

Key to Wetland Natural Communities of Wisconsin



Wisconsin's Natural Heritage Inventory Program
Bureau of Natural Heritage Conservation
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Acknowledgments

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Cover Photos: Clockwise from top left: Kakagon Sloughs and Long Island (photo by Christina Isenring), floodplain forest on Wisconsin River at flood stage (photo by Ryan O'Connor), prairie cordgrass in wet prairie at Princeton Prairie State Natural Area (photo by Ryan O'Connor), poison sumac at edge of bog relict at Lulu Lake State Natural Area (photo by Ryan O'Connor), black spruce swamp at Scott Lake and Shelp Lake State Natural Area (photo by Ryan O'Connor).

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Introduction

This key is for the Wisconsin DNR Bureau of Natural Heritage Conservation natural community classification. The key is based on communities with minimal anthropogenic disturbance, although ruderal communities based in part on the U.S. National Vegetation Classification have been included for completeness. Semi-disturbed sites as well as sites undergoing ecological restoration may fall somewhere between a weedy, ruderal type and a least-disturbed natural community and may be difficult to classify. If utilizing this key in the field, avoid transition areas and ecotones. In addition, key users must recognize that sites change over time through succession and disturbance. For example, tree or shrub encroachment or disturbances such as catastrophic fire, pest and disease outbreaks, windthrow, or beaver flooding may leave a site in an intermediate state as it recovers from disturbance or transitions from one community type to another. As with any key, users are encouraged to choose the statement in the couplet that best fits the community observed in the field, even if it does not match all aspects of the couplet.

This key is not intended to be used alone to definitively classify natural communities. Once you have worked a through the key, users are encouraged to read the additional descriptions provided on the [WDNR Natural Heritage Inventory natural community webpages](#) available online at dnr.wi.gov, keyword "protecting Wisconsin's biodiversity". Links to the community webpages are included in the key below. For each natural community type, online information includes a general overview, photos, associated rare plants and animals, and a print-ready 2- to 4-page detailed description featuring the distribution, abundance, environmental setting, ecological processes, community composition and structure, and conservation and management considerations excerpted from Chapter 7 of the [Ecological Landscapes of Wisconsin](#) (dnr.wi.gov, keyword "ecological landscapes").

- 1a. Wetland dominated by > 75% non-native cover or cover of non-native species is less but native species are indicative of disturbance (ruderal communities).
- 2a. Wetlands with at least 30% cover of trees or shrubs (ruderal forested and shrub wetlands).
 - 3a. Forested with at least 30% canopy of trees, usually dominated by non-native tree willows [e.g., crack willow (*Salix X fragilis*), etc.] or weedy natives such as boxelder. Shrub layer strongly dominated by non-native species such as non-native bush honeysuckles (*Lonicera* spp.), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), and multiflora rose (*Rosa multiflora*); herbaceous layer also usually dominated by non-natives such as reed canary grass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), creeping Charlie (*Glechoma hederacea*), dame's rocket (*Hesperis matronalis*), and moneywort (*Lysimachia nummularia*). Generalist native tree species may be co-dominant in the canopy, especially green ash or red maple **Ruderal Flooded and Swamp Forest**
 - 3b. Dominated by non-native shrubs (<30% tree cover) such as non-native bush honeysuckles, common buckthorn, or glossy buckthorn, sometimes co-dominated by aggressive native shrubs such as dogwoods (*Cornus* spp.), sandbar willow (*Salix interior*), etc. Ground layer typically strongly dominated by reed canary grass, or occasionally bare ground where shrubs are very dense..... **Ruderal Shrub Swamp**
- 2b. Wetlands with trees and tall shrubs (>5 feet tall) less than 30% cover (ruderal marshes and meadows).
 - 4a. Dominated by non-native reeds and cattails such as common reed (*Phragmites australis* ssp. *australis*), invasive or hybrid cattail species (e.g., *Typha angustifolia*, *T. X glauca*), or reed manna grass (*Glyceria maxima*). Non-native forbs may also be dominant, such as purple loosestrife (*Lythrum salicaria*). **Ruderal Marsh**
 - 4b. Dominated by non-native grasses such as reed canary grass (*Phalaris arundinacea*) and redtop (*Agrostis gigantea*), or by weedy native forbs such as giant ragweed (*Ambrosia trifida*), stinging nettle (*Urtica dioica*), Canada goldenrod (*Solidago canadensis*), blunt spike-rush (*Eleocharis obtusa*), etc. **Ruderal Wet Meadow**
- 1b. Wetland dominated by native vegetation (Wisconsin Natural Heritage Conservation natural communities).
 - 5a. Very small (usually one acre or less) kettle depressions in forested landscapes on moraines or interlobate regions, with standing water in spring, usually drying by late summer..... **Ephemeral Pond**
 - 5b. Larger wetlands, or if small, occurring in a variety of other landscapes and hydrologic setting combinations.

