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SECTION 3
WOODED SWAMPS

VI. Wooded Swamps

Wooded swamps are forested wetlands dominated by mature conifers and/or lowland hardwoods. They are usually associated with ancient lake basins and retired riverine oxbows. Wooded swamps include the northern wet-mesic forest and the southern wet and wet-mesic forest associations described by Curtis (1971).

Wooded swamps provide a multitude of important functions. Multiple strata (e.g., tree, sapling, shrub, vine, herbaceous) provide a high diversity of habitats for a wide range of wildlife species including white-tailed deer, furbearers, songbirds, ruffed grouse, barred owl and amphibians. The flora is also diverse and reflects the water regime, soil/water chemistry and microtopography present. Habitat for threatened or endangered species is provided by some wooded swamps. Water quality and floodwater storage functions are provided as well. Large, relatively intact wooded swamps still remain in northern Minnesota and Wisconsin. They exist within complexes of other wetland types and forested uplands that provide these functions on a watershed scale.

The wooded swamps of Minnesota and Wisconsin are divided into two types depending on whether the dominant trees are conifers or hardwoods.

VI.A. Hardwood Swamps

Hardwood swamps are dominated by deciduous hardwood trees with soils that are saturated during much of the growing season, and may be temporarily inundated by as much as a foot of standing water (Shaw and Fredine 1971). Hummocky microtopography is a frequent trait. Dominant trees include black ash, red maple, yellow birch, balsam poplar, quaking aspen and, south of the vegetation tension zone, silver maple. Northern white cedar can be a sub-dominant species in stands within and north of the vegetation tension zone. American elm is still an important component of this community, although its numbers have been drastically reduced by Dutch elm disease. Soils are often peats or mucks, but can include hydric mineral soils. Vernal pools often occur in wooded swamps. The key for this Third Edition was revised to include a “vernal pool subtype” of hardwood swamps. These consist of depressions within upland forests that are ponded early in the growing season, and then dry down for the majority of the growing season. The herb layer may be sparse to absent given the alternating periods of ponding and drawdown.

The shrub layer of hardwood swamps is often composed of shrub-sized individuals of the dominant tree species, as well as the dogwoods, willows, viburnums and alder species of shrub swamps. Groundlayer species include some of the ferns, sedges, grasses and forbs of sedge meadows and fresh (wet) meadows. Refer to the species listed under those communities.

HARDWOOD SWAMPS



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VEGETATION: This hardwood swamp is dominated by black ash (*Fraxinus nigra*). Scattered tree size yellow birch (*Betula alleghaniensis*) and red maple (*Acer rubrum*) are present. The shrub layer is sparse and consists of the aforementioned tree species as well as speckled alder (*Alnus incana* ssp. *rugosa*) and American black currant (*Ribes americanum*). Groundlayer species include common hop sedge (*Carex lupulina*), Tuckerman's sedge (*Carex tuckermanii*), stalk-grain sedge (*Carex stipata*), lake sedge (*Carex lacustris*), wood reed (*Cinna arundinacea*), fowl manna grass (*Glyceria striata*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), jack-in-the-pulpit (*Arisaema triphyllum*), giant goldenrod (*Solidago gigantea*), redstem aster (*Symphotrichum puniceum*), water parsnip (*Sium suave*), bristly buttercup (*Ranunculus pensylvanicus*) and jewelweed (*Impatiens capensis*).

SOILS: Seelyeville and Palms mucks (Typic Haplosaprists and Terric Haplosaprists, respectively), very poorly-drained mucks with an organic layer 16 to 51 inches in depth (Palms) or greater than 51 inches in depth (Seelyeville) over mineral soils.

HYDROLOGY: Seelyeville and Palms mucks are typically saturated to the surface and may have up to 12 inches of standing water. Microtopography in the form of hummocks and depressions (visible in the photograph) is typical of many black ash swamps. During dry years, and the late growing season of normal years, standing water in the depressional areas is usually absent. The above photograph was taken in early August after a period of wetter than normal precipitation. Depressional areas had water depths up to 12 inches.

LOCATION: Mille Lacs Kathio State Park, Aitkin County, Minnesota.

HARDWOOD SWAMPS



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BLACK ASH

(*Fraxinus nigra* Marsh.)

OLIVE FAMILY (Oleaceae)

C of C: Native (8 WI)(6 MN)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A deciduous tree growing to 25 m. in height. The leaves are opposite and compound. Leaflets number 7-11 and are 5-5.4 cm. long, toothed and sessile. Leaf scars are nearly circular. Branches are circular, or nearly so, and smooth. The bark is furrowed to scaly. Fruit is a flat samara, winged to the base and blunt on both ends. In flower during April-May.

The circular (or nearly so) branches distinguish *F. nigra* from the 4-sided branches of blue ash (*F. quadrangulata*). The nearly circular leaf scars, sessile leaflets, and flat samaras winged to the base of *F. nigra* distinguish it from the half circle leaf scars, slightly petioled leaflets, and wedge-shaped samaras with a flat wing, of green ash (*F. pennsylvanica*).

ECOLOGICAL NOTES: Black ash is a dominant species of hardwood swamps and also occurs as a non-dominant in coniferous swamps.

SOURCE: Gleason and Cronquist (1991); Petrides (1972); and Swink and Wilhelm (1994).

HARDWOOD SWAMPS



© Photos by Steve D. Eggers

RED MAPLE

(*Acer rubrum* L.)

