







# Field Guide to Dominant Plants of Wisconsin Wetlands

**A plant identification guide to accompany the Wisconsin Department of Natural Resources WETLAND RAPID FLORISTIC QUALITY ASSESSMENT**

WISCONSIN
DEPT. OF NATURAL RESOURCES

Version 1.0

# About This Field Guide

This guide is intended to be used as a companion tool to the Wisconsin DNR Rapid Floristic Quality Assessment (RFQA) Methodology and the three corresponding Rapid FQA Field Forms developed for data entry:

- Herbaceous (Emergent) Wetland Calculator (PEM)
- Shrub/Scrub Wetland Calculator (PSS)
- Forested Wetland Calculator (PFO)

The RFQA is designed to assess wetland condition based on identification of only the most dominant plants in a wetland. This field guide therefore highlights the most important plant species and groups that users will encounter as dominants and differs from other field identification guides in a few important ways:

- **Only dominant plants are included**. Only plants that regularly exhibit high areal cover (approximately 10% or more of a wetland community) are included. Many species that may be common to wetlands but never reach high abundance in any one wetland community (e.g., swamp milkweed and blue flag iris) are excluded.
- **Many species have been grouped at the genus (or higher) taxonomic level.** The RFQA requires only genus level identifications for certain groups that have similar C-values. Therefore, expect this field guide to include tips on identifying "Sedges" (genus *Carex*), "Dogwoods" (genus *Cornus*), or "Ferns" but not *Carex vulpinoidea or Thelypteris palustris*.
- **Only the most commonly occurring wetland dominants are included**. This guide attempts to help users identify the dominants found in **most** Wisconsin wetlands but since wetlands can be highly variable and the flora is large (1200+ species!) expect to occasionally encounter a species not included here. While some less common species may be mentioned in the **Similar Species** section at the bottom of each page, users may need to consult other identification guides to complete an assessment when an unusual plant is dominating a wetland.

The guide divides Wisconsin's wetland dominant plants into 5 sections corresponding to each plant's *form*: **TREES**, **SHRUBS**, **GRAMINOIDS** (grasses, sedges, rushes, cat-tails), **FORBS**, and **OTHERS** (ferns, horsetails, and aquatics).

Please refer to the Rapid FQA User Guide for additional information and guidance.

A full report detailing the development of the Rapid FQA tool can be found on the Wisconsin DNR website

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Corresponding RFQA Field Form(s) on which the plant taxon appears.
H = Herbaceous / Palustrine Emergent (PEM)
S = Shrub/ Palustrine Scrub-Shrub (PSS)
F = Forested/ Palustrine Forested (PFO)

# *Species name*

## COMMON NAME

H S F

| Native status: | | C of C: | |
|---|---|---|---|

- Description
- Identifying Features
- Habitat
- Similar Species
- Included Dominants

Coefficient of Conservatism or "C-Value" or, for grouped species, calculated as an importance value-weighted average.

OTHER FORBS GRAMINOIDS SHRUBS TREES

General physical form of the plant taxon will be highlighted here.

Information about the species or group of species including representative photos and a list of grouped species (if applicable).

Note WIS stands for Wetland Indicator Status (from USACE National Wetland Plant List). This format lists the Midwest Region indicator status first then the North Central-North East Region second, i.e., (MW/NCNE)

# Rapid Floristic Quality Assessment Basics

**The Assessment Area (AA):** The unit of assessment for a RFQA survey is a homogeneous plant community of one structural type or Cowardin class.

**Wetland Structural Type or Cowardin Class (PEM, PSS, PFO):** The wetland type will determine which form you will use for data entry. Note in the guidebook each plant taxon will indicate the wetland type where it is commonly found as a dominant in the top right corner as 

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| |
|---|
| **Herbaceous Class (PEM)**<br>*Rooted, emergent, herbaceous plants are the tallest life form with 30% minimum cover.* |
| **Scrub-Shrub Class (PSS)**<br>*Woody plants <6m tall are the tallest life form with 30% minimum cover.*<br>*Or combined cover of trees and shrubs is ≥30% cover.* |
| **Forested Class (PFO)**<br>*Mature trees >6m tall are the tallest life form with 30% minimum cover.* |

**Dominant Plant:** The RFQA is a dominants-only assessment. Dominance is defined as exhibiting high areal cover, i.e., occupying or shading large portions of the ground. Plant taxa seen only once or a few times, especially those small in size, can be excluded.

**Minimum Taxa:** The RFQA guidelines require that **all taxa with areal cover ≥10%** be identified with at minimum the 3 to 5 species (depending on wetland type) with the highest areal cover included.

| Wetland Type | Minimum # Dominant Taxa |
|---|---|
| **Herbaceous (PEM)** | 3 |
| **Shrub (PSS)** | 4 |
| **Forested (PFO)** | 5 |

When in doubt about whether a plant taxa meets the 10% cover cut-off, users are encouraged to be inclusive. Including plants covering as little as 2% of the AA is allowable and may be necessary to meet the minimum number requirements in some wetlands.

# Coefficients of Conservatism & Interpreting Rapid FQA Results

**Coefficients of Conservatism (C-values**) are the basis of vegetation condition assessments and are essentially numerical ratings of a plant species' dependence on intact, unaltered ecological conditions. C of C values were assigned to each species in the Wisconsin flora by a panel of Wisconsin botanists in a 2003 publication using the following guidelines:

| C - value | Narrative description |
|---|---|
| 0 - 3 | *Taxa found in a wide variety of plant communities and very tolerant of disturbance.* |
| 4 - 6 | *Taxa typically associated with a specific plant community but tolerate moderate disturbance.* |
| 7 - 8 | *Taxa found in a narrow range of plant communities in advanced stages of succession but can tolerate minor disturbance.* |
| 9 - 10 | *Taxa restricted to a narrow range of ecological conditions, with low tolerance of disturbance.* |

**Rapid C–Values** are unique to the RFQA and combine the C of C values of multiple individual species to allow genus or group- level identifications, eliminating the need to identify many difficult plants to species level. Species-grouped rapid C-values were calculated using an importance value (IV)- weighted average of all the species in the group from WDNRs Wetland FQA Database. This results in a C-value that is weighted towards the most common and abundant species across all wetlands of a given structural type in our database, adding some imprecision to the assessment but greatly improving efficiency and ease of use.

**Rapid *w*C** is the final score produced by a RFQA survey and is calculated using the C of C values of the taxa identified in the AA weighted by the areal cover assigned to each taxon. The result is a numerical estimate of the average conservatism or floristic quality of a plant community.

Rapid *w*C scores can be used to assign a Floristic Quality Tier to the AA as shown in the following table:

| Rapid *wC* Score | Floristic Quality Tier |
|---|---|
| ≥ 7.1 | Exceptional |
| 4.8 -7.0 | High |
| 2.1 -4.7 | Medium |
| ≤ 2.0 | Low |

# Contents

# *TREE SPECIES AND GROUPS:*

# Woody plants with maximum height typically > 20ft

# *Abies balsamea*

## BALSAM FIR

H S F

TREES

| Native status: | Native | C of C: | 5 |
|---|---|---|---|

### Description

Steeple-shaped evergreen tree growing up to around 80' tall; stems are minorly hairy.

Leaves appear flat shaped, single 'bunches', and have a whitish hue on the underside; leaves 3/8"-1/4" long.

Has upright-arranged cones from roughly 2 to 3 inches long.

### Identifying Features

Needles are flat and attach directly to twig (no woody peg at base). Female cones are very resinous and stand upright. Bark is smooth except for resin-filled blisters.

### Habitat

An occasional and generally minor component of northern forested wetlands. Also found along the borders of bogs and within them, wet meadows, dune-swale areas and forested dunes, sedge meadows, talus slopes, steep banks above rivers.

Almost entirely restricted to areas north of the Tension Zone.

WIS: FACW/FAC

### Similar Species

Spruce trees appear similar but do not have flat needles. The two have different cones as well. Eastern Hemlock trees also have flat needles, but they are shorter and are attached to the twig with a short woody peg.

# *Acer* Species (PFO)

## NATIVE MAPLE GROUP (FORESTED)

H S **F**

| Native status: | Native | Rapid C: | 2.3 |
|---|---|---|---|



### Description

Tall, deciduous tree; leaves and branchlets opposite, leaves are simple and palmately lobed.

Red maple (*A. rubrum*) leaves and trunks.

### Identifying Features

Leaves opposite, palmate, with 3 to 5 lobes and 20+ teeth per side. Sinus separating lobes are angled rather than rounded.

### Habitat

Common trees of floodplains, hardwood swamps, moist woods, and shores.

Silver maple (*A. saccharinum*) leaf

### Similar Species

Sugar maple (*Acer saccharum*) is a common upland tree distinguished by rounded sinuses between leaf lobes and fewer teeth on leaf margins. Box elder *(Acer negundo)* has leaves pinnately divided. American sycamore (*Platanus occidentalis*) has peeling bark and fruit in a hanging sphere.

Shrubs with maple-like leaves include *Viburnum opulus, V. trilobum and Acer spicatum.* These commonly have 3-lobed leaves.

### Included Dominants

- Silver maple *(Acer saccharinum;* WIS: FACW/FACW; C=2); Leaf undersides uniformly hairy; terminal lobe elongated and angled inward at base.
- Red maple *(A. rubrum;* WIS: FAC/FAC; C=3); Leaf undersides mostly hairless; terminal lobe with parallel sides).
- Freeman's maple *(A. x freemanii,* C=3); Hybrid of silver and red maple.

# *Acer negundo*

## BOX ELDER

H S F

| Native status: | Native | C of C: | 0 |
|---|---|---|---|

TREES

### Description

Perennial deciduous tree up to 75' tall with a trunk up to 4' in diameter; main trunk often produces many small irregular branches. Bark is rough.

Leaves are opposite, pinnately-divided into 3-5 (up to 9). Leaflets; lance-like to oval or oblong, 4"-10" long, edges mostly with coarse, irregular teeth or lobes; end leaflet usually 3-lobed.

Flowers blooms April to May either before or while leaves are opening.

Fruits: winged, paired fruit.

### Identifying Features

Compound leaf with 3-7 leaflets and maple-like 'helicopter' seeds. Trunk is rarely straight.

### Habitat

Moist, rich soils, floodplains, disturbed areas.

WIS: FAC/FAC

### Similar Species

Seedlings may resemble poison ivy.

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# *Betula alleghaniensis*

## YELLOW BIRCH

H S F

| Native status: | Native | C of C: | 7 |
|---|---|---|---|

### Description

Perennial tree up to around 100 feet tall with a straight trunk, narrowly-rounded crown. The bark is smooth with often flaking irregularly, dark, shiny, and can be reddish-brown, yellowish, or gray. Has dark, horizontal lenticels; twigs with small glands giving off a wintergreen taste and smell when crushed. The leaves are narrow and oval shaped; edges have sharp, coarse, double, irregular teeth and occasionally have small, scattered resinous glands.

Flowers blooms in late spring.

Fruits are upright clusters and oval shaped, finely hairy; samara wings narrower than the body and widest near the top.

### Identifying Features

Peeling yellow – metallic gray bark is distinctive when present. Young twigs when broken or scraped smell like wintergreen.

### Habitat

Moist to wet; streambanks, swampy woods, rich forested slopes.

WIS: FAC/FAC

### Similar Species

See other birch species pages (#5 and #6).

# *Betula nigra*

## RIVER BIRCH

H S F

| Native status: | Native | C of C: | 6 |
|---|---|---|---|

### Description

Perennial tree growing up to 80' tall, often with several trunks and a rounded crown; bark is smooth but peels into shaggy pieces irregularly along the trunk which can be grayish brown, yellow, red, or off-white. Has dark, horizontal lenticels. Twigs have no wintergreen taste or smell.

Leaves are asymmetrically oval with coarse edges, doubly cut to toothed.

Flowers bloom in late spring.

The fruits are conical to round, erect clusters with scales. Fruits remain on the tree until early winte. The samara wings are narrower than the body and usually widest near the top.

### Identifying Features

Unique reddish, peeling bark is distinctive when present. Leaves are strongly double-toothed with wedge-shaped bases.

### Habitat

Moist to wet; riverbanks, floodplains. Found in urban plantings as well.

WIS: FACW/FACW

### Similar Species

See other birch species pages (#4 and #6).

# *Betula papyrifera*

## PAPER BIRCH

H S **F**

| Native status: | Native | C of C: | 3 |
|---|---|---|---|



### Description

Perennial tree growing up to 65' tall often with several trunks and narrow crowns. The bark is smooth and can be grey/white to dark red/brown turning red, tan, or bronze with age. Barks peels in thin sheets. Has dark, horizontal lenticels.

Leave are ovate with a short tip and has edges with coarse or irregular double teeth,. The base of the leaf is usually heart-shaped; mostly hairy below.