- 6a. Forested or tall shrub-dominated wetlands. Mature trees contributing greater than 30% overall canopy cover or tall shrubs (> 5 feet) contributing more than 50% canopy cover.
- 7a. FORESTED WETLANDS. Dominated by trees contributing greater than 30% overall canopy cover.
- 8a. Community occurring adjacent to Great Lakes shorelines on alternating series of narrow, sandy, upland ridges and low swales. Ridges may be open or shrub-dominated closest to the shoreline, and further from the shore are forested with pines, oaks, white spruce, balsam fir, and paper birch. Swales may contain open water, sedge meadow, alder, or be forested with black ash, tamarack, or northern white-cedar ... [Great Lakes Ridge and Swale](#)
- 8b. Community occurring adjacent to Great Lakes shorelines or not, but landforms and topography otherwise.
- 9a. Conifers common to dominant throughout canopy layer.
- 10a. Canopy dominated by northern white-cedar or white pine. Tamarack and black spruce may be present but are minor canopy components and are not dominant across large areas.
- 11a. Canopy dominated by white pine, subcanopy dominated by red maple. Groundlayer often dominated by cinnamon fern (*Osmunda cinnamomea*), bristly dewberry (*Rubus hispidus*), and long sedge (*Carex folliculata*). Located mainly in Central Sand Plains ecological landscape on an ancient glacial lakebed. Soils peat over acidic sand..... [White Pine-Red Maple Swamp](#)
- 11b. Canopy dominated by northern white-cedar, sometimes co-dominant with black ash, balsam fir, tamarack, or black spruce. Groundlayer often contains sedges (such as *Carex disperma* and *C. trisperma*) and forbs such as fringed polygala (*Polygala pauciflora*), naked miterwort (*Mitella nuda*), twinflower (*Linnaea borealis*), creeping snowberry (*Gaultheria hispidula*), and Sphagnum and other mosses. Located mainly in northern (occasionally in southeastern) Wisconsin in areas with mineral-enriched groundwater, often on outwash plains and ground moraines. Soils usually muck to mucky peat, minerotrophic, weakly acidic to moderately alkaline [Northern Wet-mesic Forest](#)
- 10b. Canopy dominated by black spruce or tamarack. Cedar and white pine absent to sparse.
- 12a. Located south of Wisconsin's climatic tension zone.
- 13a. Dominated by tamarack, may be co-dominated by American elm, black ash, red maple, or yellow birch. Poison sumac or winterberry often common in tall shrub layer. Sphagnum usually sparse and discontinuous (<40% cover, usually much lower), or if higher, ericaceous shrubs (especially leatherleaf) sparse. Soil substrate usually muck to mucky peat, weakly to moderately acidic (pH >5.5).
..... [Southern Tamarack Swamp](#)
- 13b. Dominated by tamarack or rarely by black spruce. (More commonly, tree layer absent to sparse, but included here in key for convenience for sites with locally higher canopy. See also couple 28 under non-forested wetlands). Tall shrub layer variable. Leatherleaf (*Chamaedaphne calyculata*) and/or huckleberry (*Gaylussacia baccata*) usually abundant in low shrub layer. Sphagnum usually continuous (>40% cover, often much higher, approaching 90% cover). Soils substrate peat, usually very strongly to ultra acidic (3.0 – 5.0). [Bog Relict](#)
- 12b. Located mainly north of Wisconsin's climatic tension zone or in the Central Sand Plains Ecological Landscape. Canopy dominated by black spruce or tamarack; most associates above (American elm, red maple, yellow birch) absent or sparse, though black ash may be present. Note: Formerly, all northern coniferous wetlands dominated by tamarack or black spruce in Wisconsin were termed Northern Wet Forest. While occasional records of this type remain in legacy data, it has been effectively retired and is now split into the following communities.
- 14a. Canopy dominated by black spruce or co-dominant with tamarack. Tall shrub layer (> 5 feet) usually sparse (< 5% total cover, usually much less), shrubs listed in 14b absent to sparse. Sphagnum moss abundant, often forming a nearly continuous carpet. Soils extremely acidic (<4.5). . [Black Spruce Swamp](#)
- 14b. Canopy dominated by tamarack; black ash may be locally co-dominant. Tall shrubs common (> 5% total cover, usually much greater) dominated by species such as speckled alder (*Alnus incana*), mountain holly (*Ilex mucronata*), winterberry (*Ilex verticillata*), black chokeberry (*Aronia melanocarpa*), and bog birch (*Betula pumila*). Sphagnum moss occasional on hummocks, usually discontinuous. Soils strongly to moderately acidic (pH 4.5 – 5.5) [Northern Tamarack Swamp](#)