MAPLE FAMILY (Aceraceae)

C of C: Native (3)

IND. STATUS: FAC

FIELD CHARACTERISTICS: A deciduous tree growing to a height of 35 m. The leaves are opposite and shallowly 3-(to 5-) lobed with the lobes cut less than halfway to the base of the blade. Leaves are 0.8-3.2 cm. broad, green above and whitened below, turning bright red to yellow in autumn. Petioles are usually red, at least on one side. The bark is smooth and gray in young trees, becoming broken and darker with age. Twigs and buds are reddish, and flowers and young samaras are bright red. The fruit is a winged samara 1.5-2.5 cm. long. In flower March-May.

Red maple (*Acer rubrum*) can be distinguished from silver maple (*A. saccharinum*) by its shallowly lobed leaves, wide base of the leaves, and smoother bark, versus the deeply lobed leaves with narrow leaf bases and flaking bark of *A. saccharinum*.

ECOLOGICAL NOTES: Red maple is commonly found in wooded swamps and can be a dominant in logged or burned swamps. However, it is a facultative species found growing on poor soils of both upland and wetland habitats.

SOURCE: Fernald (1970); Petrides (1972); and Swink and Wilhelm (1994).

HARDWOOD SWAMPS



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YELLOW BIRCH (*Betula alleghaniensis* Britton)

BIRCH FAMILY (Betulaceae)

C of C: Native (7)

IND. STATUS: FAC

SYNONYM: *B. lutea* Michaux

FIELD CHARACTERISTICS: A deciduous tree growing to 30 m. in height. Mature trees have peeling bark that ranges from yellow to dark brown to black. The crushed bark of young twigs has a characteristic odor and flavor of wintergreen. Leaves are alternate, serrate, 6-10 cm. long, and range from lance-ovate to somewhat obovate. The leaves have 6-12 pairs of lateral veins and are rounded or somewhat heart-shaped at the base. Catkins are 2-3 cm. long. The pistillate catkins are cone-like and disintegrate when ripe. Staminate catkins form in summer and open the following spring. In flower during April and May.

This birch can be distinguished from river birch (*B. nigra*) [page 401] because the latter lacks the wintergreen flavor, and has leaves that are paler beneath and are both doubly serrate and shallowly lobed.

ECOLOGICAL NOTES: Yellow birch is found in wooded swamps, as well as upland forests, primarily north of the vegetation tension zone.

SOURCE: Gleason and Cronquist (1991); and Voss (1985).

HARDWOOD SWAMPS



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BALSAM POPLAR

(*Populus balsamifera* L. ssp. *balsamifera*)

WILLOW FAMILY (Salicaceae)

C of C: Native (4)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A deciduous tree to 20 m. or more in height. Young bark is smooth then becomes dark gray and furrowed with age. Leaves are ovate, 8-13 cm. long and 4-7 cm. wide, tapering to a long tip while rounded to heart-shaped at the base. Leaf color is dark green above and white-green below with many brownish resin stains. Leaf buds are fragrant and extremely sticky due to resin. Catkins appear in April-May. Pistillate catkins are 10-13 cm. long. Mature capsules are 6-8 mm. long.

ECOLOGICAL NOTES: Balsam poplar is common in hardwood swamps and shrub-carrs, particularly north of the vegetative tension zone. It also occurs in mesic (upland) forests.

SOURCE: Gleason and Cronquist (1991); Smith (2008); Swink and Wilhelm (1994); Chadde (2002); and Voss (1996).

HARDWOOD SWAMPS



Pistillate catkin.

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QUAKING ASPEN

(*Populus tremuloides* Michx.)

WILLOW FAMILY (Salicaceae)

C of C: Native (2)

IND. STATUS: FAC

FIELD CHARACTERISTICS: A deciduous tree growing to a height of nearly 20 m. The ovate to nearly cordate leaves are alternate, simple, darker green above and paler below with small regular teeth. Leaves are attached by a long (2.5-6.0 cm.) flattened petiole. The smooth bark is whitish-gray to greenish-white becoming darker and furrowed with age. Sexes are separate; the pistillate catkins are up to 10 cm. long.

ECOLOGICAL NOTES: Quaking aspen, also known as popple, has the widest distribution of any tree in North America. It prefers wet to moist, limy soils where it can form large colonies from an extensive root (rhizome) system. Quaking aspen also prefers sites disturbed by logging, fire or drainage and often invades abandoned agricultural lands and vacant urban lands.

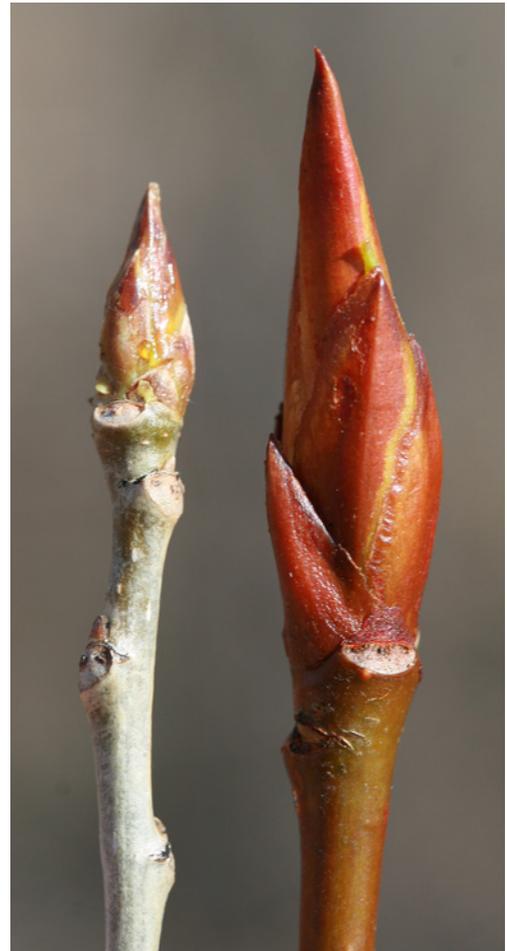
SOURCE: Gleason and Cronquist (1991); Fassett (1976); and Elias (1980).

