

Plant Identification

BWSR Academy 2014



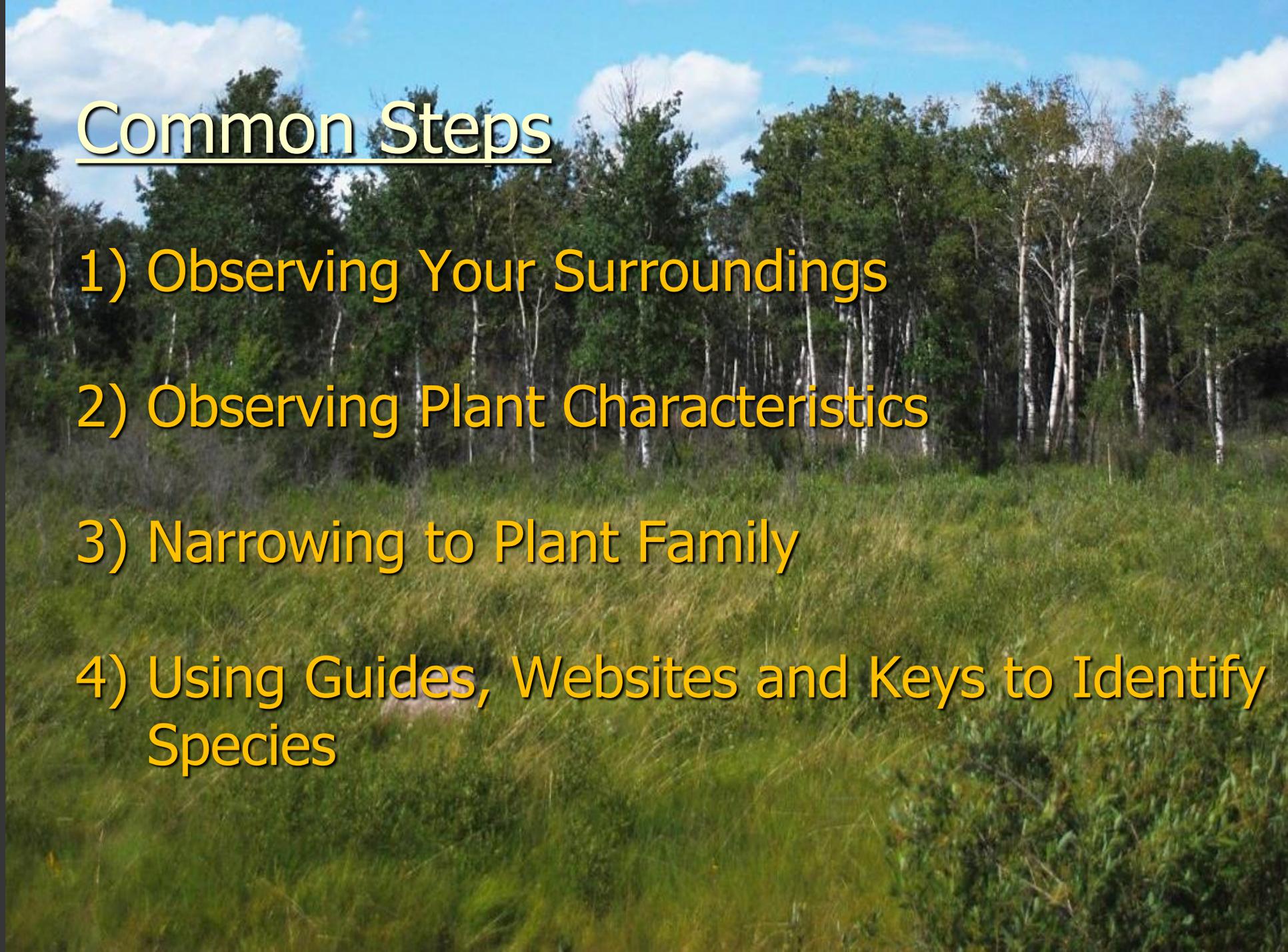
Turtlehead



The Plant ID Process

Presentation Goals:

- Provide an understanding of the plant ID process
- Introduce tools, resources and basic concepts for plant identification



Common Steps

1) Observing Your Surroundings

2) Observing Plant Characteristics

3) Narrowing to Plant Family

4) Using Guides, Websites and Keys to Identify Species



1) Observing Your Surroundings



1) Observing Your Surroundings



1) Observing Your Surroundings

2) Observing Plant Characteristics



Wild rice

2) Observing Plant Characteristics

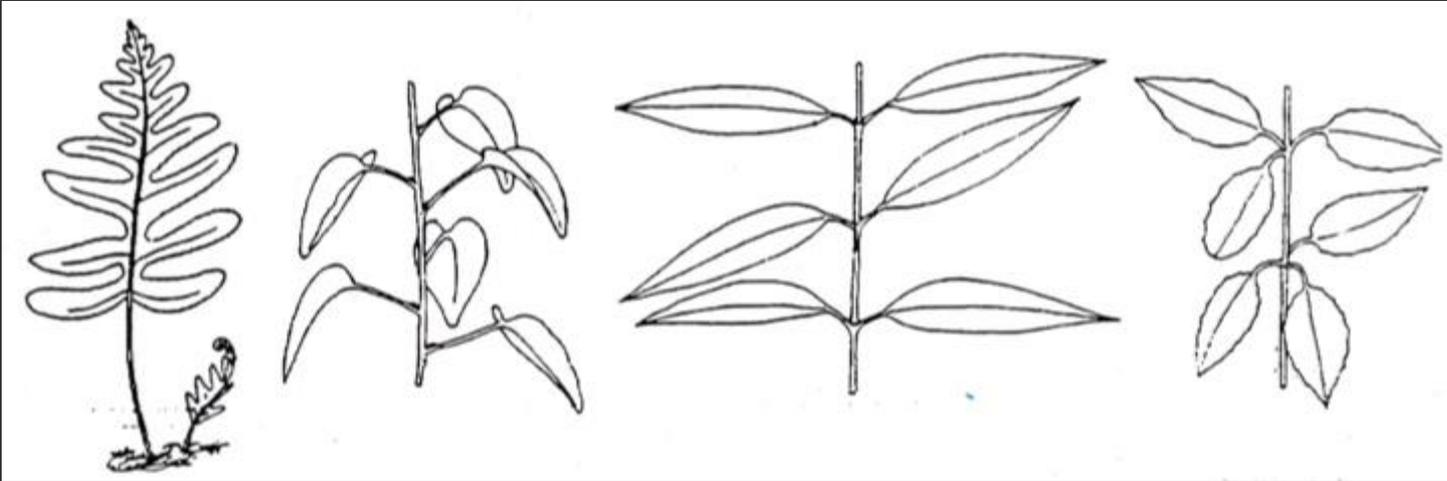
Many plant features help for ID:

- Flowers
- Underground root and stem structures
- Twigs
- Leaf arrangements
- Attachments of leaves to stems
- Leaf venation
- Shapes of leaf blades
- Leaf blade tips
- Leaf blade bases
- Leaf blade margins
- Surface of stems and leaves
- Modified plant parts
- Fruits and seeds



