COASTAL PLANT IDENTIFICATION 2003 and 2005

PLANTS OF MINNESOTA'S LAKE SUPERIOR WATERSHED WETLANDS

ACKNOWLEDGEMENTS

Minnesota Board of Water & Soil Resources

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2003 COASTAL PLANT ID
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COASTAL PLANT ID IN 2003:

- 175 NEW SPECIES DISCUSSED IN 2003
- FIELD VISITS IN TWO COUNTIES THROUGH GROWING SEASON
- PHENOLOGY/TAXONOMY WEB PAGES
- POWERPOINT SESSION ON FERNS AND OTHER SPECIES
- POWERPOINT SELF TESTS
- BOOK AND CD ON COURSE MATERIALS

Coastal Plant Identification

with a focus on plants found on the wetland/upland interface in Minnesota's Lake Superior Watershed

Viola conspersa

Viola adunca

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Pictures and descriptions by
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ASH (*Fraxinus*)

March 25, 2003 Gary B. Walton

Two species of Ash (*Fraxinus*) are native to northeastern Minnesota. **Black Ash (*Fraxinus nigra*)** is a component of many types of swamps including black ash swamps, white cedar swamps, and some mixed conifer swamps. *F. nigra* can grow up to 30 meters in height especially on rich wet soils. Its growth is stunted on peaty soils. *F. nigra* will also grow in mixed deciduous forests with moist soil and areas of poor drainage such as the edges of vernal woodland pools, troughs, and intermittent streambeds. The wetland rating of *F. nigra* is FACW+.

Green Ash (*F. pennsylvanica*) is more commonly found in floodplain forests, also in moist forests and as an escape in weedy urban areas. The wetland rating of *F. pennsylvanica* is FACW. While similar in appearance to *F. nigra* it can be readily distinguished by the following characteristics:

1) Buds: In *F. nigra* the buds are darkened.
2) Leaflets: *F. pennsylvanica* has stalked leaflets.
3) Fruit (samaras): The winged fruit of the Ashes are distinct by species. In *F. nigra* the wing extends down the length of the fruit, while *F. pennsylvanica* has a wing that extends only half way down.

Left: *F. nigra* twig with terminal bud.
Right: *F. pennsylvanica* twig with terminal bud.

VIBURNUM FAMILY (Caprifoliaceae)

March 31, 2003 Gary B. Walton

Key to the genera of the Caprifoliaceae

1a. Trailing woody plants with evergreen leaves: *Linnaea borealis*
1b. Trees, shrubs or vines, deciduous leaves: 2
  2a. Scales of terminal bud more or less persistent: *Viburnum*
  2b. Scales of terminal bud not persistent: 3
    3a. Twigs terete with two to four decurrent ridges from the nodes: *Diervilla lonicera*
    3b. Twigs not terete: 4
      4a. Twigs thick (3 to 5 mm), six, eight, or ten sided, pith large (50% or more of interior), continuous, greenish white: *Sambucus*
      4b. Twigs slender, round, pith moderate, brown or white: *Lonicera*

Species Descriptions of the Arrow-Woods (*Viburnum*)

Viburnum is a genus of shrubs to small trees occurring in the understories of forests. The fruit may be red or some shade of blue, and sour, sweet, bitter, or bland depending on the species. Five-petaled white flowers are borne in cymes at the ends of branches. Some species' flowers smell very sweet while others are attractive only to flies. Leaves are maple-like or oblong to elliptic. The margins may be entire or serrate. Four species are regularly seen in northeastern Minnesota.

Sheepberry (*V. lentago*) is large shrub to small tree (10 meters) with ovate to oblong leaves. The terminal bud scales are extremely pronounced in this species. The fruit is a purple ellipsoidal drupe. Found in moist woods, roadsides, and wood edges where it forms thickets. Wetland rating of *V. lentago* is FAC+.

Left: Terminal bud of *V. lentago* with persistent scales. (Photo enlarged)
Right: Lateral buds of *V. lentago*. (Photo enlarged)

WHAT'S DEVELOPING- VIOLETS (*Viola*)

Week of June 2, 2003 Gary B. Walton

Several species of violets (*Viola*) have come into bloom in the last ten days. Most are common species that frequently form significant patches in the ground layer vegetation. Below are photos of the flowers of some of the more common *Viola* species with brief diagnostic descriptions.

