

## Shoreline and Shallow Water Plant Habitats in New England

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If you are fortunate to have a small pond or wetland on your woodlot, you may have marveled at plant life at the water's edge. These moist shoreline and shallow water areas harbor a diversity of plants that is much higher compared to more upland areas. The shoreline zone is part of the so-called riparian area, which is the transition between water and land at the edges of streams, rivers, lakes, springs, and wetlands (photo 1).



*Photo 1. Diverse shoreline and shallow water vegetation of a small pond (in this case, created by a small dam on a stream). This pond is located near Portland, Maine.*

This short article discusses and illustrates some plant species that grow in shoreline habitats (such as shown in the picture above) and briefly discusses the task of “wetland delineation.” A partial list of species that grow here is also provided. Developing a list of plants for these habitats provides a great opportunity to educate others (such as woodland owners and other nature lovers) about wetland plants and their habitat. For younger students and lifelong learners, several good Web sites that treat broader aspects of water-related education include <http://www.projectwet.org/>, <http://projectwild.org/aquatic/index.htm>, and <http://www.nycwatershed.org/resourcehub/>. Each year in the U.S. and Canada, the Envirothon Competition also offers “aquatics” training and an aquatics test for high school and middle school students.



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Being able to identify these wetland plants is essential when delineating wetlands (photos 2 and 3) for legal purposes. The three-parameter approach for delineating wetlands includes the following:

- **Hydrophytic Plants:** These are aquatic plants adapted to living in aquatic environments; they can only grow in water or in soil that is permanently saturated with water, and therefore are a component of wetlands; some of these plants have special adaptations for living submerged in water, or at the water's surface. (Wikipedia.com)
- **Hydric Soils:** Hydric soil is “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” Anaerobic conditions produce “biogeochemical processes, such as the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements” (Regional Supplement to the Corps of Engineers Wetland Delineation Manual, 2012).
- **Wetland Hydrology:** Wetland hydrology indicators (observation of surface water, high water table, and saturation) or evidence of recent inundation (water marks, sediment deposits, and algal mats) provide “evidence that episodes of inundation or soil saturation lasting more than a few days during the growing season have occurred repeatedly over a period of years and that the timing, duration and frequency of wet conditions have been sufficient to produce a characteristic wetland plant community and hydric soil morphology” (Regional Supplement to the Corps of Engineers Wetland Delineation Manual, 2012).

For a thorough, technical discussion on wetland delineation, including using hydrophytic vegetation indicators, see “Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,” Version 2.0, U.S. Army Corps of Engineers, January 2012. According to information in this Regional Supplement, a plant-community approach is used to evaluate wetland vegetation, and “hydrophytic vegetation decisions are based on the assemblage of plant species growing at a site, rather than the presence or absence of particular indicator species.” A list of wetland plants is provided in the 2014 Northcentral and Northeast Regional Wetland Plant List at <http://rsgisias.crrel.usace.army.mil/NWPL/>.

According to Marc Jacobs, a Certified Soil and Wetland Scientist with 30 years of experience in New Hampshire and Massachusetts, the best time to delineate wetlands is April, May, and June.



*Photos 2 and 3. Wetland delineation workshop in New Hampshire. Participants studied hydrophytic plants and used a soil color chart to help determine whether hydric soils were present after digging a soil pit.*

Documenting wetland plants on your property and describing conservation and management options/recommendations for wetlands can be an important element of a forest stewardship plan (contact your State Forest Agency for advice on developing a plan for your property). See the text box below for elements to be considered when developing a forest stewardship plan.

**Forest Stewardship Plan Elements to be Considered When Developing a Forest Stewardship Plan**

(From Forest Stewardship Program National Standards and Guidelines as Currently Revised, August 2015; USDA Forest Service, State and Private Forestry, Cooperative Forestry)

The plan preparer will consider, describe, and evaluate plan elements and their importance to the ownership when they are present. The plan element Wetlands is bolded below.

- Soil and water
- Biological diversity
- Range
- Agroforestry
- Aesthetic quality and desired timber species
- Recreation
- Wood and fiber production
- Fish and wildlife
- Threatened and endangered species
- Forest health and invasive species
- Conservation-based estate planning / legacy planning information
- Archeological, cultural, and historic sites
- **Wetlands**
- Fire
- Carbon sequestration and climate resilience
- Forests of Recognized Importance (FORI)

Exercise great care when studying these plants due to the fragile and often muddy habitat. Walk lightly and, when you can, stand on hard surfaces such as boulders and pieces of wood. Better yet, you can explore the entire shoreline with a kayak or canoe, but don't drop your camera into the water!