Catkin flowers are usually about 2" long; blooms in late spring.

Fruits are cylindrical, hanging clusters that are yellow or brown. The samara wings are wider than the body, widest near the top.

### Identifying Features

Peeling white bark is distinctive; leaves are sharply toothed with a rounder shape than other birches.

### Habitat

Moist; rocky slopes, rich woods

WIS: FACU/FACU

**Similar Species:** See other birch species pages (#4 and #5). Aspen (*Populus spp.* # 13) can also have white trunks, but bark does not peel, and tree bases become brown with age.

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# *Celtis occidentalis*

## HACKBERRY

H S **F**

| Native status: | Native | C of C: | 4 |
|---|---|---|---|



### Description

Perennial tree with a rounded crown; gray, deeply rutted bark becoming knobby with age. No thorns.

Leaves are lance-like oval or triangular with a leathery or rough feel. Leaf base is wide and leaf tip is sharply pointed. Leaf edges with 10-40 teeth occurring well past the middle.

Flower inflorescence is a hanging, dense cluster which blooms in the spring.

Fruits are dark orange berries turning dark purple to black when ripe. The pit is cream colored.

### Identifying Features

Bark is uniquely ridged or warty. Leaves asymmetrical with long, drawn-out tips.

### Habitat

Moist; streambanks, floodplains, woodlands, in rich soil

WIS: FAC/FAC

### Similar Species

None.

# *Fraxinus nigra*

## BLACK ASH

H S **F**

| Native status: | Native | C of C: | 8 |
|---|---|---|---|



### Description

Tall, deciduous tree with opposite leaves and branchlets, and pinnately compound leaves. Seed is within a flat, winged samara.

### Identifying Features

Leaves and branchlets strongly opposite. Each leaf has 7-11 leaflets, typically 9. Leaflet is attached directly to midrib. The terminal leaflet is the same size or smaller than lateral leaflets. The underside of each leaflet has tangled brown hairs along the midrib.

### Habitat

Depressions, seeps, edges of rivers, streams, and lakes.

Occasionally found in disturbed or cleared areas, colonizing these areas.

WIS: FACW/FACW

### Similar Species

Green ash (*F. pennsylvanica*):

- See #9
- Typically has 7 or fewer leaflets.
- Terminal leaflet often larger than side leaflets.
- Bark often has diamond-patterned ridges
- Samaras are strongly narrowed on one end.

# *Fraxinus pennsylvanica*

## GREEN ASH

H S **F**

| Native status: | Native | C of C: | 2 |
|---|---|---|---|



### Description

Tall, deciduous tree with opposite leaves and branchlets, pinnately compound leaves, and seeds within a flat, winged samara.

### Identifying Features

Leaves and branchlets strongly opposite. Leaves with 5-9 leaflets, typically 7. Leaflets are attached to midrib by very short stalk (1 -4 mm). Terminal leaflet frequently larger than side leaflets. Underside of leaflets have straight white hairs on lower midrib.

### Habitat

Floodplain forests, southern hardwood swamps, stream and lake edges. More common in south.

WIS: FACW/FACW

### Similar Species

Black Ash (*F. nigra*):

- See #8
- Leaves with 7-11 leaflets, typically 9.
- Leaflets appear to attach directly to midrib.
- Terminal leaflet the same size or smaller than side leaflets.
- Leaf underside with tangled brown hairs along midrib

# *Larix laricina*

## TAMARACK

H S F

| Native status: | Native | C of C: | 8 |
|---|---|---|---|



### Description

Perennial, deciduous needle-leaved tree with a pointed-top. Typically grows to 40'-80' tall but can be stunted in some wetlands. The main-stem's bark flakes off in small scales. The only conifer in Wisconsin to lose its leaves in fall.

Leaves are short (roughly ½-1" long) needles that grown in bunches of many needles. Leaves turn to a bright yellow/orange color in the fall and fall off over the winter.

Fruits are small 1/2"-1" cones that are pale green to brown.

### Identifying Features

Needles in bundles of 15 or more.

Deciduous needles turn a bright yellow color in the fall – the only needle-leaved tree in Wisconsin that loses all needles over winter.

### Habitat

Wet sites; bogs, muskegs, and conifer swamps. Often occurs along with black spruce.

WIS: FACW/FACW

### Similar Species

There is a European Larch species that is similar but mostly found planted in parks that has longer needles and more leaves per cluster.

# *Picea mariana*

## BLACK SPRUCE

H S **F**

| Native status: | Native | C of C: | 8 |
|---|---|---|---|



### Description

Perennial, evergreen tree growing 25'-30' tall. Stems hairy. Bark is brownish grey and very rough.

Leaves are very short (1/4-1/2"), 4-sided needles which often appear bluish-green with white powdery coat.

Fruits are small dark brown to purplish cones which stay on the tree; typically around 1.25".

### Identifying Features

Bottom branches often fall off as the tree ages, leaving taller tress with branches clustered at the top of the tree.

Leaves have a square-shaped cross section.

### Habitat

Wet; bogs primarily. Spruce often occurs along-side tamarack.

WIS: FACW/FACW

### Similar Species

Similar species include upland spruce species (e.g. White Spruce) and Balsam Fir which has flat leaves and different cones. White spruce is differentiated by longer needles, cones, and a preferred upland habitat.

# *Pinus strobus*

## EASTERN WHITE PINE

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|



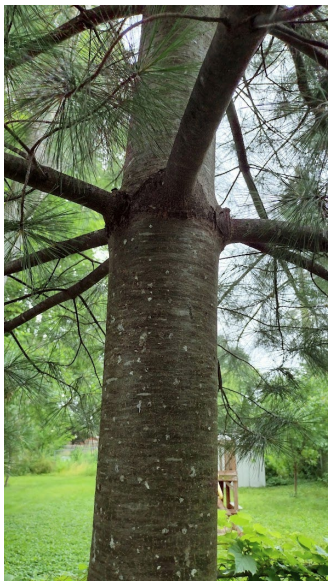
### Description

Perennial evergreen tree growing up to 80'-110' tall; stems and bark not scaly but occasionally has dark, deep furrows.

Has longer, slender pine needles around 2-4" in length and growing in clusters of 5 needles.

Pinecones are 3"-10" long cones.

### Identifying Features



Needles in bundles of 5 are diagnostic. Needles are often softer and paler than other pines. Branches sometimes grow away from prevailing winds, leaving older tress looking lopsided.

### Habitat

A co-dominant tree in dry-mesic to mesic forests of northern Wisconsin.

White pine-red maple swamps are unusual, forested wetlands that occur in the bed of Glacial Lake Wisconsin. They are usually found along low gradient headwaters streams or at wetland-upland interfaces. There are often springy areas and places with flowing groundwater.

WIS: FACU/FACU

### Similar Species

Other pine species may appear similar but only *P. strobus* has 5 leaves per cluster.

# *Populus* Species

## ASPEN/COTTONWOOD GROUP

H S F

| Native status: | Native | Rapid C: | 2.1 |
|---|---|---|---|



### Description

Large deciduous trees with simple leaves, widest below the middle.

Leaves are broad, often with pointed tips; leaf margins finely toothed (*P. tremuloides, P. deltoides*) or large toothed (*P. grandidentata*).

Flowers: long, dangling catkins.

### Identifying Features

Simple, wavy-toothed leaves on long, flat petioles (> 3cm). Leaves triangular to heart-shaped. Bark brown and deeply furrowed throughout (cottonwood) or flat and white upwards (aspen).

### Habitat

Floodplains, streambanks, and hardwood swamps.

### Similar Species

Paper birch has sharply serrate leaves and peeling bark. Basswood (*Tilia americana*) also has broad, almost heart-shaped leaves but the leaves of basswood are often asymmetrical, and the teeth fine and sharp rather than coarse and wavy.

### Included Dominants

- *Aspen (P. tremuloides;* WIS: FAC/FACW; *C=2)*
- *Cottonwood (P. deltoides;* WIS: FAC/FAC; C=2)
- *Big-toothed Aspen (P. grandidentata;* FACU/FACU; *C=3)*

# *Quercus* Species

## OAK GROUP

H S F

| Native status: | Native | Rapid C: | 5.9 |
|---|---|---|---|

### Description

Oaks are deciduous large trees with rough, furrowed bark. Of the oaks, only swamp white oak (*Q. bicolor)* is known as a characteristic dominant of Wisconsin wetlands (in floodplains). However, bur oak and red oak may be encountered as minor components of both hardwood swamps and floodplains.

Bur oak (*Q. macrocarpa*)

### Identifying Features

Oak leaves are generally longer than wide, alternate, have symmetrical rounded lobes of varying depth, and wedge-shaped bases.

Seeds are in the form of acorns- rounded nuts with scaly caps.

Bur oak (*Q. macrocarpa*)

### Habitat

Floodplain forests, hardwood swamps, usually on limestone or calcareous clays. Southern WI.

### Included Dominants

- Swamp white oak (*Q. bicolor;* WIS: FACW/FACW; C=7)
- Bur oak (*Q. macrocarpa;* WIS: FAC/FACU; C=5)
- Red oak (*Q. rubra*; WIS: FACU/FACU; C=5)

Swamp white oak (*Q. bicolor*).

# *Salix x fragilis*

## CRACK WILLOW

H S F

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Large tree, often with multiple trunks. Leaves are toothed, stiff; glossy green above, dull and whitish below. Branches are weak and often crack and break off.

### Identifying Features

Underside of leaves whiter, paler than upper side. Trunk often multi-stemmed. Branches break easily at base. No stipules (small leaf-like collar at the base of each leaf) present on young stems.

### Habitat

Moist ground, especially edges of rivers, lakes, and streams. Common in a variety of disturbed wetlands but rarely has high areal cover.

WIS: FAC/FAC

### Similar Species

Native black willow (*S. nigra*; WIS: OBL/OBL; C=4) has leaves green on both sides, stipules on young stems and is more likely to have a single trunk.

Native peach-leaved willow (*S. amygdaloides;* WIS: FACW/FACW; C=4) has leaves that droop instead of being held rigidly, has a single, upright trunk, and branches are not as brittle.

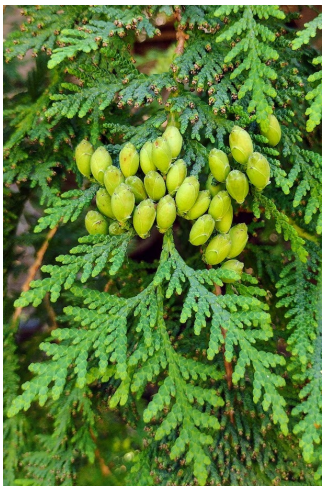
# *Thuja occidentalis*

## NORTHERN WHITE CEDAR

H S **F**

| Native status: | Native | C of C: | 9 |
|---|---|---|---|





### Description

Perennial evergreen tree growing to 40'-50' tall. The bark is often reddish brown and striped looking.

Leaves are mostly scale-like 1/16-1/8" in 4 rows flattened from sides and arranged in a fern-like arrangement.

Fruits are small (1/2" long) greenish/yellow cones shaped like bells or ovals. Cones turn brown and open when dry.

### Identifying Features

Many tiny, overlapping leaves form flat fan-like branches.

Leafy branches are flat, smooth, and soft to the touch.

Cones are small and yellow, turning brown.

### Habitat

Dominant tree of calcium-rich groundwater fed wetlands in northern and eastern WI; also, a component of hardwood swamps, or lake and stream edges.

WIS: FACW/FACW

### Similar Species

Eastern redcedar (*Juniperus virginiana*; WIS: FACU/FACU; C=3) is a midsize tree of dry uplands, occasionally appearing on the edge of wetlands in southern WI. It is distinguished by its sharply pointed needles and blue cones.

# *Tilia americana*

## AMERICAN LINDEN / BASSWOOD

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|



### Description

Perennial tree growing up to 130' tall.

Leaves are round to oval shaped with pronounced asymmetrical, heart-shaped base. Leave margins are sharply toothed.

Inflorescence is a branched cluster of fragrant, yellowish flowers that hands down from underside of leaves/stems.

### Identifying Features

Leaves are distinctively broad and heart-shaped, with asymmetrical bases; Leaf tip comes to an abrupt point.

Teeth of leaves have extended points.

Flowers and fruit in branched, hanging clusters beneath a slender green "sail".

### Habitat

Not typically a wetland tree but can be a co-dominant in floodplain forests, hardwood swamps, and forested seeps.

WIS: FACU/FACU

### Similar Species

Hackberry (*Celtis occidentalis*; see #7) has distinctive warty bark and leaves that come to a gradual point.

Elms (*Ulmus* spp.; see #19) have leaves often rough-to the touch and more strictly elliptical., rather than heart-shaped. Teeth lack extensions.