Viola blanda

Viola macloskeyi* ssp. *pallens

Viola blanda (FACW-) and *V. macloskeyi* (no rating, however, *V. macloskeyi* ssp. *pallens* is OBL) are two similar species of white-flowered violets. Both species are members of the acaulescent or stemless violets although technically the slender creeping rhizomes that give rise to the leaves and flowers are stems in a horizontal orientation. *V. blanda* and *V. macloskeyi* can be told apart when in bloom by the distinctive characteristics of the lateral petals and vein color of the spur petal.

1) Lateral petals - *V. blanda* has forward pointing twisted lateral petals. *V. macloskeyi* lateral petals are at most only slightly recurved and not twisted.

2) Vein color of spur petal - Brown-purple in both species but *V. blanda* tends towards more purple coloration.

V. macloskeyi occurs in wet habitats such as along the margins of swamps and woodland pools. The subspecies *V. macloskeyi* ssp. *pallens* is listed as an "OBL" wetland species. It differs from the typical species by the lack of or at most the presence of a few, hairs on the inside of the lateral petals.

V. blanda prefers moist habitats but is not confined to soils as wet as those near swamps. It frequently grows under evergreen trees such as balsam fir (*Abies balsamea*) and white spruce (*Picea glauca*). Another white-flowered violet species is *V. renifolia* an inhabitant of conifer swamps. Its leaves are strongly reniform (kidney-shaped) and its rhizomes are thick and scaly unlike the previous two species.

Sandbar Willow (*Salix exigua*, OBL) is a species often found near water on sandbars, mudflats, and riverbanks. It is a multi-stemmed colonial shrub from 1 to 5 meters. The leaves of *S. exigua* are linear, 5-14 cm by 5-12 cm, often acute at both ends with a very short petiole. The leaf margins are toothed with irregularly spaced spinulose teeth. The underside of the leaf is a paler green than the upper side. The young twigs of *S. exigua* are very slender and brown to reddish-brown to red. Many willows flower in April and May before or as their leaves emerge but *S. exigua* flowers in late June when in full leaf.

Meadow Willow (*Salix petiolaris*, syn. *S. gracilis*, FACW+) resembles *S. exigua* but is distinguished by its longer petiole (5-15 mm) and subentire to glandular serrate leaf margins and leaves 4-10 cm long by 0.8-3 cm. Young leaves are densely sericious but soon become glabrous. Very rarely the pubescence will persist. *S. petiolaris* is a clumping shrub or sometimes a small tree from 1 to 7 meters found in meadows, shrub carr, along streams, lakes, and in wet roadside ditches. The middle photo shows the upper surface of *S. petiolaris*, the right the lower surface and the glandular-serrate leaf margins. Both leaves came from the same branch. *S. petiolaris* flowers in the early spring.

Rattlesnake Manna Grass (*Glyceria canadensis*)

Wetland Rating: OBL

Habit: Culms solitary or in small tufts, erect to 1 meter. Leaves 2 to 5 mm wide.

Panicle: Lax and diffuse with strongly drooping branches. Spikelets mostly toward branch tips.

Spikelets: Broadly ovate.

Glumes: Scarious margined. First glume lanceolate, 1.6 to 2.4 mm, the second broadly ovate, 4 to 8 mm.

Lemma: Broadly ovate with obvious but not raised veins.

Habitat: Swamps, bogs, wet woods. Often in scattered patches.

WHAT'S DEVELOPING- JOE-PYE-WEED (*Eupatorium*)

August 29, 2003 Gary B. Walton

Two species of *Eupatorium* are very common in our area: *E. maculatum* and *E. perfoliatum*. Two other species, *E. purpurea* and *E. rugosum*, are less common. Forms of Joe-Pye-Weed (*E. maculatum*) are sometimes cultivated as an ornamental. All species produce abundant flowers that are visited by many nectar-feeding insects. The *Eupatorium* are reputed to be of medicinal value. However, Boneset (*E. perfoliatum*) is of no use in healing broken bones as it contains compounds that actually deplete the body of calcium and White Snakeroot (*E. rugosum*, no rating and found in upland forests) is decidedly poisonous.

Above: Joe-Pye-Weed (*Eupatorium maculatum*) flowers (left) and whorled leaves (right)

Joe-Pye-Weed (*Eupatorium maculatum*)

Wetland Rating: OBL

Description: This tall (from 0.5 to 2 meters) native perennial is easily recognized by its large terminal clusters of branched clusters of purplish (rarely white) flower heads. Unlike the next species, Boneset (*E. perfoliatum*), the leaves of *E. maculatum* are borne in whorls of 4 or 5 from each node along the stem. In addition, the stem is short hairy and purplish or spotted. Often abundant in sedge marshes, beaver meadows, ditches, and along streams. The similar Spotted-Node Joe-Pye-Weed (*E. purpurea*, FAC) has purple nodes on otherwise glabrous often glaucous stems.