HARDWOOD SWAMPS



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Quaking aspen is a facultative species that can thrive in wet to dry habitats. Here quaking aspen is growing in the very wet conditions of a hardwood swamp.



A comparison of the terminal buds of quaking aspen (left) and balsam poplar (right).

HARDWOOD SWAMPS



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NANNYBERRY

(*Viburnum lentago* L.)

HONEYSUCKLE FAMILY (Caprifoliaceae)

C of C: Native (4)

IND. STATUS: FAC

FIELD CHARACTERISTICS: A tall, deciduous shrub with erect stems to 10 m. Leaves are opposite, unlobed, oval to oblong and 5-10 cm. long by 3.5-6 cm. wide. The upper leaf surface is dark green and glabrous, while the lower surface is a pale green. Leaves taper to a long slender tip and the margins are finely serrated. Petioles are 1-3 cm. long, with irregularly winged margins. The many flowers are arranged in sessile cymes 5-10 cm. wide. Flowers are typically white. Berry-like fruits (drupes) are blue-black and hang in clusters. The stone is flat. In flower in June.

ECOLOGICAL NOTES: Nannyberry is common in shrub-carrs and hardwood swamps, floodplains, streambanks and pond margins. It also occurs in mesic (upland) deciduous forests.

SOURCE: Gleason and Cronquist (1991); Smith (2008); Swink and Wilhelm (1994); and Voss (1996).

HARDWOOD SWAMPS



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Fruit matures in late August to late September, often persisting through winter.

Nannyberry
(*Viburnum lentago*)



Characteristic elongated terminal bud.

HARDWOOD SWAMPS



© Photos by Steve D. Eggers

COMMON WINTERBERRY

(Ilex verticillata (L.) A. Gray)

HOLLY FAMILY (Aquifoliaceae) **C of C:** Native (6 MN)(7 WI) **IND. STATUS:** FACW

FIELD CHARACTERISTICS: An erect shrub with multiple stems to 5 m. The thin, deciduous leaves are alternate; broadly egg-shaped, with an abrupt, acute point; and 5-10 cm. long by 2-4.5 cm. wide. The upper leaf surface is a dull, dark green with sunken veins while lower leaf surfaces are pale green with protruding veins giving it a quilted appearance. Flowers occur in axillary (angle where the leaf joins the stem) clusters and have pale whitish petals that are united at their base. Pedicels are 1-2 mm. long. The conspicuous bright red berries (actually drupes) are persistent, 5-8 mm. in diameter, and have thick, bony nutlets that are smooth on their backs. In flower in June.

ECOLOGICAL NOTES: Common winterberry is typically found in hardwood swamps, coniferous swamps and coniferous bogs. It is also found growing along the margins of marshes and ponds, and on lakeshores.

SOURCE: Crow and Hellquist (2000); Gleason and Cronquist (1991); Smith (2008); Swink and Wilhelm (1994); and Voss (1985).

HARDWOOD SWAMPS



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AMERICAN BLACK CURRANT

(*Ribes americanum* Mill.)

GOOSEBERRY FAMILY (Grossulariaceae)

C of C: Native (4)

IND. STATUS: FACW

FIELD CHARACTERISTICS: An erect shrub with unarmed stems to 2.5 m. in length. The palmate leaves are 3-5 lobed, alternate and 2.5-5 cm. long with conspicuous yellow dot-like glands. Leaf bottoms are sparsely pubescent with minute hairs. Leaf margins are sharply serrated. Flowers are many and arranged in drooping racemes. Sepals are greenish and petals are white to yellowish. The bracts (a specialized leaf subtending the flower at the base of each flower) are longer than their pedicels. Fruits are a black, glabrous (not prickly) berry 6-10 mm. in diameter, maturing by early July to late August. In flower in early May to mid-June.

ECOLOGICAL NOTES: American black currant is a common species of hardwood swamps and also occurs in floodplain forests, cedar swamps and calcareous, springy sites. It is the most common and widespread currant in Minnesota.

SOURCE: Fassett (1976); Gleason and Cronquist (1991); Smith (2008); Swink and Wilhelm (1994); and Voss (1985).

HARDWOOD SWAMPS



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MOUNTAIN MAPLE

(*Acer spicatum* Lam.)

MAPLE FAMILY (Aceraceae)

C of C: Native (5 MN)(6 WI)

IND. STATUS: FACU

FIELD CHARACTERISTICS: A tall, deciduous shrub or clumped small tree growing to a height of 7 m. and a dbh of 8 cm. Leaves are opposite with essentially three shallow lobes, 8-12 cm. long, yellowish-green above and paler with soft hairs below. Leaf margins are coarsely and irregularly serrated. Petioles are 3-11 cm. long and have minute hairs. Distinctive five-parted flowers occur in slender upright clusters of 2-4. Flowers are long-stalked panicles, 3-8 cm. long. Petals are greenish to pale yellow. The dry seeds are winged, conspicuously veined in a net-like pattern, and 1.2-2.8 cm. long.

Mountain maple retains its hanging seeds into late summer or autumn.

ECOLOGICAL NOTES: Mountain maple is a northern species of cool habitats, often growing in shade. It is occasionally found in conifer swamps and hardwood swamps and is common in mesic upland forests and shrub communities.