# *Tsuga canadensis*

## EASTERN HEMLOCK

H S F

| Native status: | Native | C of C: | 8 |
|---|---|---|---|



### Description

Evergreen tree with rounded top growing 60'-70' tall. Stems are flexible and feel rough when needle-less.

Needles are short (around 1/3"-1/2" long) with 2 white bands running parallel on the underside of the leaf. Needles are flat and attached to peg-like structures.

Male flowers found amongst leaf axils and the larger female flowers hang down from twig tips.

Has small, egg-shaped cones at branch tips around 0.5" to 1" long.

### Identifying Features

Needles are flat and appear striped underneath.

Twigs have a short woody peg at the base of each needle.

Short cones hang down from the tips of branches.

### Habitat

Primarily an upland species in northern forests but occasionally a co-dominant in hardwood swamps, forested seeps and white cedar swamps in the northern half of the state. Often found growing on microtopographic high points or mounds.

WIS: FACU/FACU

### Similar Species

Balsam Fir (#1) also has flat needles, but they attach directly to the twig, cones are upright, and bark is smooth. Spruce trees (#11) also have peg-like attachments but have angled needles.

# *Ulmus* Species

## ELM GROUP

H S F

| Native status: | Native | Rapid C: | 3.2 |
|---|---|---|---|

### Description

Elms are deciduous trees common in a variety of wetlands as a small to medium diameter tree. Larger trees are rare due to Dutch Elm disease.

### Identifying Features

Leaves are stiff, serrated along the edges, and rough or fuzzy to the touch. Leaf veins extend from the midrib in straight, evenly-spaced lines. Leaf bases asymmetrical. Fruits are yellow-green, almost circular samaras with narrow wings.

### Habitat

Moist woods; Floodplain forests, hardwood swamps.

### Similar Species

Near development look out for introduced Siberian elm (*Ulmus pumila*; WIS: UPL/FACU; C=0) with smaller leaves (<7cm long and <4 cm wide; Leaves have smooth undersides).

### Included Dominants

- American Elm (*U. americana*; WIS: FACW/FACW; C=3 ). Leaf lower surface fuzzy or soft to touch; veins rarely branch. Bark ridges consisting of distinct dark/light layers.
- Slippery Elm (*U. rubra*; WIS: FAC/FAC; C=4). Both leaf surfaces rough to touch; many veins branch between midvein and leaf edge. Bark ridges tend to be parallel to each other; layers indistinct.

# *SHRUB SPECIES AND GROUPS:*

## Woody plants with typical maximum height < 20ft

# *Alnus incana*

## SPECKLED ALDER, SWAMP ALDER

H S F

| Native status: | Native | C of C: | 4 |
|---|---|---|---|

### Description

Plants: perennial tree/shrub to 30' tall with open, spreading branches; dark gray to reddish brown, smooth bark with whitish, prominent, horizontal lenticels; often in dense thickets.

Leaves: leaf oval to elliptic, firm, edges usually coarsely double toothed, not noticeably resin-coated.

Flowers: elliptical winter buds stalked and parallel to the twig; male catkin in 1 or more clusters 3/4"-2 3/4" long; blooms in early spring.

Fruits: oval, stalked fruit clusters.

### Identifying Features

Both catkins conspicuous over winter. Bark often marked with light-colored, horizontal lenticels.

### Habitat

Moist to wet; streambanks, lakeshores, bogs, swamps, swales and roadsides

WIS: OBL/OBL

### Similar Species

Green alder (*A. viridis*; WIS: FAC/FAC; C=8) is similar but leaves are more finely toothed and green alder typically is found in drier habitats.

SHRUBS

# *Betula pumila*

## BOG BIRCH

H S F

| Native status: | Native | C of C: | 7 |
|---|---|---|---|

### Description

Perennial, erect, rough, irregular shrub growing 4'-13' tall; bark is smooth and dark reddish brown; has pale, inconspicuous lenticels; often forms large colonies; twigs not tasting/smelling like wintergreen.

Leaves are alternate; stiff, obovate to widely ovate; broadly-round above and at the base; with edges that are coarsely and roundly toothed.

The male flower is a short catkin (1/3"-3/4" long) on a short stalk. The female catkins are typically erect. Flowers blooms in late spring.

Fruits are cylindrical, erect clusters; samara wings slightly narrower than the body, widest near the middle.

### Identifying Features

Typically forms a dense thicket caused by the many stems a single plant may produce. Leaves have coarse feeling teeth.

### Habitat

Moist to wet; bogs, calcareous fens, wooded swamps, muskegs, lakeshores. Not usually found in acidic sphagnum bogs.

WIS: OBL/OBL

### Similar Species

None

# *Chamaedaphne calyculata*

## LEATHERLEAF

H S F

| Native status: | Native | C of C: | 9 |
|---|---|---|---|



### Description

Erect, low-growing evergreen shrub generally reaching only 1-3' tall. Shrub covered with tiny brown scales, in dense thickets.

Flowers are white, 5-parted, ¼" long, slender narrow bell-shaped, hanging down from a short stalk and arranged in a spike-like row. Flowers bloom April-June.

Leaf is stalked, alternate, evergreen, oblong, rough or leathery, with edges slightly curled downward.

### Identifying Features

Plain-looking, stiff, elliptic leaves, with slightly raised edges beneath.

### Habitat

In wet, nutrient-poor, acidic soils. A common dominant of open bogs, black spruce swamps, and muskegs.

WIS: OBL/OBL

### Similar Species

Leaves lack the hairy, brown-orange underside found in leatherleaf (*Rhododendron groenlandicum*; C=8).

Leaves are broad rather than long and thin as in bog rosemary (*Andromeda polifolia*; C=10) or long, thin and opposite as in bog laurel (*Kalmia polifolia*; C=10).

*Special note: Leatherleaf is a low-lying species and is often found entirely in the herbaceous layer of a wetland.*

# *Cornus* Species

## DOGWOOD GROUP

H S F

| Native status: | Native | Rapid C: | PEM: 2.7<br>PSS: 3.0 |
|---|---|---|---|

### Description

Shrubs to 15' tall, often with multiple trunks; leaves and twigs opposite; flowers white, flat clusters; blue or white berries.

### Identifying Features

Simple, opposite, untoothed leaves. Veins (3 - 6 pairs) curve and fade near leaf margins. "Threads" visible from veins when a leaf is torn.

### Habitat

Wetlands of all kinds; can be the primary dominant of shrub-carrs, especially in the South.

### Similar Species

The leaves of Nannyberry (*Viburnum lentago; C=4*) are also opposite but margins are finely toothed, petioles are flat, and berries are dark and elliptical in shape.

Glossy buckthorn (*Frangula alnus*) has alternate leaves and 6 or more vein pairs.

### Included Dominants

- Red-osier dogwood (*C. sericea*; WIS: FACW/FACW; C=3)
- Silky dogwood (*C. amomum;* WIS: FACW/FACW; C=4)
- Gray dogwood (*C. foemina;* WIS: FAC/FAC; C=2)

Red-osier dogwood (*Cornus sericea).*

Red osier stem (L); Silky dogwood stem (R)

Gooey threads connecting the torn halves of leaves are a good sign of this genus.

SHRUBS

# *Frangula/Rhamnus* Species

## NON-NATIVE BUCKTHORN GROUP

H | S | F

| Native status: | Non-Native | Rapid C: | o |
|---|---|---|---|

### Description

Tall shrubs or small trees with single or multiple trunks. Both have yellow-green flowers turning to dark berries in multiple clusters along branches.

*Glossy buckthorn (Frangula alnus)*

### Identifying Features

Leaves are alternate or subopposite; toothed in common buckthorn, entire in glossy buckthorn. Berries and flowers hang from pedicels appearing to attach directly to twigs in leaf axils.

*Common buckthorn (Rhamnus cathartica)*

### Habitat

Can be the sole dominant in shrub wetlands and invade a wide assortment of other wetland types.

### Similar Species

- Nannyberry (*Viburnum lentago*) has toothed leaves that are strongly opposite; berries are flattened.
- Choke cherry (*Prunus virginiana*) has black berries and serrated leaves, but flowers and fruits are in separate, elongated clusters and leaves have glands at the junction with petiole.
- Black chokeberry (*Aronia melanocarpa*) has black berries in branching clusters and dark hairs (long black glands) on midrib of each leaf near the base.
- Native alder-leaved buckthorn (*Rhamnus alnifolia*); a knee-high shrub in conifer swamps; has toothed leaves with 5-8 deeply incised vein pairs.

### Included Dominants

- Glossy buckthorn (*Frangula alnus;* WIS: FACW/FAC; C=0)
- Common buckthorn (*Rhamnus cathartica;* WIS: FAC/FAC; C=0)

# *Ilex verticillata*

## WINTERBERRY

H S F

| Native status: | Native | C of C: | 7 |
|---|---|---|---|

### Description

Erect, perennial, shrub growing from 6'-16' tall. Shrub is dioecious.

Leaves are thin, deciduous, oblong, with small, sharp teeth. Leaves alternate.

Flowers arewhitish, 6-8-parted, petal edges entire, attached at the base; inflorescence of several flowers in a cluster from the leaf axils; blooms May-June.

Fruits are green when developing and red berries when ripe with a thick nutlet. Berries grow along the stem in leaf axils.

### Identifying Features

Teeth on leaf margins are jagged, white-tipped, and slightly raised. Flowers and berries (bright red when ripe) are clustered at the base of leaves.

### Habitat

Tamarack swamps, alder thickets, shrub-carrs, hardwood swamps.

WIS: FACW/FACW

### Similar Species

- Choke cherry (*Prunus virginiana*) has black berries and serrated leaves, but flowers and fruits are in separate, elongated clusters and leaves have glands at the junction with petiole.
- Black chokeberry (*Aronia melanocarpa*) has black berries in branching clusters and dark hairs (long black glands) on midrib of each leaf [illegible]base.

# *Lonicera* Species

## NON-NATIVE HONEYSUCKLE GROUP

H S F

| Native status: | Non-Native | Rapid C: | o |
|---|---|---|---|

### Description

Large bushy shrubs typically over 6' tall. Only non-native *Lonicera* are included here.

### Identifying Features

Leaves simple, entire, strongly opposite. Leaves have squarish bases and tips that come to a blunt point. Flowers and fruit in pairs and stemless. Berries red, flowers white or pink. Twigs are hollow, with a brown pith.

### Habitat

Primarily an upland species but can be common in the shrub layer of disturbed floodplains, hardwood swamps or shrub wetlands.

### Similar Species

One native honeysuckle (*L. canadensis*; C=8) is occasionally abundant in the understory of northern cedar or ash swamps. This honeysuckle is smaller and more sprawling than erect. Red berries are oval rather than spherical and flowers hang down. Pith of twigs are solid with white pith.

### Included Dominants

- Morrow's honeysuckle (*L. morrowii;* WIS: FACU/FACU; C=o)
- Tatarian honeysuckle (*L. tatarica;* WIS: FACU/FACU; C=o)
- Bella honeysuckle (*L. X bella;* WIS: FACU/FACU; C=o)

SHRUBS

# *Rhododendron groenlandicum*

## LABRADOR TEA

H S **F**

| Native status: | Native | C of C: | 8 |
|---|---|---|---|

### Description

Erect, perennial, low-lying shrub (reaching around 1.5 -3'); stems densely hairy with rusty-orange hairs.

Leaves are stalkless, evergreen, thick, alternate, lance-like, edges turning downward. Underside of leaves are woolly; hairs are white when young but turns orangish when older.

Flowers are white, 5-parted, 1/3" wide, petals all separate; inflorescence with many, long-stalked flowers in a crowded, branched cluster at the ends of the stem; blooms May-June.

Fruits are oval capsules.

### Identifying Features

Dense, white or orange woolly hairs on underside of leaves.

### Habitat

Wet; forests, bogs, rocky cliffs, and in conifer swamps.

WIS: OBL/OBL

### Similar Species

None

*Special note: Labrador tea is a low-lying species and is often found entirely in the herbaceous layer of a wetland.*

# *Rubus* Species – Erect shrubs

H S F

## RASPBERRY/ BLACKBERRY GROUP

| Native status: | Native | C of C: | PSS: 3.0<br>PFO: 2.7 |
|---|---|---|---|

### Description

Plants are erect to drooping, usually around 3' tall shrub. Stems often with small thorns.

Leaves are 3 or 5 parted into sharply toothed leaflets, underside strongly whitened with soft gray fuzz.

Flowers are white to greenish and 5-parted.

Fruits are red to black caps of fused fruits.

*Rubus idaeus*

### Identifying Features

Shrubs typically 1 – 3ft tall with erect or arching stems. Leaves 3- 5 parted, undersides silvery gray and densely hairy. Leaf petioles and stems have bristles, prickles, and/or gland-tipped hairs.

