

Common Wetland Plants of Northern Virginia's Piedmont

A Field Guide



The Piedmont Environmental Council

Common Wetland Plants of Northern Virginia's Piedmont

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Common Wetland Plants of Northern Virginia's Piedmont Field Guide

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References

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Front Cover: Beggars-ticks by Mrs. W.D. Bransford- courtesy of the Lady Bird Johnson Wildflower Center, black gum on the West property by Megan Manner- PEC, sycamore by Megan Manner- PEC, sweetflag by Sally and Andy Wasowski- courtesy of the Lady Bird Johnson Wildflower Center, wool-grass by Elaine Haug- courtesy of the Smithsonian Institution, sensitive fern by Megan Manner- PEC.

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Introduction to Wetlands

What is a wetland? A swamp? A marsh? A bog? A fen? A pocosin? The sheer diversity of these terms can conjure up a variety of images and represents the difficulty of defining the natural world in precise terms. Wetlands are diverse areas where the presence of water for extended periods of time exerts a controlling influence on the plant communities, soil properties, and animals that exist in them. According to the Fish and Wildlife Service (FWS) Definition of 1979: "Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water."

The definition goes on to say that in order to be classified as a wetland the area must have one or more of the following three attributes:

- 1) the land supports predominately hydrophytes, which are water-loving vegetation,
- 2) the soil is classified as hydric, which means water is present long enough during the growing season to create low oxygen conditions,
- 3) the hydrology of the region is such that the area is saturated at some point during the growing season.



Photo by Zach Roehr

It is important to note that the FWS definition requires one of the characterizing attributes to be present. Regulatory definitions are less encompassing and require all three - soil, hydrology and vegetation - to be present in order to be classified as a wetland (Moulds, 2005).



A wetland at Airlie in Warrenton, VA.

More complex than the definition of wetlands has been society's relationship with them, which has been characterized by a long history of misunderstanding. Historically wetlands were viewed as unappealing, useless, disease-ridden places. As a result of this perception many wetlands were drained, cleared and put into crop production. In urban areas, other wetlands were filled for houses, industrial facilities, office buildings and sanitary landfills.

The Chesapeake Bay watershed alone experienced substantial losses of wetlands between the mid 1950's and the late 1970's with average losses of over 2,800 acres a year! Such a history has left us with a landscape devoid of about 42 % of Virginia's original wetlands.

Today, Virginia still has roughly 1 million acres of wetlands (4.2% of the state); one-quarter are tidal and three-quarters are nontidal. Forested wetlands (swamps) are the most common wetlands in the State. Both shores of the Chesapeake Bay have extensive estuarine wetlands. About 22% of wetlands are in Virginia's Piedmont Region (Augustus, 2006).

Acres of Wetlands in Virginia's Northern Piedmont

County	Total Acres in County	Acres of Wetlands	Total Acres in Conservation Easement	Acres of Wetlands in Conservation Easements
Albemarle	464,765	6,907	73,257	1,015
Clarke	114,033	1,930	18,548	166
Culpeper	244,588	10,922	8,610	477
Fauquier	417,100	10,979	82,229	3,253
Greene	100,449	785	7,266	77
Loudoun	333,482	9,269	42,371	1,333
Madison	205,939	1,310	9,893	59
Orange	219,767	5,336	25,122	304
Rappahannock	170,783	938	26,258	268
Total	2,270,906	56,476	293,554	6,952

Since the 1970's, there has been increasing awareness about the importance of wetlands. Federal policy has reversed itself, once providing incentives to destroy wetlands, it has now started to protect them. The 1989 declaration by the George H. W. Bush administration of a "no net loss" of wetlands stands in stark contrast to Swamp Lands Acts of the mid-1800's, which granted the states swampland for reclamation. What did society realize about wetlands that cause such a radical change in policies?

The noticeable decline in waterfowl was one of the first indications that something was amiss. Soon, a trend in declining fish stocks was noted and the fishing industry was shocked into discovering the importance of wetlands as nursery habitats. Water quality issues were also highlighted and people began to awaken to the problems with our wetlands policy. Legislative changes took place which gave protection to wetland ecosystems. Over the past several decades, our understanding of wetlands and our appreciation of the values wetlands provide has greatly increased.



Photo of a farm in Culpeper County by The Piedmont Environmental Council

Ecosystem Services Wetlands Provide

Wetlands play an essential role in maintaining clean, healthy waterways by moderating the overland flow of water to streams, thus reducing runoff, pollution and erosion. Wetlands sequester pollutants, keeping them out of streams and rivers and allowing them to biodegrade when possible. By absorbing water from heavy rainfall, wetlands reduce property damages from storms and floods. Wetlands also trap water and allow it to seep slowly into the earth and recharge ground water supplies. Wetlands therefore allow a landscape to absorb and recycle water, reducing the likelihood and severity of droughts. Wetlands also provide rich habitat for animals and plants. By doing so, they offer people opportunities for hunting, fishing, or birdwatching. Wetlands add to aesthetic open space and enhance the health and vitality of the whole landscape.



Photo of the Rappahannock River by Faren Wolter- PEC



Photo of a robin by Zach Roehr

In addition to both moral and aesthetic arguments for protecting ecosystems, putting protection in terms of economic value allows us to better weight our decisions. Ecosystem goods and services are defined as the benefits humans derive, directly or indirectly, from ecosystem functions and include examples such as clean water and air, flood mitigation, nutrient cycling, and recreation. These services are invaluable but often underestimated when making economic decisions, such as whether to clear the land for development. Because ecosystem services are not represented in commercial markets and not easily compared or quantified economically, they are often overlooked in the decision making process. Next to ocean habitats, the services wetlands provide are the second highest in terms of economic value to humans. In 1994 it was estimated that wetlands in the US provided society with 4.9 trillion dollars worth of services such as wastewater treatment and nutrient cycling (Costanza, 1997). The cost of wetlands destruction is more than we as a society can bear and steps must be taken to encourage us to value the true worth of wetlands.



Photo of beaver activity in the floodplain of the Broad Run in Fauquier County by Megan Manner -PEC

How Can I Identify a Wetland?

The first step in wetlands protection is identifying areas to protect. As stated earlier, three attributes are used to determine if a site is a wetland: 1) the hydrology of the region is such that the area is saturated at some point during the growing season; 2) the soil is classified as hydric soils, which means water is present long enough during the growing season to create low oxygen conditions; and 3) the land supports predominately hydrophytes, which are water-loving vegetation.

- **Wetland Hydrology**

Hydrology is the movement and storage of water and is affected by climate, soils and underlying geographic formation, vegetation, and position in the landscape. Hydrology is the most important attribute in a wetland ecosystem, as saturation affects soils and vegetation and thus determines wetland types and functions (Brady and Weil, 2002). In order to be a wetland, the area must be wet for a length of time long enough during the growing season to affect vegetation and soils (Tiner, 2005). This implies that wetlands can be dry often throughout the year. The trick to identifying wetlands is being able to look for signs of temporary saturation.



Photo of a great blue heron by Zach Roehr



Photo by Zach Roehr

Hydrology is easy to identify if the area has standing water. If the land does not, other signs such as damp or wet soils, or water pooling in dug holes can help clue one in to wet areas. Water marks, or stains from high water levels, are often visible on trunks of trees. Trees that stand for periods of time in saturated conditions often develop swollen bases. You can also look for sediment deposits or debris that looks as if it has been washed against obstacles and deposited by flooding water. Finally, the position in a landscape can also help you determine if an area is flooded at times. Is the area in a concave cove or depression? Is the area very flat? Is it adjacent to an existing stream or located in a floodplain? Any place where such conditions exist is a good place to further investigate for the presence of hydric soils and hydrophytic vegetation (Moulds, 2005).

- Hydric Soils

Hydric soils are subject to periods of saturation that inhibit the diffusion of oxygen into the soil, eventually resulting in anoxic (little or no oxygen) conditions. If the soil is saturated for long enough, other elements such as iron, manganese, sulfur and carbon are reduced as well (Brady and Weil, 2002). Reduced conditions affect the growth of plants, so plants must adapt to such conditions.



Hydric soils from a vernal pool in Fauquier County

Hydric soil indicators can be observed in the field by digging a small pit to a depth of about 50 cm and observing the soil horizon. Due to reduced oxygen, respiration and decomposition are also reduced. This often leads to an accumulation of organic matter, which appears as a thick dark layer at the soil surface. Spots or blotches of different color interspersed with a dominant color is known as mottling and is another indicator of reduced conditions when it occurs in the upper horizons (Brady and Weil, 2002). The grayish, greenish or bluish hues indicate reduced soil conditions.

Scientists often use the Munsell soil color book, which contains charts classifying color by hue, value, and chroma, to help identify wetland soils. There are other indicators besides color, for example, highly reduced soils may smell like rotten eggs due to the presence of Sulfur. Oxidized rhizospheres, which are rusty orange zones around plant roots caused by the active transport of oxygen down into roots, are also a good indicator (Moulds, 2005).

- Hydrophytic Vegetation

Hydrophytic plant species have evolved certain characteristics to allow them to survive in saturated, anaerobic soils. For example, some plants, such as spartina, have hollow tissues that allow them to transport oxygen down to their roots. Certain trees, like bald cypress, produce adventitious roots, buttress roots, or knees which stick up above the water level. Other species spread their roots in a shallow mass. Not all plants in a wetland are hydrophytes, but the majority usually are (Brady and Weil, 2002). The key is to look at the plant community as a whole, not individual species. To be considered hydrophytic, a plant community must have a predominance of dominant hydrophytic species.

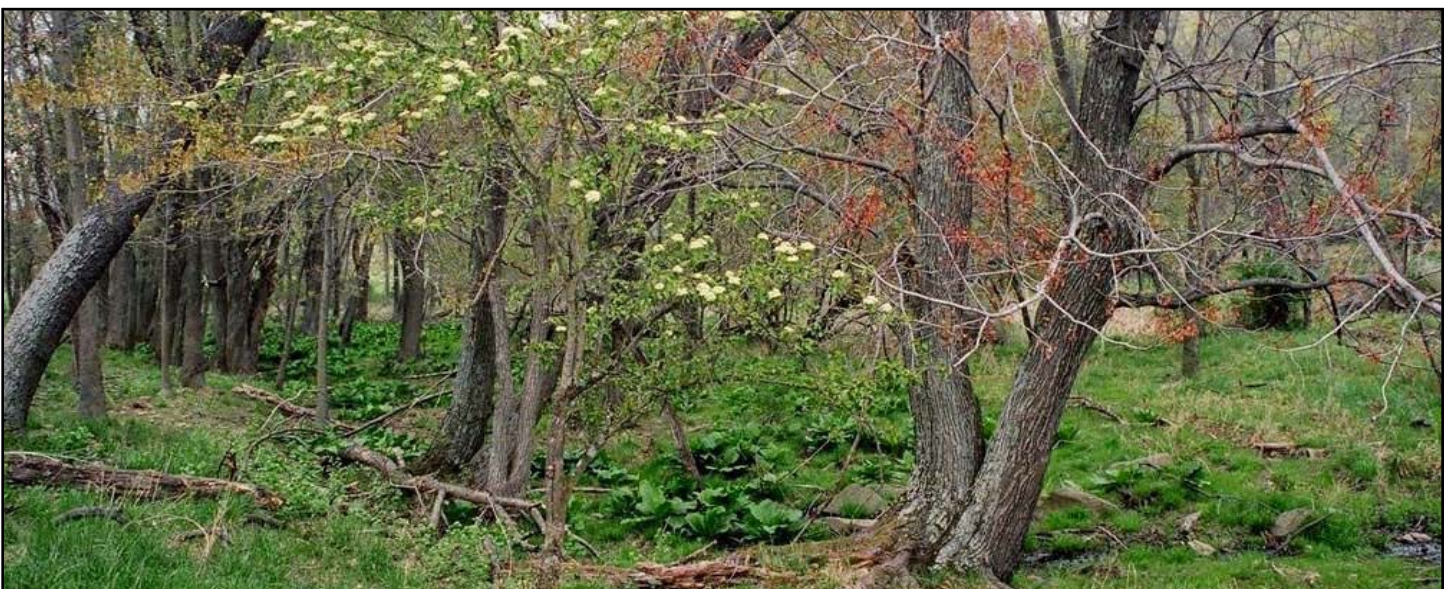


Photo of a protected wetland on PEC's Ovoka property in Paris, VA.

Wetland Types of the Piedmont

Piedmont wetlands are non-tidal wetlands which develop along floodplains, at the shores of lakes or ponds, in isolated depressions, in areas with seasonally high water tables, and on slopes or low areas where groundwater discharges (Tiner, 2005). Wetlands are commonly classified and described by their hydrogeomorphic setting and their dominant vegetative type.

- **Hydrogeomorphic Types**

Seeps - Seeps are wetlands supported by groundwater discharge, often on slopes. While most wetlands are thought of as flat, seep wetlands can exist on significant slopes. The supporting groundwater discharge can be nearly continuous, or more seasonal in nature (Tiner, 2005).

Depressional wetlands - Many wetlands exist simply due to topographic depressions where rainwater can collect, which may be supplemented by seasonal high water tables. These wetlands can be quite small or very extensive and are often interspersed with low uplands. Seasonally saturated wetlands are among the most difficult to recognize, especially in the summer and early fall.

Lacustrine - Lacustrine wetlands are located along the edges of lakes and ponds where the water is less than 1 meter in depth and vegetation is present. Shallow non-vegetated waters and unvegetated mudflats are unique aquatic habitats, but are not wetlands.

Riverine - Riverine wetlands are associated with stream and river channels, and are usually located in the floodplain of such watercourses. Riverine wetlands located in headwaters, or the upper reaches of a watershed are very important for water quality (Moulds, 2005).



Photo of a protected wetland along Catlett's Branch on PEC Property in the Bull Run Mountains.

- **Vegetative Types-**

Emergent wetlands- Also called marshes or wet meadows, these wetlands are dominated by grasses, sedges and other herbaceous plants. Wet meadows are common and usually overlooked as they resemble grasslands and are often dry (EPA, 2006). Some emergent wetlands are relatively permanent and some are transitional, often reverting to scrub-shrub then forested wetlands over time.