SPLIT ROCK JUNE 27, 2003

SPECIES	1996 INDICATOR
FERNS AND FERN ALLIES	
Equisetum arvense	FAC
E. sylvaticum	FACW
Thelypteris phegopteris	NI
Gymnocarpium dryopteris	FAC
Athyrium felix-femina	FAC
Dryopteris carthusiana	FACW-
Osmunda claytoniana	FAC+
CONIFERS	
Abies balsamea	FACW
Picea glauca	FACU
ROSE FAMILY	
Amelanchier stolonifera	FACU
A. sanguinea	(no rating)
Potentilla norvegica	FAC
P. tridentata	(no rating)
Rosa acicularis	FACU
Rubus parviflorus	FACU+
R. strigosus	FACW-
Sorbus americana	FAC+
S. decora	UPL
MAPLE FAMILY	
Acer spicatum	FACU-
BIRCH FAMILY	
Alnus viridis ssp. *crispa*	FAC
Alnus rugosa	OBL
Corylus cornuta	UPL
Betula papyrifera	FACU+
HONEYSUCKLE FAMILY	
Diervilla lonicera	(no rating)
LOUSEWORT FAMILY	
Euphrasia officinalis	(no rating)
Melampyrum lineare	FAC-
DOGWOOD FAMILY	
Cornus sericea	FACW
C. canadensis	FAC
SUNFLOWER FAMILY	
Aster macrophyllus	NI
Achillea millefolium	FACU
BUTTERCUP FAMILY	
Ranunculus acris	FACW-
Caltha palustris	OBL

SPECIES	1996 INDICATOR
GINSENG FAMILY	
Aralia nudicaulis	FACU
FUMATORY FAMILY	
Corydalis sempervirens	(no rating)
BORAGE FAMILY	
Mertensia paniculata	FAC
CARROT FAMILY	
Heracleum maximum	FACW
WILLOW FAMILY	
Populus tremuloides	NI (*P. tremula* is FAC)
P. balsamifera	FACW
Salix humilis	FACU
S. bebbiana	FACW
S. petiolaris	FACW+
GOOSEBERRY FAMILY	
Ribes lacustre	FACW
R. hirtellum	FACW
R. oxycanthoides	(no rating)
LILY FAMILY	
Maianthemum canadense	FAC
Streptopus roseus	FAC
Clintonia borealis	FAC+
ORCHID FAMILY	
Corallorhiza trifida	FACW-
GRASS FAMILY	
Calamagrostis canadensis	OBL
Poa sp.	------
SEDGE FAMILY	
Carex disperma	OBL
C. trisperma	OBL
C. crinata	FACW+
C. aurea	FACW+
C. arctata	(no rating)
C. interior	OBL
C. tenera	FAC+
SOFT RUSH FAMILY	
Juncus bufonius	FACW+
J. effusis	OBL
J. tenuis	FAC

Page from PowerPoint plant identification test.

gbw 2005

2005 COASTAL PLANT ID

Juncus vaseyi seeds. Arrows point to appendages.

gbw 2005

COASTAL PLANT ID IN 2005:

- 236 NEW SPECIES DISCUSSED IN 2005
- AND MANY FROM 2003 REVIEWED
- FIELD VISITS IN FOUR COUNTIES THROUGH GROWING SEASON
- SEPARATE PHENOLOGY AND TAXONOMY WEB PAGES
- POWERPOINT SESSION ON USE OF ELC
- POWERPOINT SESSION ON FEN SPECIES
- SELF TESTS IN THE FIELD
- BOOK AND CD ON COURSE MATERIALS

A total of 236 species were discussed, many in great detail, in 2005.

In addition, a number of species covered in 2003 were discussed in 2005 with extra information on habitat and taxonomy.

As in the previous Coastal Plant course dichotomous keys were presented in 2005 for many of the new families and genera discussed.

PARTIAL LIST OF THE NEW TAXA COVERED IN 2005

Ribes – 8 species
Scirpus – 8 species
Carex – 22 species
Eriophorum – 3 species
Juncus – 9 species
Lathyrus – 4 species
Galium – 4 species
Potentilla – 4 species
Agrimomia – 3 species

Huperzia – 2 species
Lycopodium – 6 species
Diphasiastrum – 2 species
Lycopus – 3 species
Stachys – 3 species
Scutellaria – 2 species
Salix – 5 species
Solidago – 4 species
Aster – 10 species

KEY TO THE GENUS *PETASITES* (COLTSFOOT, FAMILY ASTERACEAE)

April 27, 2005

Gary B. Walton

There are three species of *Petasites* in our region. Although differences can be detected in the flowers that are useful in separating the species these differences require some magnification. Leaf shapes are more useful. Pictured at the left are the flowering heads of *Petasites palmatus* (northern sweet coltsfoot, FACW), a species commonly found in moist woods and along upland-wetland edges. The other two species in our region are *P. sagittatus* (arrowhead coltsfoot, OBL) and *P.* X *vitifolius* a natural hybrid of *P. palmatus* and *P. sagittatus*. *P. sagittatus* is listed as a "Threatened" species in Wisconsin.