Butterfly Milkweed

Leaf Arrangement



Basal

Alternate

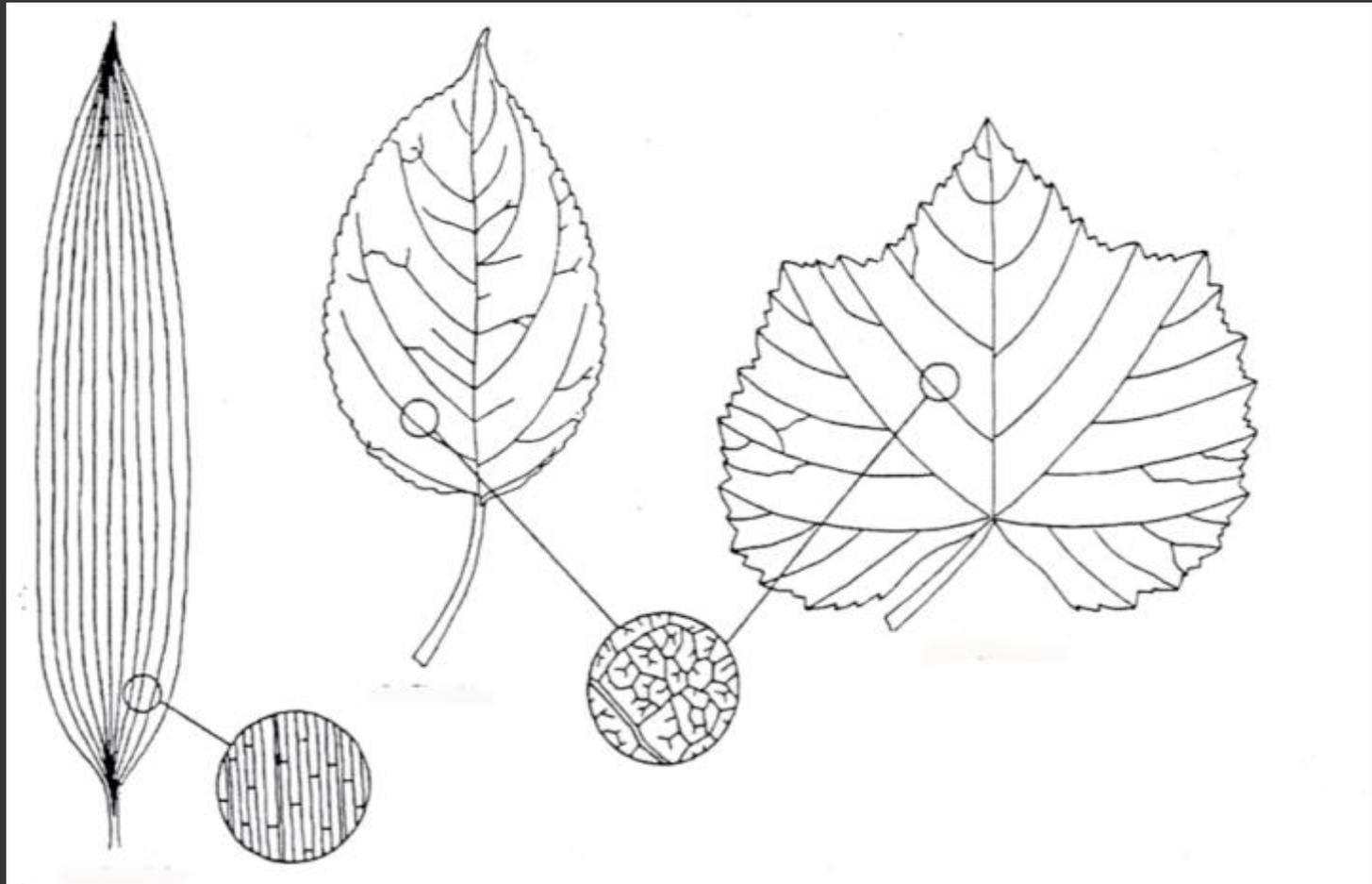
Opposite

Whorled



Bottle Gentian – alternate branching

Leaf Venation

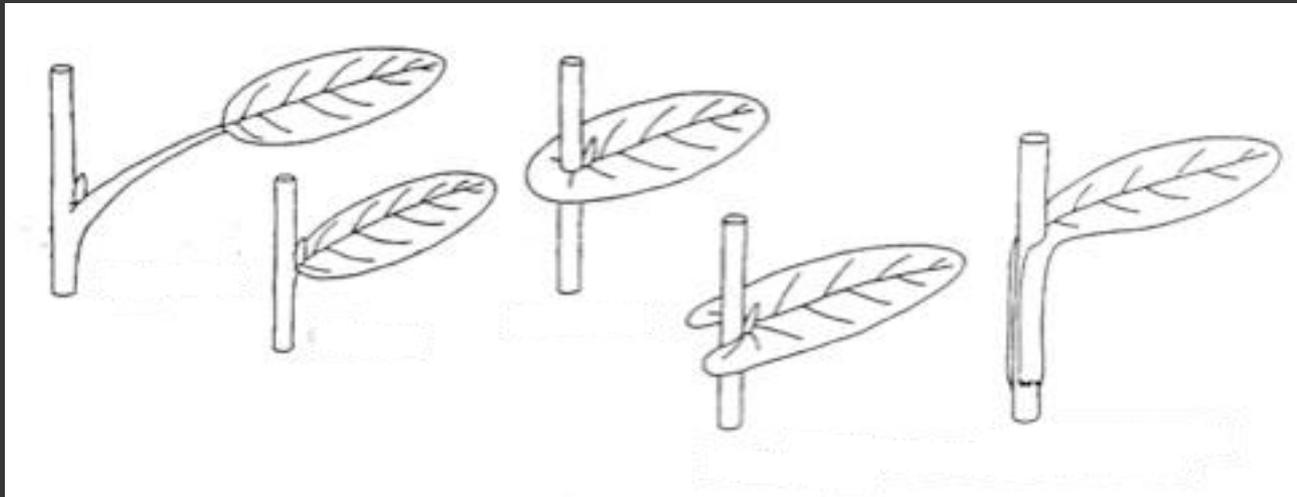


Parallel

Pinnate

Palmate

Attachment of Leaves to Stems



Petiolate

Sessile

Perfoliate

Clasping

Sheathing



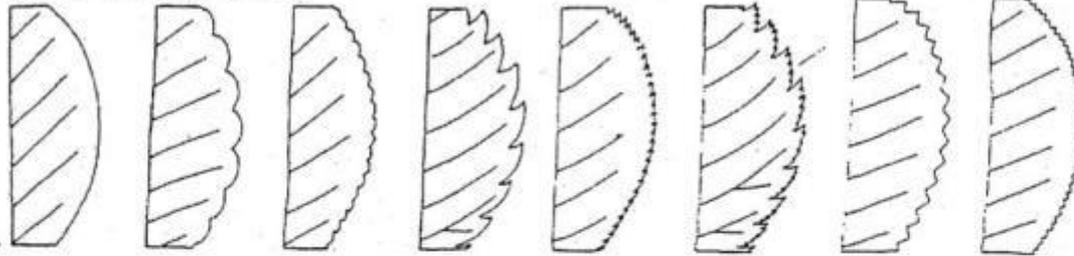
Cup Plant – Perfoliate leaves



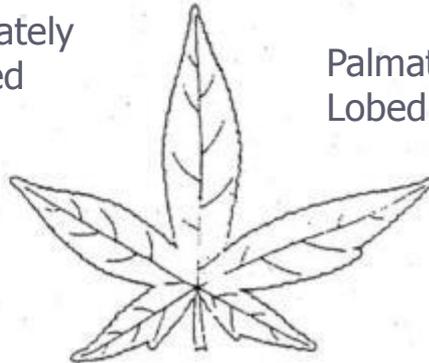
Boneset – Perfoliate leaves

Leaf Edges

LEAF MARGINS



Pinnately
Lobed



Palmately
Lobed

Leaf Margins:



Arrow-wood viburnum

Texture



Goldenrods



New England Aster



Black-eyed susan

Glossy buckthorn

Frangula alnus



<http://www.uvm.edu/~alarosa/nr260/images/alderbuckthorn1.jpg>

- Non-native shrub
- Wavy leaf margins lack teeth
- Glossy leaves
- No thorns at the end of branches



NCNE	MW	GP
FAC	FACW	FAC

Regular

Indistinct

Bell

Irregular



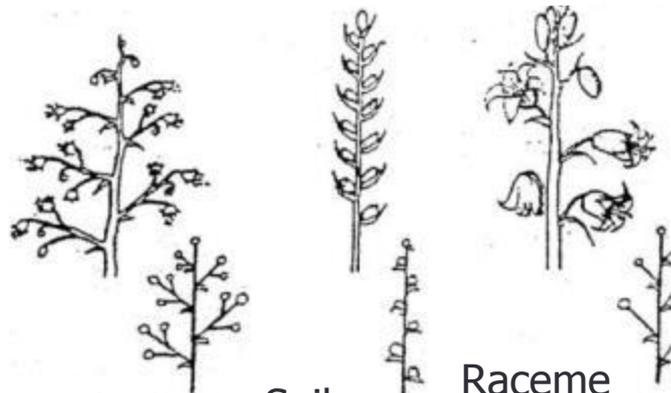
Tubular



Inflorescence Structure

Terms Related to Inflorescence

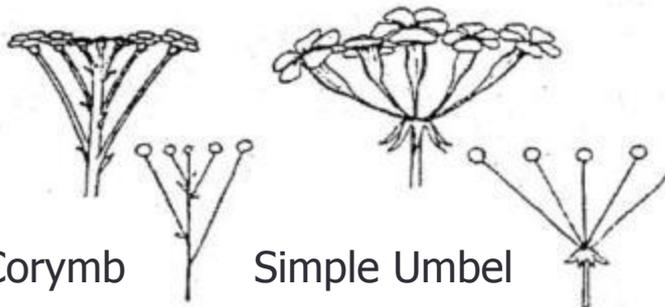
Inflorescence – The flowering part of a plant