Scrub-Shrub - Wetlands dominated by plants less than 20 ft tall are considered scrub-shrub wetlands. Scrub-Shrub wetlands grow on a wide range of water regimes, from permanently flooded to seasonally saturated (Tiner, 2005). The dominant plant species may be true shrub species or small pioneer tree species, or a combination of both.

Forested wetlands - Forested wetlands are dominated by trees. Unlike some other wetlands, most bottomland hardwoods and wet woods conceal their water below the surface for most of the year (Moulds, 2005). Fully mature forested wetlands have a wide variety of species in all vegetative strata.

Legal Protections for Wetlands in Virginia

Section 404 of the Federal Clean Water Act requires that impacts to wetlands should be 1) avoided, 2) minimized, or 3) compensated in that order of priority. The act prohibits the discharge of dredged or fill material into U.S. waters, including wetlands, if any practicable alternative exists. Federal policies set a goal of “no net loss” of wetlands, so that the total acreage and the total function of wetland resources will be either maintained or increased.

Virginia supports the federal “no net loss” policy and goes further, pursuing a goal of a net gain of 10,000 acres of wetlands by the year 2010. This goal includes 6,000 acres within the Chesapeake Bay Watershed and 4,000 acres outside of it. State regulations also strengthen Federal regulations by protecting isolated wetlands, which the U.S. Supreme Court has ruled outside of federal jurisdiction.

Federal wetlands regulation is administered through the Army Corps of Engineers and the Environmental Protection Agency, while state regulation is administered through the Virginia Department of Environmental Quality. Local jurisdictions vary in their approach to wetlands, often leaving oversight to the State and Federal permitting agencies. Localities are, however, the first line of defense for protecting wetlands. A locality can take several steps to improve wetland protection:

- Complete a wetlands inventory or model to accurately assess potential impacts
- Adopt ordinances that provide wetland and riparian buffer protections
- Coordinate permitting and approval process with the State and Federal agencies
- Require proof of permits before approving ground disturbing permits
- Identify locations suitable for wetland mitigation banking

Wetlands Mitigation

Wetlands mitigation refers to all three aspects of the Federal mandate to first avoid, then minimize, and if necessary compensate any loss of wetlands. Compensatory mitigation can involve any of the following:

- Restoration or creation of wetlands
- Purchase or use of credits from a wetland mitigation bank
- Contribution to an in-lieu fee fund
- Preservation of existing wetlands, along with other compensation measures. Preservation alone is not considered a sufficient form of compensation

A mitigation bank is a created or restored wetland that is completed upfront to compensate for future anticipated wetland losses. Parties responsible for wetlands impacts can purchase credits from the mitigation bank for a fee determined between the two private parties.

Inlieu fees are paid to public agency or non-governmental organization, which agrees to create or restore the necessary wetlands.

Wetlands must be compensated according to the following ratios:

- 2 acres compensation for each 1 acre of impact for forested wetlands (2:1)
- 1.5:1 for scrub-shrub wetland impacts
- 1:1 for emergent wetland impacts.

(Moulds, 2005).

Wetland Restoration

Restoration is the renewal of the ecological health, integrity and sustainability of a damaged or destroyed ecosystem back to some sort of reference state. There are several types of wetland restoration. The first type is re-establishing former wetlands. This type of restoration adds acreage of wetlands ecosystems to the landscape. The second type is repairing damaged wetlands, which increases ecosystem function, but does not add acreage. There is also wetland creation which creates wetland in an area where wetland had not naturally existed. This practice is often used to treat stormwater run-off. Restoration is usually more successful than wetlands creation because the site is a former wetland, is located in a position in the landscape that can support the desired functions, usually has drained or buried hydric soils, possesses a natural seed-bed of hydrophytes, and has a modified hydrology that can be restored (Tiner, 2005).



Photo of a recent CREP project and restored pond on PEC's Ovoka property in Paris, VA.

Restoration ecologists have put forth two major theories of restoration: the self design and the designer theories. The self design theory states that once the environmental conditions are restored, nature will play a role in succession and dictate species introduction and survival. The designer theory takes a much more reductionist approach, focusing on life histories of specific vegetation types and the introduction of specific species whose survival becomes a measure of success. The designer theory is much more involved, expensive, and critics often say it is unfeasible on a larger landscape scale. However, the self design theory has yet to be proven successful, with restored wetlands often turning into cattail marshes or other monocultures with little of the desired ecosystem function. It may take years for restored wetlands to gain a small percentage of the ecosystem function provided by a natural wetland. Ultimately, the best thing that can be done is protecting and preserving the existing wetlands we have left.

Is This System Working to Protect Wetlands?

State and Federal protections have slowed the loss of wetlands in Virginia. But despite the policy of “no net loss,” wetlands are still disappearing. A number of factors undermine the public goal of conserving wetlands:

- **Deceptive tactics:** Some unscrupulous developers and their consultants conduct wetlands surveys during the hottest and driest months of the year and mow the land to obscure the presence of wetland plants.
- **Compliant consultants:** Wetlands consultants, whose fees are usually paid by developers, may comply with their desire not to fully identify the areas.
- **Faulty “replacements”:** Wetlands created through mitigation projects may offer paltry benefits compared to a natural wetland. Monitoring and regulatory oversight is often insufficient to identify and correct deficiencies.
- **No net loss does not address loss of function in the landscape,** it simply refers to acreage. Not all wetlands are equal. The location in the landscape and size of a wetland may determine what functions it will perform. Many factors determine how well a wetland will perform these functions: climatic conditions, quantity and quality of water entering the wetland, and disturbances or alteration within the wetland or the surrounding ecosystem. Often, a restored or created wetland pales in comparison to the destroyed natural wetland.
- **Understaffed agencies:** The state and federal agencies charged with enforcing regulations are inadequately staffed and so they often rely solely on the information reported by developers and their consultants. High staff turnover and inadequate training often leaves regulatory personnel without adequate skills needed to properly critique deceptive or insufficient submittals.
- **Low prioritization at the local level:** Often, the local permitting process takes a hands-off approach to wetlands or treats wetlands as an apparent afterthought, once developers have already gained clearance for their projects.
- **Need for citizen watchdogs:** Local citizens are not always aware of wetland losses occurring in their community and they don’t know how to get involved. The Wetlands Watch advocacy guide is a good place to start and can be found at <http://www.wetlandswatch.org/advocacy.asp>.



Photo of eased land at Rose Hill Farm in Culpeper by Faren Wolter- PEC

What Can Landowners do?

The first step is identifying wetland areas on your property. Look to avoid these areas if you are planning any construction projects.

The second step is looking for ways to protect wetland areas. Are they intact or have they been changed or degraded over time, drained for agriculture, etc.? As restoration is not always a feasible option, an easy step to take is to reduce adverse impacts around wetlands in a buffer zone. Eliminating practices that further degradation is essential. The implementation of best management practices (BMPs) to prevent erosion and siltation and degradation to buffers is key. Fencing out wetlands areas to livestock and eliminating invasive species infestations are also good steps. When harvesting timber, be sure to follow the VA Department of Forestry's BMPs for road and skid trail construction and stream crossings. Using a selective cutting regime instead of clearcutting will allow the forest to remain mostly intact and will help keep soil from running off into wet areas.



Photo by Zach Roehr

Getting involved in the community is also a great way to protect wetlands. Join a community group dedicated to land conservation or watershed protection. These groups can often use your time, money and voice on important issues. You can also get involved with your local government and urge support for low-impact development and land conservation.

Restoration and preservation: There are tools and funding available for implementing restoration projects and conserving land. Cost share programs can aid landowners in fencing out buffers and planting trees and shrubs. Generous tax incentives are provided to landowners who preserve their land forever. There are also grant programs and other sources of funding available.

For more information contact the Piedmont Environmental Council or your local Soil and Water Conservation District and find out what programs are available to you.

Further Resources

The Piedmont Environmental Council



Main Office
45 Horner Street
P.O. Box 460 (20188)
Warrenton, VA 20186
Phone (540) 347-2334
Fax (540) 349-9003
www.pecva.org

Loudoun County Office
802 Children's Center Road, SW
Leesburg, VA 20175
Phone (703) 669-4990

Clarke County Office
30 East Main Street
Berryville, VA 22611
Phone (540) 955-9000

Culpeper County Office
121 West Locust Street, Suite 117
Culpeper, VA 22701
Phone (540) 825-1707

Orange County Office
130 West Main Street, Suite 206
Orange, VA 22960
Phone (540) 672-0141

Madison County Office
P.O. Box 542
Madison, Virginia 22727
Phone (540) 948-8442

Charlottesville Office
410 East Water Street, Suite 700
Charlottesville, VA 22902
Phone (434) 977-2033

Virginia Association of Soil and Water Conservation Districts

Fauquier County
John Marshall SWCD
98 Alexandria Pike, Suite 31
Warrenton, VA 20186-2849
Phone (540) 347-3120, ext. 3

Culpeper, Greene, Madison, Orange, and Rappahannock Counties
Culpeper SWCD
351 Lakeside Drive
Culpeper, VA 22701-1945
Phone (540) 825-8591

Loudoun County
Loudoun SWCD
30 Catoctin Circle, S.E., Suite H
Leesburg, VA 20175
Phone (703) 771-8395

Clarke, Warren Counties
Lord Fairfax SWCD
130 Carriebrooke Drive
Stephens City, VA 22655-6000
Phone (540) 868-1130, ext. 3

Albemarle County
Thomas Jefferson SWCD
2134 Berkmar Drive
Charlottesville, VA 22901
Phone (434) 975-0224

List of Soil & Water Conservation Districts by County/City:
<http://www.vaswcd.org/swcdslist.htm>

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Further Resources

- PEC's Sources of Funding Landowner Handbook
<http://www.pecva.org/anx/index.cfm/1,249,0,0,html/Land-Conservation-Resources>
- USGS Wetland functions, values, assessment
<http://water.usgs.gov/nwsum/WSP2425/functions.html>
- EPA Wetlands Information
<http://www.epa.gov/owow/wetlands/>
- A Citizen's Toolkit
<http://www.vanaturally.com/pdf/wetlands.pdf#search=%22wetlands-citizen-guide-va-deq%22>
- Great Resource for Virginians interested in protecting wetlands
<http://www.wetlandswatch.org/>
- Wetlands for Kids
<http://www.fws.gov/nwi/educator.htm>
- U.S. Army Corps of Engineers-Environmental Laboratory Wetlands
<http://el.erdc.usace.army.mil/wetlands/>

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Common Name	Scientific Name	Distinguishing features	Page
Ferns			
sensitive fern	<i>Onoclea sensibilis</i>		4
cinnamon fern	<i>Osmunda cinnamomea</i>		5
Grasses, Sedges, and Rushes			
reed canarygrass*	<i>Phalaris arundinacea</i>	Grass	6
fowl mannagrass	<i>Glyceria striata</i>	Grass	7
roughstalk bluegrass*	<i>Poa trivialis</i>	Grass	8
rice cutgrass	<i>Leersia oryzoides</i>	Grass	9
jointhead arthraxon*	<i>Arthraxon hispidus</i>	Grass	10
Japanese stilt grass*	<i>Mircostegium vimineum</i>	Grass	11
cattails	<i>Typha</i> spp.	Monocot	12
common reed*	<i>Phragmites australis</i>	Grass	13
sallow sedge	<i>Carex lurida</i>	Sedge	14
fox sedge	<i>Carex vulpinoidea</i>	Sedge	15
tussock sedge	<i>Carex stricta</i>	Sedge	16
woolgrass	<i>Scirpus cyperinus</i>	Sedge	17
green bulrush	<i>Scirpus atrovirens</i>	Bulrush	18
softstem bulrush	<i>Scirpus validus</i>	Bulrush	19
spikerushes	<i>Eleocharis</i> spp.	Spikerush	20
soft rush	<i>Juncus effusus</i>	Rush	21
sweetflag	<i>Acorus calamus</i>	Monocot	22
Forbs			
skunk cabbage	<i>Symplocarpus foetidus</i>	Irregular flowers, no leaves when flowering	23
cardinal flower	<i>Lobelia cardinalis</i>	Irregular flowers, alternate leaves	24
jewelweed	<i>Impatiens capensis</i>	Irregular flowers, alternate leaves	25
monkey flower	<i>Mimulus ringens</i>	Irregular flowers, opposite leaves	26
water plantain	<i>Alisma subcordatum</i>	3 regular parts, basal leaves	27
seedbox	<i>Ludwigia alternifolia</i>	4 regular parts, alternate leaves	28
willow herbs	<i>Epilobium</i> spp.	4 regular parts, alternate leaves	29
water purslane	<i>Ludwigia palustris</i>	4 regular parts, opposite leaves	30
New York ironweed	<i>Vernonia noveboracensis</i>	5 regular parts, alternate leaves	31
smartweeds	<i>Polygonum</i> spp.	5 regular parts, alternate leaves	32
tearthumbs	<i>Polygonum</i> spp.	5 regular parts, alternate leaves	33
blue vervain	<i>Verbena hastata</i>	5 regular parts, opposite leaves	34
New England aster	<i>Aster novae-angliae</i>	Many regular parts, leaves alternate	35
swamp aster	<i>Aster puniceus</i>	Many regular parts, leaves alternate	36
joe pye weed	<i>Eupatorium fistulosum</i>	Parts indistinguishable, leaves in whorls	37
boneset	<i>Eupatorium perfoliatum</i>	Parts indistinguishable, opposite leaves	38
beggars-ticks	<i>Bidens</i> spp.	Parts indistinguishable, opposite leaves	39
false nettle	<i>Boehmeria cylindrica</i>	Parts indistinguishable, opposite leaves	40

Woody Vines

poison ivy	<i>Toxicodendron radicans</i>	Alternate, compound	41
common greenbrier	<i>Smilax rotundifolia</i>	Alternate, simple	42

Shrubs

smooth alder	<i>Alnus serrulata</i>	Alternate, toothed	43
winterberry	<i>Ilex verticillata</i>	Alternate, toothed	44
spicebush	<i>Lindera benzoin</i>	Alternate, entire	45
highbush blueberry	<i>Vaccinium corymbosum</i>	Alternate, entire	46
southern arrowwood	<i>Viburnum dentatum</i>	Opposite, toothed	47
silky dogwood	<i>Cornus amomum</i>	Opposite, entire	48
buttonbush	<i>Cephalanthus occidentalis</i>	Opposite, entire	49
common elderberry	<i>Sambucus canadensis</i>	Compound	50
swamp rose	<i>Rosa palustris</i>	Compound, thorned	51

Trees

red maple	<i>Acer rubrum</i>	Opposite, toothed	52
silver maple	<i>Acer saccharinum</i>	Opposite, toothed	53
green ash	<i>Fraxinus pennsylvanica</i>	Opposite, compound	54
box elder	<i>Acer negundo</i>	Opposite, compound	55
sycamore	<i>Platanus occidentalis</i>	Alternate, lobed	56
swamp white oak	<i>Quercus bicolor</i>	Alternate, lobed	57
pin oak	<i>Quercus palustris</i>	Alternate, lobed	58
black gum	<i>Nyssa sylvatica</i>	Alternate, entire	59
black willow	<i>Salix nigra</i>	Alternate, toothed	60
river birch	<i>Betula nigra</i>	Alternate, toothed	61

* - weedy or noxious invasive species



Contributing Authors: Megan Manner -Piedmont Environmental Council
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Front Cover: Beggars-ticks by Mrs. W.D. Bransford- courtesy of the Lady Bird Johnson Wildflower Center, black gum on the West property by Megan Manner- PEC, sycamore by Megan Manner- PEC, sweetflag by Sally and Andy Wasowski- courtesy of the Lady Bird Johnson Wildflower Center, woolgrass by Elaine Haug- courtesy of the Smithsonian Institute, sensitive fern by Megan Manner- PEC.