### Habitat

Common at low levels in a wide variety of wetlands statewide.

### Similar Species

See Rubus –ground creeping for blackberries or raspberries that remain close to the ground.

*Rubus occidentalis*

### Included Dominants

- Wild raspberry (*R. idaeus;* WIS: FACU/FACU; C=3)
- Common Blackberry (*R. allegheniensis*; WIS: FACU/FACU; C=2)
- Black raspberry (*R. occidentalis*; WIS: UPL/UPL; C=2)

# *Rubus* Species – Ground-Creeping

H S F

## DEWBERRY/ DWARF RASPBERRY GROUP

| Native status: | Native | Rapid C: | PSS: 3.6<br>PFO: 4.9 |
|---|---|---|---|

### Description

Short, ground-creeping members of the blackberry/raspberry genus. Woody at least at the base; Flowers are white, 5-parted; Raspberry-like berries are black to red.

Dwarf red raspberry (*Rubus pubescens*)

### Identifying Features

Stems with alternate leaves rising less than 0.5 m from the ground. Leaves divided into 3–5 toothed leaflets. May have prickles or bristles or thorns.

### Habitat

Most abundant in conifer and hardwood swamps in the northern half of the state. Also shrub wetlands, open bogs and poor fens.

Bristly dewberry (*Rubus hispidus*)

### Similar Species

Dwarf red raspberry (*R. pubescens*), has similar 3-parted leaves as wild strawberry (*Fragaria virginiana*; C = 1), however, the leaves of wild strawberry are all basal rather than originating from a stem.

### Included Dominants

- Bristly dewberry (*R. hispidus*; WIS: FACW/FACW; C=4). Stems with thin, weak bristles; leaves leathery with rounded lobes.
- Dwarf red raspberry (*R. pubescens;* WIS: FACW/FACW*;* C=7). Leaves all 3 parted, lacking prickles, bristles, or thorns.
- Common dewberry (*R. flagellaris*); WIS: FACU/FACU; C=3). Stems with curved, broad-based thorns, sharply-pointed acuminate leaflet tips.

*Special note: Ground-creeping Rubus species are low-lying plants and are typically found in the herbaceous layer of a wetland.*

SHRUBS

# *Salix* Species (Shrubby Willows)

## WILLOW GROUP

H S F

| Native status: | Native | Rapid C: | PEM: 2.9<br>PSS: 5.2 |
|---|---|---|---|

### Description

Large willows (to 6m) with a shrubby growth form. Some occasionally grow tall and look tree-like, but large diameter trunks are rare. Because members of this group have quite different C-values, it's important to identify to species when cover is >20%.

### Identifying Features

Leaves simple, alternate, with toothed or wavy margins. Underside whiter than upper. Leaves have prominent, unbranched midveins and are longer than wide. Leaf buds are alternate, long, appressed against the stem, and covered in a single scale, rather than multiple overlapping scales. Male and female flowers on separate catkins.

### Habitat

Characteristic dominants of shrub-carrs statewide. Often in transitional areas between open and forested wetlands, around lake and stream edges, and in glacial lakebeds.

### Similar Species

Young shoots of tree willows (see page for *Salix x fragilis* in Tree section) may be mistaken for shrub willows, but these usually have longer, larger leaves, with more consistent, regularly-spaced teeth.

### Included Dominants

Meadow willow (*S. petiolaris;* WIS: OBL/FACW; C=6); Pussy willow (*S. discolor;* WIS: FACW/FACW; C=2); Sandbar willow (*S. interior*, WIS: FACW/FACW; C=2); Bebb's willow (*S. bebbiana*, WIS: FACW/FACW; C=7); Balsam willow (*S. pyrifolia*, WIS: FACW/FACW; C=7); Missouri willow (*S. eriocephala*, WIS: FACW/FACW; C=4)

# *Salix discolor*

## PUSSY WILLOW

H S F

| Native status: | Native | C of C: | 2 |
|---|---|---|---|

### Description

Grows as a shrub or small tree from 8'-27' tall, known for its distinctive fuzzy catkins in April and May.

Leaves are mostly broad and elliptic, edges flat, usually shiny green above, underside whitened.

Flower buds to 1/3“. Catkin mostly stalkless, 1" long, very fuzzy.

### Identifying Features

Leaf margins inconsistently toothed, wavy or entire. Many side veins emerge from midvein at nearly a perpendicular angle before curving upward. Back of leaf is usually whitened.

### Habitat

Co-dominant of shrub-carrs especially south.

WIS: FACW/FACW

### Similar Species

Bebb's willow (*Salix bebbiana*; WIS: FACW/FACW; C=7) has similarly broad leaves but the undersides are hairy and finely textured by the raised veins.

# *Salix interior*

## SANDBAR WILLOW

H S F

| Native status: | Native | C of C: | 2 |
|---|---|---|---|

### Description

Shrub is dioecious with male and female catkins on separate plants.

Often has many stems growing from the base of the plant in dense thickets.

Alternate leaves that are long and thin with toothed margins.

### Identifying Features

Leaves are narrow, almost linear - and teeth are distant from each other.

Usually grows in dense clusters with many stems.

Flowers are present from May through July.

### Habitat

Common species found throughout Wisconsin's wet meadows and along rivers and lakes.

WIS: OBL/OBL

### Similar Species

See other willows but leaf characteristics can usually set this species apart from other willows.

# *Salix petiolaris*

## SLENDER WILLOW

H S F

| Native status: | Native | C of C: | 6 |
|---|---|---|---|

### Description

Perennial shrub with multiple narrow stems, 5'-23' tall, forming clumps.

Leaves are narrow, lance-like that are slightly wider in the middle. Older leaves are dark green above, underside whitened.

Flowers are a lax catkin with leaves.

### Identifying Features

Leaf underside pale gray-green. Downy hairs on leaf undersides and new leaves (mostly on young leaves) are distinctive.

Leaves come to a point at both ends but lack an extended pointy tip. Typical size is 1.5 cm wide and 7.5 cm (3 inches) long.

Leaves typically shallowly toothed.

Female catkins short and stout, up to 3.5 cm long.

Stems lack stipules at base of leaves.

### Habitat

Wisconsin's most common native shrub willow and characteristic dominant of shrub-carrs.

WIS: FACW/FACW

### Similar Species

The tree willows like *Salix x fragilis* have long narrow leaves that may resemble slender willow, but are larger, more distinctly and finely toothed and have a long-tapering tip.

SHRUBS

# *Spiraea* Species

## MEADOWSWEET/HARDHACK

H S F

| Native status: | Native | Rapid C: | 4.4 |
|---|---|---|---|

### Description

These two short to midsize shrubs topped with showy flowers are easy to distinguish, especially when in flower. Fruits are dry sacs, releasing seeds in late fall and winter.

### Identifying Features

Flower/seed clusters at tips of stems. Flowers white (*S. alba*) or magenta (*S. tomentosa*). Leaves simple, toothed, alternate and close to the stem on very short petioles.

### Habitat

Characteristic of sedge meadows and open acidic wetlands.

### Similar Species

American elderberry (*Sambucus canadensis* C=3). also has clusters of showy white flowers but leaves are pinnately compound rather than simple and produce numerous round black berries.

### Included Dominants

- Meadowsweet (*S. alba*, WIS: FACW/FACW; C=4). Flowers white; leaves green beneath.
- Hard-hack (*S. tomentosa,* WIS: FACW/FACW; C=6). Flowers magenta; leaves hairy-white beneath.

Meadowsweet (S. *alba*)

Hardhack (*S. tomentosa*)

*Special note: Spirea species are relatively short and can be found entirely in the herbaceous layer of a wetland.*

SHRUBS

# *Vaccinium* Species

## BLUEBERRY GROUP

H S **F**

| Native status: | Native | Rapid C: | 5.0 |
|---|---|---|---|

### Description

Deciduous shrubs with simple, alternate leaves. Flowers (mid-May or June) are white and bell-shaped, fruits (July) are the familiar blueberry. The two common species appear the same from a distance but can be separated by hairiness of branches and serrations on leaf margins.

### Identifying Features

Knee-high shrubs. Leaves are small and alternate, 2.2 – 5 cm long; appearing entire from a distance but may be minutely toothed viewed up close. Branches are warty; may be velvety-hairy or only hairy in patches.

### Habitat

Acidic wetlands in northern and central WI, especially conifer swamps and bogs.

### Similar Species

Huckleberry (*Gaylussacia bacchata;* WIS: FACU/FACU; C=6), most common in the Central Sands region, is similar in appearance to blueberry but can be taller; leaves are at least 3 cm long and have yellow, resinous dots on lower surface.

### Included Dominants

- Velvet-leaf blueberry (*V. myrtilloides;* WIS: FACW/FACW; C=6). Branches and leaves velvety-hairy; leaf margins entire.
- Low-bush blueberry (*V. angustifolium*, WIS: FACU/FACU; C=4). Leaf margins minutely serrate.

*Special note: Blueberries are low-lying species and are often found entirely in the herbaceous layer of a wetland.*

SHRUBS

# *Zanthoxylum americanum*

## PRICKLY ASH

H S F

| Native status: | Native | C of C: | 3 |
|---|---|---|---|

### Description

Thorny shrubs or small trees with pinnately divided leaves. Thorns are strong and triangularly-shaped found at leaf axils.

Leaves are 2.5-8" long; leaflets 1.5-3" long and oblong shaped, bases tapered or rounded.

Flowers are small and greenish, in clusters of 2 -12. Fruit a red pod with a single seed.

### Identifying Features

Leaves pinnately divided into 5 -13 leaflets. Paired thorns at each node. Fruits smell of citrus.

### Habitat

Occasionally an understory dominant in hardwood swamps and floodplain forests.

WIS: FACU/FACU

### Similar Species

The common name suggests it may be mistaken for young ash (*Fraxinus*) trees (see #8 and #9), but ashes lack thorns, have up to 11 leaflets and leaves are opposite on the stem.

# *GRAMINOID SPECIES AND GROUPS:*

**Herbaceous plants with a grass-like form including grasses, sedges, bulrushes, rushes, cat-tails, bur-reed, and arrowhead.**

# Graminoids

## Included species:

| Graminoid Group | Genera included: | Common names |
|---|---|---|
| Grasses | *Calamagrostis* | Blue-joint grass |
| | *Glyceria* | Manna grass |
| | *Leersia* | Cut grass |
| | *Phalaris* | Reed canary grass |
| | *Poa* | Blue grass |
| | *Phragmites* | Reed-grass |
| | *Spartina* | Cord grass |
| | *Zizania* | Wild rice |
| Sedges | *Carex* | Sedge |
| Bulrushes | *Bolboschoenus* | Bulrush |
| | *Scirpus* | Bulrush/Wool-grass |
| | *Schoenoplectus* | Bulrush |
| Rushes | *Juncus* | Rush |
| Other | *Typha* | Cat-tail |
| | *Sparganium* | Bur-reed |
| | *Sagittaria* | Arrowhead |

# *Grass, Sedge, Bulrush, or Rush?*

*"Sedges have edges, rushes are round, and grasses have nodes from the top to the ground"* - anonymous

| Graminoid Group | Stem | Leaves | Flowers/Seeds | General Size |
|---|---|---|---|---|
| **Grasses** | Round, hollow, with periodic nodes or joints that are solid, may branch. | Flat leaf blades in 2- ranked pattern (on opposite sides of stem even if alternate) | Flowers and seeds wrapped in layers consisting of glumes, lemmas and palea. 1 seed per flower. | Highly variable. |
| **Sedges** (Carex) | Solid, triangular, unbranched. | "U", "V" or "W" shaped in cross section, or in-rolled and wiry; 3-ranked. | Seeds in a sac-like structure called a perigynia. 1 bract beneath each perigynia; 1 seed per perigynia. | Waist-high or shorter, <1m. |
| **Bulrushes** (large non-Carex sedges) | Solid but variable in shape (triangular to round); unbranched. | "U", "V" or "W" shaped or none. | Flowers /seeds grouped in branching clusters often with a fuzzy appearance due to tiny bristles. | Waist-high or taller. (1.5 -2m) |
| **Rushes** | Thin and wiry, unbranched except for the inflorescence. | May have 1, mostly basal, wire-like leaf, or none visible. | Flowers have structures resembling 6 petals; Seeds are many and tiny, inside a capsule. | Short, delicate, most <50 cm. |

GRAMINOIDS

# Grass Species

## Description

Grasses are herbaceous monocots in the Poaceae Family with a round-cross section that is usually hollow, especially towards the base of the stem ('grasses are hollow, straight up from the ground'). Grasses are typically jointed, with nodes or "knees" along the main stem.