Panicle

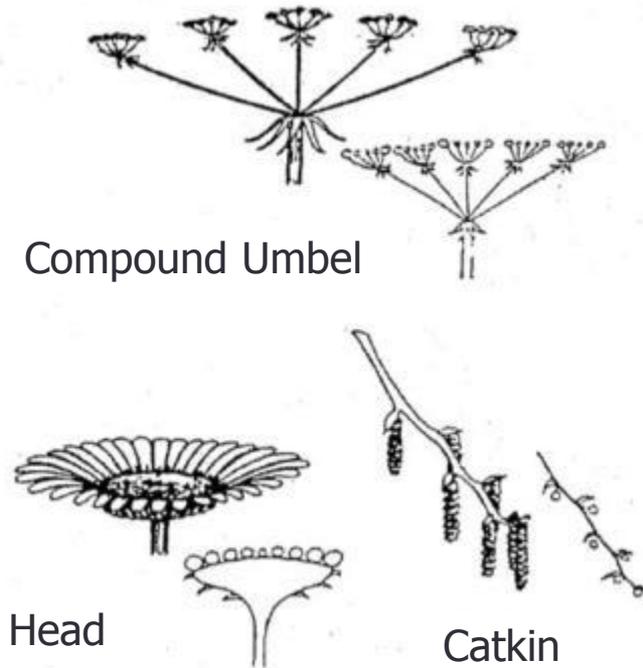
Spike

Raceme



Corymb

Simple Umbel



Compound Umbel

Head

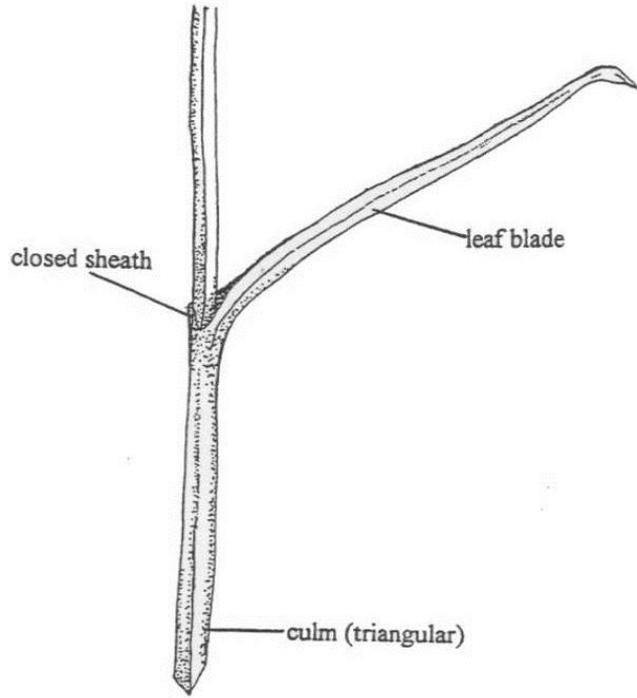
Catkin



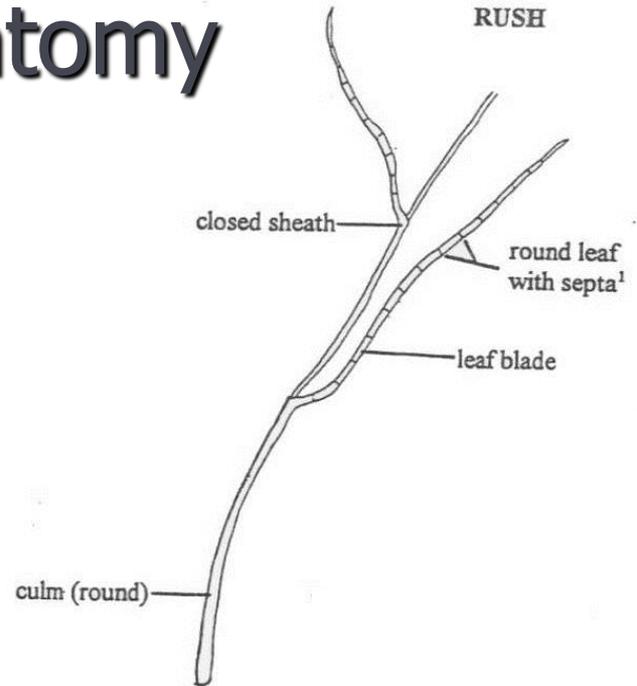
Prairie blazingstar (spike)