SOURCE: Gleason and Cronquist (1991); Smith (2008); and Voss (1985).

HARDWOOD SWAMPS



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AMERICAN HIGH-BUSH CRANBERRY

(*Viburnum opulus* L. var. *americanum* Ait.)

HONEYSUCKLE FAMILY (Caprifoliaceae)

C of C: Native (5)

IND. STATUS: FACW

SYNONYM: *Viburnum trilobum* Marsh.

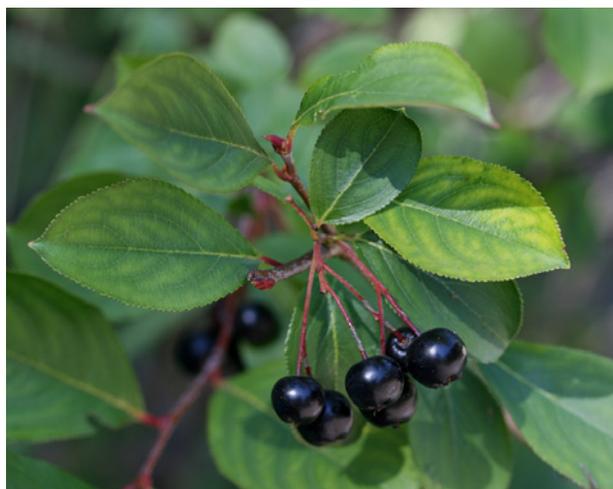
FIELD CHARACTERISTICS: A tall, deciduous shrub with erect stems to 5 m. Leaves are opposite, palmately three-lobed and veined, and 5-12 cm. long by 5-11 cm. wide. Upper leaf surfaces are distinctly hairy with coarsely toothed margins. Leaf petioles are 1-3.5 cm. long with prominent, large glands. These stalked glands are higher than wide and club-shaped with an essentially convex surface. The white flowers are arranged in cymes that are 5-10 cm. wide. The larger, sterile flowers encircle a set of smaller, fertile flowers. The fruit is a red (orange) berry (drupe) with a flat stone. Blooms in June.

Our native variety is readily distinguished from the non-native European variety (*V. opulus* L. var. *opulus*) which has glands on the petioles that are wider than high, saucer-shaped (concave) structures. The upper leaf surfaces of the European variety are also glabrous.

ECOLOGICAL NOTES: American high-bush cranberry occurs in shrub-carrs, tamarack swamps, wet shores and streambanks. The fruits are sweeter than the more bitter European variety.

SOURCE: Gleason and Cronquist (1991); Smith (2008); Swink and Wilhelm (1994); and Voss (1996).

HARDWOOD SWAMPS



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BLACK CHOKEBERRY

(*Aronia melanocarpa* (Michx.) Ell.)

ROSE FAMILY (Rosaceae)

C of C: Native (7)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A deciduous shrub 1-2.5 m. in height with twigs initially greenish but becoming brown to reddish brown after the first year. Leaves are alternate, oval or obovate, 3-8 cm. long and 1-4 cm. wide, the upper surface dark green and smooth with a row of dark glands along the midvein. Lower surface is paler, smooth or hairy. Leaf margins are serrate with black glands at the tip. White flowers 5-10 mm. wide in clusters of 5-15. Fruit is a dark purple, berrylike pome 5-10 mm. wide. In flower May-June.

ECOLOGICAL NOTES: Black chokeberry prefers acidic peaty or sandy soils of hardwood swamps, tamarack swamps, shrub swamps and open bogs. Smith (2008) advises that if one is tempted to eat the berries, consider the common name.

SOURCE: Gleason and Cronquist (1991); Chadde (2002); and Smith (2008).

HARDWOOD SWAMPS



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SWAMP ROSE

(*Rosa palustris* Marsh.)

ROSE FAMILY (Rosaceae)

C of C: Native (7)

IND. STATUS: OBL

FIELD CHARACTERISTICS: A much branched shrub to 2 m. in height with a pair of stout, curved prickles 3-6 mm. long located below each leaf node. Leaflets usually number 7 and are 2-6 cm. long and 1-2 cm. wide, finely serrate, the teeth typically less than 2 mm. wide. Flowers are pink, 2-3 cm. wide, solitary or in small corymbs. Pedicels and hypanthium have stalked glands (stipitate-glandular) (visible in photograph). Hips are red and 7-12 mm. thick with gland-tipped hairs. In flower June-July.

ECOLOGICAL NOTES: True to its name, swamp rose is found in hardwood swamps and conifer swamps as well as bogs, marshes and along streambanks, in Wisconsin. Its range does not include Minnesota.

SOURCE: Gleason and Cronquist (1991); Chadde (2002); and Smith (2008).

HARDWOOD SWAMPS



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JEWELWEED

(*Impatiens capensis* Meerb.)

TOUCH-ME-NOT FAMILY (Balsaminaceae)

C of C: Native (2)

IND. STATUS: FACW

SYNONYM: *Impatiens biflora* Willd.

FIELD CHARACTERISTICS: An annual herb with a succulent, smooth stem that grows to a height of 50-150 cm. The leaves are alternate, finely toothed, and 3-10 cm. long on petioles about 2.5 cm. in length. Flowers are pendent, conical, 2-3 cm. long, with a spur 8 mm. long and curved forward. Flowers are usually orange-yellow with brown or reddish spots: the mouth of the flower is half as wide as the flower is long. Fruit is a capsule that, when mature, pops open at the slightest touch (which gives this plant another common name, touch-me-not). In flower June-September.