## Identifying Features

- Rounded, hollow stem cross section.
- Nodes or joints periodically along the stem.
- Leaves flat and two-ranked (emerging from 2 sides of stem)
- Leaf sheaths fold around the stem but remain open (except in *Glyceria sp.*)

## Similar Species

Sedge species typically have triangle-shaped cross sections with no nodes along the stem. Leaves are three-ranked.

Rushes have round stems but are not hollow and have no nodes along the stems. Rushes typically do not have many leaves branching off the main stem.




# *Calamagrostis canadensis*

## BLUE-JOINT GRASS

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|

### Description

Perennial grass from creeping rhizomes with erect stems in small clumps, sometimes rooting from lower nodes.

### Identifying Features

Leaves < 1 cm wide ( 4- 8 mm).

Leaves often angle upward stiffly at 45°.

Ligules membranous and ragged, up to 1 cm long

Inflorescence may be open or contracted but florets are evenly spaced rather than bunched and overlapping as in reed canary grass.

Individual florets have a tuft of stiff hairs at the base visible with a hand lens.

### Habitat

The most common native grass in wetlands across the state, especially north. Dominant of wet meadows.

WIS: OBL/OBL

### Similar Species

To distinguish from Reed canary grass (#40) note the narrowness of the leaves, around ½ the width of a pinky (4 – 8mm), and the florets evenly spaced along a mix of long and short branches, rather than in dense clusters on uniformly short branches.

Redtop (*Agrostis gigantea*; FACW/FACW; C = 0) is occasionally abundant in disturbed areas, but *Agrostis* species have inflorescence branches whorled, many originating from a single point; and leaves are all short.

Leaves are narrow where they meet the stem (right), in contrast to reed canary grass (left).

Spotting the cluster of stiff hairs at the base of each floret can confirm blue joint.

# *Glyceria striata*

## FOWL MANNA GRASS

H S F

| Native status: | Native | C of C: | 4 |
|---|---|---|---|

### Description

Perennial, 2'-3' tall, semi-aquatic grass.

Flowers are an open panicle that drops to the side; blooms July-August.

Leaves have a translucent ligule clasping the main stem; leaf sheaths often overlap.

### Identifying Features

Stem is flattened or football-shaped in cross section.

Leaves are wide, flat and ladder-like in arrangement.

Numerous tiny seeds have a grainy texture when rubbed between the fingers.

### Habitat

Full to partial sun; moist to wet; streambanks, woods, bogs, meadows; in sandy, loamy soil

WIS: OBL/OBL

### Similar Species

American manna grass (*Glyceria grandis*; WIS: OBL/OBL; C=6) is similar but taller. The large inflorescence has individual florets large enough to be visible. Also, *Glyceria grandis* seeds lack the grainy texture of *G. striata*.

# *Leersia oryzoides*

## RICE CUT GRASS

H S F

| Native status: | Native | C of C: | 3 |
|---|---|---|---|

### Description

Sprawling perennial, 2-5' tall, semi-aquatic, emergent grass.

Leaves are narrow, rough cutting edges with stiff spines.

Flowers have lemma with stiff hairs, spikelets on branch ends and in upper leaf sheath. Has thin spreading flat spikelets in 3-8 clusters.

### Identifying Features

Leaves are sticky or rough to the touch and notorious for causing paper-cut like cuts on skin when you walk though the grass.

Stem nodes are very hairy.

### Habitat

Wet; marshes, wet meadows, shores, swales

WIS: OBL/OBL

### Similar Species

White cutgrass (*Leersia virginica*; WIS: FACW/FACW; C=5) appears identical but is found primarily in forested/shady wetlands, has more sparsely branched panicles, and is only faintly sticky-rough to the touch.

# *Phalaris arundinacea*

## REED CANARY GRASS

H S F

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Erect, perennial, 2'-6' tall grass that grows in dense stands crowding out other plants. Spreads by rhizomes. Highly invasive.

Leaves are wide and 3-10" long, gray-green, flat tapering to end; with papery ligule.

Flowers are green in the spring then turn tan later in the summer; inflorescence one flowered spikelet in dense cluster above leaves.

Inflorescence may be open or contracted

### Identifying Features

One of the first grasses to green up in the spring.

Leaves are > 1 cm wide at base.

Ligule is membranous, transparent, may be folded or torn at top. Up to 1 cm long.

Florets in dense, chaffy clusters on short inflorescence branches.

Reed canary grass (left); Blue-joint grass (right). Note difference in leaf width and similar membranous ligules.

Branches of seed heads are short, and florets are in dense, overlapping clusters.

### Habitat

Floodplains, silty soils, partially drained wetlands. Uplands to marshy areas.

WIS: FACW/FACW

### Similar Species

Bluejoint grass (*Calamagrostis canadensis*, #37) has a similar long, messy ligule but leaves are < 1 cm wide and florets are more evenly spaced on long inflorescence branches (see image to right for comparison).

# *Phragmites australis*

## REED GRASS

H S F

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Very tall (4-16' tall), perennial, semi-aquatic, emergent grass. It forms dense stands, spreading by stout rhizomes. Highly invasive.

Leaves are broad and can grow up to 30" long; appear gray-green.

Flowers are light brown to purple; inflorescence spreading spikelet of 3-7 florets with silky hairs; blooms July-Sept.

### Identifying Features

Reed grass is taller than other wetland grasses and is easily identified by the blue-green leaves and large seed head turning into a fluffy plume in late summer. The ligule where the leaf connects to the sheath is extremely short.

### Habitat

Shores, disturbed areas, water to 40" deep; in silty soil.

WIS: FACW/FACW

### Similar Species

Wild rice is also large and can be tall but grows in more permanently flooded areas and the inflorescence is distinctly 2 parted.

Inflorescence of native (L) and non-native (R) reed grass in late July.

Native *Phragmites* showing red color on lower stems.

# *Poa palustris*

## MARSH BLUEGRASS

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|

### Description

Lemma with cobwebby hairs at base and hairs on the margin (at least near base). Ligule is quite long - 2.5 to 5 mm long. Large in stature with large diffuse panicles.

### Identifying Features

A delicate, messy inflorescence. This grass can be identified by its long ligule, short anthers, and open panicle when mature.

### Habitat

Not typically a dominant wetland species but may appear in patches in a wide range of habitats from ditches to shores to spring-fed wetlands, to floodplain forests.

WIS: FACW/FACW

### Similar Species

*Poa pratensis* (see #43) has a shorter ligule (<2.5 mm) and neater, more compact flowering head than marsh blue grass.

*Agrostis* (bent grass) species may resemble *Poa* but lack the boat-shaped leaf tips and florets occur singly, rather than in overlapping clusters.

# *Poa pratensis*

## KENTUCKY BLUEGRASS

H | S | F

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Erect, hairless 12-18" stems grow from spreading rhizomes. Long, narrow dark green leaves are folded when young. Open, spreading oblong-to-pyramidal inflorescence. Naturalized and invasive throughout the state.

### Identifying Features

Boat shaped leaf tips, flowering heads with over-lapping green layers with white tips. Leaves on flowering stems are wide, short and often emerge at 90 degree. Basal leaves are narrow and flat, typical of lawn grass.

### Habitat

Found as a hidden understory species in many drier-end wetlands, including forests.

WIS: FAC/FAC

### Similar Species

*Poa palustris* (see #42) has a larger, messier flowering head and a very long ligule (>2.5 mm).

*Agrostis* (bent grass) species may resemble Poa but lack the boat-shaped leaf tips and florets occur singly, rather than in overlapping clusters.

# *Spartina pectinata*

## PRAIRIE CORD GRASS

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|

### Description

Perennial, 6'-9' tall grass that forms a robust mat. This species is a warm season grass. Spreads rhizomatously.

Flowers are spikelets are arranged on one side of the flower stalk in two tight rows; blooms August-September.

Leaves are mostly found on the lower half of the stem. Ligule present at the base of the leaf has long hairs at the tip.

### Identifying Features

The long, flat leaves and chunky inflorescence branches that resemble a comb with oblique teeth are unmistakable.

### Habitat

Full sun; moderate moisture to wet; meadows, streambanks, prairies; in sandy, loamy soil

WIS: FACW/FACW

### Similar Species

None

# *Zizania* Species

## WILD RICE, MANOOMIN GROUP

H S F

| Native status: | Native | Rapid C: | 8.0 |
|---|---|---|---|

### Description

Plants are erect/floating annuals, 5-10' tall. Grow almost entirely in aquatic settings. Plant starts out submerged, then as a floating-leaved plant with leaves that lie flat on the water on the water before becoming emergent in summer.

Leaves float before becoming emergent later. Leaves are wide and flat (0.5 to 5 cm wide).

Flowers are 5-parted; inflorescence spikelets, female at top. Fruit is an encapsulated rice-like structure.

Northern Wild Rice

### Identifying Features

Very large grass growing in permanent standing water. Inflorescence is distinctively 2-parted: the upper branches are held together upright, and lower branches extended out.

Southern Wild Rice

### Habitat

Wet; in water to 40" deep, rivers, lakes; in silty, mucky soil with some water flow.

### Similar Species

The only other large grass that may be growing in standing water is *Phragmites australis* (reed grass; see #41).

### Included Dominants

- *Southern wild rice (Z. aquatica;* WIS: OBL/OBL; C=8)
- *Northern wild rice (Z. palustris;* WIS: OBL/OBL; C=8)

# *Carex* Species: "True Sedges" (Cyperaceae Family)

## Description

*Carex* is the largest genus in the Cyperaceae or sedge family with 160 species in Wisconsin of which at least 85 can be found in wetlands.

## Identifying Features

❖ Stems are **solid** and **three-sided** i.e., "**Sedges have edges**"

❖ Seeds are in spikes of sac-like structures called **perigynia** each containing a single seed. Male and female flowers are often on separate spikes, but not always.

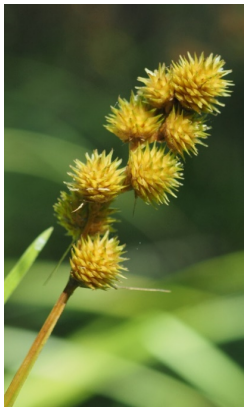
❖ Leaves are basal or emerge from the lower third of the plant (except on flowering stems)

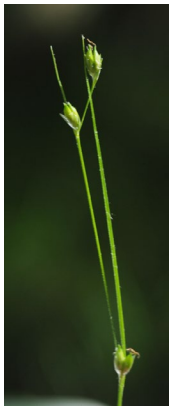
## Similar Species

**Grasses** have round, hollow stems with nodes along the stems. Leaves are usually flat and emerge from 2 sides of the stem rather than 3.

**Bulrushes** are usually waist high or taller. Spikelets are reddish brown, often bristly, and hang from long stems.

**Rushes** typically have round stems Rushes typically do not have many leaves branching off of the main stem.





# *Carex* Species (PEM/PSS)

H S F

## EMERGENT & SHRUBBY WETLAND CAREX SPECIES

| Native status: | Native | Rapid C: | 6.4 |
|---|---|---|---|

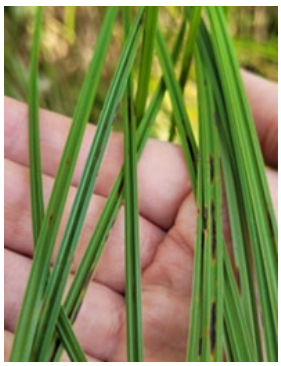
### Description

Dominant sedges of open wetlands appear as knee to waist-high clumps of long narrow leaves that arch over by mid- summer.

Tussock sedge *(Carex stricta) late May.*

### Identifying Features

Leaves "U", "V" or "W" shaped in cross section, (or rolled and wiry). Leaves on non-flowering stems are basal or emerge from the lower third of the stem. Stem solid, sharply or weakly triangular, unbranched, with leaves emerging from 3 sides. Seeds are in bottle-like sacs (perigynia) in spikes emerging from the tops of flowering stems. Male and female flowers often separate.



Reproductive spikes and leaves of Tussock sedge (above), and Lake sedge (below).

### Habitat

Lake and stream edges, depressions and ground-water upwellings. *Carex* species are the primary dominants of sedge meadows and the herb layer of many shrub wetlands. Often in areas ponded in spring with wet soils the remainder of the season.

### Similar Species

*Scirpus* (#50), a bulrush, has leaves that can look similar to *Carex* but stems of *Scirpus* are thick, roundish, and white at base, while *Carex* species have triangular reddish or brown leaf bases.

