ill. Admin. Code tit. 17, § 805.30.

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**Indiana: Listed - *E. azurea***

*E. azurea* is listed as a prohibited invasive aquatic plant in Indiana. It is unlawful to sell, offer for sale, gift, barter, exchange, or distribute a prohibited invasive aquatic plant except as authorized under a permit issued by the state entomologist. 312 Ind. Admin. Code 18-3-23.

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**Iowa: Listed - *E. azurea***

Iowa incorporates the federal noxious weed list by reference, thereby designating *E. azurea* as an aquatic invasive species in the state. Iowa Admin. Code 571-90.2(456A). Except in limited circumstances, it is unlawful for any person to possess, introduce, import, purchase, sell, barter, propagate, or transport aquatic invasive species. Iowa Admin. Code r. 571-90.3(456A).

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**Kansas: Unlisted**

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**Idaho: Unlisted**

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**Kentucky: Unlisted**

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**Louisiana: Listed - *E. azurea***

*E. azurea* is listed as an “Invasive Noxious Aquatic Plant” in Louisiana. It is unlawful to import or cause to be transported an invasive noxious aquatic plant into the state without a permit from the Louisiana Department of Wildlife and Fisheries. Permits may be issued for the importation, transportation, or possession of any invasive noxious aquatic plant for the purpose of conducting scientific investigations. 76 La. Admin. Code Pt VII, 1101.

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**Maine: Unlisted**

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**Maryland: Unlisted**

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**Massachusetts: Listed - *E. azurea***

*E. azurea* is included on the List of Massachusetts Prohibited Plants. The sale, import, trade, purchase, distribution, propagation, and related activities of listed species is prohibited within the state. [Massachusetts Prohibited Plant List](#).

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**Michigan: Unlisted**

**Minnesota: Listed - Both Species**

Minnesota incorporates the federal noxious weed list by reference, thereby designating *E. azurea* as prohibited invasive species. Minn. R. 6216.0250. No person may possess, import, purchase, propagate, or transport a prohibited invasive species without a permit from the Minnesota Department of Natural Resources. A person may apply for a permit for prohibited invasive species only for the purposes of disposal, decontamination, control, research, or education. Minn. R. 6216.0265

*E. crassipes* is listed as a “regulated invasive species” in Minnesota. Minn. R. 6216.0260. It is unlawful to introduce a regulated invasive species without a permit from the Minnesota DNR. A regulated invasive species permit is not required for a person to possess, import, purchase, propagate, transport, own, or sell a regulated invasive species.

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**Mississippi: Listed - Both Species**

Both *E. azurea* and *E. crassipes* are listed as prohibited species in the state’s guidelines for aquaculture activities. No person may import, sell, possess, transport, release or cause to be released into the waters of the state any prohibited species. Prohibited species may be allowed under a permit issued by the Mississippi Department of Agriculture and Commerce where environmental impact has been assessed. 2 Code Miss. R. Pt. 1, Subpt. 4, Ch. 11.

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**Missouri: Unlisted**

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**Montana: Unlisted**

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**Nebraska: Unlisted**

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**Nevada: Unlisted**

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**New Hampshire: Unlisted**

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**New Jersey: Unlisted**

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**New Mexico: Unlisted**

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**New York: Unlisted**

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**North Carolina: Listed - Both Species**

Both *E. azurea* and *E. crassipes* are designated “noxious aquatic weeds” in North Carolina. *E. azurea* was designated due to its inclusion on the federal noxious weed list. *E. crassipes* is listed as a separate additional species. 15A N.C. Admin. Code 1T.0108. The North Carolina Department of Agriculture and Consumer Services may regulate the importation, sale, use, culture, collection, transportation, and distribution of a noxious aquatic weed as a plant pest. N.C. Gen. Stat. Ann. § 113A-224.