ECOLOGICAL NOTES: Jewelweed is found in a wide variety of wetland habitats including floodplain forests, shrub-carrs, fresh (wet) meadows, wooded swamps, and along streambanks and springs. It occasionally can be found in upland woods. Crushing the stem and rubbing the juice on the skin is said to alleviate the symptoms of poison ivy (*Toxicodendron* spp.) and nettle (Urticaceae) stings.

SOURCE: Gleason and Cronquist (1991); Swink and Wilhelm (1994); and Voss (1985).

HARDWOOD SWAMPS



YELLOW TOUCH-ME-NOT

(*Impatiens pallida* Nutt.)

TOUCH-ME-NOT FAMILY (Balsaminaceae)

C of C: Native (5)

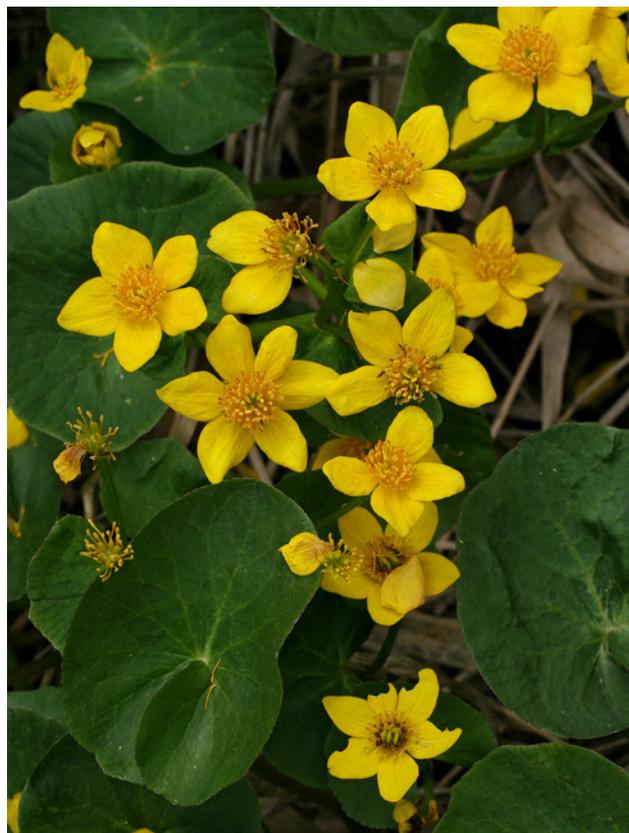
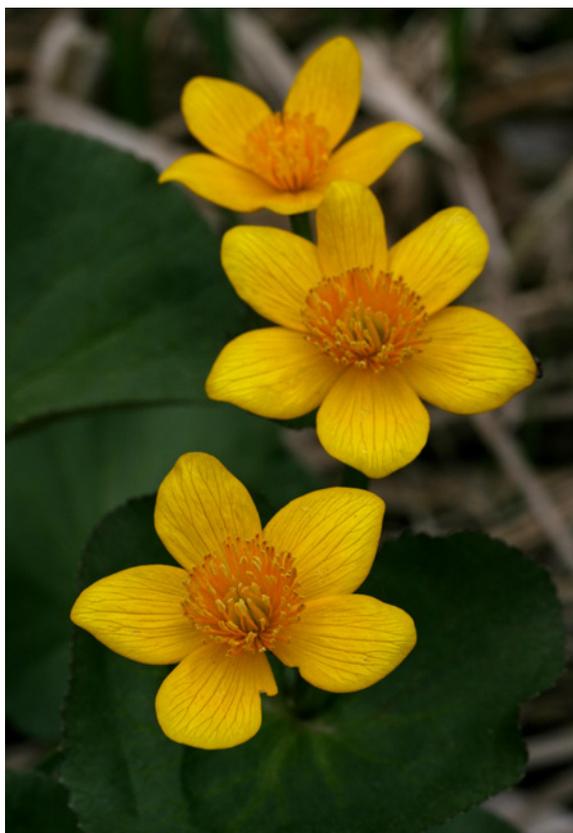
IND. STATUS: FACW

FIELD CHARACTERISTICS: An annual herb very similar to jewelweed (*I. capensis*) except larger with pale yellow flowers 2.5-4 cm. long with reddish-brown dots. The spur is curved at a right angle to the sac and is one-fourth the length of the sac. Stems are succulent and smooth. The leaves are alternate, up to 12 cm. long and 8 cm. wide., and more finely serrated than those of jewelweed. In flower July-September.

ECOLOGICAL NOTES: Yellow touch-me-not is not nearly as common as jewelweed. It is found in floodplain forests, shrub-carrs, wooded swamps, and along streambanks and springs.

SOURCE: Gleason and Cronquist (1991); and Chadde (2002).

HARDWOOD SWAMPS



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MARSH MARIGOLD

(*Caltha palustris* L.)

BUTTERCUP FAMILY (Ranunculaceae)

C of C: Native (6)

IND. STATUS: OBL

FIELD CHARACTERISTICS: A perennial herb with hollow stems 20-60 cm. long. The flowers are 1.5-4 cm. wide, golden yellow, with 5-9 petal-like sepals, and 4 to many pistils surrounded by many stamens. The leaves are heart-shaped or kidney-shaped, entire or toothed, and 3-20 cm. in diameter. The fruit is a follicle 1-1.5 cm. long with a pronounced beak. In flower April-May.

ECOLOGICAL NOTES: Marsh marigold, also known as cowslip, is found in sedge meadows, fresh (wet) meadows, hardwood swamps, shrub swamps, shallow marshes and along streambanks, especially in areas of groundwater discharge (springy areas). It is one of our first wildflowers to bloom in spring.

SOURCE: Fernald (1970); and Gleason and Cronquist (1991).