- 9b. Conifers absent, or, if present, less dominant than hardwoods (may be locally co-dominant in hardwood swamps).
- 15a. Occurring in floodplains of 3rd order or greater streams and rivers. Dominant overstory species include silver maple, green ash, black willow, cottonwood, river birch, basswood, swamp white oak, bur oak, bitternut hickory, and hackberry (boxelder may be dominant in disturbed stands). Where organic soil accumulates in areas such as groundwater seepages, backswamps, and meander scars, tree species may include black ash, yellow birch, red maple, and conifers (tamarack, northern white-cedar, white pine, and hemlock), especially in northern Wisconsin..... [Floodplain Forest](#)
- 15b. Occurring along headwater streams (1st and 2nd orders), seeps, and on poorly drained glacial outwash, lakeplain, and/or depressions in moraines or ice-contact topography.
- 16a. Occurring along sloping seepage areas with active spring discharges in hardwood forests, usually at the head of ravines or at the base of steep bluffs. Found in moraines, river valleys along the margins of sandy outwash plains and escarpments below glacial lakeplains, and in small steep-sided valleys in the Driftless Area..... [Forested Seep](#)
- 16b. Occurring on mostly level terrain along headwater streams, outwash plains, lakeplains, or depressions in moraines and ice-contact topography.
- 17a. Canopy dominated by black ash, often with red maple, yellow birch, or American elm. Conifers such as balsam fir and northern white-cedar may be locally common. Green ash and silver maple absent to sparse. Speckled alder common. Groundlayer dominated by marsh marigold (*Caltha palustris*), swamp raspberry (*Rubus pubescens*), orange jewelweed (*Impatiens capensis*), purple-stemmed aster (*Symphotrichum puniceum*), lake sedge (*Carex lacustris*), blue-joint grass (*Calamagrostis canadensis*); many also include groundwater-loving species like bristle-stalked sedge (*Carex leptalea*), American golden saxifrage (*Chrysosplenium americanum*), and swamp saxifrage (*Micranthes pensylvanica*). Soils mucks or mucky sands, usually constantly saturated with a relatively stable water table. Occurring along lakes, streams, or in poorly drained basins. [Northern Hardwood Swamp](#)
- 17b. Canopy dominated by silver maple, red maple (or the hybrid *Acer X freemanii*), and green ash. Associate species may include swamp white oak, bur oak, basswood, and American elm, which may be dominant in stands impacted by emerald ash borer. Black ash local but not dominant. Speckled alder uncommon or absent. Groundlayer dominated by species typical of floodplain forests such as Virginia wild-rye (*Elymus virginicus*), white grass (*Leersia virginica*), common wood-reed (*Cinna arundinacea*), wood nettle (*Laportea canadensis*), false nettle (*Boehmeria cylindrica*), and Ontario aster (*Symphotrichum ontarionis*). Soils predominantly mineral, water table fluctuating seasonally (wet in the spring, drying below the soil surface by late summer). Occurring in insular basins on low-lying portions of till plains and on lakeplains. Not restricted to southern Wisconsin; the name rather refers to swamps more commonly found in the southern Midwest. [Southern Hardwood Swamp](#)
- 7b. SHRUB-DOMINATED WETLANDS. Trees contributing 30% or less to overall canopy cover. Tall shrubs (> 5 feet) dominant, contributing greater than 50% overall canopy cover.
- 18a. Shrub layer dominated by speckled alder, with alder contributing to half or more of the shrub canopy cover relative to all other shrubs combined. Occurring mainly in central and northern Wisconsin, rare in southern Wisconsin and Driftless Region. [Alder Thicket](#)
- 18b. Shrub layer dominated by a greater diversity of shrubs, often at least 4 or 5 species that are co-dominant. Alder usually present, even common, but contributes less than half of the relative shrub cover. Other common shrub species may include willows (*Salix* spp.), dogwoods (*Cornus* spp.), meadowsweet (*Spiraea alba*), bog birch (*Betula pumila*), nannyberry (*Viburnum lentago*), winterberry (*Ilex verticillata*), poison sumac (*Toxicodendron vernix*), etc. Occurring statewide..... [Shrub-carr](#)

