

Invasive Plants in Pennsylvania

Brazilian Waterweed

Egeria densa



Photo: Richard Old, XID Services,
www.bugwood.org

Background:

Egeria densa was intentionally brought into the U.S. from South America via the aquarium trade in 1893. This plant became established through the act of dumping aquarium contents containing *E. densa* into bodies of water. Today, 37 out of the 50 states have reported *E. densa* and it has also been reported in Puerto Rico and British Columbia.

Habitat:

Egeria densa can be found in ponds, lakes and streams throughout most of North America. Growth is most prolific in the spring and fall because growth becomes limited by lower dissolved oxygen levels that occur in aquatic environments during summer as a result of an increase in temperature.

Description:

Egeria densa is a popular aquarium plant that is often sold as 'Anacharis'. *E. densa* is a perennial that is rooted and grows underwater; however, flowers are borne above the water surface. *E. densa* is characterized by its slender stems and whorls of strap-like leaves that have fine serrations along the margins. Unlike its look-a-like, *Hydrilla verticillata*, *Egeria densa* does not have a subterranean tuber to store carbohydrates for its dormancy in the winter.



Photo: Leslie Mehrhoff, U. of Connecticut,
www.invasive.org

Range:

Egeria densa is only known from the southeastern corner of Pennsylvania but is expected to expand its distribution.

Biology and Spread:

The ability of this plant to increase its distributional range is limited by the lack of females in established populations, forbidding seed production and restricting this species to vegetative reproduction through fragmented stems.

Ecological Threat:

Being an invader to Pennsylvania, Brazilian waterweed has no natural enemies to control its growth. With nothing to keep it in check, this species grows vigorously in ponds and lakes and forms dense mats that inhibit sunlight from penetrating much past the water surface. As a result, almost everything in the aquatic habitat dies off except this plant, a reduction in pond biodiversity occurs, and the recreational capacity of the water body is limited.



Photo: William Haller, U. of Florida,
www.invasive.org

How to Control this Species:

Triploid grass carp (*Ctenopharyngodon idella*) may be the most cost-effective method that currently exists for *Egeria densa* eradication, as well as other aquatic plants. These non-native grass carp consume 20 to 100 percent of their body weight in aquatic vegetation each day and can live for twenty years.

However, grass carp can bring positive or negative effects depending on the execution and what the objectives are for that body of water. Overstocking an *Egeria densa*-infested pond with grass carp will result in a rapid degradation of water quality due to the amounts of organic nutrients that are released after consumed by grass carp. These nutrients fuel algal blooms which die off and sustain benthic bacteria, which feed on the dead algae and create dead zones (anoxia) in the water body.

Finding the right density of grass carp to add is key to a sustainable control of *Egeria densa*, although the best way to control this species is to limit the nutrient sources that provide the essentials for excessive aquatic plant growth in the first place.

This may be accomplished through the establishment of a riparian buffer which will remove some nutrients from the source before they make it into the waterbody.

The remarkable ability of this species to spread via vegetative growth makes physical removal of this plant undesirable because new plants can develop from fragments that have at least two nodes. Physical removal is a way to temporarily control this plant due to inevitability that a new population will establish from fragments that were missed.

Chemical control is another short-term control method that typically costs more than other control techniques and is not species-specific, potentially decimating other beneficial aquatic plants in the area.

Native Alternatives:

Elodea canadensis (Canadian waterweed) is a Pennsylvania-native aquatic plant with a similar morphology as *Egeria densa*, but it can be distinguished by having three leaves per whorl, whereas *E. densa* typically has four or more per whorl. *Elodea canadensis* (pictured below) oxygenates the water, provides shelter for aquatic vertebrates and invertebrates, and is consumed by waterfowl, beaver and muskrat.



Photo: Christian Fischer© [Wikipedia.org](https://en.wikipedia.org/wiki/Elodea_canadensis)

References:

Center for Aquatic and Invasive Plants: <http://plants.ifas.ufl.edu/node/139>

Washington Department of Ecology: <http://www.ecy.wa.gov/programs/wq/plants/weeds/egeria.html>

Center for Invasive Species and Ecosystem Health: <http://www.invasive.org/browse/detail.cfm?imgnum=5233064>

PA Flora Project: <http://paflora.org/sp-page.php?>