HARDWOOD SWAMPS



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SKUNK CABBAGE

(*Symplocarpus foetidus* (L.) Nutt.)

ARUM FAMILY (Araceae)

C of C: Native (8)

IND. STATUS: OBL

FIELD CHARACTERISTICS: A low, coarse, perennial herb with a thick rhizome. The spathe is 8-15 cm. high, sessile, egg-shaped, and mottled with purple and green. The spadix is spherical or football-shaped with many densely-packed flowers. Basal leaves are huge (to 30-60 cm.), ovate and heart-shaped at the base, emerging after the spathe (see photograph on page 312, the large leaves in the foreground are those of skunk cabbage). In flower March-May.

ECOLOGICAL NOTES: Skunk cabbage is found in wooded swamps and shrub swamps and is good indicator of groundwater discharge (springy areas). As the name implies, skunk cabbage has a strong skunk- or garlic-like odor. It is our earliest herbaceous “wildflower” to bloom in spring, sometimes emerging through snow.

SOURCE: Fernald (1970); Gleason and Cronquist (1991); and Voss (1972).

HARDWOOD SWAMPS



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JACK-IN-THE-PULPIT

(*Arisaema triphyllum* (L.) Schott)

ARUM FAMILY (Araceae)

C of C: Native (4 MN)(5 WI)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A perennial herb with stems 30-120 cm. in height. Usually 2 leaves are produced each divided into 3 leaflets, the terminal leaflet oval to ovate while lateral leaflets are often asymmetrical. Leaves are on long petioles that are 30-60 cm. long at flowering time, later to as much as 150 cm. in length. Flowers are unisexual and usually borne on separate plants on a peduncle 3-20 cm. long. Flowers are located at the base of a cylindrical spadix subtended by a green, purple-striped spathe that arches over the spadix (spathe was folded back by photographer to show both spathe and spadix). Fruit is a cluster of bright red berries. In flower April-July.

ECOLOGICAL NOTES: Jack-in-the-pulpit is a common herb of floodplain forests, hardwood swamps, coniferous swamps, shrub-carrs and rich, mesic (upland) forests.

SOURCE: Gleason and Cronquist (1991); and Chadde (2002).

HARDWOOD SWAMPS



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LAKE HURON GREEN ORCHID

(*Platanthera huronensis* (Nutt.) Lindl.)

ORCHID FAMILY (Orchidaceae) **C of C:** Native (5 MN)(7 WI) **IND. STATUS:** FACW

SYNONYM: *Habenaria hyperborea* (L.) R. Br.; *Platanthera hyperborea* (L.)

FIELD CHARACTERISTICS: A perennial herb 20-100 cm. in height. The 2-7 principal leaves are oblong to linear to narrowly elliptical, and are 5-30 cm. long and 1-7 cm. wide. Inflorescence is a raceme 4-25 cm. long consisting of tightly packed, whitish-greenish flowers. The lip is 5-12 mm. long x 2-4 mm. wide. The spur is 4-12 mm. long. In flower mid-June to mid-August.

ECOLOGICAL NOTES: Lake Huron green orchid is a common species found in a variety of habitats including coniferous bogs, coniferous swamps, hardwood swamps, shrub swamps, sedge meadows and fens.

SOURCE: Gleason and Cronquist (1991); Chadde (2002); and Smith (1993).

HARDWOOD SWAMPS



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PURPLE-FRINGED ORCHIS

(*Platanthera psycodes* (L.) Lindl.)

ORCHID FAMILY (Orchidaceae)

C of C: Native (7)

IND. STATUS: FACW

SYNONYM: *Habenaria psycodes* (L.) Sprengel

FIELD CHARACTERISTICS: A perennial herb with stout stems 30-150 cm. high. The inflorescence is a cylindrical raceme 0.5-2.5 dm. long and 2.5-4.5 cm. thick with many small flowers. The flowers are rose-purple (rarely white) with a deeply three-parted, fringed lip 6-16 mm. broad. The leaves are oval to lanceolate, the largest 2-7 cm. broad. The upper leaves are reduced and narrow. In flower June-August.

ECOLOGICAL NOTES: Purple-fringed orchis is found in wooded swamps, shrub-carrs, fresh (wet) meadows, sedge meadows and along streambanks. It tends to be more common north of the vegetation tension zone. It can be frequent to common and can even be spotted in road ditches when in bloom. There are similar orchids (*Platanthera* spp.) that have yellow, white, or green flowers.

SOURCE: Smith (1993); Ownbey and Morley (1991); Fernald (1970); Gleason and Cronquist (1991); and Voss (1972).

HARDWOOD SWAMPS



© Photos by Steve D. Eggers

OSTRICH FERN

(*Matteuccia struthiopteris* L.)

WOOD FERN FAMILY (Dryopteridaceae)

C of C: Native (5)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A clonal, perennial fern with erect, coarse, stout, leafy crowns growing to a height of 0.5-2(3)m. from black rhizomes that are large and stoloniferous. The fronds are of two types. Sterile fronds are green and pinnate-pinnatifid with a fine pubescence along the rachis, particularly in spring. The alternate pinnae are gradually reduced toward the base of the frond. Fertile fronds are shorter than sterile fronds, brown at maturity, with inrolled pinnae enclosing the sporangia. Fertile fronds are produced between midsummer and early fall and persist through the winter.

ECOLOGICAL NOTES: Ostrich fern is a circumboreal species of swamps, floodplain hardwoods, and mesic upland forests and thickets. It is often found growing on alluvial deposits. This species typically occurs north of the tension zone.

SOURCE: Gleason and Cronquist (1991) and Tryon (1980).