### Included Dominants

- Tussock sedge* *(C. stricta; WIS: OBL/OBL; C=7)*
- Common lake sedge* *(C. lacustris; WIS: OBL/OBL; C=6)*
- Common yellow lake sedge* *(C. utriculata; WIS: OBL/OBL; C=7)*
- Hairy-fruit lake sedge* *(C. trichocarpa; WIS: OBL/OBL; C=7)*
- American woolly-fruit sedge* *(C. lasiocarpa; WIS: OBL/OBL; C=9)*
- Broad-leaved woolly sedge* (*C. pellita; WIS: OBL/OBL; C=4)*
- Occasional dominants: *C. aquatilis, C. granularis, C. haydenii, C. annectens, C. oligosperma, C. sartwellii, C. vulpinoidea*

**Indicates the most common dominants in WI wetlands*

# *Carex* Species (PFO)

## FOREST WETLAND CAREX SPECIES

H S **F**

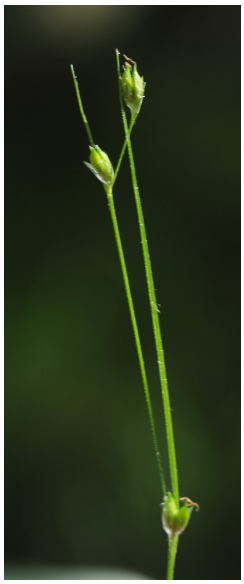
| Native status: | Native | Rapid C: | 7.8 |
|---|---|---|---|

### Description

*Carex* species of forested wetlands can take the form of clumps on the forest floor of delicate long leaves, or, in sunny, wet patches can include the same larger sedges seen in open wetlands.

### Identifying Features

Short clumps of long, narrow leaves, all basal (except those emerging from flowering stalks) are distinctive. Stem solid, sharply or weakly triangular, unbranched. Seeds are in bottle-like sacs (perigynia) in spikes at the tops of separate flowering stems.



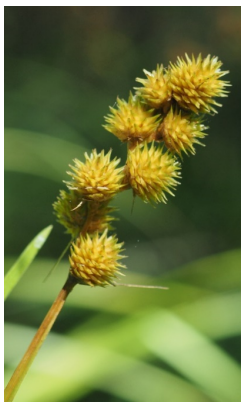
### Habitat

*Carex* sedges in forested settings are most common in northern hardwood swamps, forested seeps, and conifer swamps.

### Similar Species

Occasionally clumps of narrow leaves can belong to a bulrush (*Scirpus*, #50) species which almost never has high cover in a forest setting.

Fowl meadow grass (*Glyceria striata*, #38) may be mistaken for a more upright sedges such as *Carex cristatella*.



### Included Dominants

- Three-seeded bog sedge* *(C. trisperma*; WIS: OBL/OBL; C=9)
- Lake sedge* *(C. lacustris*; WIS: OBL/OBL; C=6)
- Tussock sedge* *(C. stricta;* WIS: OBL/OBL; C=7)
- Less common dominants: *C. bromoides, C. leptalea, C. brunnescens, C. canescens, C. cristatella, C. pellita*

**Indicates the most common dominants in WI wetlands*

# Bulrush Species (Cyperaceae Family)

## Description

Plants with the common name “bulrush” are usually larger members of the sedge family, taller and more robust than *Carex* sedges. Bulrushes that commonly dominate wetlands come from 3 different genera: *Bolboschoenus*, *Scirpus*, and *Schoenoplectus* each of which can look quite different from each other in overall form. However, they all share prominent clusters of reddish-brown spikelets on the ends of long pedicels.

## Identifying Features

- Tall plants topped by clusters of reddish-brown, bristly or fuzzy spikelets on the ends of long stalks.
- Stems are smooth, round and leafless (*Schoenoplectus*) or leafy and more-or-less triangular (*Bolboschoenus* and *Scirpus*).
- Leaves (when present) are folded into V or W shapes in cross-section.

## Habitat

Emergent marshes, lake and river edges, sedge meadows.

## Similar Species

# *Bolboschoenus fluviatilis*

## RIVER BULRUSH

H S F

| Native status: | Native | C of C: | 6 |
|---|---|---|---|

### Description

Erect, perennial grass-like sedge growing up to 7' tall, semi-aquatic, emergent. Has 3-angled, is beaked, and has 6 barbed bristles. Stems are somewhat thick (1/3"-3/4" thick), triangular, and has many sturdy leaves. Grows thick tubers/rhizomes.

Leaves grow 3-ranked and are around 1/2" wide. Leaves have a V or M-shaped cross section.

Spikelets are 1/2-1" long with spiral flowers covered in brown scales.

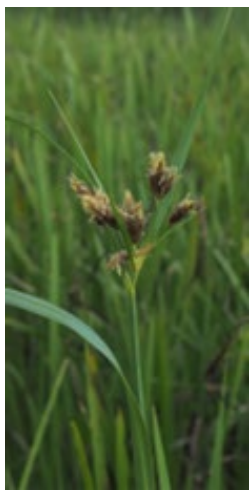
### Identifying Features

Very large, thick, sharply triangular stems and numerous wide leaves, V or M-shaped in cross section, are distinctive.

### Habitat

Wet; shores, marshes to water > 3' deep; in sediment soil.

WIS: OBL/OBL



### Similar Species

No other bulrushes or sedges have such large, sharply triangular-stems, or abundant, wide leaves.

# *Schoenoplectus* Species

## HARDSTEM/SOFTSTEM BULRUSH GROUP

H S F

| Native status: | Native | Rapid C: | 5.4 |
|---|---|---|---|

### Description

These bulrush species were formerly in the genus *Scirpus* and often known by their common names, "Hard-stem and Soft-stem bulrush."

Erect, perennial, 3-10' tall, semi-aquatic, emergent sedge. Stems are cylindrical, filled with many small chambers. Has shallow rhizomes. Leaves are mostly sheaths or short blades at stem base. Has oval spikelets in branched inflorescence emerging from side of floral bract at top of the stem.

### Identifying Features

Stems single, leafless, unbranching, round in cross-section. Tall height: minimum 3ft – 10. Spikelets are stalked.

### Habitat

Marshes, lake and stream edges.

### Similar Species

Common three-square bulrush (*S. pungens*; C = 5) is a rare dominant with a similar form but easily distinguished by its three-sided stems.

### Included Dominants

- Hardstem bulrush *(S. acutus,* WIS: OBL/OBL; C=6)
- Soft-stem bulrush *(S. tabernaemontani,* WIS: OBL/OBL; C=4)

# *Scirpus* Species

## WOOL GRASS GROUP

H S F

| Native status: | Native | Rapid C: | 3.8 |
|---|---|---|---|

### Description

Erect, tall (1 – 2m), clumping perennials in the sedge family (Cyperaceae). Leaves are long, narrow and mostly basal; Flowers and fruits in clusters at the end of a branched stem.

### Identifying Features

Flowers/fruits in numerous small, dense heads at the tips of a large, branching inflorescence are distinctive, as is the large size of plants.

### Habitat

Can be found at low levels in a wide range of wetlands, a dominant only in meadows and marshes in mineral soils, especially those recovering from a disturbance.

### Similar Species

When flowering heads are not present, leaves resemble *Carex* spp. However, the basal leaves of *Carex* spp are tinged red or brown, firm, and narrow where they emerge from the ground, while those of Scirpus will be white and thickened.

### Included Dominants

- Black bulrush (Scirpus atrovirens; WIS: OBL/OBL; C=3)
- Wool-grass (S. cyperinus; WIS: OBL/OBL; C=4)

# Rush Group (Juncaceae)

## Description

Rushes are graminoids in the family Juncaceae and the genus *Juncus*. At least 21 *Juncus* species may occur in Wisconsin wetlands, however, they rarely appear as dominants. Only two species occur with some frequency as dominants in wetland floristic surveys: Common rush (*Juncus effusus*) and Dudley's rush (*J. dudleyi*). Additionally, in a few rare wetland types, small-headed rush (*J. brachycephalus*) and Baltic rush (*J. balticus*) have exceeded 10% cover.

## Identifying Features

- Stems wiry and round in cross section.
- Inflorescence in branched clusters emerging from the top or side of stem.
- Flowers and fruits appear to have 6 green or brown petal-like structures.

## Habitat

Emergent marshes, wet meadows, wet prairies, calcareous fens, sandy shores.

## Similar Species

Twig-rush (*Cladium mariscoides*) looks very much like a rush but is actually in the sedge family and lacks the 6 "petals" in the flower found in true rushes. Twig-rush is restricted to fens.




# *Juncus* Species

## RUSHES GROUP

H S F

| Native status: | Native | Rapid C: | 4.0 |
|---|---|---|---|

### Description

Rushes are small-statured (max height is 3 ft.) and delicate in form, with round, solid stems. Leaves, when present, are narrow or wiry. Flowers are 6-parted and the numerous, tiny seeds are held inside a capsule.

### Identifying Features

Common rush (*Juncus effusus*) is the largest of the rush species and occurs in dense bunches of stiff, straight leafless stems. Flowers appear to come from the side of the stem near the top.

Dudley's rush (*J. dudleyi*) is wiry and easy to miss. Wire-like leaves are mostly basal, and the flower head has a wiry bract emerging from the top.

### Habitat

Moist meadows to shores and marshes.

### Similar Species

Common rush most resembles *J. balticus* (C = 5) which grows in lines rather than clumps.

Dudley's rush most resembles *J. tenuis* (C = 1) which has white papery rather than firm brown "ears" where the leaf meets the stem.

### Included Dominants

- Dudley's Rush (*Juncus dudleyi;* WIS: FACW/FACW; C=4)
- Common Rush (*J. effusus;* WIS: OBL/OBL; C=4)

*Special note: The two species included in this group are the most common rush species found at high cover. However, in rarer wetland types, especially highly calcareous or acidic soils, other species, such as Juncus balticus, J. brachycephalus, and J. canadensis should be considered.*

# Other Graminoid Species: Arrowhead, Bur-reed and Cattail

## Description

This section includes several important plants, all monocots, that do not fit well into other groups. These unique species are found within two groups: the cattail family (Typhaceae) and the Alismatales -a plant order that contains several important wetland and aquatic genera, including arrowheads, water plantain, pondweeds, and calla lilly.

Only three groups are important wetland dominants: Cattails (Typha sp.), bur-reed (Sparganium sp.), and arrowhead (Sagittaria sp.).

## Identifying Features

Robust emergent aquatics with stems round in cross section, leaves long and narrow or arrowhead- shaped.

## Habitat

Emergent marshes, shores, usually in semi-permanent standing water.

## Similar Species

Rarer dominants in this group that might be encountered include Calla lily (*Calla palustris*; C = 9) which resembles a peace lily (a houseplant). Also, water plaintain (*Alisma* sp.) (C = 3 or 4) which resembles an arrowhead missing its lower lobes with small white flowers in a large, diffuse inflorescence.

# *Sagittaria latifolia*

## BROAD-LEAVED ARROWHEAD

H S F

| Native status: | Native | C of C: | 3 |
|---|---|---|---|

### Description

Erect, emergent aquatic perennials; may have floating leaves in deep water; 4"-48" tall; roots tuberous-tipped, edible rhizomes

Arrow-shaped or long and narrow leaves.

Fruits are dry, stalked, flattened, winged seed with a large right-angled beak at the top.

### Identifying Features

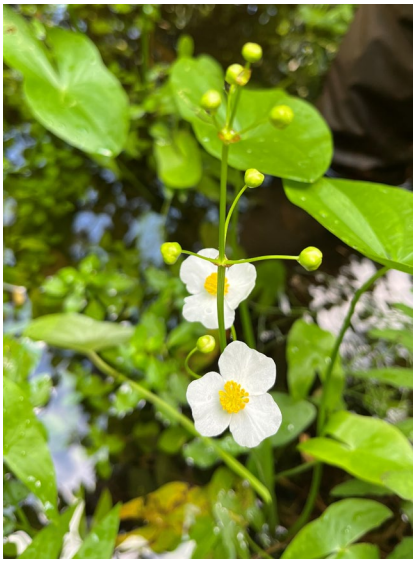
Leaves arrow-shaped (i.e., with two lobes pointing down and one up). Leaf shape and size can be highly variable, from thin to broad. Occasionally some leaves may be missing the lower lobes.

Flowers with three showy white petals.

### Habitat

Permanently to semi-permanently flooded areas; emergent marsh, stream and lake edges.

### Similar Species



Other arrowhead (*Sagittaria*) species exist but are very rare. Of these, only Stiff Arrowhead (*S. rigida;* C=8) is occasionally abundant and only in SW Wisconsin. Stiff arrowhead leaves are elliptical, lacking the two lower lobes.

*Sagittaria* species without flowers or fruits or sagittate leaves may resemble water plantain (*Alisma*) species.

# *Sparganium* Species

## BUR REED GROUP

H S F

| Native status: | Native | Rapid C: | 5.3 |
|---|---|---|---|

### Description

Erect, emergent, semi-aquatic, herbaceous plant growing around 1-3' tall.

