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Southeast Exotic Pest Plant Council Invasive Plant Manual

Common Name: Water Hyacinth

Scientific Name: *Eichhornia crassipes* (Mart.) Solms

Water hyacinth is a member of the Pontederiaceae or Pickerelweed/Water-hyacinth family.

Height: Water hyacinth can grow to a height of 0.5 m.

Leaves: The densely veined leaves are suborbicular, ovate or elliptic. They are thick, glossy and waxy measuring 2 to 15 cm long and 2 to 10 cm wide. The erect petioles are thick and spongy up to 50 cm long.

Flowers: Eight to twenty-five flowers are borne on a solitary or branched spike. The flower stalk is pubescent with two bracts; the lower bract forms a blade. The flowers have six bluish to lavender petals with the uppermost petal having a distinct yellow patch. The perianth tube is 15 to 20 mm long. The six stamens have curved filaments and glandular hairs. Flowers are present in the late summer and early fall.

Photo by USDA ARS Archives

Fruit/ Seeds: The fruit is a capsule containing up to 450 seeds. The seeds are oval at the base with a tapering apex measuring four mm long and one mm wide.

Photo by Ted D. Center

Life History

Water hyacinth is an obligate aquatic plant. It forms dense free-floating mats, although it will root in sediment if stranded. It derives all of its nutrients from the water. As the mats develop, growth is primarily dedicated to root production constituting as much as 50% of the total plant biomass. During this time the plant will have very little increase in surface plant size. Winds and water currents may disperse the mats. Reproduction is accomplished both sexually and vegetatively, although vegetative reproduction is more prolific. The production of seeds and seedlings is rarely seen. There it great variability in the production of fruits per flower and seeds per fruit. The seeds may remain viable for twenty years. When seedlings have been seen it is most often on mud banks.

Photo by Willey Durden

Vegetative reproduction starts in the spring from over-wintering plants. Growth is initiated by the production of daughter plants. Growth continues until maximum biomass is achieved in the early fall.

Origin and Distribution

Water hyacinth is thought to be native to the Amazon River basin of South America. It was introduced to the United States in 1884 at the Cotton States Exposition in New Orleans, Louisiana. It spread across the southeastern U. S. and was identified in Florida in 1895. It was reported to be in California in 1904.

Current distribution includes all of the southeastern states, New York, Virginia, Kentucky, Missouri, Alabama, Texas, Arizona, and California. It has been listed as a Federal Noxious Weed and is prohibited or restricted in three states.

Similar Species

Water hyacinth may be confused with the aquatic free-floating frog's-bit (*Limnobium spongia*). Frog's-bit can be distinguished by it's heart-shaped leaves that grow in a rosette. In addition, water hyacinth sometimes has a thick spongy leaf stem, which is absent on frog's-bit. Frog's- bit has silvery roots, compared to the dark, blue-black roots of water hyacinth.

Habitat

Water hyacinth will grow in a wide variety of aquatic habitats including lakes, ponds, rivers, wetlands and marshes. It will grow most prolifically in water of high nutrient content; it has been used in wastewater treatment facilities. It can withstand drastic fluctuations in water level, flow rates, acidity and low nutrient levels. These characteristics make it a popular plant for residential water gardens.

Management Recommendations

Mechanical Control

Harvesting: Harvesting may control small initial populations. Where possible, hand pull all of the plant parts from the water. Plants should be bagged and disposed of. Since plant fragments can potentially start a new infestation, care must be taken not to break plants. Consistent monitoring for several growing seasons is required to control new or missed plants.

Herbicidal Control

Foliar Spray Method: If water hyacinth covers a large area, a foliar spray can be applied using a 2% glyphosate solution or at a rate of 2 kg per ha plus 1% non-ionic surfactant. Since glyphosate is produced in a number of formulations, use a formulation labeled for aquatic use. Glyphosate is a non-selective herbicide, and extreme care must be taken to avoid contact with non-target plant species. Refer to manufacturer's label for specific information and restrictions regarding use.

Biological Control

Triploid Grass Carp: Sterile grass carp or white amur (*Ctenopharyngodon idella*) may be an option in areas with adequate control structures to ensure retention of released fish. Grass carp will eat a variety of vegetation including native species. Grass carp are an option only in areas where impact to all of the vegetation is acceptable. The stocking rates for grass carp have not been established. Local and state laws should be checked before release. Some experts do not recommend grass carp for water hyacinth.

There are three insects that have been successfully introduced to control water hyacinth: two water hyacinth weevils (*Neochetina bruchi, Neochetina eichhorniae*) and the water hyacinth moth (*Niphograpta albiguttalis*). *N. bruchi* is native to Argentina, was released in 1974 and is now established in Florida, California, Texas and Louisiana. *N. eichhorniae*, also native to Argentina, was released in 1972 and is now established throughout the southeastern U. S. where water hyacinth is present. *N. albiguttalis* was released in 1977 and is now established in Florida, Mississippi and Louisiana. All of these species have been successful at reducing water hyacinth populations to some degree. *N. eichhorniae* is considered to be the most successful of the three introductions. Other

control measures are usually necessary.

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