HARDWOOD SWAMPS

A portion of a fertile frond.



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CINNAMON FERN
(*Osmunda cinnamomea* L.)

ROYAL FERN FAMILY (Osmundaceae) **C of C:** Native (7) **IND. STATUS:** FACW

FIELD CHARACTERISTICS: A clump-forming, perennial fern with a stout rhizome, growing to a height of 60-120(160) cm. The fronds are of two types. Sterile fronds are green, pinnate-pinnatifid, with a tuft of cinnamon-colored hair at the base of the pinnae, and a few hairs along the margins of the segments. The fertile (spore-bearing) fronds are cinnamon-colored and hairy.

O. cinnamomea can be distinguished from the related royal fern (*O. regalis*) and interrupted fern (*O. claytoniana*) by the following:

- 1.A. Fronds bipinnate, fertile portion of fronds, if present, located at the apex..... *O. regalis*
- 1.B. Fronds pinnate-pinnatifid; fertile fronds entirely fertile or fertile portion located in the middle of the frond..... 2
 - 2.A. Fertile fronds entirely fertile, soon disappearing; margins of the segments of sterile fronds with a few hairs..... *O. cinnamomea*
 - 2.B. All fronds green and leafy; fertile brown portion, when present, confined to the middle of the frond, soon dropping off..... *O. claytoniana*

ECOLOGICAL NOTES: Cinnamon fern is common in wooded swamps, shrub swamps, bogs and along streambanks. The fertile fronds die back by mid-summer and are not readily apparent.

SOURCE: Gleason and Cronquist (1991); and Tryon (1980).

HARDWOOD SWAMPS



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Cinnamon Fern
(*Osmunda cinnamomea*)

HARDWOOD SWAMPS



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Undersides of pinnae illustrating the hook-shaped sori and indusia.

LADY FERN

(Athyrum filix-femina (L.) Roth)

WOOD FERN FAMILY (Dryopteridaceae) **C of C:** Native (4 MN)(5 WI) **IND. STATUS:** FAC

FIELD CHARACTERISTICS: A perennial, clumped, rhizome-producing fern with mostly bipinnate or bipinnate-pinnatifid blades 40-100 cm. tall and 10-35 cm. wide. Pinnae consist of 20-30 pairs below the pinnatifid tip, the pinnules mostly serrate to deeply parted. Indusia and sori are dark brown and hooked in shape, or less often straight.

ECOLOGICAL NOTES: A very common fern preferring the shaded habitats of hardwood swamps, coniferous swamps, floodplain forests and mesic (upland) forests. For example, lady fern had 90 percent occurrence in “northern wet ash swamps” inventoried in Minnesota (MnDNR 2005).

SOURCE: Gleason and Cronquist (1991) and Tryon (1980).

HARDWOOD SWAMPS



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WOOD HORSETAIL (*Equisetum sylvaticum* L.)

HORSETAIL FAMILY (Equisetaceae) **C of C:** Native (6 MN)(7 WI) **IND. STATUS:** FACW

FIELD CHARACTERISTICS: Stems are annual and of two types. Fertile stems are initially unbranched and pale, later producing green branches. Sterile stems are 30-70 cm. tall and 1.5-3 mm. wide with a central cavity that is both larger than the outer ring and more than half the diameter of the stem. Stems are branched, the branches commonly branched themselves. Teeth of the sheaths of the main stem are reddish brown.

ECOLOGICAL NOTES: Wood horsetail is a common species typically preferring the shaded habitats of hardwood swamps and shrub swamps.

SOURCE: Gleason and Cronquist (1991); Chadde (2002); and Tryon (1980).

HARDWOOD SWAMPS



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WOOD REED

(*Cinna arundinacea* L.)

GRASS FAMILY (Gramineae or Poaceae)

C of C: Native (5)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A perennial grass 60-150 cm. tall with weak rhizomes or none. Leaves are 4-12 mm. wide with scabrous margins and a red-brown ligule 3-10 mm. long. Inflorescence is a loose panicle 1-3 dm. long with upright branches and gray-green color. The one-flowered spikelets have glumes that are 3-5 mm. long.

The very similar drooping reedgrass (*Cinna latifolia*) has shorter glumes (2-4 mm. long) and a more open, spreading to drooping panicle.

ECOLOGICAL NOTES: Wood reed is frequent in hardwood swamps.

SOURCE: Gleason and Cronquist (1991); Swink and Wilhelm (1994); Chadde (2002); and Voss (1972).



Illustration is from Hitchcock (1950).

Wood Reed
(*Cinna arundinacea*)

HARDWOOD SWAMPS



FRINGED SEDGE (*Carex crinita* Lam.)

SEDGE FAMILY (Cyperaceae)

C of C: Native (6)