Photos: Photos throughout the guide are credited on the photos themselves. Uncredited photos were taken by the Piedmont Environmental Council. Photos courtesy USDA-NRCS PLANTS Database, the Smithsonian Institute, the University of Wisconsin-Stevens Point and the Lady Bird Johnson Wildflower Center.

Thanks to Stan Shetler at the Smithsonian Institution for his comments.

Using this Guide

Grasses, Sedges, and Reeds

A good way to distinguish between these plant forms is to remember sedges have edges, rushes are round and grasses have joints.

Forbs

Forbs are usually classified by their flower parts. Flowers may be regular, or radially symmetrical, which means they have similar petals arranged around a center. The majority of flowers are regular. Irregular flowers are not radially symmetrical. Usually these flowers have upper or lower parts called lips. Indistinguishable flowers have no visible petal-like parts or the parts are so small it is difficult to make out their number or arrangement (Newcomb, 1977).

Leaves

Alternate – leaves arranged singly stems at intervals along the branch.

Opposite - leaves growing in pairs directly across from one another on the stem.

Whorled – when leaves grow together in circles of 3's, 4's and 5's etc.

Basal - leaves growing only at the base of the plant.

Simple - leaf consists of a single blade and is joined by a stalk to a woody twig or main stem.

Compound - leaf blade is divided into 3 to several dozen leaflets, attached to the central stalk of the leaf as a whole.

Entire, Toothed, Lobed - Leaves either have a smooth edge, have a jagged edge with teeth, or are lobed with deep sinuses.

Occurrence:

Obligate Wetland (OBL) - Occurs almost always (99%) under natural conditions in wetlands.

Facultative Wetland (FACW)- Usually occurs in wetlands (67%-99%), but occasionally found in non-wetlands.

Facultative (FAC)- Equally likely to occur in wetlands or non-wetlands (34%-66%).

Facultative Upland (FACU) - Usually occurs in non-wetlands (67%-99%), but occasionally found in wetlands (1%-33%).

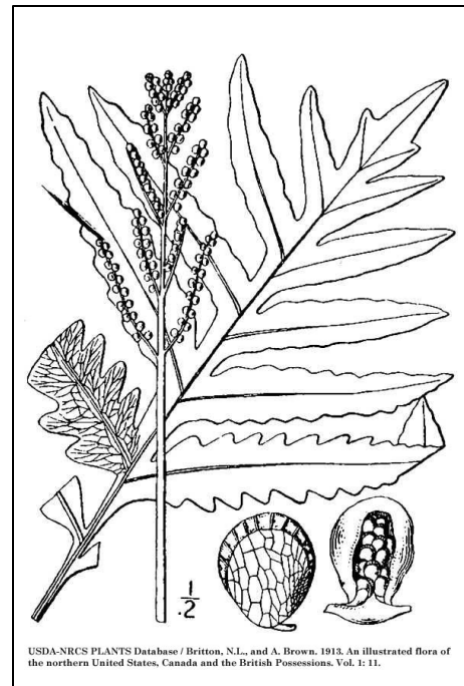
Upland (UPL) - Occurs in wetlands in another region, but occurs almost always (99%) under natural conditions in non-wetlands in the regions specified. If a species never occurs in wetlands, it is not on the National List.

(+) & (-) : Often follows the three facultative categories to indicate whether the plant is on the wetter or drier side of the category's range. For example, FACW+ has a higher frequency of occurrence in wetlands than does FACW- (Tiner, 2005).

When more than 50% of the dominant species of a plant community consist of OBL, FACW and FAC species, the plant community has a good probability of being a wetland. The more OBL and FACW, the greater the likelihood of wetland. The most obvious wetlands are dominated by OBL species. Many wetlands, however, are dominated by FAC species, so the presence of hydric soils and signs of hydrology can help identify the community as a wetland (Tiner, 2005).



Sensitive Fern *Onoclea sensibilis*



General Appearance: Light green, sterile fronds with entire margins and a separate fertile stalk with beadlike leaflets.

Size: Up to 3 ½ feet tall

Bloom/Fruit Time: Summer- Fall

Occurrence: FACW

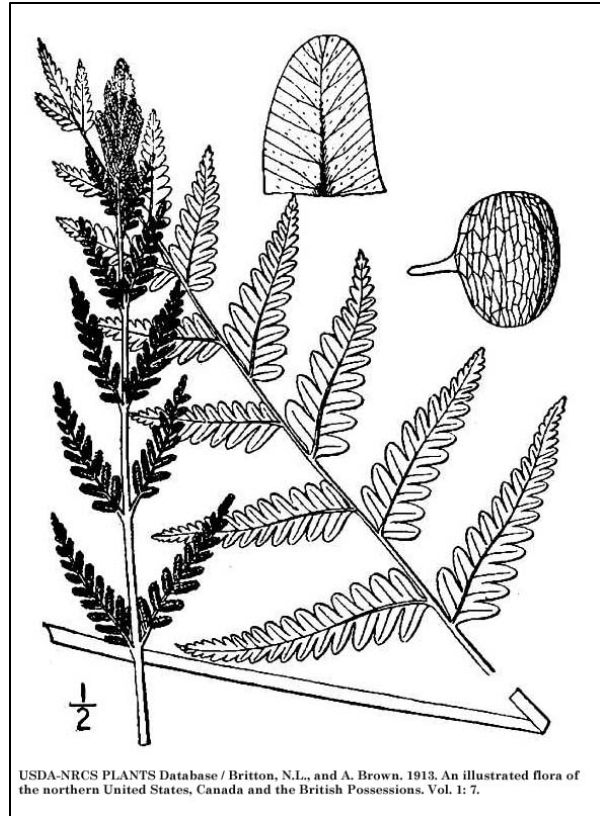
Habitat: Wet meadows, marshes, forested wetland and moist woods



Significance: Sensitive fern is one of the most common wetland ferns and is readily distinguishable by its distinct form. Netted chain fern is similar in appearance, is FACW and a similar indicator of wetland conditions. Sensitive fern is readily identifiable in winter by its distinctive fertile fronds.

Cinnamon Fern

Osmunda cinnamomea



General Appearance: Sterile fronds arranged with shorter separate cinnamon colored fertile fronds which wither soon after flowering.

Size: Up to 5 feet tall

Bloom/Fruit Time: Spring

Occurrence: FACW

Habitat: Marshes, wet meadows and forested swamps



Significance: Cinnamon fern is one of the largest ferns common to wetland areas and is most common in forested wetland seeps. Ostrich fern and interrupted fern are somewhat similar in appearance and are also good wetland indicator species.

Reed Canarygrass

Phalaris arundinacea



General Appearance: Tapered leaves and short branched inflorescence. The flowering stalks jut in a uniform layer over the leaves, which also grow to a uniform height.

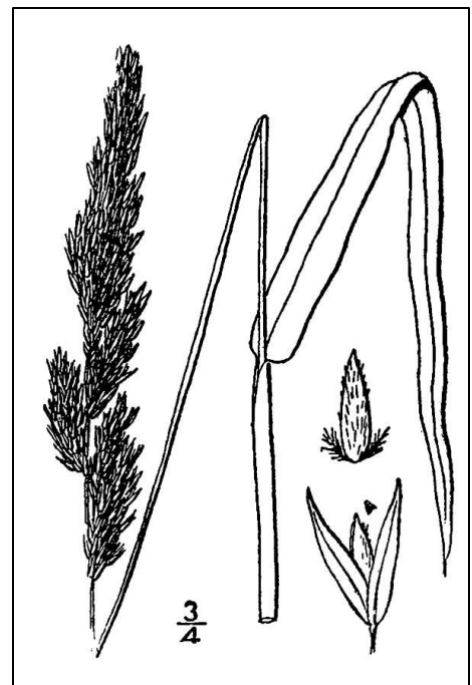
Size: Up to 5 feet high

Bloom/Fruit Time: June - August

Occurrence: FACW+

Habitat: marshes wet meadows swales and moist woods

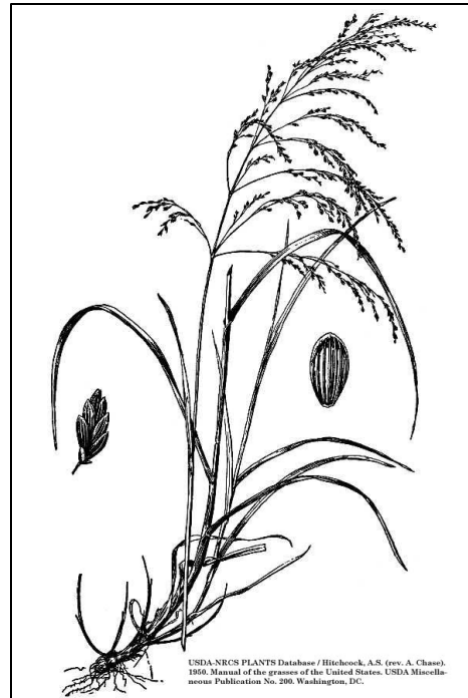
Significance: Reed canarygrass is a very aggressive rhizomatous grass that often forms monocultures in disturbed wetlands, especially those subject to excessive nutrient inputs. It is believed that the aggressive strain seen in regional wetlands is a European ecotype.





Fowl Mannagrass

Glyceria striata



General Appearance: Flattened or folded leaves, rough above and rough leaf sheaths. Many branched terminal inflorescence with small spikelets less than 1/10 wide.

Size: Up to 4 feet tall

Bloom/Fruit Time: June - September

Occurrence: OBL

Habitat: Marshes, shrub swamps, and forested wetlands

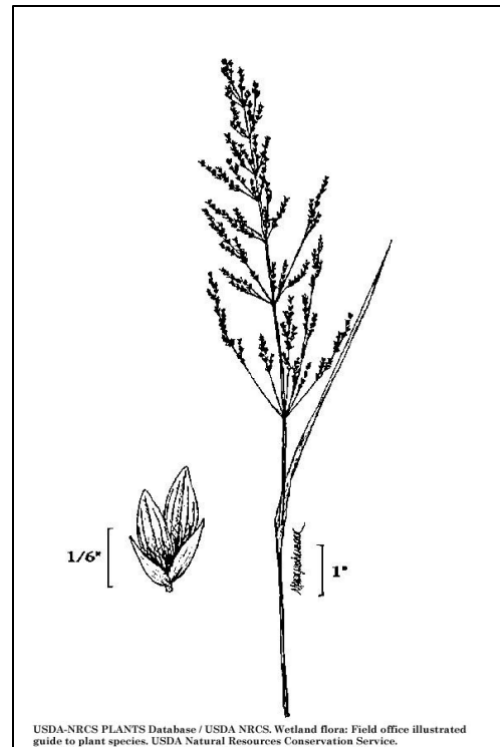
Significance: Fowl mannagrass is a relatively common species, especially in forested wetland seeps. This grass is usually recognizable before flowering by its distinctive alternating ladder-like leaf structure. The flowering structure is very delicate when compared to most other wetland grasses.



Roughstalk Bluegrass

Poa trivialis

**NON-NATIVE
INVASIVE**



General Appearance: Features soft, narrow, linear, glossy yellowish-green leaf blades (1/8" wide) with the characteristic boat-shaped tips. More shallow-rooted, forms a looser sod and is less tolerant of foot traffic than Kentucky bluegrass.

Size: 1-2 feet

Bloom/Fruit Time: Non-flowering

Occurrence: FACW

Habitat: Moist soils and shade

Significance: An aggressive exotic grass that often dominates disturbed wetlands. Most native bluegrass species are hydrophytes as well, and positive identification entails careful examination of reproductive structures.



Rice Cutgrass

Leersia oryzoides



General Appearance: Rough, hairy stems, hairy nodes, rough-margined light green leaves and sheaths. Open branched terminal inflorescence, usually with a squiggly lower stem rising from a leaf sheath.

