

## BRAZILIAN ELODEA

(*Egeria densa*)

**Description:** Brazilian elodea is a member of the Hydrocharitaceae or waterweed family. Brazilian elodea is an aquatic perennial herb that can grow in depths of water up to 20 feet. Stems of the plant are slender, round, simple to frequently branched, and 10 to 16 feet in length. Once stems reach the surface of the water they form a thick mat. Leaves are arranged in whorls of 4 around the stem, but whorls of 3 to 8 are not uncommon. Leaves are oblong to linear, finely serrated, and less than 1 inch in length. Lower leaves are opposite, while upper leaves are crowded and in whorls. Stems and leaves are bright green in color. Flowers, produced on threadlike stalks that float on or rise above the water's surface, are three-petaled and white in color. Seeds are spindle-shaped and 1/3 of an inch long.

### Plant Images:



Brazilian elodea



Leaf whorl



Flower



Leaves on stem

**Distribution and Habitat:** Brazilian elodea is native to southeastern South America and has been spreading rapidly to many bodies of water throughout the United States. The plant can be found in still or flowing cool to warm fresh bodies of water. The plant prefers shallow waters that are enriched, somewhat acidic, and quiet or slow-moving. Ponds, lakes, reservoirs, ditches, pools, springs, and rivers are areas where Brazilian elodea can thrive once established.

**Life History/Ecology:** Brazilian elodea is a submersed, freshwater aquatic perennial herb that reproduces through vegetative growth. Plants have specialized nodal regions or double nodes that occur at intervals of 6 to 12 nodes along a shoot. These double nodes produce lateral buds, branches, and adventitious roots. Shoot fragments that contain a double node region can develop new plants. Root fragments can also develop from a double node on an old shoot. Brazilian elodea generally overwinters

in a dormant state along the bottom of a water body. The plant begins to initiate growth when water temperatures rise. Growth of the plant is most rapid during the summer as the length of the day and temperature continues to increase, however a fall growth spurt can also occur. After an active growth state, plants experience a period of senescence where tips and branches are sloughed or decayed. Flowers are produced in late spring and again in the fall. Male and female flowers are produced on separate plants, but female plants have not been reported in the United States; as a result, seed production has not been documented in the U. S.

**History of Introduction:** Brazilian elodea is native to the coast of southeastern Brazil through Argentina, and was first reported in the United States at Millneck, Long Island, in 1893. The plant was originally cultivated and sold as an “oxygenator plant.” Oxygenator plants, at the time, were considered to be important in providing habitat where fish were raised to control mosquito larvae. In Florida, Brazilian elodea was planted as part of malaria eradication programs that were common in the early part of the 20<sup>th</sup> century. The plant was also cultivated as an aquarium plant in the tropical fish business. Brazilian elodea quickly escaped cultivation and is now considered naturalized in the eastern United States from New Hampshire and New York southward to Florida, and westward to Nebraska, Kansas, Oklahoma, Texas, Washington, Oregon, California, Arizona, New Mexico, and Utah. Brazilian elodea has not been reported in North Dakota.

**Effects of Invasion:** Brazilian elodea is an aggressive species that can quickly form dense monotypic stands. These stands out-compete desirable aquatic vegetation, thus reducing the plant biodiversity of a body of water. Dense stands of Brazilian elodea also restrict water movement and trap sedimentation that can lead to an interference with irrigation projects, hydroelectric utilities, and urban water supplies. Fluctuations in water quality have also been observed. Recreational activities such as swimming, boating, and fishing can be impeded by the growth of the plant.

**Control:**

Management objectives for Brazilian elodea control should involve prevention and maintenance. Once established, Brazilian elodea is difficult to completely eradicate. Management efforts should include keeping beaches free of plant growth, opening boat lanes from the shore to open water, maintaining favorable plant cover for fish populations, and restoring the diversity of submersed plant communities. Established populations of Brazilian elodea should also be maintained to prevent further spread by fragmentation. Control measures may need to be conducted early in the year before fragmentation occurs.

*Mechanical* - Cutting, harvesting, and rotovation may be used as a means to control the plant, but may tend to enhance the rate of spread through fragments that are produced and capable of producing new plants. Harvesting consists of cutting Brazilian elodea approximately 5 feet below the surface of the water, collecting by conveyer, and storing until disposed on land. Harvesting creates open areas of water by removing surface mats. Harvesting should be repeated throughout the growing season. Under water rototilling dislodges Brazilian elodea roots by churning up to 8 inches into the sediment. Floating roots are removed from the water. Cutting is similar to harvesting, but plants should be removed from the water to prevent regrowth. Rakes, drags, or nets can also be used to suppress or remove the plant. Aquashade, a non-toxic dye or colorant, can reduce infestations of the plant by limiting sunlight penetration, which reduces aquatic plant growth.

Water level manipulation, such as overwatering or drawdown can be an effective control measure to reduce the growth of the Brazilian elodea. Overwatering or raising the water level leads to plants not having access to enough light. Drawdown or lowering the water level can expose Brazilian elodea to

below freezing temperatures or can lead to dehydration. Consecutive drawdowns may be more effective in reducing Brazilian elodea populations than an individual drawdown.

*Chemical* - Several herbicides are available for Brazilian elodea control. Herbicides that include diquat, endothall, fluridone, or copper as an active ingredient have been successful in reducing Brazilian elodea infestation.

Contact your local county extension agent for recommended use rates, locations and timing.

*Biological* - No insect biological control agents are available for Brazilian elodea control. Grass carp will consume the plant and may be used as a control method for the plant. In Washington, grass carp prefer Brazilian elodea over most native species. However, grass carp may remove the entire submersed aquatic community.

### **References:**

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Brazilian elodea photograph Courtesy of Washington State Noxious Weed Control Board.

Leaf whorl, flower, leaves on stem photographs courtesy of Mehrhoff, Leslie J./IPANE.