Leaves are stiff and erect or floating and ribbony.

Female flowers are green to white, 3-parted; inflorescence round heads on zigzagging stalk.

Fruits are green to brown, nutlets in bur-like heads.

Common bur-reed (*S. eurycarpum*) fruits

### Identifying Features

Flowers and fruits in multiple spherical clusters or "burs". Leaves often keeled beneath, with pointed tips.

### Habitat

Sunny wetlands; ditches, shallows, marshes, shores; in muddy soil

### Similar Species

Sweetflag *(Acorus americanus,* WIS: OBL/OBL; C=7*)* has a similar overall appearance but lacks the spherical "burs"; leaves are not keeled, and it has a pleasant sweet-spicy scent.

### Included Dominants

- Common bur-reed (*S. eurycarpum*, WIS: OBL/OBL; C=5)
- Narrow-leaved bur-reed (*S. emersum,* WIS: OBL/OBL; C=8)
- American bur-reed (*S. americanum*, WIS: OBL/OBL; C=8)

# *Typha* Species

## CATTAIL GROUP

H S F

| Native status: | Both | Rapid C: | 0.3 |
|---|---|---|---|

### Description

Erect, perennial, emergent semi-aquatic, and grass-like growing 3'-9' tall with many smooth stems bundled into a circular base. Spreads by rhizomes.

Leaves are bluish-green to grayish-green, up to 1" wide, nearly flat, overlapping each other at the base.

Flowers are brown; inflorescence is a thick spike with male (top) and female (bottom) flowers; blooms May-July. Hundreds of seeds packed tightly into a brown, cylindrical spike.

### Identifying Features

Leaves are flat and larger leaves may feel spongey towards the base. Leaves come together at the very base in a round, compact bundle.

### Habitat

Sun; wet to damp; ditches, marshes, shallows; in muddy soil

### Similar Species

The leaves of Iris species can resemble cattail leaves but Iris leaves are shorter, less spongey, and tend to have a pronounced center vein.

### Included Dominants

- *Broad-leaved cattail (Typha latifolia*; WIS: OBL/OBL; C=1)
- *Narrow-leaved cattail (T. angustifolia*; WIS: OBL/OBL; C=0)
- *Hybrid cattail (T. x glauca*; WIS: OBL/OBL; C=0)

# *FORB SPECIES AND GROUPS:*

## Non-woody plants typically with broad leaves and showy flowers

FORBS

WISCONSIN
DEPT. OF NATURAL RESOURCES

# *Caltha palustris*

## MARSH MARIGOLD

H S F

| Native status: | Native | C of C: | 6 |
|---|---|---|---|

### Description

Erect, perennial, forb growing 0.5-2' tall; stems hollow, branched toward the top.

Leaves are widely heart-shaped but not divided; basal leaves long-stalked, stem leaves alternate and on shorter stalks.

Flowers are bright yellow, 5-9-parted, 0.5"-1.5" wide, petal-like sepals; blooms April-May.

### Identifying Features

Heart-shaped, toothed leaves with bright yellow flowers in the spring.

### Habitat

Wet; meadows, woods, forests marshes, streambanks. Often found in areas with groundwater discharge.

WIS: OBL/OBL

### Similar Species

Calla palustris leaves are similarly shaped but not toothed. Flowers are white.

# *Eutrochium maculatum*

## SPOTTED JOE-PYE WEED

H S F

| Native status: | Native | C of C: | 4 |
|---|---|---|---|

### Description

Erect, perennial, 2'-7' tall forb; stems spotted or evenly purplish.

Leaves are lanceolate shaped and sharply serrated. Leaves arranged in whorls around the main stem, mostly in whorls of 4-5 leaves.

Flowers are arranged in a head with 9-22 pink to purple disk flowers. The inflorescence grows into a 7", occasionally flat-topped, branched cluster; blooms July-Sept.

Fruits are a dry seed on fluffy pappus.

### Identifying Features

Toothed, whorled leaves are distinctive. Stem has red purple flecks. Inflorescences are large and shaggy looking.

### Habitat

Full sun; wet to moist; meadows, marshes, shores; in sandy, loamy, limy soil.

WIS: OBL/OBL

### Similar Species

Green stemmed Joe Pye weed (*E. purpureum*) is rarer in wetlands and has a green stem without flecks and the flowering head is domed rather than flat.

# *Helianthus* Species

## SUNFLOWER GROUP

H S F

| Native status: | Native | Rapid C: | 2.2 |
|---|---|---|---|

### Description

Flowers are yellow and 2-4" across. Each flower with 10-20 petals with a yellow or brown center; blooms summer and fall.

Leaves are lance-shaped that are long and narrow; 7-8" long and only 2-3" wide. Leaves feel rough to the touch. Leaves are opposite along the lower half of the stem and alternate closer to the flowers.

Stem is hairless for *H. grosseserratus* and hairy for *H. giganteus*.

### Identifying Features

Many single yellow flowers with yellowish centers along an often dark-colored stem. Leaves unstalked and rough, mostly opposite along the stem. Leaves may be toothed but are not divided.

### Habitat

*Helianthus* species are most abundant in prairie habitats in southern WI but occasionally are common in open, northern hardwood swamps.

### Similar Species

Other plants with sunflower-like leaves include sweet black-eyed susan (*Rudbeckia subtomentosa,* C = 7, leaves dissected); cut-leaved coneflower (*R. laciniata*; C = 6, leaves dissected, petals reflexed); Sneezeweed (*Helenium autumnale, C = 4,* petals 3-lobed); And cup-plant (*Silphium perfoliatum*; C = 4) opposite leaves joined into a cup).

### Included Dominants

- Saw-tooth sunflower (*Helianthus grosseserratus;* WIS: FACW/FACW, C=2)
- Giant sunflower (*H. giganteus;* WIS: FACW/FACW, C=4)

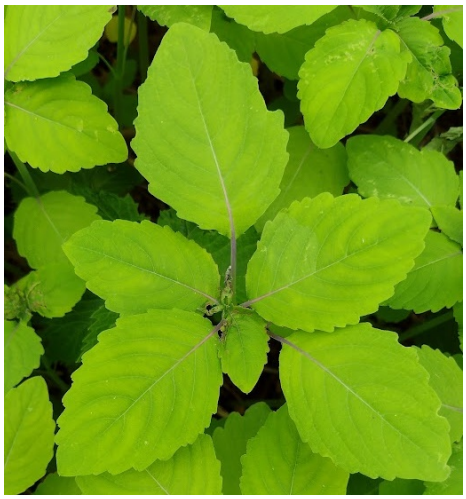
# *Impatiens capensis*

## ORANGE JEWELWEED

H | S | F

| Native status: | Native | C of C: | 2 |
|---|---|---|---|

### Description



Plants are erect, annual, 2'-6' tall forb, smooth, branched near the top. Stems are watery or slimy inside when crushed. Leaves are soft, long-stalked with the widest point near the petiole. Flowers are yellow to orange with dark spots; 5 (looks like 3)-parted and around 1" in size. Flowers are tubular and drooping on thin stalks; blooms July-Sept.

Fruit is a long, narrow capsule that when ripe dramatically explodes when touched. Seeds are broadly thrown when fruit explodes. Fruits are green to dark brown.

### Identifying Features

Stems are weak and watery,

Mature seed pods will explode upon a gentle touch.

### Habitat

Moist; woods, forests, meadows, streambanks.

WIS: OBL/OBL

### Similar Species

None

FORBS

# *Lysimachia nummularia*

## MONEYWORT

H S **F**

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Perennial herbaceous ground-creeping plants that spread widely but only grow to around 1"-2" tall.

Leaves grow in opposite pairs along the spreading main stems. Leaves are dotted, roundish, and evergreen.

Flowers are yellow and dotted with dark red, 5-parted, and around 1" wide. The flower stalk about the same length as the leaves. Flower grows as a single unit from the leaf axils; blooms June-August.

### Identifying Features

Evergreen leaves occur in opposite pairs along long, creeping stems with single flowers located at leaf axils. Spreads quickly.

### Habitat

Moist to wet; woods, disturbed sites. Can be aggressive in wet forests.

WIS: FACW/FACW

### Similar Species

None

# *Lythrum salicaria*

## PURPLE LOOSESTRIFE

H S F

| Native status: | Non-Native | C of C: | 0 |
|---|---|---|---|

### Description

Erect, perennial, 1'-4' tall, semi-aquatic, emergent forb. Grows as a stout plant, often in dense stands. Stems feel squarish when rolled between fingers with 4-5 sides.

Leaves are 1-4" long, lance-like, stalkless, usually finely hairy, opposite or in whorls of 3 around the main stem. Leaves have little-to-no petiole.

Flowers are bright purple to red, 6-parted, wrinkled, 1/2"-1" wide. The inflorescence is usually a showy terminal spike, growing around 4"-16" tall; blooms July-September.

### Identifying Features

Square stem with leaves mostly opposite but can show variation on a single plant from whorls of 3 to alternate. Leaves with squarish bases, attached to the stem with no petiole. Leaf veins create an inner outline around edge. Dense purple flower spikes and numerous spikes per individual; resulting in a bushy looking plant.

### Habitat

Wet; meadows, shores, shallows

WIS: OBL/OBL

### Similar Species

Fireweed (*Chamerion angustifolium*, WIS: FAC/FAC; C=3) looks similar but fireweed has alternate leaves and is rare in wetlands.

Occasionally confused with the native winged loosestrife (*L. alatum* WIS: OBL/OBL; C=6) which has flowers appearing singly in the axils of leaves rather than in a separate spike.

# *Persicaria amphibia*

## WATER SMARTWEED

H S F

| Native status: | Native | C of C: | 5 |
|---|---|---|---|

### Description

Plants are erect, terrestrial or floating, perennial, aquatic forb. Grows 1'-5' tall; stems branched with usually several major stems flowering; spreads by rhizomes.

Leaves are alternate, entire, not jointed at the base.

Flowers are pink to red, 5-parted, inflorescence solitary or paired and grow as a spike.

Fruits are shiny, dark, dry seeds.

### Identifying Features

Look for the sheath wrapping the stem where each leaf attaches, sometimes with a collar; broad leaves, and only one or 2 large, bright pink flower spikes.

*Caution: this plant is highly variable! May be floating or erect, stem may be hairy or smooth.*

### Habitat

Marshes and meadows, shallows, water < 7' deep;

### Similar Species

Wisconsin wetlands can include many *Persicaria* species, but only *P. amphibia* and *P. sagittata* occur at more dominant levels. If other smartweeds are encountered as dominants keying out to species is recommended given their wide range of c-values.

Arrow-leaf tearthumb (*P. sagittata;* WIS: OBL/OBL, C=7) has distinct prickly stems that acts almost vine-like by climbing and tangling with other plants and has small white or light pink flowers; leaves are arrow-shaped.

# Nettles: *Pilea, Boehmeria, Laportea* spp.

## NETTLES GROUP (NOT *Urtica dioica*)

H S F

| Native status: | Native | Rapid C: | PEM: 5.0<br>PSS: 5.2<br>PFO: 4.3 |
|---|---|---|---|

### Description

Nettles are a group of erect herbs with simple, coarsely-toothed leaves, and petal-less, greenish flower clusters in leaf axils. Leaves are often strongly opposite, except *Laportea* (wood nettle). Two species have stinging hairs (Stinging nettle and wood nettle), others are smooth and weak-stemmed (*Pilea*).

### Identifying Features

Simple, coarsely-toothed leaves on long petioles. Tiny greenish flowers in branches or clusters emerging from leaf axils. Generally short plants, knee height or less.

### Habitat

Found in moist, rich soils.

### Similar Species

Stinging nettle (*Urtica dioica)- see next page*, is a taller plant with narrower leaves.

In drier-end forested wetlands, enchanter's nightshade *Circaea canadensis* (C = 2) is a common herb with a similar form but which has flowers (white) and fruit (round burrs) emerging from the top of the plant.

### Included Dominants

*Lesser clearweed (Pilea fontana*, WIS : FACW/FACW; C=7)
Canadian clearweed (*P. pumila*, WIS: FACW/FACW; C=3)
False nettle (*Boehmeria cylindrica*, WIS: OBL/OBL; C=6)
Wood nettle (*Laportea canadensis;* WIS: FACW/FACW; C=4)

For the RFQA, stinging nettle (*Urtica dioica, #63*) should be recorded separately from other nettles due to its lower C-value.

# Nettles: *Urtica dioica*

## STINGING NETTLE

H S F

| Native status: | Native | C of C: | 1 |
|---|---|---|---|

### Description

Plants are erect, perennial, 1-6' tall forb with stinging hairs, often forming large colonies.

Leaves are serrated or toothed, opposite, lance-like with a sharp point. Often find bracts at leaf nodes.