Grass, Sedge and Rush Anatomy

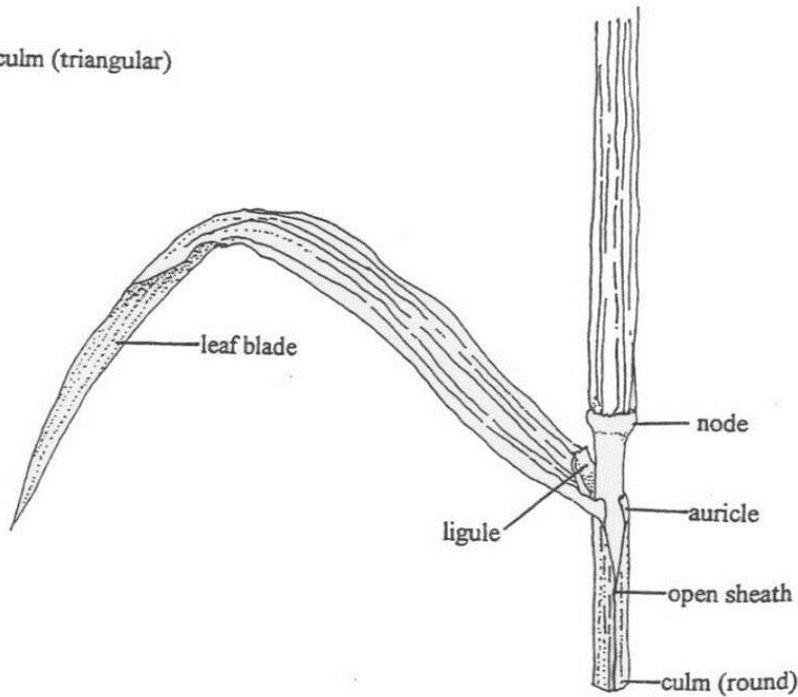
SEDGE



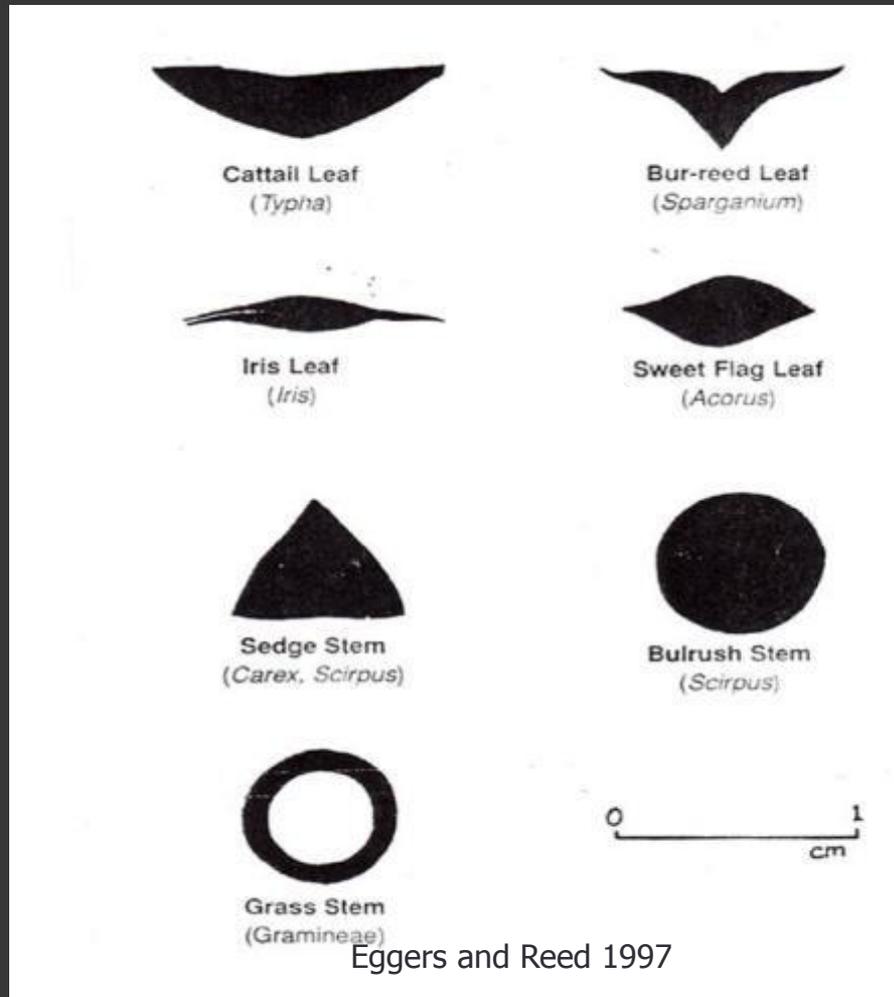
RUSH



GRASS

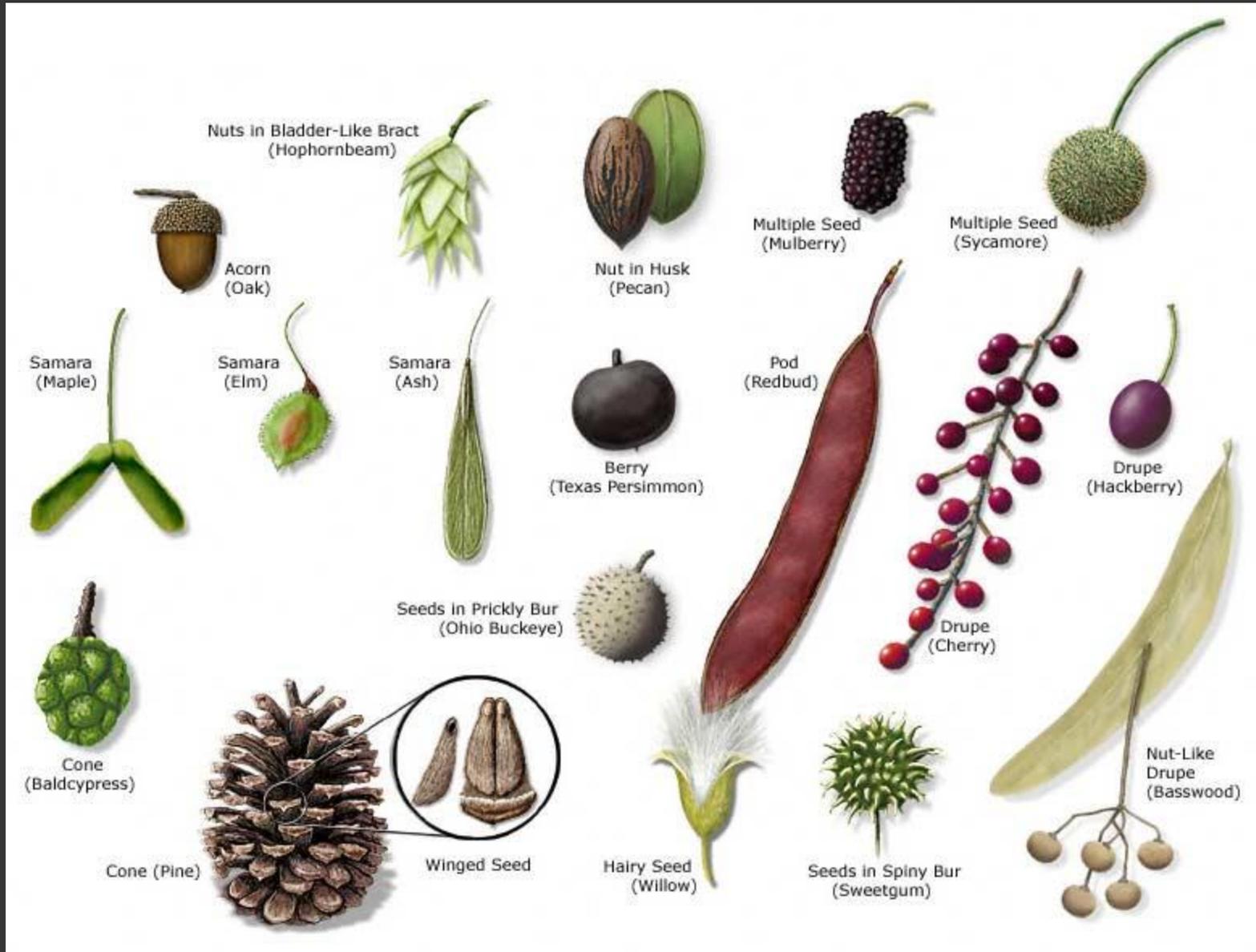


Stem Cross Sections



Eggers and Reed 1997

Fruits and Seeds



3) Narrowing to Plant Family



Boneset (aster family)

3) Narrowing to Family

- ▶ **FAMILY:** Poaceae (Grass Family)
- ▶ **GENUS:** *Calamagrostis*
- ▶ **SPECIES:** *canadensis*



Calamagrostis canadensis



ID hint:

If plants can be grouped to a genus, guides such as Newcomb's can be effective to determine the species

3) Narrowing to Plant Family

Plant Families are grouped based on similar characteristics (often starting with flower structure):

Examples:

- Mints have tubular flowers and square stems
- Smartweeds have swollen joints and five petal-like sepals
- Water plantains have three white petals and large oval or arrowhead shaped leaves



3) Narrowing to Plant Family

Aster family members



Nodding Bur Marigold



Black-eyed Susan



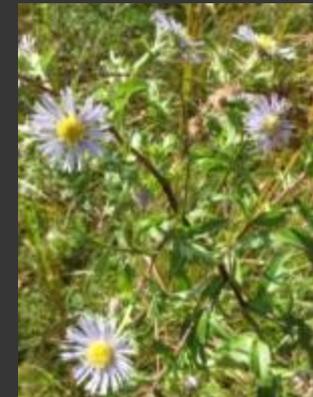
Giant Goldenrod



New England Aster



Stiff Goldenrod



Red-stemmed Aster

Mint Family - Lamiaceae

- 4-angled square stem typically
- Often aromatic
- Flowers in leaf axils, or heads or spikes at end of stem
- Leaves simple, opposite, sharply toothed or lobed



Vervain Family - Verbenaceae



- 4-angled square stem
- Opposite, toothed leaves
- Flowers in spikes or groups at end of stem

Milkweed Family (Apocynaceae)

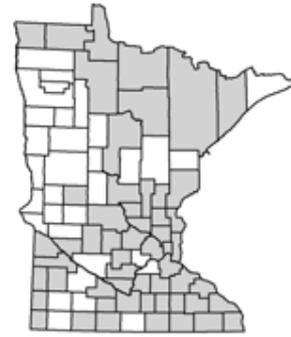


- Leaves opposite
- Milky juice in stem
- Flowers numerous in umbels at end of stem

Maples (Aceraceae)



Acer rubrum var. *rubrum*



Acer saccharinum



Acer saccharum var. *saccharum*



©2004 Gary Fewless

Red maple
(*Acer rubrum*)

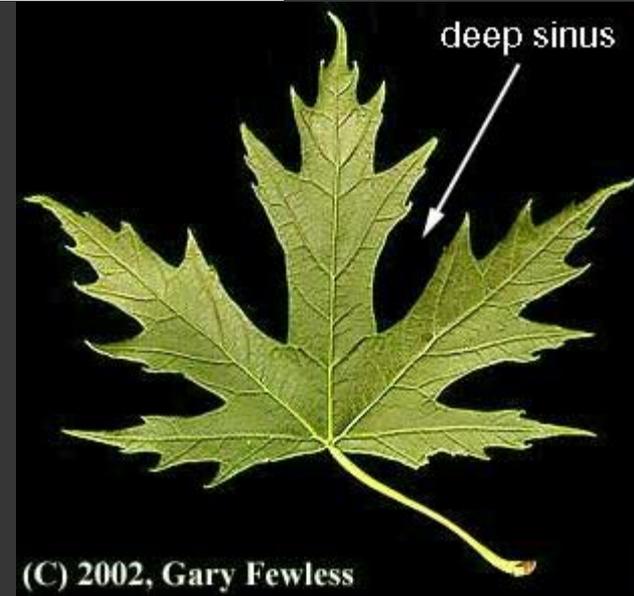
NCNE	MW	NCNE
FAC	FAC	FAC



©2004 Gary Fewless

Sugar maple
(*Acer saccharum*)