Leaf key to native *Petasites*

1A. Leaves cordate to sagittate with scalloped margins to dentate to nearly entire, densely tomentose below: *P. sagittatus*

1B. Leaves lobed, cleft ¼ to more than ½ into the leaf blade: 2

2A. Leaves somewhat rounded in outline with very deep sinuses often more than half the width of the leaf blade: *P. palmatus*

2B. Leaves somewhat triangular to somewhat rounded in outline, sinuses shallow to deep: *P.* X *vitifolius*

Petasites palmatus (L.) Fries. (Northern Sweet Coltsfoot)

Above: *Petasites palmatus* in *Sphagnum* mat of rich conifer swamp.

Petasites palmatus is also an herbaceous colonial perennial from long rhizomes. It occurs in wet meadows, moist woods and forested wetlands on hummocks and similar better drained locations. The wetland rating of *P. palmatus* is FACW. The palmate leaves are distinctive to this species of *Petasites*. The leaves measure up to 40 cm across but are usually smaller, are loosely white tomentose below and glabrous above. This species is very common in northern Minnesota and Wisconsin.

As in *P. sagittatus* plants may be either staminate or pistillate and are insect pollinated.

KEY TO THE GENUS *RIBES* (CURRANTS AND GOOSEBERRIES, FAMILY GROSSULARIACEAE) PART 1

May 8, 2005 Gary B. Walton

Ribes, the gooseberries and currants is a large genus of shrubby plants containing some 150 species found across the temperate northern hemisphere. Flowers may be either tubular or saucer-shaped. Some species have very showy flowers. The fruit is a many-seeded berry that may green, red, or black. All our species are edible but the appreciation of many is an acquired taste. At least two Eurasian species are cultivated here (*Ribes nigrum* and *R. sativum*) for their edible fruit. *R. nigrum* is often found around old farmsteads.

1A) Flowers single or in small clusters of 2 to 4 and plants at least somewhat prickly to very prickly: 2
1B) Flowers in racemes, plants smooth or prickly: 4

2A) Ovary bristly (fruit also bristly), fruit green: *R. cynobasti*
2B) Ovary not bristly but glabrous or with gland-tipped hairs or bristles: 3

3A) Stamens (2.5 to 5 mm long) shorter than the sepals but equal to the petals, hypanthium glabrous, fruit black, smooth to glandular-setose to bristly, stems very spiny, leaves with glands and hairs at least along veins below: *R. oxyacanthoides*
3B) Stamens (2.5 to 5 mm long) about equal to the sepals, 1 to 2 times longer than the petals, hypanthium villous, fruit smooth and green, stems with few or no spines, leaves without glands: *R. hirtellum*

4A) Plants with bristles and very prickly, petioles glandular and hairy, ovary with glandular bristles, fruit purple to black: *R. lacustre*
4B) Plants smooth, never with bristles, thorns, or prickles, ovary smooth or with glandular bristles or resin glands: 5

5A) Flowers bright yellow, fragrant, the floral tube 9 to 15 mm long, erect shrub often in cultivation, fruit blackish: *R. odoratum*
5B) Flowers varying from white to greenish to purple, floral tube less than 4.5 mm long, leaf blades over 3.5 cm long, margins with many teeth, sprawling, straggling or erect plants: 6

6B) Leaves without resin glands, may have stalked glands on lower leaf surfaces, fruit red, plants sprawling to straggling: 7
6A) Leaves with small, sunken, yellow resin glands: 8

7A) Ovary and fruit smooth, leaves odorless when crushed: *R. triste*
7B) Ovary and fruit with gland-tipped hairs or bristles: *R. glandulodum*

8A) Bracts of inflorescence longer than pedicles, flowers yellow to cream, fruit smooth, black, without resin glands: *R. americanum*
8B) Bracts of inflorescence shorter than pedicles flowers white, greenish-white or purple, fruit black, with resin glands: 9

9A) Flowers white, flowers and fruit in ascending racemes: *R. hudsonianum*
9B) Flowers greenish-white to purple, flowers and fruit in more or less drooping Racemes: *R. nigrum*

Ribes oxyacanthoides L. (Northern Gooseberry)

Above left: Flower and leaves of *Ribes oxyacanthoides*.
Above right: Leaves, bristles, and thorns of *Ribes oxyacanthoides*.