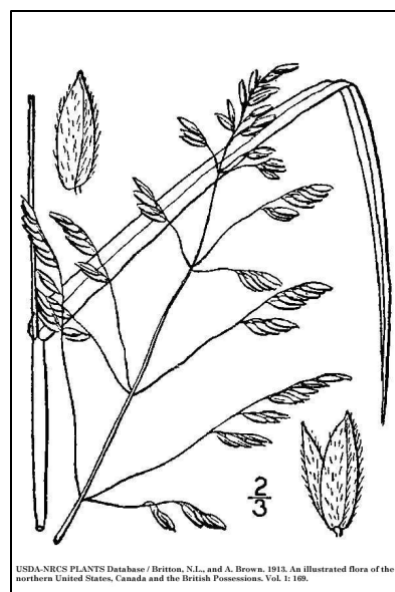
Size: Up to 5 feet tall

Bloom/Fruit Time: June - October

Occurrence: OBL

Habitat: Marshes and wet meadows

Significance: A common grass of saturated to seasonally flooded sunny wetlands. This species is easily recognizable by its very rough texture (even compared to roughstalk bluegrass). The similar white grass (*Leersia virginica*, FAC) can be common in shadier conditions.



Jointhead Arthraxon

Arthraxon hispidus



General Appearance: A grass with cordate-clasping, ovate to ovate-lanceolate leaves with wavy edges.

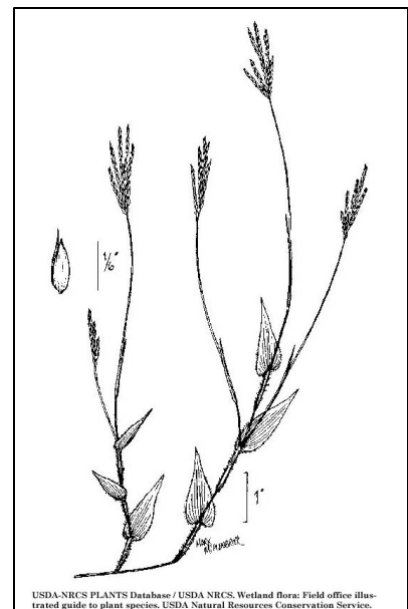
Size: 1 to 3 feet

Bloom/Fruit Time: Summer

Occurrence: FAC

Habitat: *Arthraxon hispidus* is native to Asia, but it has now naturalized and is spreading along roadsides, shores, ditches and in low woods and fields of the eastern United States.

Significance: This aggressive annual grass is a huge threat to native wetland species diversity. Arthraxon is most common in open disturbed wetlands, but is aggressively moving into relatively stable wetland communities as well.



USDA-NRCS PLANTS Database / USDA NRCS Wetland flora: Field office illustrated guide to plant species, USDA Natural Resources Conservation Service.

Japanese Stilt Grass

Microstegium vimineum



General Appearance: Pale green, lance-shaped, asymmetrical leaves 1 to 3 in. long. The alternate leaves have a silvery stripe of reflective hairs down the middle of the upper leaf surface. In the fall, identification becomes somewhat easier after the plant develops a slight purplish tinge. It is sometimes confused with *Leersia virginica*, whitegrass, but can be distinguished by the former's ciliate leaf sheath collars and late flowering paired spikelets (versus *L. virginica*'s glabrous or pubescent leaf sheaths and 1-flowered spikelets).

Size: 2 to 3 feet

Bloom/Fruit Time: late September and October

Occurrence: FAC

Habitat:: Often associated with forested and wetland areas, it also does well in many disturbed areas.



Significance: Japanese stilt grass was introduced to Tennessee from Asia around 1919 and is now established in much of the eastern United States. In suitable habitats it quickly spreads, forming dense, monospecific stands. Stilt grass is a threat to native biodiversity and often crowds out competitors.

Cattails

Typha spp.



Photo by: Norman G. Elger

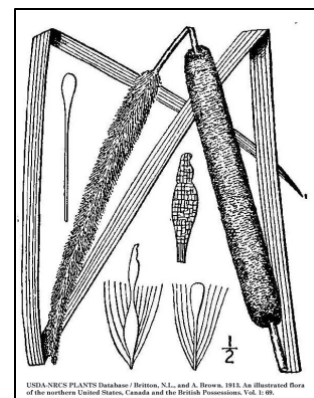
General Appearance: Elongated, flattened basal-leaved with a distinctive terminal inflorescence.

Size: up to 10 feet tall

Bloom/Fruit Time: July - October

Occurrence: OBL

Habitat: Marshes and shallow water



USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown, 1913. An illustrated flora of the northern United States, Canada and the British Possessions, Vol. 3, 60.

Significance: Broad-leaved (*Typha latifolia*) and narrow-leaved (*Typha angustifolia*) are the two species found in this region. Both are very distinct from other species and are OBL wetland species. Broad-leaved cattail can be very aggressive in disturbed wetlands.

Common Reed

Phragmites australis



General Appearance: A tall, robust, perennial grass with stiff, wide leaves and a big, plummy inflorescence. This grass forms colonies and spreads by stout rhizomes. The inflorescence is purple in flower, gray in fruit.

Size: Up to 13 feet

Bloom/Fruit Time: June - August

Occurrence: FACW

Habitat: Marshes, shores

Significance: Common reed, which is often referred to simply as *Phragmites*, is a very aggressive rhizomatous robust grass which usually forms dense monocultures. Although apparently native world-wide, the aggressive ecotypes that are problematic in this region are believed to be of Eurasian origin.



Sallow Sedge

Carex lurida



General Appearance: Triangular stems, yellow-green leaves and a terminal inflorescence bearing one linear male spike and 2 – 4 female spikes with inflated sacs.

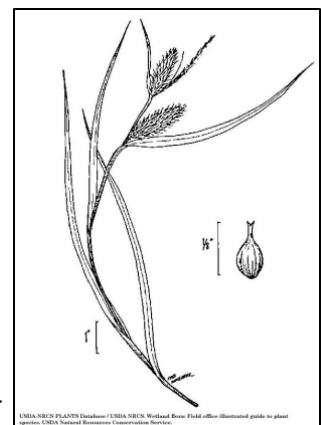
Size: Up to 3 ½ feet tall

Bloom/Fruit Time: May - September

Occurrence: OBL

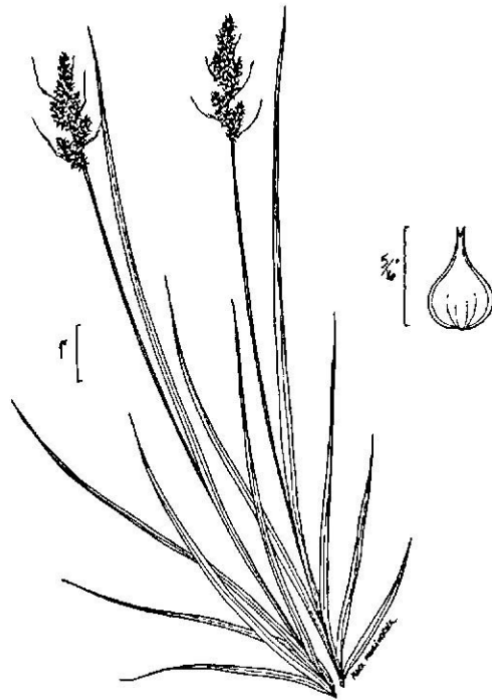
Habitat: Common in wet meadows, swamps and marshes

Significance: Sallow, or lurid sedge is one of the most common wetland sedges and is a good example of a sedge species with inflated perigynia (the sac surrounding individual seeds). Positive identification of all sedges requires careful examination of various morphological features to establish which of the several hundred sedge species is being observed.



Fox Sedge

Carex vulpinoidea



USDA-NRCS PLANTS Database / USDA NRCS, Wetland flora: Field office illustrated guide to plant species. USDA Natural Resources Conservation Service.

General Appearance: Tussocks with fine-textured bristly fruiting heads like a fox's tail and narrow grass-like leaf blades grow in 2 ft clumps.

Size: 1 to 3 feet

Bloom/Fruit Time: March - May

Occurrence: OBL

Habitat: Wet meadows, swamps and marshes

Significance: Fox sedge is a relatively common wetland species and is typical of sedge species without inflated perigynia. Several species appear very similar but most are also hydrophytic species.



Tussock Sedge

Carex stricta



General Appearance: Forms dense clumps (tussocks) up to 3 feet wide with fertile stems bearing greenish or brownish spikes of inconspicuous flowers above dense tufts of grass-like leaves. Stems much longer than leaves.

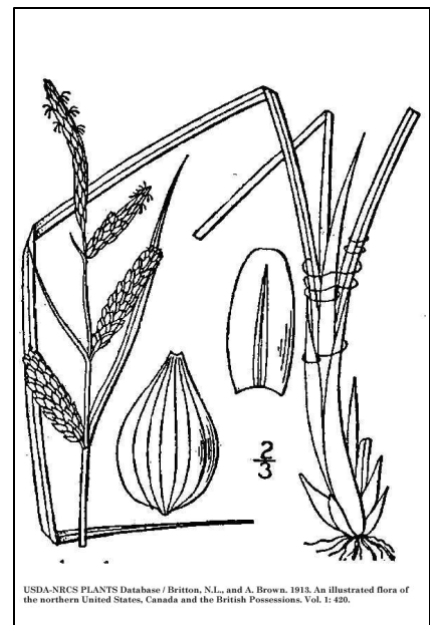
Size: Up to 3 ½ feet tall

Bloom/Fruit Time: April - June

Occurrence: OBL

Habitat: One of the most common marsh, wet-meadow, and swamp sedges in the East.

Significance: Tussock sedge is quite distinctive in its overall habit and forms distinct raised hummocks. The seed heads are much less conspicuous than in the preceding sedge species.





Woolgrass

Scirpus cyperinus



General Appearance: Triangular stems, long tapered leaves having very rough margins. Forms in dense clumps. Many woolly rusty colored spikelets forming a terminal inflorescence.

Size: 4 to 6 feet tall

Bloom/Fruit Time: August - September

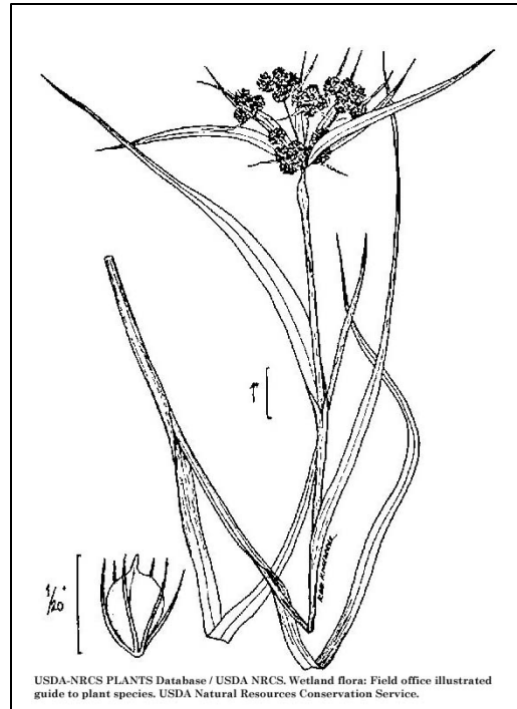
Occurrence: FACW+

Habitat: Marshes, wet meadows, and swamps

Significance: Woolgrass is very distinctive in flowering stage and often through winter when the flowering head remains visible.



Green Bulrush *Scirpus atrovirens*



General Appearance: Fewer leaves and a distinctly triangular stem. Dark green or brown round clusters of non-woolly spikelets borne on mostly ascending branches.

Size: 3 to 6 feet

Bloom/Fruit Time: Blooms early, June - August

Occurrence: OBL

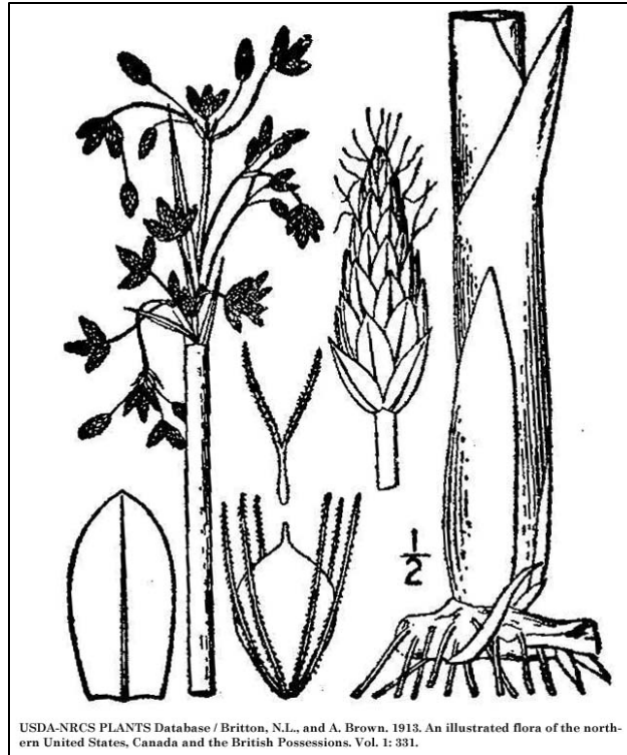
Habitat: Wet meadows and forested wetlands



Significance: Green bulrush is the most common of the robust bulrushes in this region, although there are several similar species, which are all hydrophytic.

Softstem Bulrush

Scirpus validus



General Appearance: Soft, round, usually grayish green stems, no apparent leaves. Many stalked budlike spikes borne on drooping branches near top of stem.