NCNE	MW	GP
FACU	FACU	UPL



(C) 2002, Gary Fewless

Silver maple
(*Acer saccharinum*)

NCNE	MW	GP
FACW	FACW	FAC

Oaks (Fagaceae)



Quercus rubra



Quercus macrocarpa
var. *macrocarpa*



(C) 2002, Gary Fewless

N. Red Oak
(*Quercus rubra*)



©2004 Gary Fewless

N. Pin Oak
(*Q. ellipsoidalis*)



(C) 2002

Bur Oak
(*Q. macrocarpa*)

NCNE	MW	GP
FACU	FACU	FACU

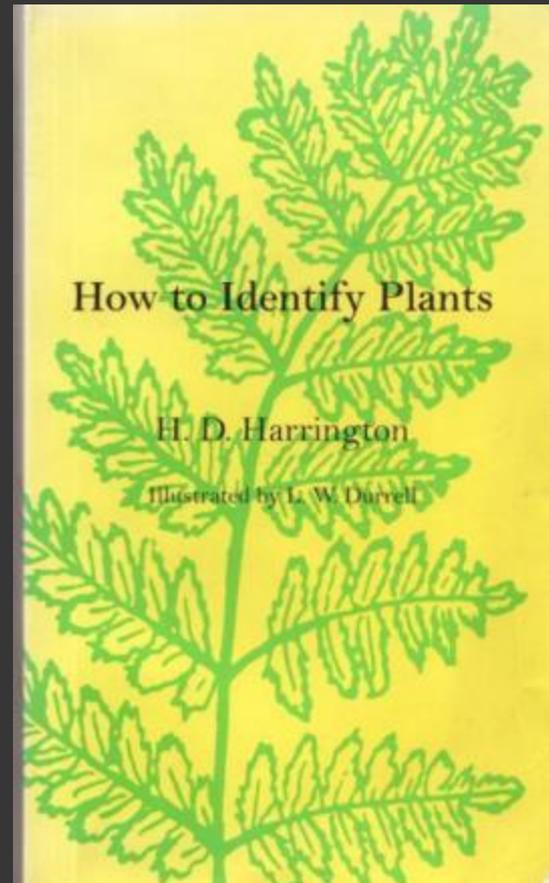
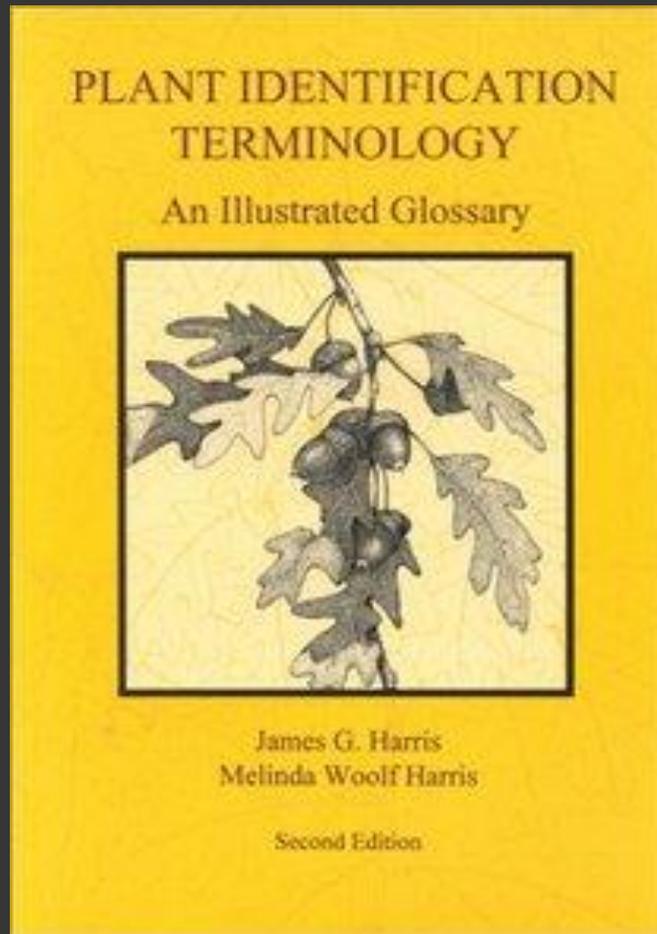
NCNE	MW	GP
FACU	FAC	FACU

4) Using Guides, Websites and Keys to Identify Species

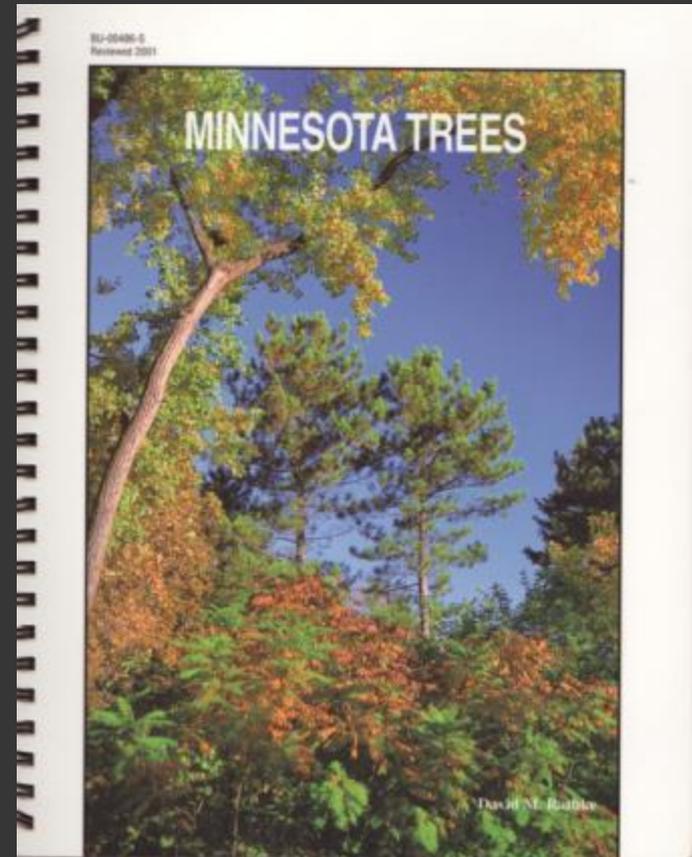
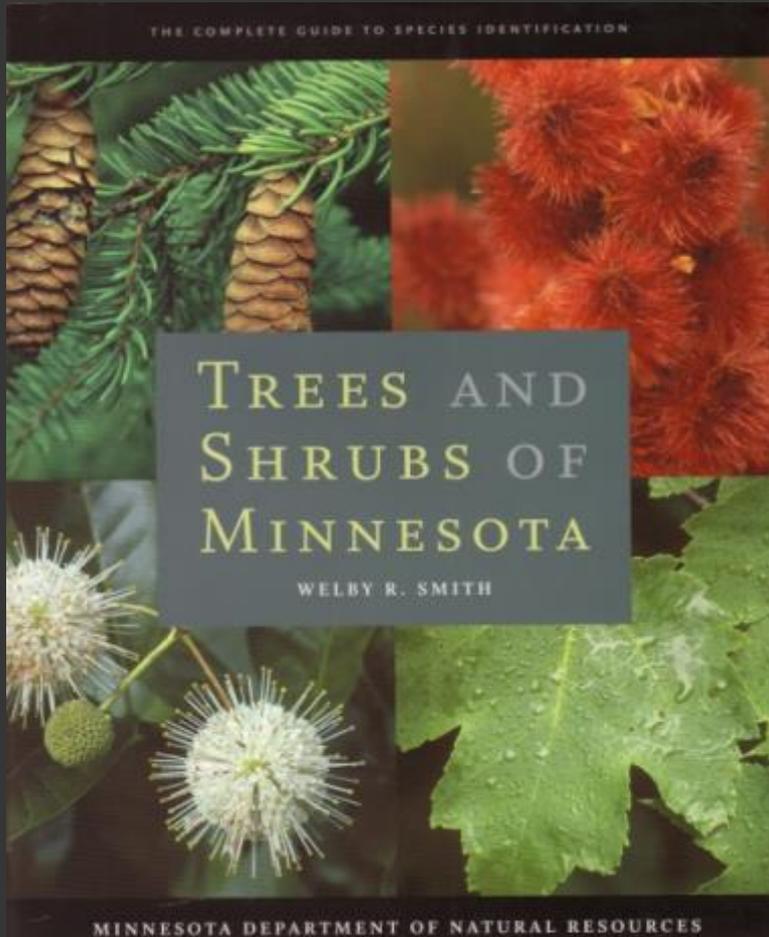