Like most of our native gooseberries *Ribes oxyacanthoides* is a small shrub with stiff upright stems. *R. oxyacanthoides* normally grows in upland habitats usually rocky sites in openings in moist woods, on rock outcrops along Lake Superior and scattered in the pine forests on Minnesota Point and Wisconsin Point. *R. oxyacanthoides* is listed as a "Threatened" species in Wisconsin. The wetland for *R. oxyacanthoides* rating is NI.

The stems of *R. oxyacanthoides* are both prickly and spiny at the nodes (usually 3 spines around 5 mm sometimes longer). The flowers of *R. oxyacanthoides* are borne is small clusters of 1 to 4 on 2 to 6 mm long pedicles with finely glandular-ciliate bracts. The 2 to 4 mm sepals are oblong and blunt, the petals obovate, 2 to 3 mm and equal to or slightly smaller than the stamens. The glabrous ovary produces a greenish-purple fruit that may have a few short hairs or bristles.

Leaves of *R. oxyacanthoides* are glandular and hairy leaves on the lower side (visible at 10X and higher and shown above), 1.5 to 3 mm by 2 to 3.5 mm, broadly cuneate to truncate at the base.

Diphasiastrum digitatum (Dillenius ex A. Braun) Holub

Diphasiastrum digitatum was at one time considered a variety of *D. complanatum* (obsolete syn. *Lycopodium complanatum*) known as variety *flabelliforme*. However, significant morphological differences separate *D. digitatum* from *D. complanatum* and the two are now regarded as separate species. *D. digitatum* occurs in both coniferous and deciduous forests and also in open areas. No wetland rating is available for this species.

Both *D. digitatum* from *D. complanatum* have upright stems that grow from long horizontal stems at the soil surface or just beneath the duff layer. In *D. digitatum* branchlets are consistently fan-shape and without obvious annual bud constrictions. The peduncles of *D. digitatum* fork suddenly from the base and give the impression of being whorled ("pseudo-whorl"). The strobili, which measure 20 to 35 mm long, have a sterile tip. The upright stems of *D. digitatum* bear branches that are consistently fan-shape. Branching is regular and sequential up to three times. The 2 to 4 mm wide branches are flat with dull or pale green below and shiny green above. Leaves are 4-ranked and appressed. The top leaves are linear-lanceolate with barely 1 mm of the tip free. The free portions of the lateral leaves are a bit longer at 2 to 3 mm. leaves on the underside are also appressed, pointed at the tip, and poorly developed.

Above: colony of *Diphasiastrum digitatum*

Aster ciliolatus Lindley (northern heart-leaved or fringed aster)

Above left: Flowers of *Aster ciliolatus*.
Below left: Winged petiole of *Aster cililoatus* showing fringe of hairs.

Aster ciliolatus a rhizomatous perennial to 1 meter found in mesic forests, clearings, and fields. It has no wetland rating.

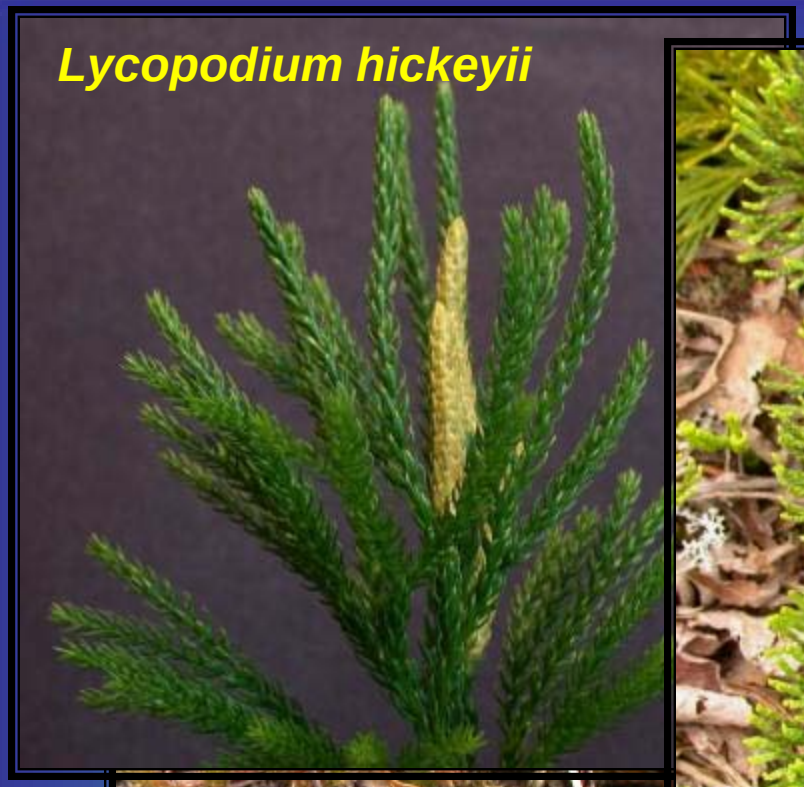
A. ciliolatus is easily differentiated from other blue flowered aster species by its cordate basal and cauline leaves with broadly winged petioles. The wings of the petiole are fringed in a single line along their margins. Also, the petiole is fringed below in a single line by short hairs. *A. macrophyllus* has petioles that are also hairy and may be winged in the inflorescence. However, all surfaces of the petiole are pubescent in *A. macrophyllus*.