**Scientific and Common Names of Some Plants Observed in Shoreline and Shallow Water Habitats near Portland, Maine<sup>1</sup>**

<i>Bidens frondosa</i>	Devil's beggar-ticks
<i>Brasenia schreberi</i>	water-shield
<i>Calamagrostis Canadensis</i>	bluejoint
<i>Carex atlantica</i>	prickly bog sedge
<i>Carex canescens</i>	hoary sedge
<i>Carex comosa</i>	bearded sedge
<i>Carex debilis</i>	white edged sedge
<i>Carex echinata</i>	star sedge
<i>Carex folliculate</i>	northern long sedge
<i>Carex gynandra</i>	nodding sedge
<i>Carex lasiocarpa</i>	woolly-fruited sedge
<i>Carex lurida</i>	sallow sedge
<i>Carex scoparia</i>	pointed broom sedge
<i>Carex utriculata</i>	swollen-beak sedge
<i>Chamaedaphne calyculata</i>	leatherleaf
<i>Drosera intermedia</i>	spatulate-leaved sundew
<i>Drosera rotundifolia</i>	round-leaved sundew
<i>Dulichium arundinaceum</i>	three-way sedge
<i>Eleocharis robbinsii</i>	Robbins' spikesedge
<i>Eupatorium perfoliatum</i>	boneset thoroughwort
<i>Galium tinctorium</i>	stiff three-petaled bedstraw
<i>Galium trifidum</i>	three-petaled bedstraw
<i>Glyceria Canadensis</i>	rattlesnake manna grass
<i>Hypericum canadense</i>	Canada St. Johnswort
<i>Hypericum mutilum</i>	dwarf St. John's-wort
<i>Ilex mucronata</i>	mountain holly
<i>Ilex verticillata</i>	common winterberry
<i>Iris versicolor</i>	blue iris
<i>Juncus Canadensis</i>	Canada rush
<i>Juncus effuses</i>	soft rush
<i>Leersia oryzoides</i>	rice cut grass
<i>Lycopus americanus</i>	American water-horehound
<i>Lycopus uniflorus</i>	northern water-horehound

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<sup>1</sup> Based on inventory by Matt Arsenault of Stantec Consulting and adapted and revised by Roger Monthey. Arsenault's list was adapted by including only obligate plants (occur almost always in wetlands); facultative wetland plants (usually occur in wetlands, but occasionally found in non-wetlands); and shallow water habitat species. Determination of obligate and facultative wetland species was based on information presented at the GoBotany Web site (<https://gobotany.newenglandwild.org/>). The original Arsenault list included some facultative plants (equally likely to occur in wetlands and non-wetlands) and facultative upland plants (usually occur in non-wetlands, but occasionally found in wetlands). Shorelines may include these latter two groups. For example, elevated, drier areas of shorelines can support some facultative upland plants. A few additional species were identified by the author and added to the list presented here.

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<i>Lysimachia terrestris</i>	swamp yellow-loosestrife
<i>Morella pensylvanica</i>	northern bayberry
<i>Nymphaea odorata</i>	white water lily
<i>Onoclea sensibilis</i>	sensitive fern
<i>Osmundastrum cinnamomeum</i>	cinnamon fern
<i>Platanthera clavellata</i>	little club-spur bog-orchid
<i>Pogonia ophioglossoides</i>	rose pogonia
<i>Potamogeton natans</i>	floating pondweed
<i>Rhynchospora alba</i>	white beaksedge
<i>Rhynchospora capitellata</i>	brownish beaksedge
<i>Rubus hispida</i>	bristly blackberry
<i>Sagittaria latifolia</i>	common arrowhead
<i>Sarracenia purpurea</i>	purple pitcherplant
<i>Schoenoplectus subterminalis</i>	water bulrush
<i>Scirpus atrocinctus</i>	black-girdled woolsedge
<i>Scirpus cyperinus</i>	woolgrass
<i>Scirpus microcarpus</i>	barber-pole bulrush
<i>Sparganium americanum</i>	common bur-reed
<i>Spiraea alba</i>	white meadowsweet
<i>Spiraea tomentosa</i>	steeplebush
<i>Typha latifolia</i>	broad-leaved cat-tail
<i>Utricularia intermedia</i>	flat-leaved bladderwort
<i>Utricularia cornuta</i>	horned bladderwort
<i>Utricularia geminiscapa</i>	mixed bladderwort
<i>Utricularia vulgaris</i>	common bladderwort
<i>Vaccinium corymbosum</i>	highbush blueberry
<i>Vaccinium macrocarpon</i>	large cranberry
<i>Vallisneria spiralis</i>	tape-grass
<i>Viola lanceolata</i>	lance-leaved violet
<i>Viola pallens</i>	smooth white violet
<i>Xyris</i> sp.	yellow-eyed grass

The following photos show some of these species. All photos are by Roger Montney except where otherwise noted.