Sneezeweed

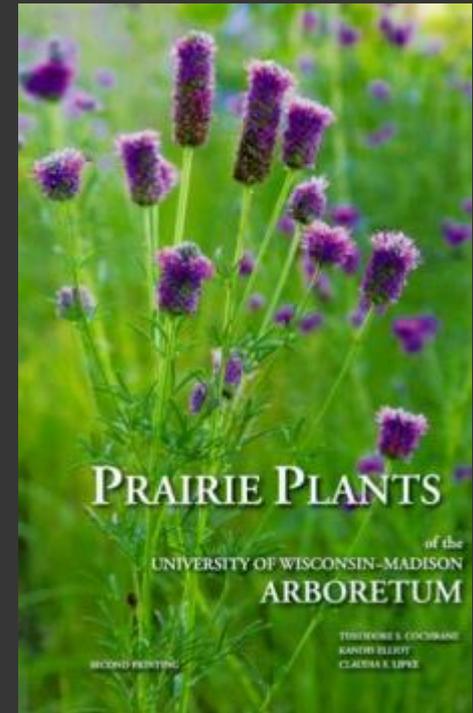
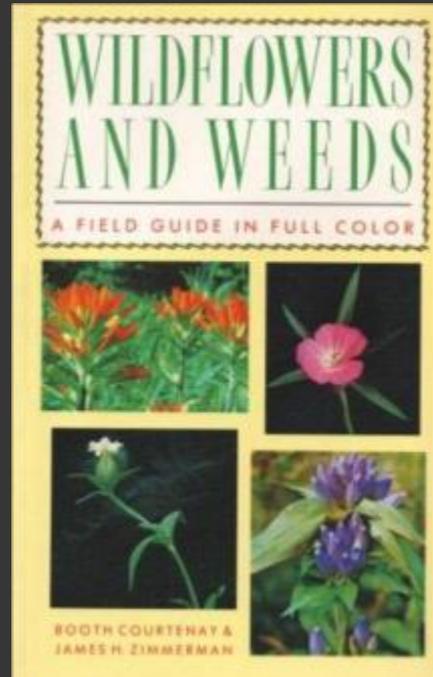
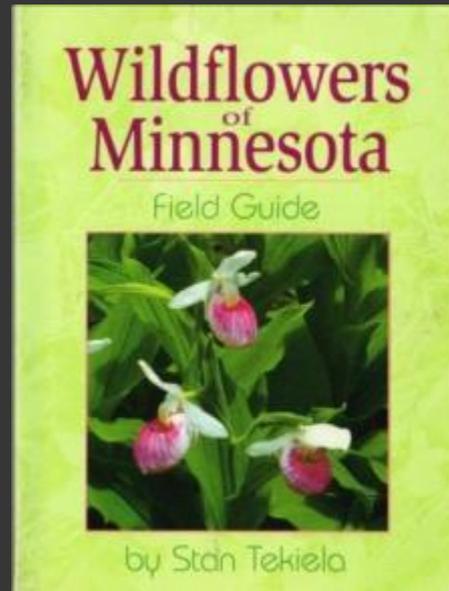
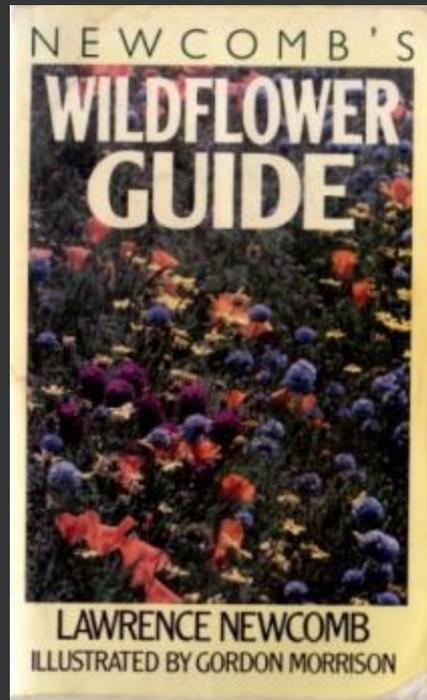
Plant Terms



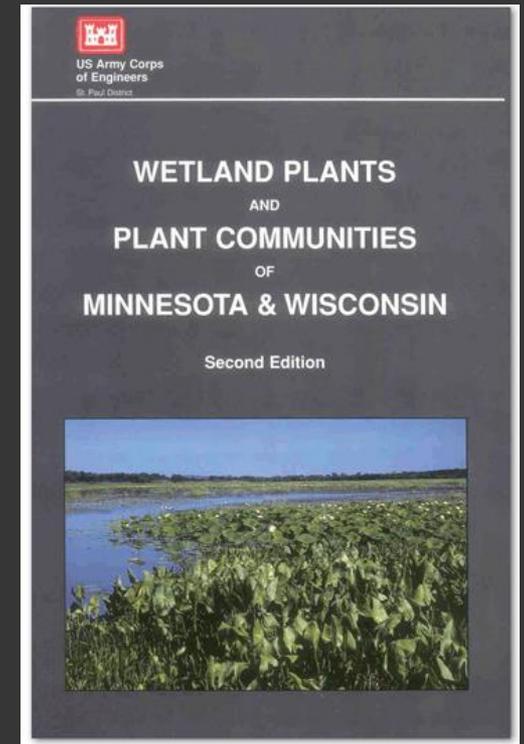
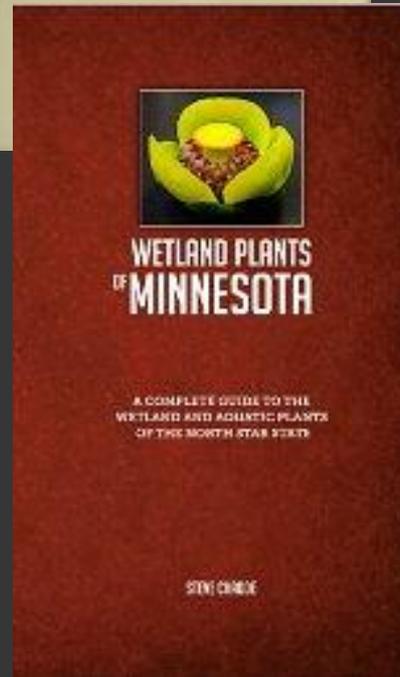
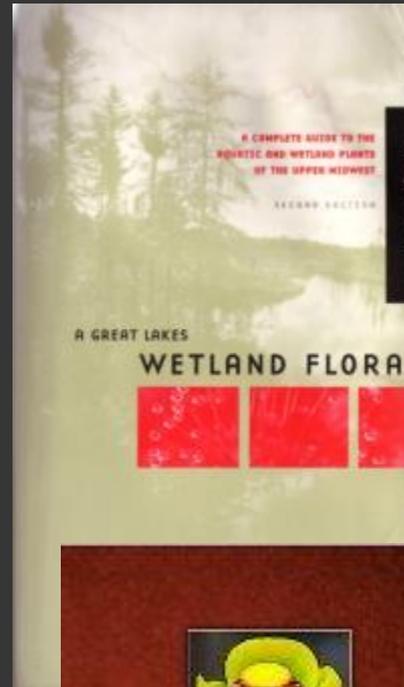
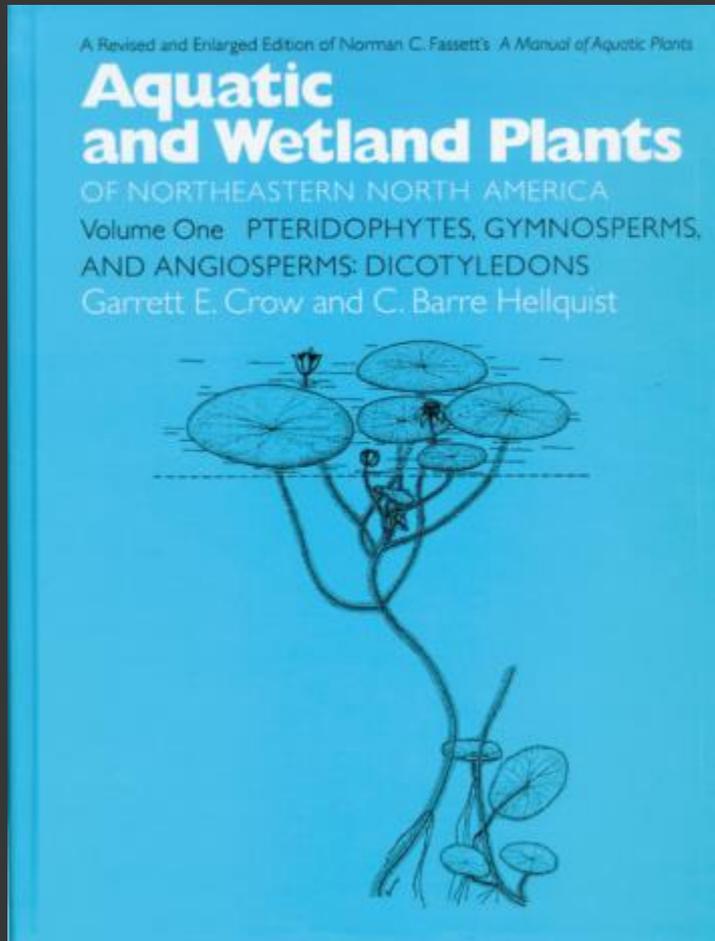
Trees and Shrubs