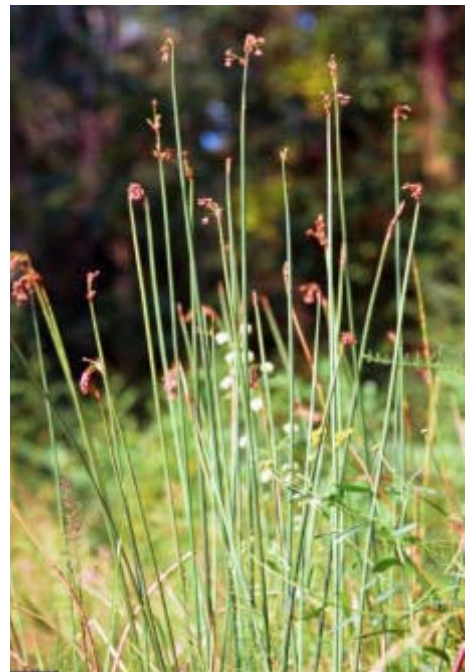
Size: Up to 10 feet tall

Bloom/Fruit Time: June - September

Occurrence: OBL

Habitat: Brackish and freshwater marshes and shallow water

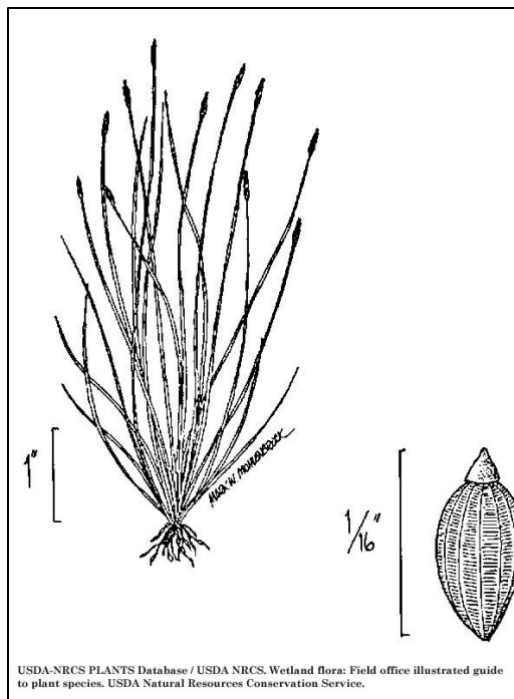
Significance: A very distinctive bulrush that is often placed into a different genus, *Schoenoplectus*.





Spikerushes

Eleocharis spp.



General Appearance: Numerous species with characteristic leafless flowering stalks bearing a single budlike spike at the top.

Size: $\frac{1}{2}$ to 1 foot tall

Bloom/Fruit Time: June - September

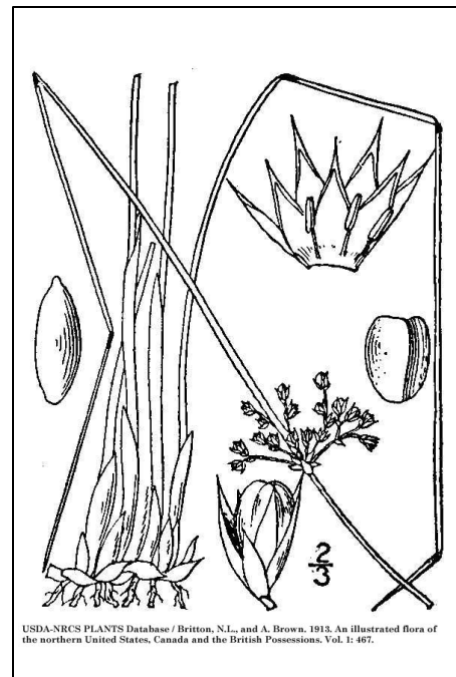
Occurrence: Most species OBL, with a few being FACW

Habitat: Tidal and non tidal marshes, wet meadows, shallow water, and exposed mud

Significance: Spikerushes are very distinctive with their pineapple-shaped terminal seedheads and are commonly found in open, permanently saturated to seasonally flooded wetlands.



Soft Rush *Juncus effusus*



General Appearance: Lacking leaves, with soft, round, green stems filled with whitish tissue. Forms dense clumps. Clusters of flowers borne on upper half of stems and later bearing small fruit capsules.

Size: Up to 3 ½ feet tall

Bloom/Fruit Time: July - September

Occurrence: FACW+

Habitat: Marshes, wet meadows, pastures, and shrub swamps

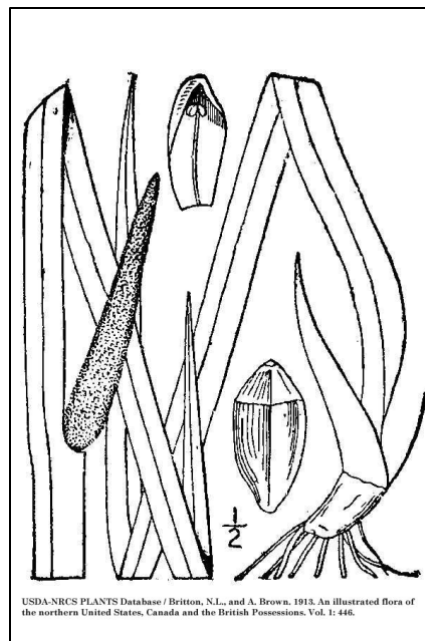
Significance: Soft rush is quite distinctive from other rush species in the region, with a distinctive robust spiky form. This species is often the best indicator of wetland conditions in pastures.



Photo by: Sally and Andy Wasowski

Sweetflag

Acorus calamus



General Appearance: Aromatic, iris-like leaves having a midrib slightly off center. Fingerlike fleshy appendages (spadix) bearing many small yellow flowers.

Size: Up to 4 feet tall

Bloom/Fruit Time: May - August

Occurrence: OBL

Habitat: Marshes, wet meadows and shallow water

Significance: Sweetflag usually occurs in large monotypic stands, often along small streams. Botanists argue whether this is a native North American plant or an early introduction naturalized from Eurasia.



Skunk Cabbage

Symplocarpus foetidus



General Appearance: An herb with large oval to heart shaped basal leaves with a skunk-like odor when crushed. Inconspicuous flowers are borne early on an oval-shaped fleshy spike enclosed within a thick, fleshy, purple and green striped hood.

Size: Up to 3 feet tall

Bloom/Fruit Time: February - May

Occurrence: OBL

Habitat: Seasonally flooded forested wetlands, shrub swamps, marshes and seeps

Significance: Skunk cabbage is a very distinctive plant that is one of the first to green up in springtime. Although this is classified as an OBL species, it will often persist in floodplain areas that are no longer wetland due to stream incision. False hellebore is a similar species with large leaves, but they are alternate and deeply ridged and are not foul smelling.



Cardinal Flower

Lobelia cardinalis



General Appearance: Simple, toothed, alternate leaves with many showy bright red, two-lipped, tubular flowers, 1 ½ inches long, borne on terminal spikes.

Size: Up to 4 feet tall

Bloom/Fruit Time: May - October

Occurrence: FACW+

Habitat: Marshes, forested wetlands, river banks and seeps



Significance: A very distinctive plant when in flower, but tricky to distinguish when not.

Blue lobelia (*Lobelia siphilitica*, OBL) is a very similar species with blue flower spikes.





Jewelweed

Impatiens capensis

General Appearance: Simple, coarsely toothed, alternate, egg-shaped leaves with smooth succulent stems. Orange or yellow uniquely shaped flowers, 1 inch long, with brown to reddish spots borne on long drooping stalks. Seed pods form later and open explosively when ripe.

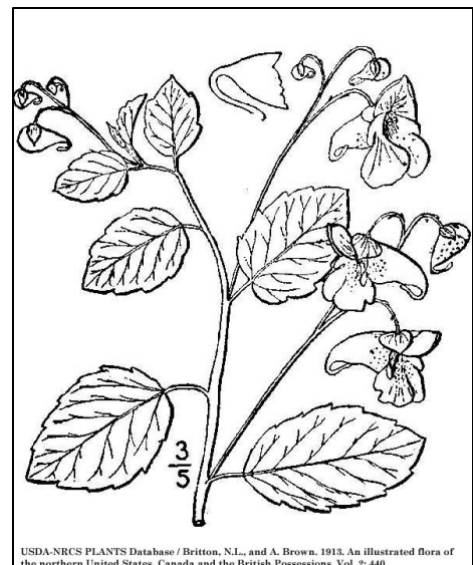
Size: Usually 2 to 4 feet tall

Bloom/Fruit Time: June - September

Occurrence: FACW

Habitat: Swamps, wet meadows, seeps, stream banks, marshes, moist upland woods

Significance: Jewelweed is quite distinctive in all stages, especially to those familiar with the common garden *Impatiens*. This annual is often found in dense colonies in partially shaded forested wetlands, as well as permanently saturated open wetlands.



Monkey Flower

Mimulus ringens



General Appearance: Violet or pinkish irregular wildflowers borne in axils of opposite, toothed and stalkless leaves. Square stems.

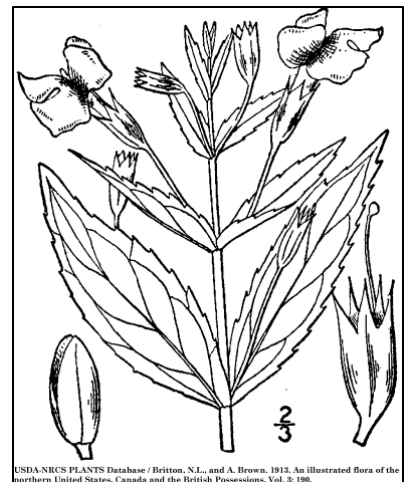
Size: 1 - 3 feet

Bloom/Fruit Time: June - September

Occurrence: OBL

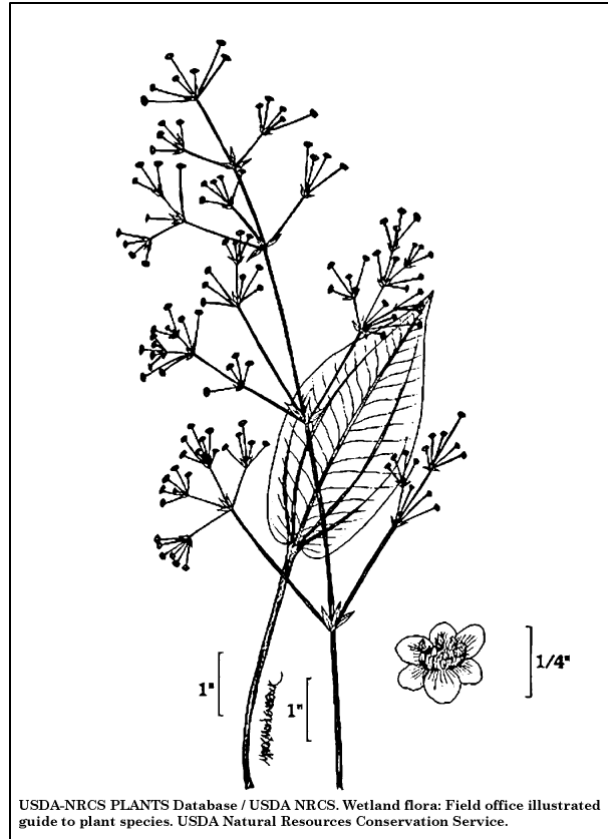
Habitat:: Wet meadows and streambanks

Significance: A common flower of open seasonally saturated wetlands. Flowers and seedpods are quite distinctive.



Water Plantain

Alisma subcordatum



General Appearance: A wildflower with entire, elliptical, long-stalked basal leaves and white or pinkish flowers with 3 regular parts occurring in whorls.

Size: up to 3 1/2 feet

Bloom/Fruit Time: June - October

Occurrence: OBL

Habitat:: shallow freshwaters marshes, ponds, streams, and lakes. The lower part of this plant is often submerged.

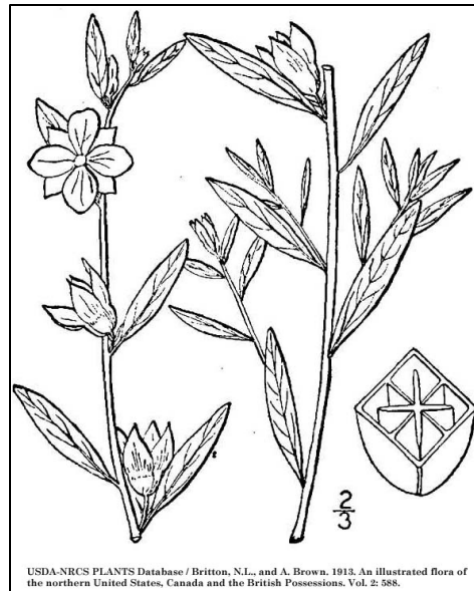
Significance: Usually not dominant but a very reliable wetland indicator when found, which is almost always in open sunny wetlands with strong saturation. Distinctive even when small with its plantain-like basal leaves. The previous year's flower spikes usually remain upright through winter and into the following spring.



Photo by: Albert F. W. Vick

Seedbox

Ludwigia alternifolia



General Appearance: A wildflower with entire, alternate, lance-shaped, pointed leaves. Yellow petals on 4 - part flowers $\frac{3}{4}$ of an inch wide growing singly in the axils.

Size: 2 to 3 feet high

Bloom/Fruit Time: July - August

Occurrence: OBL

Habitat: Swamps, shores, and stream banks

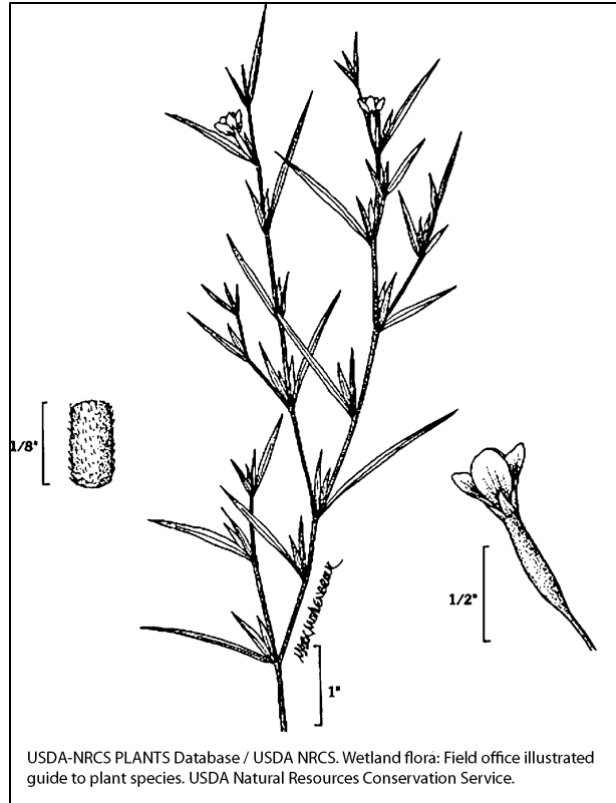
Significance: Seedbox is often one of the most distinguishable species in winter due to its unique square seedhead. It is a reliable wetland indicator, but is not usually a dominant species.