The leaf blades of *A. ciliolatus* are sagittate or ovate to cuneate with coarsely serrate margins and hirsute below.

The inflorescence of *A. ciliolatus* is a terminal panicle of hirsute to hirsute-puberulent branches with numerous (around 50 but sometimes more) blue-rayed flower heads. The ray flowers (8 to 15 mm long) number around 12 to 25 per flower head. The involucres are somewhat imbricate, acuminate to acute, glabrous but sometimes with ciliate margins and end in a narrow green tip.

Some similar species are *A. cordifolius* (distinctly heart-shaped basal leaves), *A. sagittifolius* (ascending branches of small white flowers, syn. *A. urophyllus*), *A. laevis* (glabrous, narrow cauline leaves, azure flowers), and *A. oolentangiensis* (scabrous, narrow cauline leaves, azure flowers).


SOME OF THE NEW SPECIES DISCUSSED IN 2005
Osmunda regalis
gbw 2005


Lycopodium hickeyii


Diphasiastrum tristachyum


Selaginella rupestris


Huperzia lucidula
gbw 2005

Thalictrum dioicum

Thalictrum dasycarpum


Carex conoidea


Carex pallescens


Carex castenea

Field sessions included self-guided tests with numbered living specimens. Answer keys were posted on the internet.

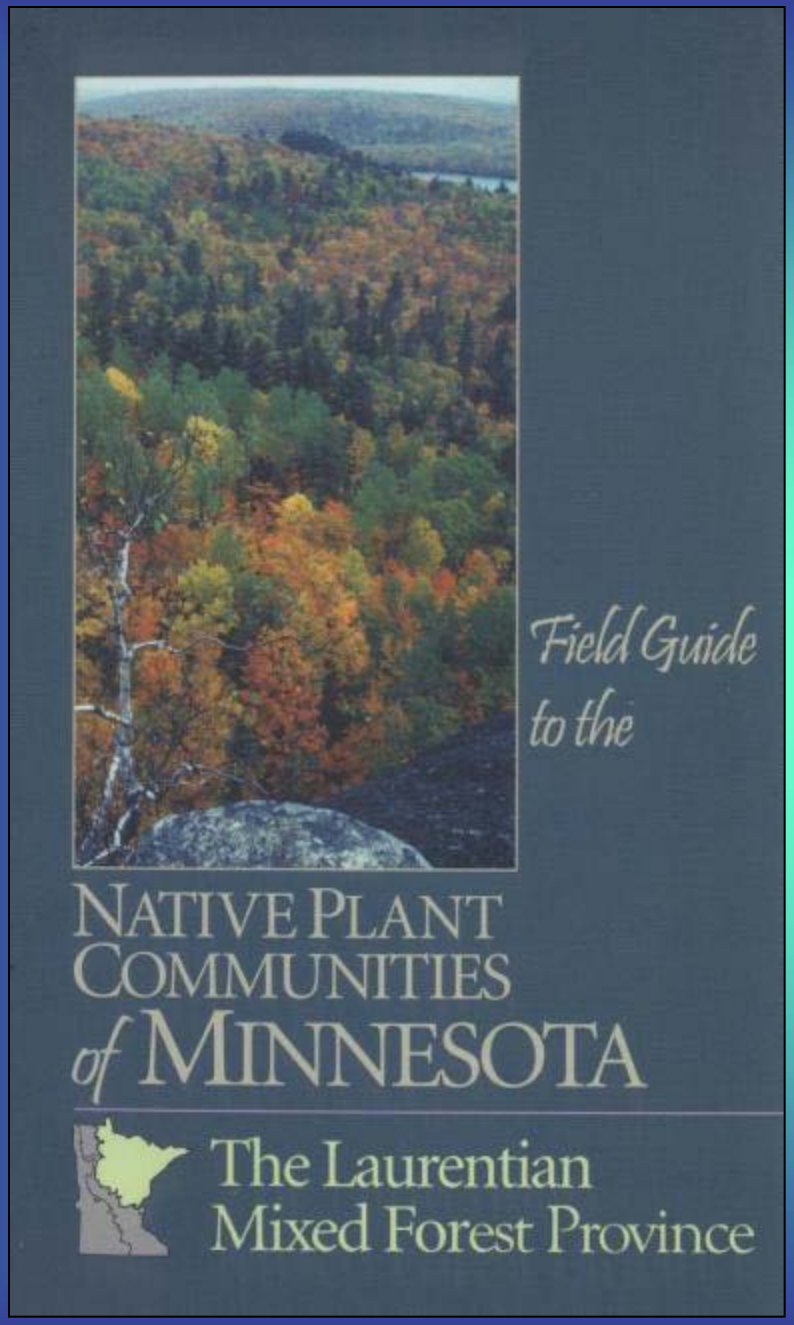
A variety of upland and wetland habitats were selected for the tests in Cook, Lake, St. Louis, and Carlton counties.

