

Native Plant Highlight: Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV) is a particular category of vascular plant that is based upon growth habit and form, and habitat characteristics. SAV refers to plants that live and grow entirely underwater, or just at the water's surface. Several species when in bloom, may have their flowers emerging just above the water's surface, but for the majority of their lives, SAV are found completely submerged. SAV, because they live in an aquatic environment, have special adaptations. For example, the leaves and stems of SAV do not have specialized plant tissue that serve as structural support because the surrounding water medium provides that support. There are also specialized cells within the leaves and stems of SAV called aerenchyma, which are thin-walled cells with large intercellular air spaces. These cells provide additional buoyancy and support to the plant. In addition, the leaves and stems of SAV are generally thin and do not have a waxy covering on their surfaces called a cuticle, which is typical of most terrestrial plants. The lack of a cuticle increases the exchange of gasses and nutrients between the plant and water. When an SAV is removed from the water for an extended period of time, it loses moisture rapidly and will eventually desiccate and die.

In Delaware, there are 41 species and varieties of SAV known to occur; 34 are native and 7 are alien. Alien species include four that are considered to be invasive in nature. The SAV flora of Delaware is represented by 10 families and 34 genera. The families containing the largest number of species include: Potamogetonaceae (Pondweed Family) 12 taxa, Lentibulariaceae (Bladderwort Family) 9 taxa, Haloragaceae (Water-milfoil Family) 6 taxa, and Hydrocharitaceae (Frog's-bit Family) 5 taxa. The genera containing the largest number of species include: *Potamogeton* (pondweed) 12 taxa, *Utricularia* (bladderwort) 9 taxa, and *Myriophyllum* (water-milfoil) 6 taxa. SAV in Delaware are a very rare category of plants with 23 species (56% of the total SAV flora) considered to be rare and uncommon, four are thought to be historical (not reported for 15 or more years), and four are considered to be extirpated (gone from the state). The majority of SAV in Delaware have a perennial habit (38), with only three being annual. Most of the SAV flora of Delaware is found in fresh water systems (35), with 6 species found in brackish to salt water systems. Eleven species of SAV in Delaware have a more northern distribution, or are at or near their southern limits of geographic distribution. Five species have a more southern distribution and are at or near their northern limits.

Submerged Aquatic Vegetation in Delaware

SCIENTIFIC NAME	COMMON NAME
Ceratophyllum demersum	common hornwort
Ceratophyllum echinatum	prickly hornwort (uncommon)
Egeria densa	Brazilian waterweed (invasive alien)
Elodea canadensis	broad waterweed
Elodea nuttallii	Nuttall's waterweed
Heteranthera dubia	grassleaf mud-plantain (rare)
Hydrilla verticillata	hydrilla (invasive alien)
Myriophyllum aquaticum	parrot feather (invasive alien)
Myriophyllum heterophyllum	broadleaf water-milfoil (rare)
Myriophyllum humile	low water-milfoil (uncommon)
Myriophyllum sibiricum	common water-milfoil (alien)

<i>Myriophyllum spicatum</i>	Eurasian water-milfoil (invasive alien)
<i>Myriophyllum verticillatum</i>	whorled water-milfoil (historical)
<i>Najas gracillima</i>	thread-like naiad (rare)
<i>Najas guadalupensis</i> ssp. <i>guadalupensis</i>	southern naiad (historical)
<i>Najas minor</i>	water-nymph (alien)
<i>Potamogeton crispus</i>	curly pondweed (alien)
<i>Potamogeton diversifolius</i>	water-thread pondweed
<i>Potamogeton epihydrus</i>	Nuttall's pondweed
<i>Potamogeton foliosus</i>	leafy pondweed (uncommon)
<i>Potamogeton natans</i>	floating pondweed (historical)
<i>Potamogeton nodosus</i>	longleaf pondweed
<i>Potamogeton pectinatus</i>	Sago pondweed
<i>Potamogeton perfoliatus</i>	clasping-leaf pondweed (historical)
<i>Potamogeton pulcher</i>	spotted pondweed
<i>Potamogeton pusillus</i>	slender pondweed (rare)
<i>Potamogeton robbinsii</i>	flatleaf pondweed (extirpated)
<i>Potamogeton spirillus</i>	spiral pondweed (extirpated)
<i>Ruppia maritima</i>	ditch-grass
<i>Utricularia biflora</i>	two-flower bladderwort (rare)
<i>Utricularia fibrosa</i>	fibrous bladderwort (rare)
<i>Utricularia geminiscapa</i>	hidden-fruited bladderwort (uncommon)
<i>Utricularia gibba</i>	humped bladderwort (uncommon)
<i>Utricularia inflata</i>	large swollen bladderwort (rare)
<i>Utricularia macrorhiza</i>	large bladderwort
<i>Utricularia minor</i>	lesser bladderwort (extirpated)
<i>Utricularia purpurea</i>	purple bladderwort (rare)
<i>Utricularia radiata</i>	small swollen bladderwort (uncommon)
<i>Vallisneria americana</i>	tape-grass
<i>Zannichellia palustris</i>	horned pondweed (rare)
<i>Zostera marina</i>	eel-grass (extirpated)