Willow Herbs

Epilobium spp.



Edwin Martin, Lady Bird Johnson Wildflower Center



General Appearance: A wildflower with alternate, toothed leaves and white, purple or pink flowers occurring in the upper axils. From the Greek words epi, "upon," and lobos, "a pod or capsule," as the flower and capsule appear together, the corolla being borne on the end of the ovary. Base of flowers form narrow star-like tube, with four regular parts and notched petals.

Size: 1- 3 feet

Bloom/Fruit Time: June — August

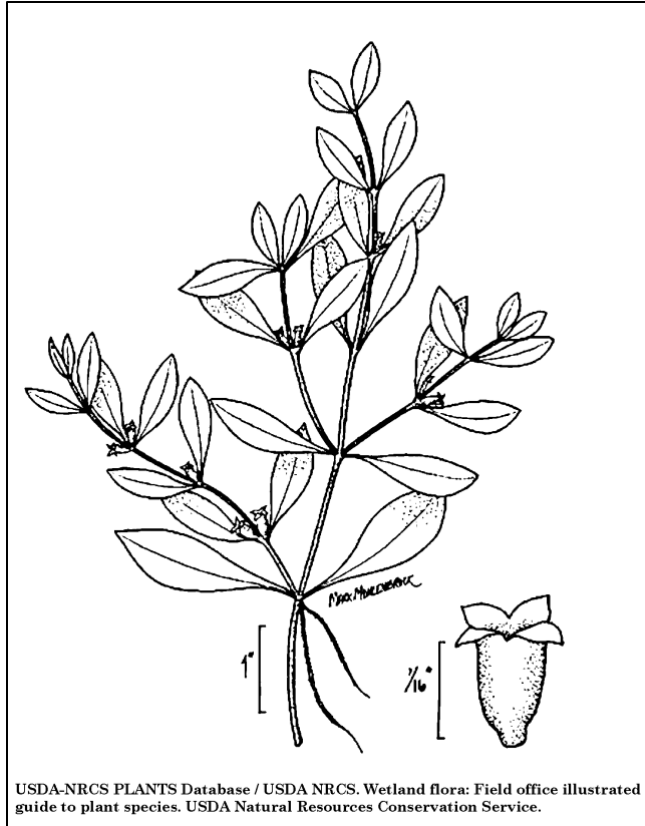
Occurrence: OBL

Habitat: wet meadows and streambanks

Significance: Several species are commonly found in this area in seasonally saturated wetlands. Plants are identifiable through winter after the seedpods split open in a characteristic curly fashion.

Water Purslane

Ludwigia palustris



General Appearance: A wildflower with very small green axillary flowers with four regular parts. Leaves are opposite, glabrous, egg-shaped and entire and are medium green to dark reddish-green.

Size: up to 1 foot

Bloom/Fruit Time: March - May

Occurrence: OBL

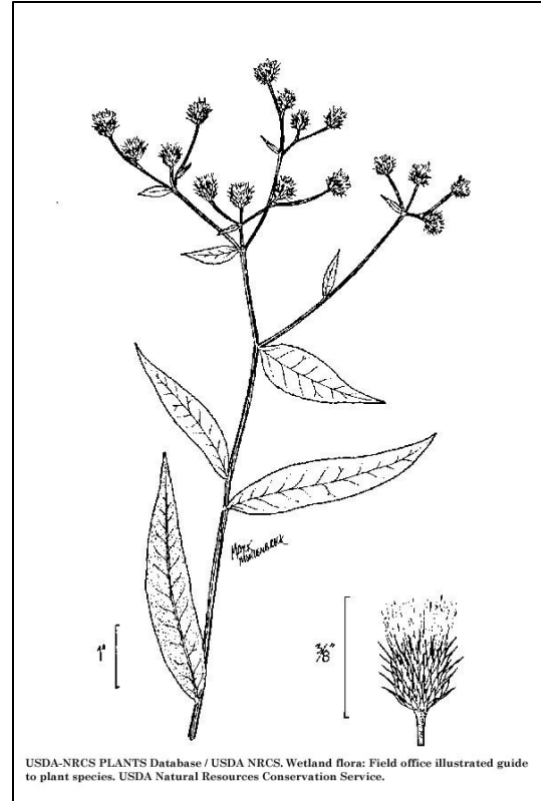
Habitat: Marshes, lakeshores, swamps and springs

Significance: A sprawling plant that is often common along the edges of standing water and on mudflat-type wetlands.



New York Ironweed

Vernonia noveboracensis



General Appearance: Simple, finely toothed, alternate, lance-shaped leaves with rough surfaces. Small purple flowers borne in loose, open, somewhat flat-topped inflorescence. Bracts with long threadlike tips cover the base of the flower head.

Size: Up to 7 feet tall

Bloom/Fruit Time: August - October

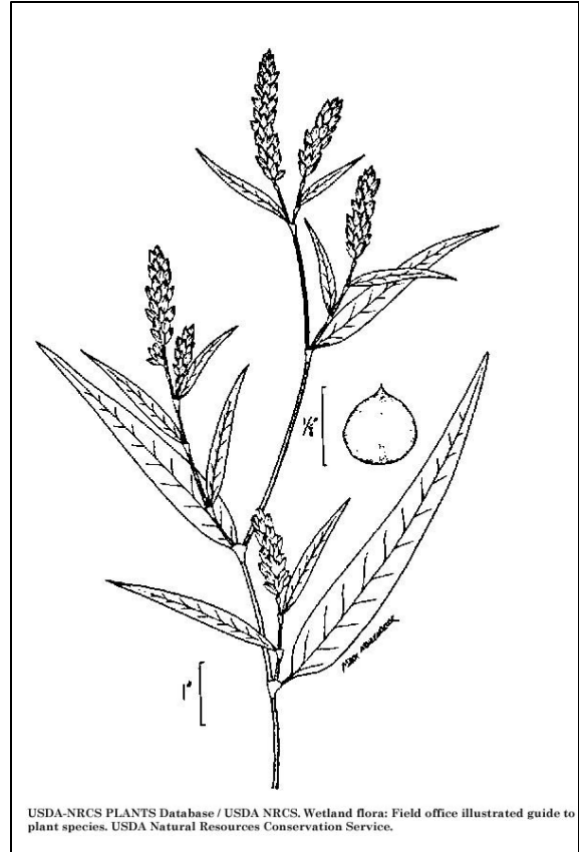
Occurrence: FACW+

Habitat: Wet meadows, marshes, swamps and stream banks

Significance: New York ironweed is a coarse broadleaf plant that is quite recognizable in all growth stages after one becomes familiar with it. This species is often a reliable indicator of wetland conditions in pastures as it is generally unpalatable to livestock.

Smartweeds

Polygonum spp.



General Appearance: A large group of often weedy plants with very small flowers of 5 petal-like sepals. Simple, entire, alternate, lance shaped leaves with jointed stems and leafy or hairy sheaths at nodes. Small white, pink, or green flowers are borne in dense or loose spikes.

Size: up to 5 feet tall

Bloom/Fruit Time: July - October

Occurrence: OBL to UPL depending on the species.

Habitat: Marshes and wet or damp soils

Significance: There are several common smartweed species in the region, with most being hydrophytic. Careful examination of morphological features is required for species identification.

Tearthumbs

Polygonum spp.



Erinnet J. Judziewicz - University of Wisconsin - Stevens Point
P. saggitatum



P. arifolium



P. perfoliatum **NO NEST INVASIVE**

General Appearance: A weak stemmed, sprawling plant of wet places. Stems are jointed and prickly. Leaves arrow-shaped (vs. lanced shaped smartweeds) with prickly midribs. White or pink flowers in small, close clusters.

Size: 1 foot

Bloom/Fruit Time: August to September

Occurrence: OBL to FAC depending on species

Habitat: Marshes, swamps, wet meadows

Significance: Arrow-leaved tearthumb (*P. saggitatum*) and halberd-leaved tearthumb (*P. arifolium*) are fairly common native tearthumbs which are both OBL hydrophytes. The aggressive Asiatic tearthumb (*P. perfoliatum*) is a more recent invader of this region and is commonly found along floodplains. This exotic invasive is easily separated by its round stem (versus square for the native tearthumbs), perfoliate (perforated by the stem) round leafy stipules, and turquoise, berrylike fruits.



Blue Vervain

Verbena hastata



General Appearance: An herb with simple, coarsely toothed, short-stalked, opposite leaves. Lower leaves are sometimes lobed. Leaves and stems are rough and hairy and stems are somewhat 4 sided. Dense and numerous terminal spikes, 2 to 6 inches tall, of bluish to violet five-lobed tubular flowers form in the summer.

Size: 4 to 6 feet

Bloom/Fruit Time: June - October

Occurrence: FACW+

Habitat: Wet meadows, marshes, open shrub swamps, and moist fields

Significance: Blue vervain is often common in open wetlands, with a very distinctive inflorescence.

New England Aster

Aster novae-angliae



Photo by: W.D. Mrs. Bransford



General Appearance: Larger leaves lance shaped, obscurely toothed or entire and heart shaped clasping around the stems. The stem is stout and bristly. Flowers 1 – 2 inches wide with numerous violet-purple rays.

Size: 3 to 5 feet

Bloom/Fruit Time: August - November

Occurrence: FACW-

Habitat: Fields, damp meadow, and shores

Significance: A fairly common plant of open wetlands, but usually not dominant. New York aster (*Aster novi-belgii*, FACW) is quite similar.



Swamp Aster

Aster puniceus



General Appearance: Simple, toothed, alternate leaves with rough upper surfaces gradually tapering to a clasping base. Often hairy, purplish - reddish stems. Light purplish to bluish daisy-like flowers about 1 ½ inch wide appear in the fall.

Size: Up to 5 feet tall

Bloom/Fruit Time: August - November

Occurrence: OBL

Habitat: Wet meadows, marshes, shrub swamps, and open forested wetlands

Significance: Quite common in saturated wetlands, and distinctive in all seasons due to its bristly stems and leaves.

Joe Pye Weed

Eupatorium fistulosum



General Appearance: Simple, blunt-toothed leaves with a single main vein occurring in whorls of mostly fours to sevens with waxy, purplish, hollow stems. Many small purplish to pinkish flowers in heads forming a round-topped terminal inflorescence appear in late summer.

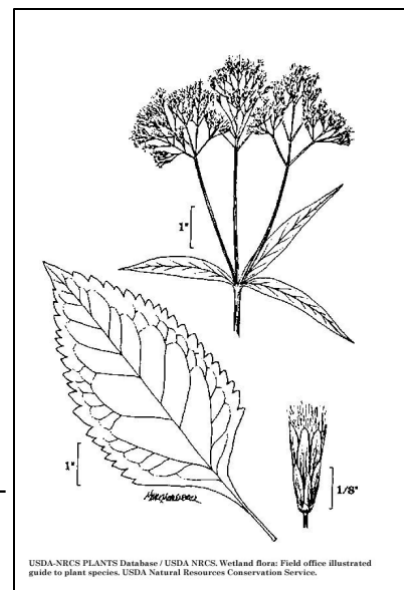
Size: Up to 7 feet tall

Bloom/Fruit Time: July - September

Occurrence: FACW

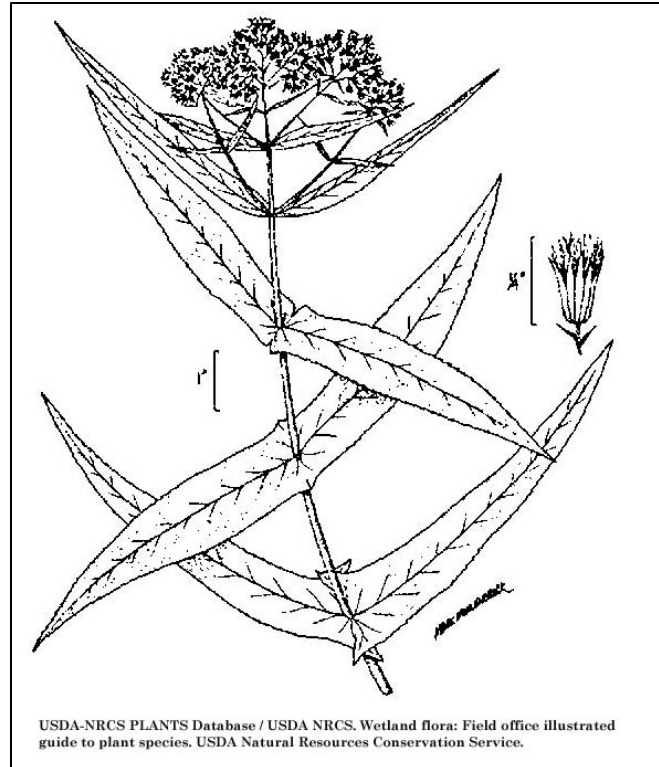
Habitat: Wet meadows, shrub swamps, forested wetlands, moist fields and woods

Significance: One of the tallest and showiest of the common wetland wildflowers. There are several common species but all are similar in general appearance and habitat requirements.



Boneset

Eupatorium perfoliatum



General Appearance: A perennial with simple, toothed, opposite triangular-shaped leaves that join at their bases and taper to a point. Forms dense cluster of grayish-white flowers in heads borne on a flat top in the late summer and early fall.

Size: 2 to 5 feet tall

Bloom/Fruit Time: Late July - October

Occurrence: FACW+

Habitat: A common plant of low ground, wet meadows, marshes, shrub swamps and shores

Significance: Boneset is very distinctive in all stages of growth due to its perfoliate leaves.



Beggars-ticks

Bidens spp.



General Appearance: Compound, opposite, lanced shaped leaves with yellow to orange disk flowers borne on dense heads. Later, bearing barbed seeds (stickers) with 2 to 4 prongs that cling to clothing.

Size: Up to 4 feet tall

Bloom/Fruit Time: June - October

Occurrence: FACW

Habitat: Marshes, wet meadows, floodplain forests, ditches, pastures, waste places, wet soils.