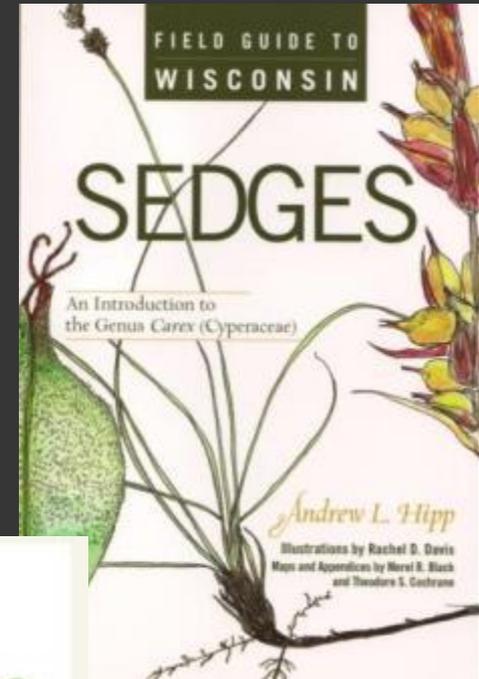
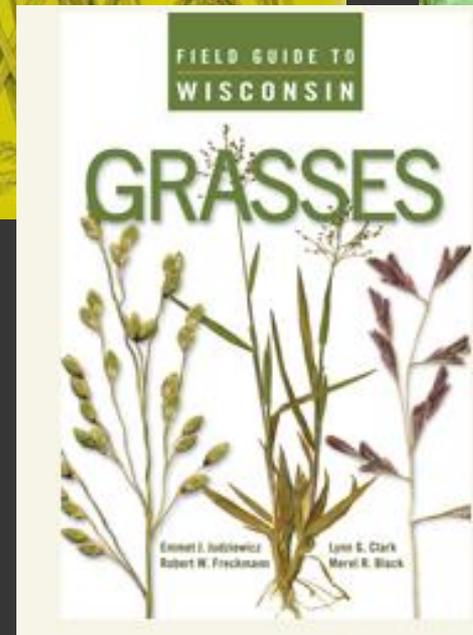
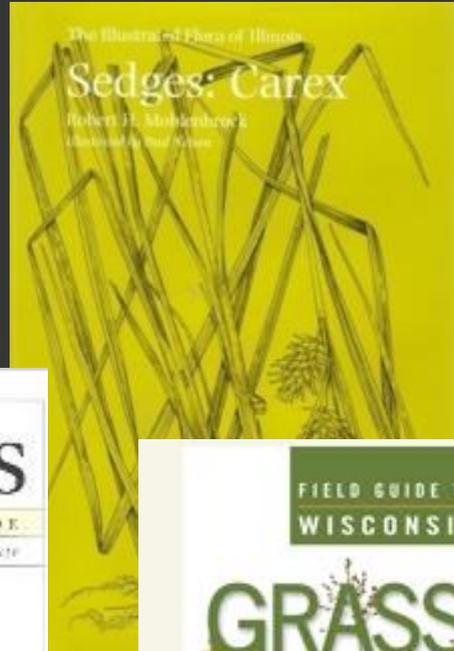
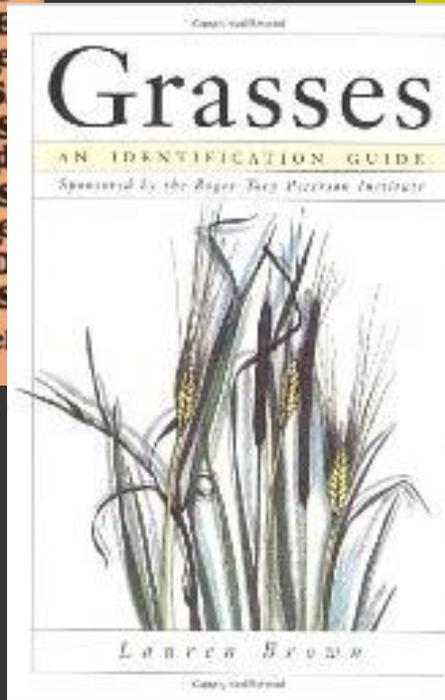
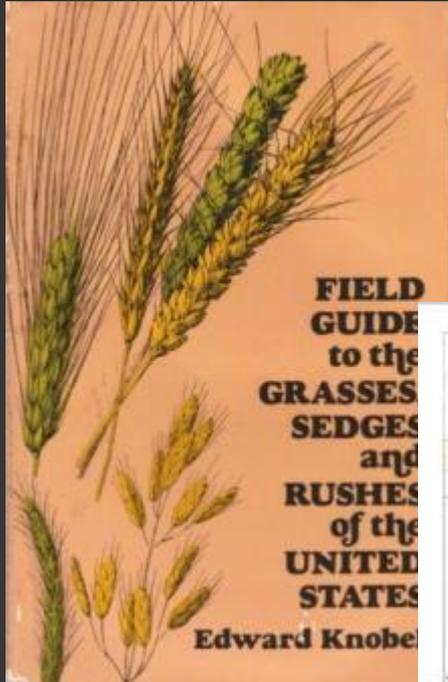
Wildflowers



