

Hydrilla: An Invasive Aquatic Plant

Hydrilla verticillata

Common Name: Hydrilla

Biology

Hydrilla is a submerged, rooted perennial plant, which can grow in depths of up to twenty feet. Its long, slender stem serves as a central axis to rough, green leaves. Arranged in whorls of three to eight leaves around the stem, each leaf has serrated or “tooth-like” margin and a distinct red midrib. The underside of the midrib may have one or more spines. Attached to the root tips are pale-colored, “potato-like” tubers. Similar bud-like structures called “turions” are produced along the stem of the plant. Characteristically, the flowers are comprised of three petals and three sepals. The female flowers rise above on long thin stalks and have translucent petals and white sepals, while the male flowers are situated on shorter stalks and have white or red petals with white, red, or brown sepals. Fertilized flowers produce small, brown, spindle-like seeds.

Reproduction

Hydrilla can reproduce asexually by vegetative reproduction and sexually by seed formation. Of the two, vegetative reproduction is more common. It occurs by stem (rhizome) fragmentation and production of tubers and turions. Stem fragmentation allows this species to re-sprout and grow into new plants. Similarly, tubers and turions can break off and form new plants as well. Tubers are extremely hardy and may remain viable in undisturbed sediments for up to four years. Although sexual reproduction by flowering is less common, fertilization produces viable seeds that can reach maturation as quickly as two months.

Habitat

This species was first introduced in North America through an aquarium dealer in the 1950s. Invasions occur mostly in the southern US states; however, Hydrilla invasions are not limited to these areas. Infestations have also been reported in New England states, such as Maine, Massachusetts, and Connecticut. Hydrilla is a generalist species; therefore, it has a wide range of environmental tolerances. It is commonly found in lakes, ponds, and slow-moving streams, but is rarely found in fast-moving streams. It tolerates water conditions ranging from fresh spring water to brackish creeks and bays. Nearly unaffected by water chemistry conditions, it is found in both oligotrophic and eutrophic water bodies. In temperate regions, Hydrilla will die back, but turions and tubers will allow this hardy species to grow back in the spring.

Impacts and Threats Posed by Hydrilla

Hydrilla quickly reproduces to form extremely dense mats. The extremely dense mats shade out native vegetation, resulting in the decrease of the local native aquatic plants. Species that depend on the native vegetation must relocate or perish; thereby, leading to a reduction in the local biodiversity. Additionally, these dense stands negatively impact bird and fish habitat by altering the temperature profile, pH, and flow invaded waterbody. In the fall, the dense mats die back. This decaying event causes a reduction in the oxygen levels. Substantial depletion of oxygen can result in anoxic conditions, which kill fish and other organisms in the waterbody. Furthermore, invasions impose limitations on water use for recreational purposes, such as boating and fishing, which leads to negative impacts on real estate values and tourism.

Management Methods

General management methods include:

- mechanical harvesting
- drawdowns
- herbicides

Literature Cited

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2. <http://www.mass.gov/dcr/watersupply/lakepond/factsheet/Hydrilla.pdf>
3. http://www.sms.si.edu/IRLSpec/Hydrilla_verticillata.htm