gbw 2005

Answers: Munger Trail Duluth **September 9, 2005**

0	*Aster*	*ericoides*
1	*Agrostis*	*gigantea*
2	*Equisetum*	*fluviatile*
3	*Salix*	*eriocephala* complex
4	*Typha*	*latifolia*
5	*Helianthus*	*maximilliani*
6	*Aspargaus*	*officinalis*
7	*Solidago*	*gigantea*
8	*Cornus*	*stolonifera*
9	*Calamagrostis*	*stricta*
10	*Zizia*	*aurea*
11	*Scirpus*	*atrovirens* (robust plants)
12	*Carex*	*vulpinoidea*
13	*Carex*	*hystericina*
14	*Lotus*	*corniculatus*
15	*Phalaris*	*arundinacea*
16	*Scirpus*	*validus*
17	*Juncus*	*balticus*
18	*Soldago*	*canadensis*
19	*Conyza*	*canadensis*
20	*Linaria*	*vulgaris*
21	*Equisetum*	*arvense*
22	*Muhlenbergia*	sp. (genus only)
23	*Salix*	*bebbiana*
24	*Pinus*	*strobus*
25	*Alnus*	*rugosa*
26	*Populus*	*tremuloides*
27	*Phleum*	*pratense*
28	*Lonicera*	*tatarica*
29	*Rhamnus*	*cathartica*
30	*Fraxinus*	*pennsylvanica*
31	*Trifolium*	*pratense*
32	*Trifolium*	*hybridum*
33	*Rubus*	*strigosus*
34	*Salix*	*petiolaris*
35	*Tanacetum*	*vulgare*
36	*Betula*	*papyrifera*
37	*Calamagrostis*	*canadensis*
38	*Picea*	*glauca*
39	*Typha*	*angustifolia*
40	*Andropogon*	*gerardii*
41	*Euthamia*	*graminifolia*
42	*Salix*	*exigua*
43	*Cirsium*	*arvense*
44	*Cirsium*	*vulgare*
45	*Aster*	*lanceolatus* complex
46	*Panicum*	*virgatum*
47	*Aster*	*lateriflorus*
48	*Thalictrum*	*dioicum*
49	*Aster*	*ciliolatus*
50	*Populus*	*balsamifera*
51	*Bromus*	*inermis*
52	*Agropyron*	*repens*
53	*Ascelpias*	*syriaca*
54	*Scirpus*	*atrovirens*
55	*Dactylus*	*glomerata*
56	*Helianthus*	*giganteus*
57	*Pastinica*	*sativa*
58	*Salix*	*eriocephala* complex
59	*Crataegus*	sp. (genus ony)
60	*Campanula*	*uliginosa*
61	*Chelone*	*glabra*
62	*Anemone*	*canadense*
63	*Salix*	*discolor*
64	*Aster*	*umbellatus*
65	*Cornus*	*rugosa*
66	*Salix*	*fragilis*
67	*Rhus*	*typhina*
68	*Lythrum*	*salicare*
69	*Acer*	*negundo*
70	*Melliotus*	*officinalis*
71	*Meliotus*	*alba*
72	*Centaurea*	*biebersteinii*
73	*Artemisia*	*absinthe*
74	*Echinochloa*	*crus-galli*


NATIVE PLANT COMMUNITIES
gbw 2005



Field Guide to the Native Plant Communities of Minnesota- The Laurentian Mixed Forest Province

DETERMINING PLANT COMMUNITY TYPES- #2

June 8, 2005 Gary B. Walton

The following species lists are from actual sites in northern Minnesota. They are normal native plant communities. The first is on the shore of Lake Superior and the next two are a few miles inland. All are located in the Laurentian Mixed Forest, the Northern Superior Uplands ecological section in Cook County.