Flowers are off-white colored and tiny; inflorescence branched with many-flowers growing in long clusters from the upper leaf axils; blooms June-September.

Fruits are an oval, dry seed.

### Identifying Features

Strongly opposite, veiny leaves, each pair rotated 90° from the pair below.

Leaves and stems have stinging hairs called trichomes that when touched, can cause painful stinging sensations.

### Habitat

Wet to dry; disturbed sites, in a wide variety of wetland types.

WIS: FACW/FAC

### Similar Species

Compared to other nettles (See #62), stinging nettle is considerably taller, often chest high or more, leaves are longer than wide, and its stings are more painful.

# *Solidago* Species

## GOLDENROD GROUP

H | S | F

| Native status: | Native | Rapid C: | PEM: 1.5<br>PSS: 2.3<br>PFO: 3.0 |
|---|---|---|---|

### Description

Plants typically grow 1-7' tall and are found in dense patches.

Flowers are bright yellow and the inflorescence is open. Usually lower flowering branches are longer than terminal flowering spikes.

Leaves are toothed, lance-shaped, and stalkless. Underside has three prominent veins.

### Identifying Features

Small yellow flowers on the topside of horizontal or curving branches.

Leaves are lance-shaped, toothed in the midsection, and have three main veins.

### Habitat

Found in a wide range of habitats from drier to wetter sites and often in disturbed sites.

### Similar Species

Distinguish non-flowering plants from asters (#82) by leaf venation and teeth- aster leaves have a single prominent vein and are often untoothed.

### Included Dominants

- Canada goldenrod (PEM, PSS, PFO; *Solidago canadensis*; WIS:FACU/FACU; C=1; Upper stem hairy.
- Giant goldenrod (PEM, PSS, PFO; *S. gigantea;* WIS: FACW/FACW; C=3; Upper stem smooth.

# *Symphyotrichum/Doellingeria*

H | S | F

## ASTER GROUP

| Native status: | Native | Rapid C: | PEM: 5.6<br>PSS: 5.0<br>PFO: 5.1 |
|---|---|---|---|

### Description

Erect, leafy perennials, 2'- 8' tall with simple, alternate leaves. Flowers are composite with yellow centers and white or purple rays.

### Identifying Features

Leaves are long, narrow, simple, alternate, toothless and stalkless (attach directly to the stem with little to no petiole).

Flowers composed of separate white or pale purple "ray" flowers surrounding a center of yellow to reddish "disk" flowers.

### Habitat

Moist to wet meadows, shallow marsh, floodplain forest and shrub-carrs.

### Similar Species

Goldenrods (#81) have toothed leaves with three prominent veins.

Fleabanes (*Erigeron* sp.) have similar flowers, but with comparatively large, flat yellow centers with shorter and more numerous white rays. Fleabanes can be found on drier, disturbed sites.

### Included Dominants

- PEM: *Symphyotrichum firmum* (WIS: OBL/OBL; C=6), *S. lanceolatum* (WIS: FAC/FACW; C=4), *S. puniceum* (WIS: OBL/OBL; C=5)
- PSS: Doellingeria *umbellata* (WIS: FACW/FACW; C=6)
- PFO: *Symphyotrichum lateriflorum* (WIS: FACW/FAC; C=3), *S. ontarionis* (WIS: FAC/FAC; C=6)

# *Symplocarpus foetidus*

## SKUNK CABBAGE

H S F

| Native status: | Native | C of C: | 8 |
|---|---|---|---|

### Description

Plants are erect, perennial, up to 3' tall forbs with a skunk odor when crushed.

Leaves are round, up to 1', simple, basal, and only appear after flowering. Leaves are broad and bright green in spring.

Flowers are green and tiny and occur in a round inflorescence, 3"-6" long. The spadix is mottled, green to purplish and shrouded by a pointed, broad, hood-like, purple spathe; blooms March-May.

Fruits are a round or slightly flattened cluster of brown-black berries.

### Identifying Features

Tends to be one of the first plants to emerge in spring from low, wet shady wetlands. Known for the foul smell of the flowers. Pollinated primarily by flies.

### Habitat

Shade; wet; swamps, low ground. Spring indicator.

WIS: OBL/OBL

### Similar Species

None

# *Thalictrum dasycarpum*

## PURPLE MEADOW-RUE

H S F

| Native status: | Native | C of C: | 4 |
|---|---|---|---|

### Description

Plants are tall (3-5'), erect, perennial, forb.

Leaves are distinctly hairy beneath but not glandular, 3-5 times 3-parted with leaflets 1-3 times as long as wide. Leaves are mostly 3-lobed, rarely with more teeth; stem leaves stalkless.

Flowers are delicate-looking, green to white, 4-5-parted, petal-like sepals falling early, fringe-like filaments remain. Each inflorescence grows as a 10" large, pointed, conical, branched cluster; blooms June-July.

Fruits are small, dry seeds.

### Identifying Features

Large herb with distinctive white/green flowers with long, dangling stamens. Compound leaves along a purplish and mostly hairless stem.

### Habitat

Full to partial sun; moderate moisture to wet; meadows, streambanks; in sandy, loamy soil

WIS: FACW/FACW

### Similar Species

*T. dioicum* is smaller and primarily found in forested settings.

# *"OTHER" WETLAND SPECIES AND GROUPS:*

## Comprised of:

* Ferns
* Vines
* Aquatic Species
* Non-vascular Species

# *Equisetum arvense*

## FIELD HORSETAIL

H S F

| Native status: | Native | C of C: | 1 |
|---|---|---|---|

### Description

A bit of a weedy plant, growing in disturbed sites. Can spread vegetatively.

Whorled branches of sterile stems. Reduced leaves are simple sheaths around the stem with dark-colored teeth. Central stem is hollow.

Fertile stems have a cone-like structure at the tip; fruiting only in spring.

### Identifying Features

Rough plant with whorled stick-like leaves along a hollow main stem.

### Habitat

Found along roadsides and other disturbed locations.

WIS: FAC/FAC

### Similar Species

See *Equisetum fluviatile (#69)*

OTHER

# *Equisetum fluviatile*

## RIVER HORSETAIL

H S F

| Native status: | Native | C of C: | 7 |
|---|---|---|---|

### Description

Erect, perennial, semi-aquatic to emergent plants. The plant appears to be mostly stems which are mostly hollow and stiff. . Stems have coarse, vertical ridges that contain silica.

Leaves are found circling each node in a whorl of 15–20-pointed, dark brown-black sheaths.

### Identifying Features

Stem is more hollow than other species -easily collapses when pinched.

The only horsetail that can form dense stands in shallow marshes. Also appears in small patches.

### Habitat

Moist; marshes, shallows, water less than 40" deep

WIS: OBL/OBL

### Similar Species

See *Equisetum arvense* (#68)

# Fern Species

## FERN GROUP

H S F

| Native status: | Native | Rapid C: | PEM: 5.2<br>PSS: 5.0<br>PFO: 6.5 |
|---|---|---|---|

### Description

Medium to large ferns. Leaves are basal, typically long, tapered to a pointed tip, and once or twice pinnately divided.

### Identifying Features

Leaves (fronds) large, typically at least one foot long, emerging directly from a rhizome or woody base. Leaves pinnately divided once or twice.

### Habitat

Broad; Ferns reach peak abundance in forested wetlands but can also be found in marshes, sedge meadows and alder thickets.

### Included Dominants

**PFO**:
Cinnamon fern (*Osmundastrum cinnamomeum;* WIS: FACW/FACW; C=7), Ostrich fern (*Matteuccia struthiopteris;* WIS: FACW/FAC; C=5)

**PSS**:
Lady fern (*Athyrium filix-femina*; WIS: FAC/FAC; C=5), Sensitive fern (*Onoclea sensibilis;* WIS: FACW/FACW; C=5)

**PEM**:
Marsh fern (*Thelypteris palustris;* WIS: OBL/FACW; C=7), Sensitive fern (*O. sensibilis;* WIS: FACW/FACW; C=5)

# *Lemna* Species

## DUCKWEED GROUP

H S F

| Native status: | Native | Rapid C: | 2.4 |
|---|---|---|---|

### Description

Very small floating species that are mostly unrooted in wetland substrate. Leaves are largely very small, typically smaller than the head of a pencil erasure. Often find many lemna individuals clumped together in a way that looks like a continuous 'film' across the top of the water column.

### Identifying Features

Lemna species are small, floating-leaved plants, often with a single root that hangs down into the water column.

### Habitat

Standing water wetlands.

### Similar Species

Wolffia is also a very small, floating plant but is rootless (see bottom right photo showing both the larger duckweed and the smaller Wolffia).

### Included Dominants

- Turion Duckweed (*Lemna turionifera*; WIS: OBL/OBL; C=2)
- Common Duckweed (*L. minor* ; WIS: OBL/OBL; C=4)
- Star Duckweed (*L. trisulca* ; WIS: OBL/OBL; C=6)

OTHER

# *Sphagnum* Species

## SPHAGNUM (PEAT MOSS) GROUP

H S F

| Native status: | Native moss | Rapid C: | 7.0 |
|---|---|---|---|

### Description

Mosses (bryophytes) are non-vascular plants that stay close to the ground and moist conditions. Only one moss group is included here: mosses in the genus *Sphagnum*, the "peat mosses". *Sphagnum* mosses are the only moss group capable of covering large areas in wetlands. Thirty-six species have been found in Wisconsin.

### Identifying Features

Individual stems are topped with a "head" of short dense branches, with long hanging branches beneath.

Branches are covered with tiny, pointed leaves, giving them a "nubby" or fuzzy appearance.

### Habitat

Continuously saturated/ponded areas, reaching 90% or more areal cover in open bogs, to lesser amounts in forested wetlands.

### Similar Species

Other mosses typically look "leafier" and smooth or lack a concentration of branches into a head.

OTHER

# *Utricularia* Species

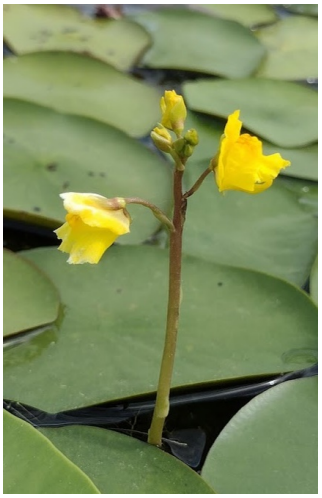
## BLADDERWORT GROUP

H S F

| Native status: | Native | Rapid C: | 8.3 |
|---|---|---|---|

### Description

Aquatic herbs with finely dissected leaves visible just below the water surface and flowering stems emerging several inches above.



*Utricularia vulgaris*

### Identifying Features

Small yellow flowers with lower petal jutting out farther than upper. Delicate, finely dissected leaves. Leaves may be dotted with numerous green to darkened bladders, or bladders on a separate branch from leaves.

### Habitat

In shallow water of wetland pools or quiet lake edges. An aquatic species.

### Similar Species

*Ranunculus aquatilis* (WIS: OBL/OBL; C=8) is similar but has white flowers and no bladders.

### Other Utricularia

### Included Dominants

- Northern bladderwort (*Utricularia intermedia;* WIS: OBL/OBL; C=9)
- Common bladderwort (*U. vulgaris;* WIS: OBL/OBL; C=7)

# *Vitis riparia*

## RIVERBANK GRAPE

H S F

| Native status: | Native | C of C: | 2 |
|---|---|---|---|

### Description

Perennial woody vine, climbing high into the tree canopy or sometimes sprawling over low vegetation.

Leaves are simple, alternate, and toothed.

Flowers are small and white.

The berries grow in typical grape clusters and start off green and ripen to fleshy dark-purple to black grapes in late summer.

### Identifying Features

Leaves are coarsely 3-lobed with toothed edges and strongly heart-shaped bases. Berries are purple-black with a whitened surface.

### Habitat

Widespread at low abundance in a variety of wetland types, especially southward. Not typically a wetland dominant but can form larger patches on edges or after disturbance.

WIS: FACW/FACW

### Similar Species

No other grape species is commonly found in wetlands.

OTHER

# References

**Species and taxa information:**
Information was written by Wisconsin Department of Natural Resources staff and summarized from publicly-available Midwestern agencies, arboretum websites, and utilizing the reference materials below.

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**Photographs:**
All of the photographs included within this document were taken by Wisconsin Department of Natural Resources (WDNR) staff including Melissa Gibson, Sally Jarosz, Chris Noll, and Allison Willman. All photo rights belong to the WDNR.

# *Species name*

## COMMON NAME

H S F

| Native status: | | C of C: | |
|---|---|---|---|

- **Description**

PHOTOS

- **Identifying Features**
- **Habitat**
- **Similar Species**
- **Included Dominants**

OTHER FORBS GRAMINOIDS SHRUBS TREES