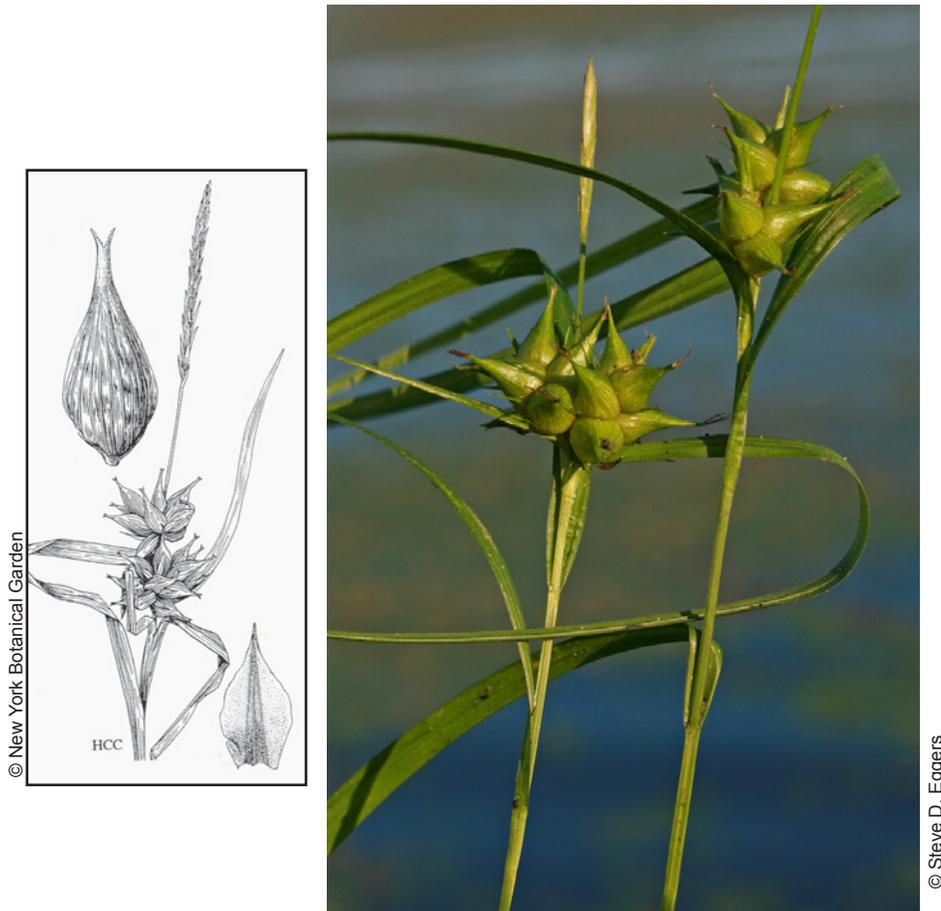
IND. STATUS: FACW

FIELD CHARACTERISTICS: A perennial, cespitose (clumped) sedge growing to 40-160 cm. in height. Basal leaf sheaths are red and pinnate-fibrillose. Main leaves are 7-13 mm. wide with glabrous sheaths. Spikelets are loosely spreading to drooping on long peduncles. Staminate spikelets number 1-3 and are 4-9 cm. long while pistillate spikelets number 2-5 and are 4-11 cm. long. Pistillate spikelets are linear-cylindric. Pistillate scales have long awns to 10 mm. that greatly exceed the perigynia give the spikelets a fringed or bristly appearance. Perigynia are 2-3.5 mm. long, strongly 2-ribbed, with a minute beak. The achene is 2-sided.

ECOLOGICAL NOTES: Fringed sedge is a common species of hardwood swamps, shrub-carrs, and vernal pools within mesic (upland) forests. The long-drooping pistillate spikelets with a bristly appearance make this species easy to recognize.

SOURCE: Gleason and Cronquist (1991); Voss (1972); and Hipp (2008).

HARDWOOD SWAMPS



SHINING BUR (BLADDER) SEDGE

(*Carex intumescens* Rudge)

SEDGE FAMILY (Cyperaceae)

C of C: Native (5)

IND. STATUS: FACW

FIELD CHARACTERISTICS: A perennial sedge with stems arising singly or in small clumps 30-90 cm. tall. Sheaths tinged reddish-purple toward the base. The bracts and evergreen leaves have flat blades which are more than 3 mm. wide. Staminate flowers are pedunculate and form in terminal spikes. The perigynia form 1-3 subglobose spikelets with 2-8(12) loosely spaced, inflated, ascending or spreading, ovoid perigynia about 4-5 mm thick. The conspicuously veined perigynia are rounded at the base, glabrous, shiny, with poorly defined beaks that are much shorter than the body. A persistent style is contorted at or just below the middle and arises from a 3-angled nutlet.

ECOLOGICAL NOTES: Shining bur sedge is characteristic of hardwood swamps. It occasionally occurs in coniferous swamps and northern sedge meadows.

SOURCE: Fassett (1976); Gleason and Cronquist (1991); Swink and Wilhelm (1994); and Voss (1972).

HARDWOOD SWAMPS



COMMON HOP SEDGE

(*Carex lupulina* Muhl. ex Willd.)

SEDGE FAMILY (Cyperaceae)

C of C: Native (6)

IND. STATUS: OBL

FIELD CHARACTERISTICS: A perennial sedge with stems 20-130 cm. in height arising singly or a few together from long, scaly rhizomes. Persistent basal sheaths are tinged reddish brown. Mature leaves are 4-15 mm. wide. Usually a single terminal staminate spikelet arises from a 0.5-6 cm. peduncle. Between 1-6 pistillate spikes with 8-80 ascending perigynia are present. Pistillate spikelets are longer than wide and often persist into the fall. The ovoid perigynia are inflated, strongly nerved, and 1 cm. or more long. They have a conical beak with bidentate teeth. Acute, slender scales subtend the perigynia. The rhomboid nutlets are longer than wide, 3-angled, and have a persistent style, which is contorted at or near the base.

Care must be taken not to confuse this sedge with the State of Wisconsin endangered *Carex lupuliformis*. The nutlets of *C. lupuliformis* are as long as wide and have conspicuous nipple-like knobs on the angle summits.

ECOLOGICAL NOTES: Common hop sedge is characteristic of hardwood swamps. It is often the dominant sedge along the edges of vernal pools.

SOURCE: Fassett (1976); Gleason and Cronquist (1991); Swink and Wilhelm (1994); and Voss (1972).