Shoreline and Shallow Water Plant Habitats in New England



*Spatulate-leaved Sundew (Drosera intermedia)*



*Marsh St. Johnswort (Triadenum virginicum)*



*Horned Bladderwort (Utricularia cornuta)*

Shoreline and Shallow Water Plant Habitats in New England



*Round-leaved Sundew (Drosera rotundifolia)*



*Common Arrowhead (Sagittaria latifolia)*



*Boneset Thoroughwort (Eupatorium perfoliatum)*

Shoreline and Shallow Water Plant Habitats in New England



*Three-petaled Bedstraw (Galium trifidum)*



*Rose Pogonia (Pogonia ophioglossoides). Photo by Tom Rawinski.*



*White Meadowsweet (Spiraea alba)*

Shoreline and Shallow Water Plant Habitats in New England



*Steeplebush* (*Spirea tomentosa*)



*Swamp Yellow-loosestrife* (*Lysimachia terrestris*)

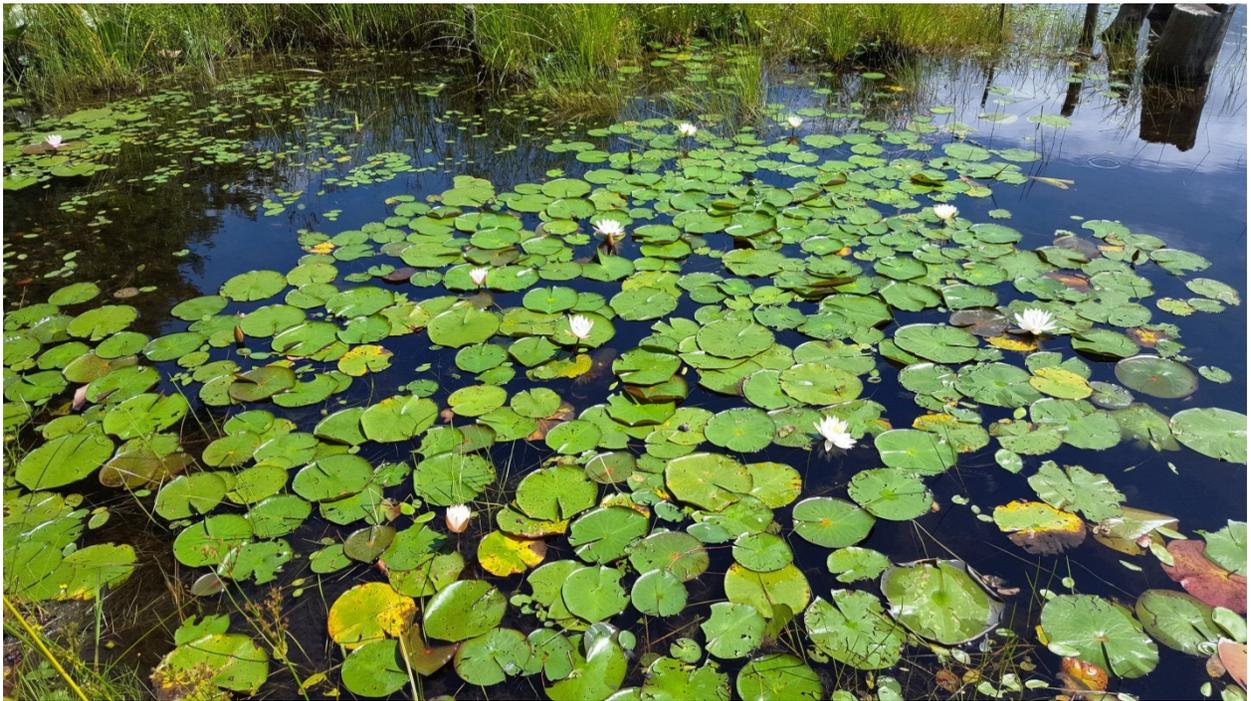


*Purple Pitcher Plant* (*Sarracenia purpurea*)