Using the Native Plant Communities (NPC) of Minnesota Field Guide determine the native plant community indicated by the species checklists and information about land and hydrology. One in particular will not key out correctly if you ignore the substrate (you'll find yourself in a western county). Use the 50% rule to determine if these are hydrophytic communities. If any are hydrophytic communities then determine the wetland types using the keys and descriptions in Cowardin, Circular 39, and Eggers.

Site #1

Ecological Province: Laurentian Mixed Forest
Ecological Section: Northern Superior Uplands
Subsection: North Shore Highlands
Soils: Scarce, where present is composed largely of decomposed plant materials in crevices of bedrock or a mixture of gritty sand and living moss.
Landscape: Rock outcrop. Very little plant cover most of which is confined to the edges of shallow pools and rock crevices.
Field characteristics: Rock out crop of amygdaloidal basalt, some calcite veins. Water from precipitation, waves, and from small trickles that seep out from rock fractures and from between forest soil and rock interface somewhat further back from lake.

Species Checklist for Site #1

Agrostis scabra
Calamagrostis lacustris
Scirpus cespitosus
Potentilla fruticosa
Physocarpus opulifolius
Pinguicula vulgaris
Drosera rotundifolia
Lobelia kalmii
Primula mistassinica
Euphrasia hudsoniana
Solidago ptarmicoides
Xanthoria (a lichen)

Native Plant Communities Problems

The following species lists are from actual sites in northern Minnesota. They are normal native plant communities. Both are located in the Laurentian Mixed Forest, the Northern Superior Uplands ecological section in Cook County.

Using the Native Plant Communities (NPC) of Minnesota Field Guide determine the native plant community indicated by the species checklists and information about land and hydrology.

Site #1
Mature black spruce.
Glyceria striata, Menyanthes trifoliata, Carex trisperma, C. disperma, C. echinita, Pyrola secunda, P. asarifolia, Ledum groenlandica, Gaultheria hispidula, Vaccinium oxycoccus, Carex pauciflora, Listera cordata, Drosera rotundifolia, Betula glandulifera, Salix pedicellaris, Clintonia borealis, Linnaea borealis, Platanthera hyperborea, Smilacina trifolia, Chamaedaphne calyculata, Pyrola minor.

Site # 2
Mixed stand of black spruce, balsam fir, tamarack, and a few small jack pine.
Cornus canadense, Agrostis hyemalis, Rubus pubescens, Solidago uliginosa, Stellaria longifolia, Calamagrostis canadensis, Lycopus americana, Viola cucullata, Aster umbellatus, Glyceria striata, Smilacina trifoliata, Clintonia borealis, Rubus strigosus, Carex paupercula, Petasites frigidus var. *palmatus, Epilobium angustifolium, Salix pyrifolia, Athyrium angustum, Dryopteris carthusiana, Pyrola minor.*

The bog on the left contains *Vaccinium oxycoccus*, *Sphagnum* spp., *Andromeda glaucophylla*, *Kalmia polifolia*, *Smilacina trifolia, Carex pauciflora*, *Eriphorum vaginatum*, *Ledum groenlandicum*, *Chamaedaphne calyculata*, and *Drosera rotundifolia.*

The bog on the right contains *Vaccinium oxycoccus, Ledum groenlandicum*, *Gaultheria hispidula*, *Lycopodium annotinum*, *Sphagnum* spp, *Pleurozium* moss, *Smilacina trifolia*, *Carex trisperma*, *Listera cordata*, and *Monotropa uniflora*

The conclusion is to go to Key NSU- B4 on page 27

Left Bog
a + a' = 2, go to c

c + c' = 0 and only bog species are present (see App. D)

Conclusion: APn90 or Northern Open Bog (pg 225)

Subtype: APn90a, Low Shrub Bog

Right Bog
a + a' = -16, go to b

b + b' = 0 but *Lycopodium annotinum* is not a bog species and trees > 10 m.

Conclusion: APn80 or Northern Spruce Bog (pg 219)

Subtype: APn80a1, Treed Black Spruce Bog