### **North Dakota: *Unlisted***

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### **Ohio: *Listed - E. azurea***

*E. azurea* is listed as an invasive plant species in Ohio. No person shall sell, offer for sale, propagate, distribute, import or intentionally cause the dissemination of any invasive plant. A person may use an invasive plant for research or educational purposes pursuant to a compliance agreement issued by the department. Ohio Admin. Code 901:5-30-01.

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### **Oklahoma: *Listed - E. azurea***

*E. azurea* is listed as a noxious aquatic plant species in Oklahoma. Okla. Admin. Code 800:20-3-2. A. It is unlawful to import into, transport in, place or cause to be placed in the waters of; or cultivate or cause to propagate in the waters of Oklahoma any noxious aquatic plant or seed or reproductive part thereof. Okla. Stat. Ann. tit. 29, § 6-601.

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### **Oregon: *Unlisted***

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### **Pennsylvania: *Listed - E. azurea***

Pennsylvania incorporates the federal noxious weed list in 7 CFR 360.200 by reference, thereby classifying *E. azurea* as a “Class C” noxious weed in the state. 3 Pa. Stat. and Cons. Stat. Ann. § 1519. Except as authorized under a permit allowing use for educational or research purposes, it is unlawful to distribute, cultivate or propagate any noxious weed within the state. 3 Pa. Stat. and Cons. Stat. Ann. § 1515.

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### **Rhode Island: *Unlisted***

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### **South Carolina: *Listed - E. crassipes & General Prohibition by Common Name***

In South Carolina, it is unlawful for any person to possess, sell, offer for sale, import, bring, or cause to be brought or imported water hyacinth into the state, or release or place water hyacinth into any state waters. Special permits may be issued by the department to authorized prohibited activities. S.C. Code Ann. § 50-13-1415.

*E. crassipes* is listed as a noxious weed in South Carolina. Noxious weed may not be imported into South Carolina or sold or distributed within the state. S.C. Code Ann. Regs. 5-584.

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### **South Dakota: *Unlisted***

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### **Tennessee: *Unlisted***

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### **Texas: *Unlisted***

Both *E. azurea* and *E. crassipes* are designated as “harmful or potentially harmful exotic species” in Texas. 31 Tex. Admin. Code § 57.112. Unless authorized under a permit issued by the Texas Parks and Wildlife Department it is unlawful to introduce into public water, possess, import, export, sell, purchase, transport, propagate, or culture a controlled exotic species. 31 Tex. Admin. Code § 57.113.

**Utah: *Unlisted***

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**Vermont: *Listed - E. azurea***

Vermont incorporates the federal noxious weed list by reference, thereby designating *E. azurea* as a “Class B” noxious weed under state law. Vt. Code R. § 2-3-210 Appendix A. The sale, movement, or distribution of Class B Noxious Weeds is prohibited. 2-3 Vt. Code R. § 210.

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**Virginia: *Unlisted***

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**Washington: *Unlisted***

Live turtles with a carapace length of less than four inches may not be sold, held for sale, or offered for sale or distribution in Washington for the purpose of being kept as a pet. Wash. Admin. Code 246-100-191.

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**West Virginia: *Listed - E. azurea***

West Virginia incorporates the federal noxious weed list by reference, thereby designating *E. azurea* as a noxious weed in the state. W. Va. Code R. 61-14A-5; W. Va. Code St. R. 61-14A App. A. It is unlawful to move, transport, deliver, ship or offer for shipment into or within this state any noxious weed without first obtaining a permit from the West Virginia Department of Agriculture and such permit shall be issued only after it has been determined that the noxious weed is generally present throughout the state or is for scientific purposes subject to prescribed safeguards. W. Va. Code Ann. § 19-12D-7.

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**Wisconsin: *Listed - Both Species***

*E. azurea* and *E. crassipes* are designated as “prohibited invasive species” in Wisconsin. Wis. Admin. Code NR § 40.04. It is unlawful to transport, possess, transfer or introduce a prohibited invasive species unless authorized by a permit issued by the Wisconsin Department of Natural Resources. Wis. Admin. Code NR § 40.06.

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**Wyoming: *Unlisted***