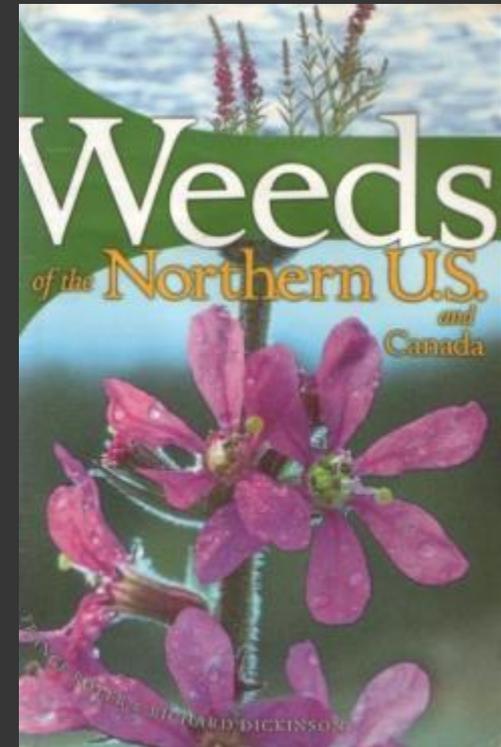
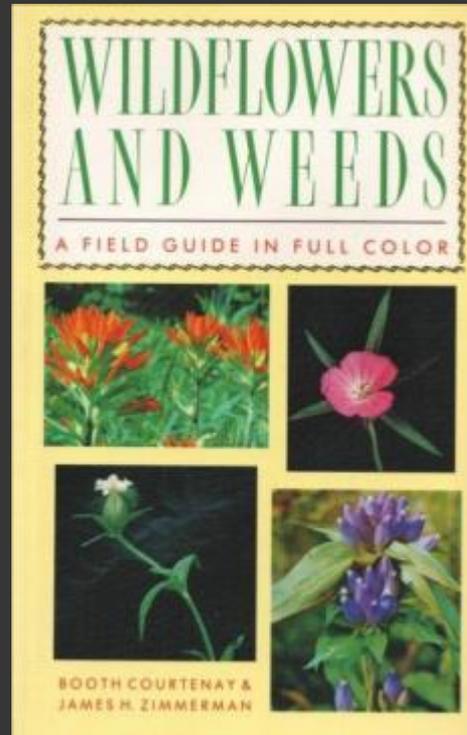
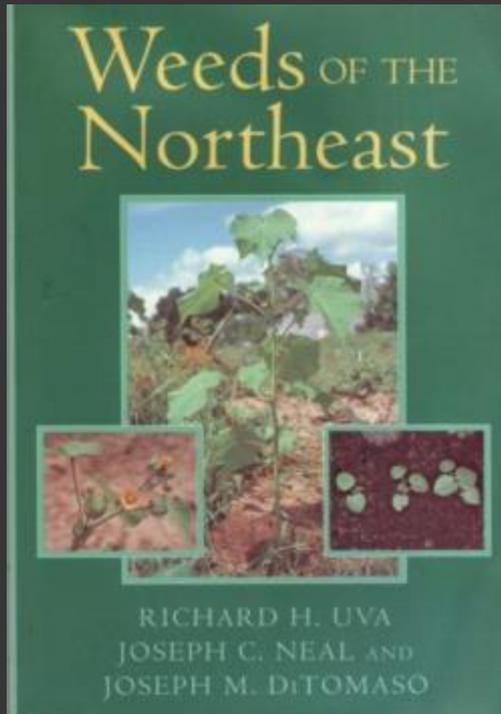
Wetland Plants



Grasses, Sedges, Rushes



Weeds



Websites

<http://www.mn.nrcs.usda.gov/programs/wrp/plantid/about.html>

Minnesota Wetland Restoration Plant ID Guide

<http://www.botany.wisc.edu/wisflora/>

Wisflora: Wisconsin vascular plant families

<http://wisplants.uwsp.edu/search.html>

Robert Freckman Herbarium -UWSP

<http://plants.usda.gov/>

USDA Plants Database

<http://www.bellmuseum.umn.edu/ResearchandTeaching/Collections/ScientificCollection/PlantCollection/InfoonMinnesotasFlora/index.htm>

Bell Museum Herbarium

<http://www.dnr.state.mn.us/npc/index.html>

MDNR – Native Plant Communities

<http://www.minnesotawildflowers.info/>

MN Wildflowers

<http://www.dnr.state.mn.us/invasives/terrestrialplants/index.html>

MDNR - Invasive Plants



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- Flowers by Color
- Trees and Shrubs
- Vines
- Ferns and Fern Allies
- Grasses, Sedges, Rushes
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Minnesota Wildflowers: A Project for Environmental Justice

Here you'll find photos and information about wild plants that grow in Minnesota, both native and non-native. More than just [wildflowers](#), we also include [trees and shrubs](#), [vines](#), [ferns and fern allies](#), and [grasses, sedges and rushes](#).



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Our mission is to educate Minnesotans on our native plants, raise awareness on threats like invasive species, and inspire people to explore our great state, appreciate its natural heritage, and become involved in preserving it.

Over 800 plant species and more than 6,000 high quality photos are cataloged here, with more added each week, working towards recording all 2100+ plant species in Minnesota.



Using this site

This site is modeled after a field guide to help identify plants found in the wild. Flowers are primarily categorized by color, but there is an [advanced plant search](#) (see also in the top right corner of every page) where you can

News & Announcements

- [Help us buy a microscope!](#)
- [Minnesota Wildflowers receives ENRTF funding](#)

Latest updates

- [Small White Water-lily](#)
- [American White Water-lily](#)
- [Freeman Maple](#)
- [Silver Maple](#)
- [Red Maple](#)

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Robert W. Freckmann Herbarium



onomy and agronomy at UW-Stevens Point for 32 years. Starting with one cabinet of about 1,000 plant specimens in 1969, he (and Dr. Frank W. Bowers) built this herbarium into the 3rd largest in Wisconsin, with over 200,000 specimens.

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[Rhexia virginica L.](#)

Virginia meadow-beauty

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Minnesota Wetland Restoration Plant ID Guide

About the Plant ID Guide

This field guide was prepared by the Minnesota Board of Water & Soil Resources through a contribution agreement with the Minnesota USDA Natural Resources Conservation Service. Our goal was to produce a plant identification guide for natural resource professionals involved in the assessment and monitoring of wetlands in Minnesota.

This guide was developed by Karli Tyma, Carol Strojny, Zack Carlton, Caitlin Kersten, Bryan Pynn, and Dan Shaw. Photographs, unless otherwise noted, were supplied by the Board of Water & Soil Resources. The guide was initiated in 2008, with additional pages added in 2009 and 2010. Additional pages will be added as time and resources permit.

Before using this guide, it is recommended that you get familiar with the structure and language used by reading the [User Guide](#). You may also view the [Cover Page](#) or if preferred, [Download the Full Guide](#).



Additional Resources

BWSR Featured Plant

Every 4-6 weeks, BWSR staff provides a detailed description of a plant species. You can access these from the [Native Vegetation page](#).

List of Plants

Jump to: [Ferns and Fern Allies](#) | [Forbs](#) | [Grasses](#) | [Sedges, Rushes, Bulrushes](#) | [Woody Plants](#)

Common Name	Scientific Name	Year Produced
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Ferns and Fern Allies

Field horsetail	<i>Equisetum arvense</i>	2010
Scouring rush	<i>Equisetum hyemale</i>	2009

Forbs

Yarrow	<i>Achillea millefolium</i>	2010
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Native Vegetation / Seed Mixes

BWSR Policy

- [BWSR Native Vegetation Establishment and Enhancement Guidelines](#) 
- [Best Value Calculator](#) (posted December 26, 2012)
- [Vegetative Management and Enhancement of Conservation Easement Lands](#)  (Dec. 17, 2008)

Seed Mixes

- [Summary of Seed Mixes](#)  (Index of names and numbers - Posted March 18, 2010)
- [State Seed Mixes](#)  (Includes mixes used by Minn. Dept. of Transportation-Posted February 10, 2011)
- [Substitution Table](#)  (List of species that may be substituted in state seed mixes - Posted March 18, 2010)

Pollinators

- [BWSR Pollinator Plan](#) *(draft for comment)*
- [Pollinator Fact Sheet](#)
- [Incorporating Pollinator Habitat into Conservation Projects](#)

Climate Change

- [BWSR Climate Change Trend and Action Report](#)
- [Strategies for Resilient Landscapes](#)

BWSR Establishment and Management Resources

- [Recommended Seeding and Planting Dates for Restoration Projects](#)  (posted October 2012)
- [Guidelines for Inter-seeding Grasslands to Restore or Enhance Native Species Diversity](#)  (posted January 26, 2012)
- [What's Working](#) - feedback from BWSR grant recipients and other conservation professionals on effective methods of establishing native vegetation for conservation projects

BWSR Featured Plant

Each month, BWSR posts a featured plant on this page. To sign up for monthly "Featured Plant" messages that include updates on current restoration and native vegetation topics go to the "BWSR Media Center" section of the [BWSR Home page](#).

Current Plant:



Virginia Mountain Mint
February 2014- State agency pollinator conservation efforts continue to make progress in Minnesota. With abundant nectar and dense clusters of flowers, Virginia Mountain Mint provides excellent habitat for

honeybees, native bees, and other pollinators.

Previous Species:

- [Wild Bergamot](#)- January 2014

http://www.bwsr.state.mn.us/native_vegetation/index.html