Shoreline and Shallow Water Plant Habitats in New England



*Water-Shield (Brasenia schreberi)*



*White Water Lily (Nymphaea odorata)*

Shoreline and Shallow Water Plant Habitats in New England



*Robbins' Spikesedge (Eleocharis robbinsii)*



*White Beaksedge (Rhynchospora alba)*



*Sallow Sedge (Carex lurida)*

Shoreline and Shallow Water Plant Habitats in New England



*Brownish Beaksedge (Rhynchospora capitellata)*



*Pointed Broom Sedge (Carex scoparia)*



*Swollen Beak Sedge (Carex utriculata)*

Shoreline and Shallow Water Plant Habitats in New England



*Northern Long Sedge (Carex folliculata)*



*Nodding Sedge (Carex gynandra)*



*Woolgrass (Scirpus cyperinus)*

Shoreline and Shallow Water Plant Habitats in New England



*Three-way Sedge (Dulichium arundinaceum)*



*Soft Rush (Juncus effusus)*



*High Bush Blueberry (Vaccinium corymbosum)*



*Large Cranberry (Vaccinium macrocarpon)*

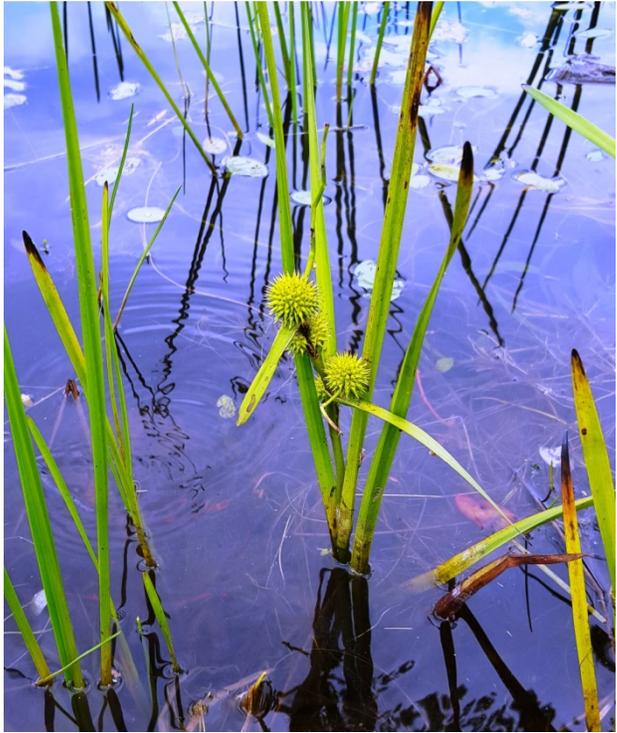
Shoreline and Shallow Water Plant Habitats in New England



Marsh Fern (*Thelypteris palustris*)



Royal Fern (*Osmunda regalis*)



Common Bur-reed (*Sparganium americanum*)

Shoreline and Shallow Water Plant Habitats in New England



*Yellow-eyed Grass (Xyris sp.)*



*American Bugleweed (Lycopus americanus)*



*Northern Water-Horehound (Lycopus uniflorus)*

Shoreline and Shallow Water Plant Habitats in New England



*Twig Rush (Cladium mariscoides)*



*Rattlesnake Manna Grass (Glyceria canadensis)*



*Jewelweed (Impatiens capensis)*



*Canada Rush (Juncus canadensis)*

Shoreline and Shallow Water Plant Habitats in New England



*Rice Cut Grass (Leersia oryzoides)*



*Lesser St. Johnswort (Hypericum canadense)*

Shoreline and Shallow Water Plant Habitats in New England



*Little Club-Spur Bog-Orchid (Plantathera clavellata), an older specimen that is still beautiful.*



*Mountain Holly (Ilex mucronata)*



*Skunk-Cabbage (Symplocarpus foetidus)*



*Lance-leaved Violet (Viola lanceolata)*

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*Common Winterberry (Ilex verticillata)*



*Silver-bordered Fritillary (Boloria selene)*. This butterfly, like many beautiful shoreline wildflowers, likes moist habitats.



*Blue Iris (Iris versicolor)*.



*Bristly Blackberry (Rubus hispida)*

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