

HYDRILLA

Hydrilla verticillata

NOT NATIVE TO MAINE - INVASIVE

Habitat: Hydrilla is found in the submersed plant community. The adaptability of this plant to a wide variety of environmental conditions has earned hydrilla its reputation as the perfect weed. Hydrilla can grow in a variety of substrates, in waters still or flowing, low or high in nutrients. Hydrilla may also threaten estuary systems, tolerating salinities up to 10 parts per thousand. Remarkably adapted to low light conditions, hydrilla can photosynthesize earlier and later in the day than most plants, grows well in turbid water and, when the water is clear, to depths exceeding 10 meters. Hydrilla typically occurs in dense, rooted stands, but live fragments may also be found drifting in large mats. Hydrilla is considered one of the most problematic of all aquatic invaders.



Description: Hydrilla is a perennial submersed aquatic plant with long slender, branching stems emerging from horizontal underground rhizomes and above ground stolons. The leaves are strap-like and pointed with claw-like serrations along the outer margins. (The serrations are tiny but generally visible without magnification.) The leaves are typically arranged in whorls of 4 to 8. (Note: the lower leaves may be opposite or in whorls of 3.) Small white flowers rise to the surface on slender stalks from the upper leaf axils. Hydrilla produces two types of over-wintering structures. Spiny green turions (5 to 8 mm long) are produced in the leaf axils. Small, somewhat crescent-shaped tubers (5 to 10 mm long), form along the rhizomes and stolons. The tubers have a scaly appearance under magnification and are pale cream to brownish in color.

Identification of hydrilla is complicated by the fact that there are two distinct forms occurring in the United States. (Please see summary of differences on page 46.)

Hydrilla (*Hydrilla verticillata*)

Origin and Range: Hydrilla is native to Africa, Australia, and parts of Asia. The dioecious form, found primarily in more southern latitudes, was first introduced to the US through the aquarium trade during the mid-1900s. The monoecious form, found primarily in northern latitudes, was introduced some time later and has now been confirmed in several New England states, including Maine, Connecticut, Massachusetts and also New Jersey. See next page for description of the two forms.



Annual Cycle: Hydrilla sprouts from over-wintering rhizomes, tubers and turions in the spring, the leafy stems growing rapidly (about 2 cm per day) toward the surface. Flowers, turions and tubers are produced during the growing season. The turions drop to the sediments when the leafy vegetation begins to break up in the fall. The plants die back completely to the sediments by early winter, a remarkable vanishing act given the amount of biomass involved. The rhizomes, tubers and turions over-winter. The turions will sprout the following spring, but the tubers may remain dormant for several years in the sediments. Research indicates that one tuber can lead to the production of over 5,000 new tubers per square meter. The tubers and turions can withstand ice cover, drying, ingestion by waterfowl, and herbicides. Studies also indicate that the monoecious form (the form found in Maine) puts more of its energy into tuber and turion production than the dioecious form, and may have a greater potential for spread by these means. In addition to reproducing vegetatively by way of tubers and turions, hydrilla propagates readily from stem or root fragment. New plants can sprout from stem fragments containing as few as two nodes or whorls of leaves. The monoecious form can produce viable seeds. Seed production and viability is thought to be low relative to vegetative reproduction.

Look Alikes: May be confused with Brazilian waterweed, native waterweeds, water starworts and mare's tail.



Dense mat of hydrilla

HYDRILLA– continued

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Below is a summary of characteristics that help differentiate the two forms of hydrilla that occur in the United States. (*NOTE: Only the monoecious form has been identified in Maine.*)

Monoecious

Range: Generally the form found in waters of the northern United States, including Maine, Connecticut and Massachusetts.

Flowers: Male and female flower parts appear on the same plant. Flowers have three whitish sepals and three translucent petals.

Habit: Plants branch profusely at the sediments, growing rapidly toward the surface (like a shag carpet gone berserk).

Leaves: Delicate, translucent leaves average 4 to 10 mm in length; no pronounced midrib. Leaves generally lacking midrib spines.

Dioecious

Range: Generally the form found in waters of the southern United States, including Florida, Louisiana and Texas.

Flowers: Male and female flower parts appear on separate plants. All populations found in the US are female. (All reproduction of this form in the United States is asexual.)

Habit: Stems grow upward from the sediments, branching profusely at the surface. Plants generally more robust-looking than monoecious form.

Leaves: Robust leaves average 6 to 20 mm in length with pronounced (sometimes reddish) midribs. Sharp spines may be present along the undersides of the midribs.



Leaf serrations on both forms are claw-like

Relative comparison of leaf-size



Dioecious form
leaf with barbs
along underside
of midrib



Monoecious form
leaf with NO
barbs along
underside of
midrib



Tubers



Turions

Both forms produce
tubers and turions



Dioecious form habit



Monoecious form habit