Significance: Most common species of this genus are hydrophytic. These species are most readily distinguished by non-botanists by their seeds bearing two distinct spikes, rather than their overall form, which can be highly variable.



False Nettle

Boehmeria cylindrica



General Appearance: Simple, coarsely toothed, opposite, egg shaped leaves with unbranched stems and minute greenish flowers born on axillary pikes. Does not have stinging hairs like true nettles.

Size: Up to 3 feet tall

Bloom/Fruit Time: July - September

Occurrence: FACW+

Habitat: Marshes, forested wetlands, wet meadows, floodplain forests and moist, shaded soils

Significance: False nettle is usually quite common in seasonally saturated forested wetlands.

Poison Ivy

Toxicodendron radicans



General Appearance: A woody, tree-climbing vine or small shrub with leaves divided into three pointed leaflets. Older vines covered in dense, dark fibers. Milky sap. Small yellowish flowers and small grayish white berries.

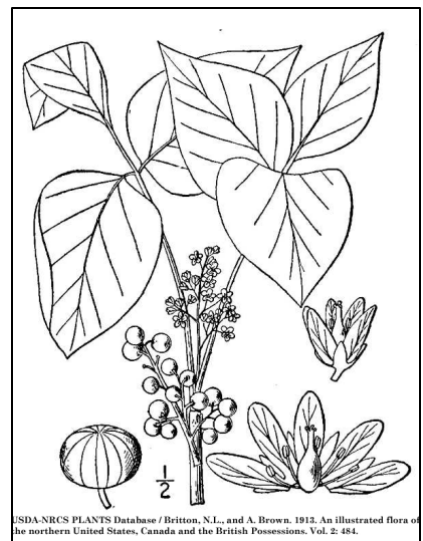
Size: Up to 3 feet alone or up to 100 feet if climbing

Bloom/Fruit Time: May - July

Occurrence: FAC

Habitat: Marshes, swamps, woods, and thickets

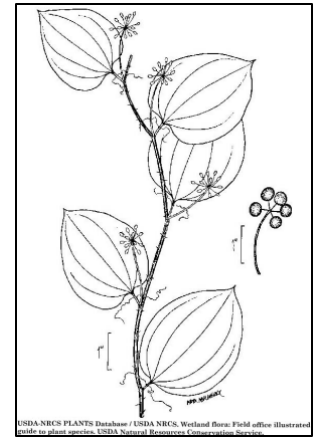
Significance: Poison ivy can be very dominant in marginal wetlands. It often grows vertically appearing as a short shrub in wet areas.



USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1912. An illustrated flora of the northern United States, Canada and the British Possessions. Vol. 2: 484.

Common Greenbriar

Smilax rotundifolia



General Appearance: A woody vine with many stout thorns and rounded to heart-shaped leaves with prominent veins. Thorns have a green base and dark tips. Bluish black berries.

Size: Can climb 10–20 ft, thorns can be up to 1 inch long.

Bloom/Fruit Time: April - June

Occurrence: FAC

Habitat: Forested wetlands, open woods, thickets

Significance: Common greenbrier is probably the most common wetland woody vine in this region, often forming dense thickets in marginal wetlands.

Smooth Alder

Alnus serrulata



General Appearance: A deciduous shrub with simple, fine-toothed, alternate, egg-shaped leaves. Early flowering catkins and persistent pine-like cones about ½ inch long.

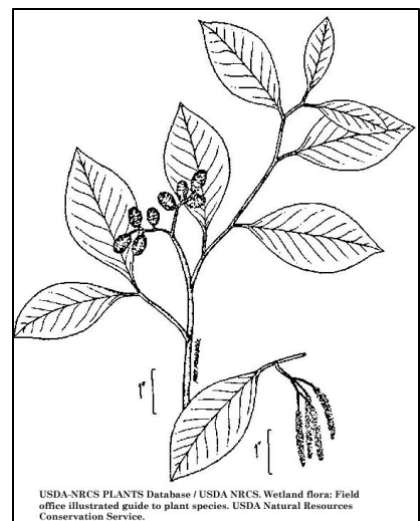
Size: Up to 20 feet tall

Bloom/Fruit Time: March - May

Occurrence: OBL

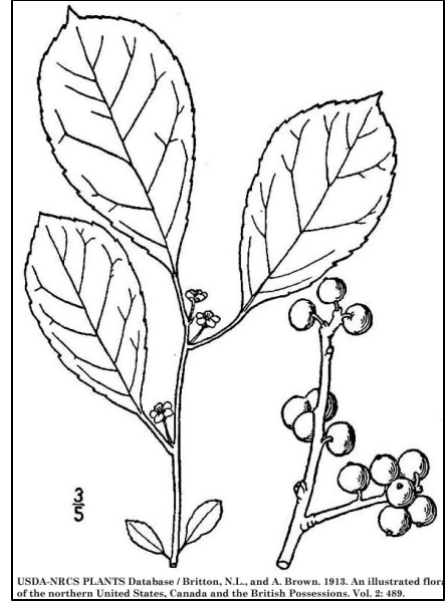
Habitat: Marshes, shrub swamps, forested wetlands and riverbanks

Significance: Smooth alder is a very reliable wetland indicator, and is often found in single-species thickets.



Winterberry

Ilex verticillata



General Appearance: A deciduous shrub with simple, toothed, alternate leaves with dull upper surfaces and distinctively pointed tips. Small 4- to 6-lobed white flowers are borne singly or in clusters in the leaf axils, later forming bright red berries.

Size: Up to 16 feet tall

Bloom/Fruit Time: May to August

Occurrence: FACW

Habitat: Shrub swamps and forested wetlands

Significance: Winterberry is often found in single species thickets in forested wetlands that are permanently saturated to seasonally flooded in hydrologic regime.



Spicebush

Lindera benzoin



General Appearance: A deciduous shrub with simple, entire, alternate leaves and dark gray bumpy bark. Leaves, twigs and berries aromatic and fruity when crushed. Small six- petaled yellow flowers borne in clusters along twigs later form red berries.

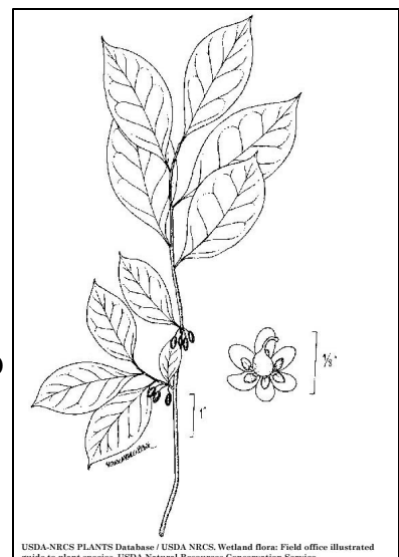
Size: Up to 16 feet tall

Bloom/Fruit Time: March - May

Occurrence: FACW-

Habitat: Forested wetlands, moist upland woods

Significance: Spicebush is classified as FACW-, but most wetland practitioners in this region consider it to be a FAC species, occurring more or as often in non-wetland moist forests as it does in jurisdictional wetlands. This species is not a reliable indicator of wetland conditions by itself.



Highbush Blueberry

Vaccinium corymbosum



General Appearance: A deciduous shrub with simple, entire, alternate leaves with leaves green above and pale below. Shreddy bark and twigs are gray on top and reddish greenish below. Small white urn-shaped flowers are borne in dense clusters and later form dark blue edible berries.

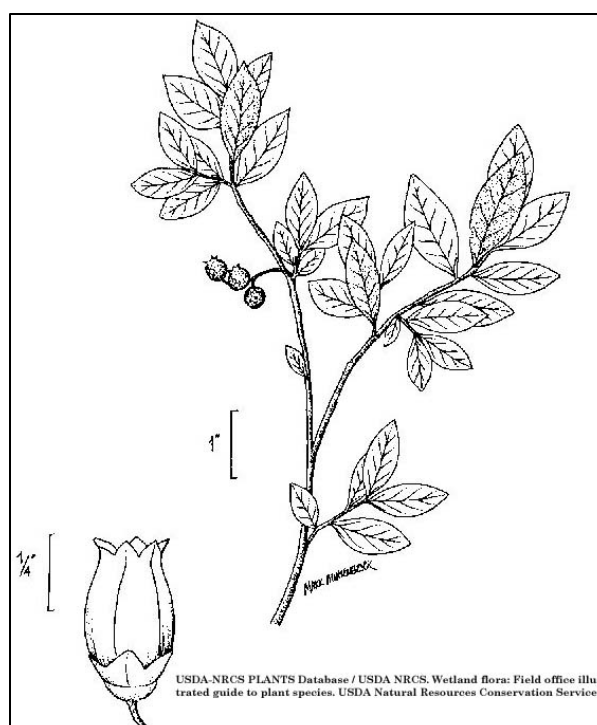
Size: 6 to 10 feet tall

Bloom/Fruit Time: April - July

Occurrence: FACW-

Habitat: Forested wetlands, shrub swamps, bogs and upland woods

Significance: Highbush blueberry is generally a wetland species, as opposed to the lowbush species, which are reliably upland species.



Southern Arrowwood

Viburnum dentatum



General Appearance: A deciduous shrub with simple, toothed, opposite leaves. Twigs are velvety-hairy and leaves are sometimes velvety-hairy beneath. Many small white five lobed flowers are borne on long stalked clusters at the end of branches which later form bluish black berries.

Size: Up to 15 feet tall

Bloom/Fruit Time: May - July

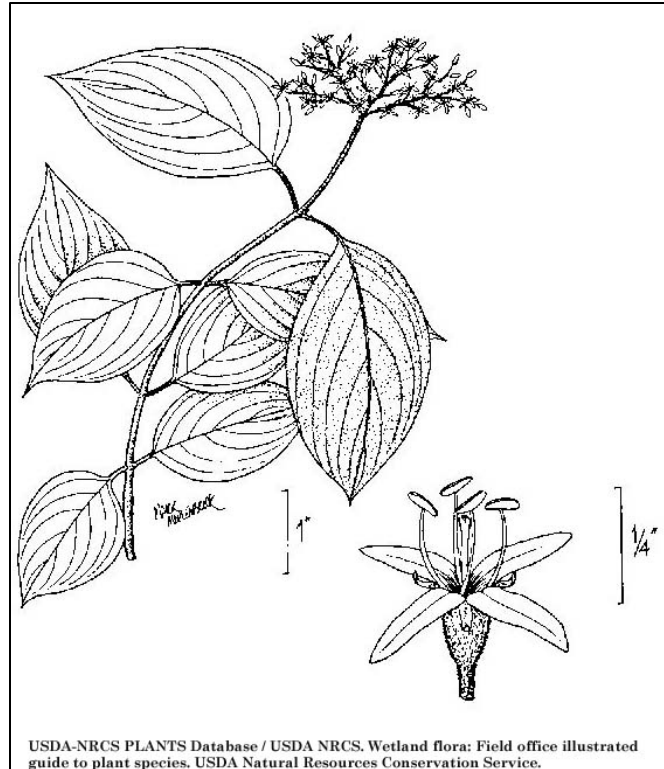
Occurrence: FAC

Habitat: shrub swamps, forested wetlands and thickets

Significance: Arrowwood is commonly found in marginal wetlands. As a FAC species, it is usually found equally in non-wetland and wetland areas, therefore it is not a reliable wetland indicator by itself.

Silky Dogwood

Cornus amomum



General Appearance: A deciduous shrub with simple, entire, opposite leaves and smooth reddish to gray twigs often streaked with purple. Many small white flowers form in a somewhat flat-topped, terminal inflorescence which later form blue and bluish white berries.

Size: Up to 20 feet tall

Bloom/Fruit Time: May - July

Occurrence: FACW

Habitat: Wet meadows, shrub swamps, forested wetlands, riverbanks, moist woods

Significance: Silky dogwood is a relatively common wetland species in the Piedmont, often confused with red-osier dogwood (*Cornus sericea*, FACW), which is native to the mountainous areas of the region.

Buttonbush

Cephalanthus occidentalis



General Appearance: A deciduous shrub with simple, entire, egg-shaped opposite leaves. White tubular flowers are 1/3 inch long with protruding styles and form in round ball-like heads. Subsequent rounded masses of nutlets persist through the winter.

Size: 3 to 10 feet.

Bloom/Fruit Time: June–September

Occurrence: OBL

Habitat: Wet meadows, shrub swamps, riverbanks,

Significance: Ducks and other water birds and shorebirds consume the seeds.



USDA-NRCS PLANTS Database / USDA NRCS. Wetland flora: Field office illustrated guide to plant species. USDA Natural Resources Conservation Service.

Common Elderberry

Sambucus canadensis



General Appearance: A deciduous shrub with compound leaves having 5 – 11 (usually 7) leaflets and light brown bark covered with raised bumps. Flowers are small and white and borne on somewhat flat-topped inflorescence, later forming dark purplish berries.

Size: Up to 12 feet tall

Bloom/Fruit Time: June - July

Occurrence: FACW-

Habitat: marshes, wet meadows, swamps and moist areas

Significance: Elderberry is usually not dominant, but is commonly found in open and shaded wetlands.



Swamp Rose

Rosa palustris



General Appearance: A thorny, deciduous shrub with compound leaves divided into 7 fine-toothed leaflets. Large showy pink five-petaled flowers and hairy, reddish, fleshy rose hips form in late summer.

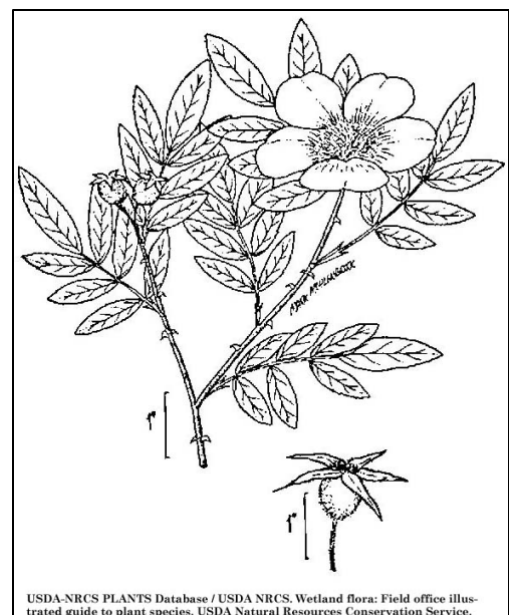
Size: Up to 7 feet tall

Bloom/Fruit Time: June - October

Occurrence: OBL

Habitat: Marshes, forested wetlands, shrub swamps

Significance: Swamp rose is distinctive in form and habitat from the exotic invasive multiflora rose (*Rosa multiflora*, FACU). The flowers and fruits are much larger and showier than multiflora rose, and its thorns are relatively few in number and very slender.



Red Maple

Acer rubrum



General Appearance: A deciduous tree with simple, toothed, opposite leaves. Smooth gray bark with whitish patches when young darkens and breaks up when older. Leaves typically have five lobes and red petioles. Small red flowers appear in clusters and form small winged flattened fruits or “helicopters”.

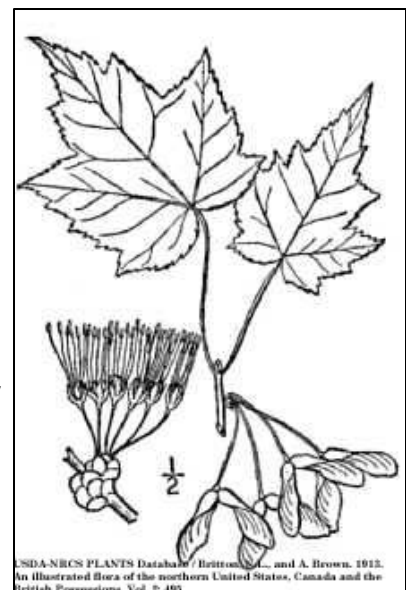
Size: Up to 100 feet tall

Bloom/Fruit Time: March - May

Occurrence: FAC

Habitat: Swamps, marshes, alluvial soils and moist uplands

Significance: Red maple is one of the most common trees in the region, and as a FAC species it is as likely to be found in non-wetland as in wetland areas. However, it is often the most common and dominant tree species in regional wetlands, especially in early successional forested wetlands.



Silver Maple

Acer saccharinum



General Appearance: A deciduous tree with simple, toothed, opposite leaves that are dark green above and silvery below with five deep lobes. Grayish older bark tends to flake, leaving brown spots. Small greenish red flowers appear in clusters and form small winged flattened fruits or “helicopters”.

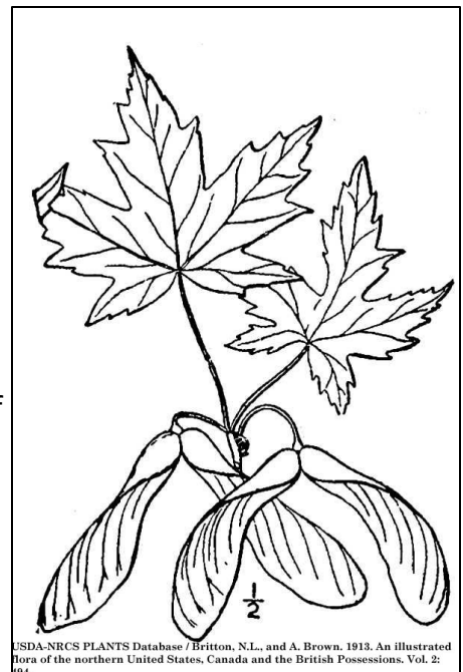
Size: Up to 120 feet tall

Bloom/Fruit Time: February - May

Occurrence: FACW

Habitat: Temporarily flooded forested wetlands, alluvial woods and riverbanks

Significance: Silver maple is a common species of wetland floodplains along larger rivers in the region.



USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. Vol. 2: 694.

Green Ash

Fraxinus pennsylvanica



General Appearance: A deciduous tree with compound, opposite leaves divided into 5 to 9 leaflets and smooth grayish twigs. Bark rather dark and interwoven in a tight pattern of ridges and furrows. Leaf scars roundish vs. v-shaped in white ash.

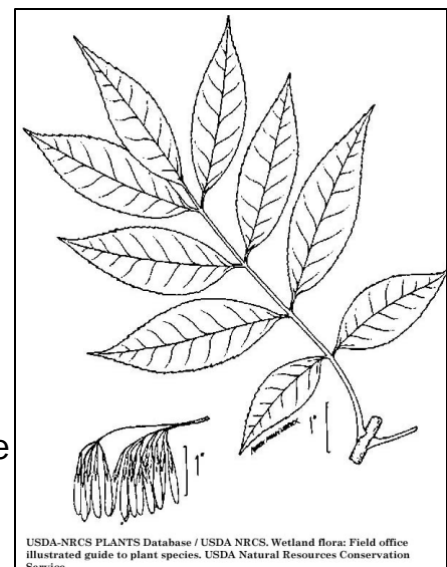
Size: Up to 80 feet tall

Bloom/Fruit Time: April - May

Occurrence: FACW

Habitat: Swamps and floodplains

Significance: Green ash can often be confused with white ash (*Fraxinus americana*, FACU), but the two species are often reliably separated by habitat. Green ash is one of the most flood tolerant tree species in the region.





Box Elder

Acer negundo



General Appearance: A deciduous tree with compound, opposite leaves divided into 3 or 5 leaflets and smooth green twigs. Small yellowish greenish white flowers appear in clusters and form small winged flattened fruits or “helicopters”.

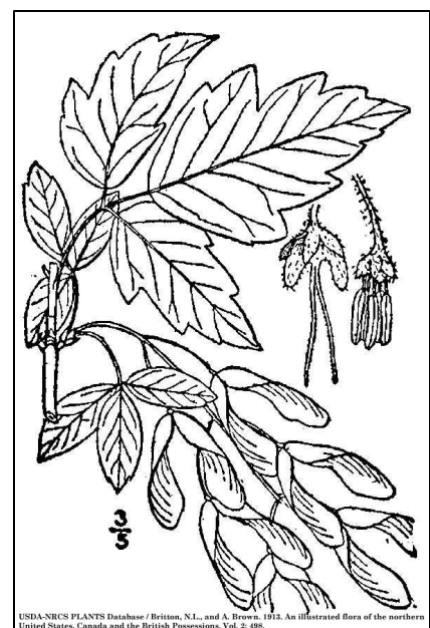
Size: Up to 75 feet tall

Bloom/Fruit Time: April - May

Occurrence: FAC+

Habitat: Temporarily flooded forested wetlands, floodplains, moist soils

Significance: Boxelder is a unique maple species with compound leaves and is a common tree of floodplains and swales. As a FAC species it is commonly found in both non-wetland and wetland areas. When found in jurisdictional wetlands, it is usually restricted to marginal wetlands and edges.



Sycamore

Platanus occidentalis



General Appearance: A deciduous tree with simple, 3 to 5 lobed, toothed, alternate, leaves. Bark is distinctive flaky light brown-grey-green mottled on the bottom and white towards the top of the tree. Fruits are borne in round balls.

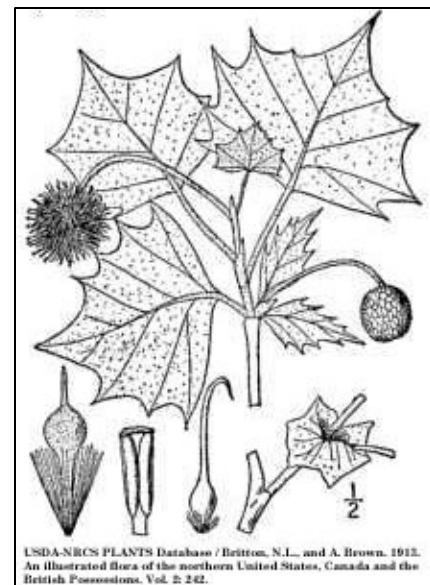
Size: Up to 175 feet tall

Bloom/Fruit Time: April - June

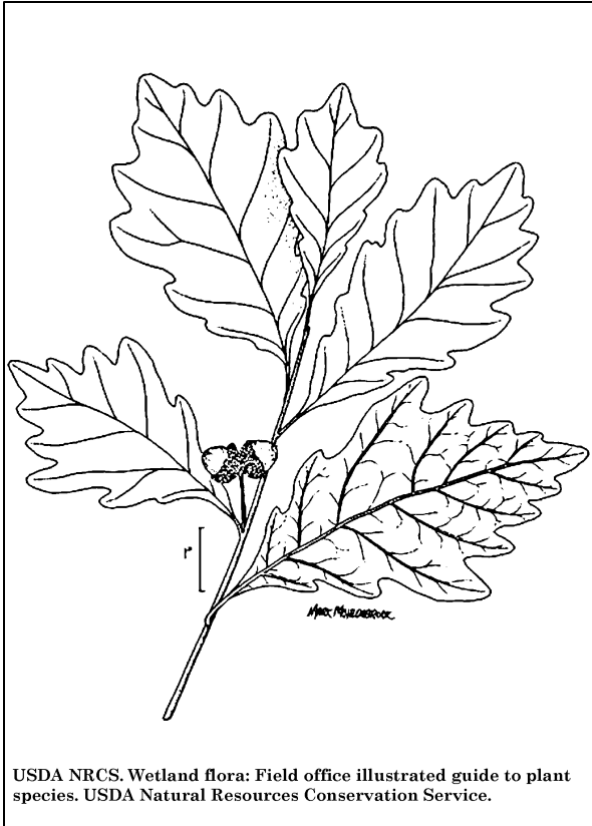
Occurrence: FACW-

Habitat: Forested wetlands and floodplains.

Significance: Sycamore, though classified as FACW, is probably more of a FAC species in this region. It is most commonly found in the floodplains of larger streams and rivers.



Swamp White Oak *Quercus bicolor*



General Appearance: A large, wide, round-topped, deciduous tree with an irregular crown. Its leaves are dark green above with silvery undersides and are typical of those of white oak, yet swamp white oak leaves lack deeply cut lobes. Bark is dark gray with deep furrows forming scaly or flat-ridges.

Size: 100 feet

Bloom/Fruit Time: March - April

Occurrence: FACW+

Habitat: Swamp white oak is a consistent though mostly a minor component of wet forest communities.

Significance: Provides great wildlife forage.



Pin Oak

Quercus palustris



A state champion pin oak on PEC's Ovoka property in Paris, Virginia

General Appearance: A deciduous tree with simple, deeply lobed, shiny green, alternate leaves having bristled tips. The lower branches are usually drooping, and the tree has flowering catkins and small acorns.

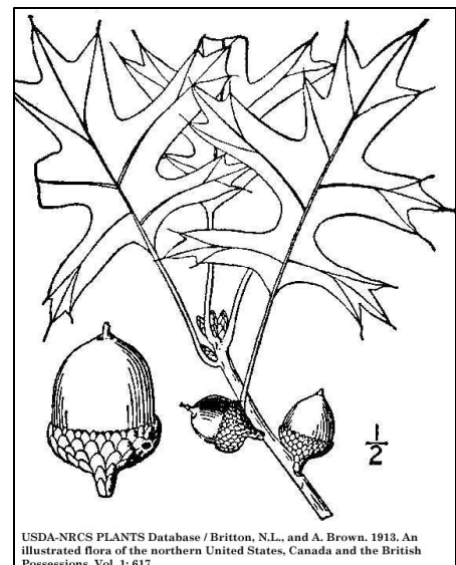
Size: Up to 120 feet tall

Bloom/Fruit Time: February - May

Occurrence: FACW

Habitat: Temporarily flooded forested wetlands, alluvial woods

Significance: Pin oak is a generally distinctive oak and one of the more common trees of forested wetlands in the region.





Black Gum

Nyssa sylvatica



General Appearance: A deciduous tree with simple, entire, alternate leaves and deeply furrowed dark brown to grayish bark. Branches usually extend out perpendicularly from the tree. Twigs have a chambered pith. Small greenish flowers and bluish black oval berries are born on long stalks.

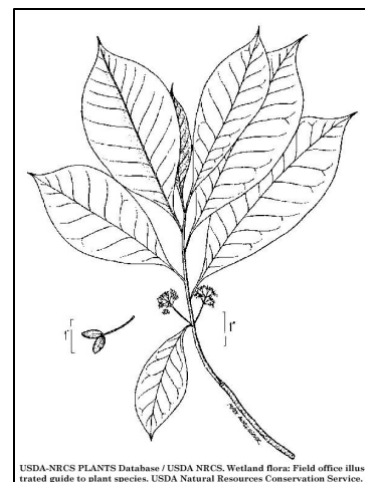
Size: Up to 125 feet tall

Bloom/Fruit Time: April - May

Occurrence: FAC

Habitat: Swamps, Bottomlands, moist upland woods and dry woods

Significance: Black gum is a very adaptable species, occurring on dry upland ridges and in seasonally flooded swamps. This species is not a reliable indicator of wetland conditions, but is often common as an understory species in forested wetlands.



USDA-NRCS PLANTS Database / USDA NRCS, Wetland flora: Field office illustrated guide to plant species. USDA Natural Resources Conservation Service.

Black Willow

Salix nigra



General Appearance: A deciduous tree with simple, toothed, alternate, lancelet leaves that are dark green above and light green below having stipules at their base. The tree has deeply grooved brownish, blackish bark and orangish twigs in winter. Flowering catkins and somewhat pear-shaped fruit capsules appear in late spring.

Size: Up to 70 feet tall

Bloom/Fruit Time: April - June

Occurrence: FACW

Habitat: Swamps, bottomlands, marshes, wet meadows and riverbanks

Significance: Black willow is the largest willow species, and a common pioneer tree species in emergent wetlands. Black willow has little shade tolerance and is gradually eliminated as forested wetlands mature.



River Birch

Betula nigra



General Appearance: A deciduous tree with simple, toothed, alternate leaves and reddish brown peeling bark when young, turning black and plate-like when older. Tree produces flowering catkins.

Size: Up to 100 feet tall

Bloom/Fruit Time: April - May

Occurrence: FACW

Habitat: Forested wetlands, swamps, and rich, moist upland woods

Significance: River birch is commonly found in wetland floodplains of larger streams and rivers in the region.