- 6b. OPEN (NON-FORESTED) WETLANDS. Mature trees absent or contributing 30% or less overall canopy cover. Tall shrubs (> 5 feet) contributing to 50% or less canopy cover.
- 19a. Standing water greater than 6 inches deep usually present in normal (non-drought) growing season (most marshes).
- 20a. Vegetation dominated by submergent or floating-leaved aquatic vegetation, or, if emersed, dominated by American lotus-lily (*Nelumbo lutea*).
- 21a. Vegetation dominated by near-continuous (>50%) cover of rooted floating leaved vegetation (i.e., not counting free-floating duckweeds) or American lotus-lily (*Nelumbo lutea*).
- 22a. Vegetation dominated by American lotus-lily. Occurring along margins of large rivers, especially the Mississippi, Lower Wolf and Winnebago Pool lakes.[American Lotus-lily Marsh](#)
- 22b. Vegetation dominated by other species, usually with large round leaves such as white water-lily (*Nymphaea variegata*), bull-head pond-lily (*Nuphar variegata*), or water-shield (*Brasenia schreberi*). Other aquatic macrophytes with long, narrow floating leaves may also be present such as long-leaf pondweed (*Potamogeton nodosus*) and floating-leaf bur-reed (*Sparganium fluctuans*). Occurring in lakes, ponds, or occasionally margins of rivers.[Floating-leaved Marsh](#)
- 21b. Vegetation dominated by submergent aquatics. Rooted aquatic macrophytes with floating leaves (i.e., not counting free-floating duckweeds) less than 50% cover.
- 23a. Vegetation dominated by rosette-forming aquatic macrophytes such as seven-angled pipe-wort (*Eriocaulon aquaticum*), yellow hedge-hyssop (*Gratiola aurea*), aquatic lobelia (*Lobelia dortmanna*), dwarf water-milfoil (*Myriophyllum tenellum*), brown-fruited rush (*Juncus pelocarpus*), and quillworts (*Isoetes* spp). Occurring in clear, deep, circumneutral lakes with extremely soft water in northern Wisconsin. Bottom materials usually sand or occasionally gravel.[Oligotrophic Marsh](#)
- 23b. Vegetation dominated by a wide variety of common aquatic macrophytes, including pondweeds (*Potamogeton* spp.), waterweeds (*Elodea* spp.), coon's-tails (*Ceratophyllum* spp.), slender naiad (*Najas flexilis*), eel-grass (*Vallisneria americana*), water-milfoils (*Myriophyllum* spp.) and bladderworts (*Utricularia* spp.). Occurring in a wide variety of lake types and water chemistries. Bottom materials usually muck or silt but may also include sand and gravel.[Submergent Marsh](#)
- 20b. Vegetation dominated by emergent vegetation, usually 1.5 – 3+ feet above the surface by mid- to late summer.
- 24a. Occurring along the margins of sand-bottomed seepage lakes and ponds on glacial lakebeds (especially Glacial Lake Wisconsin) and outwash plains in south central Wisconsin. Vegetation exhibiting strong zonation with sedges (*Carex* spp.) and bulrush (*Scirpus* spp.) dominant in the emergent zone, aquatic macrophytes (e.g., water-shield, etc.), in deeper water, and with medium-statured grasses, sedges, and forbs disjunct from the Atlantic Coastal Plain in shallow water and along the shore, especially autumn or chestnut sedge (*Fimbristylis* spp.), dwarf umbrella-sedge (*Fuirena pumila*), half-chaff sedge (*Lipocarpus* spp.), beak-rush (*Rhynchospora* spp.), nut-sedge (*Scleria* spp.), brown-fruited rush (*Juncus pelocarpus*), milkworts (*Polygala cruciata* and *P. sanguinea*), tooth-cup (*Rotala ramosior*), meadow-beauty (*Rhexia virginica*), lance-leaved violet (*Viola lanceolata*), and yellow-eyed grass (*Xyris torta*).[Coastal Plain Marsh](#) (high water phase)
- 24b. Occurring in a wide variety of hydrologic settings including inland lakes, Great Lakes, and along rivers
Vegetation dominated by cattail, wild rice, bulrushes, or other species, lacking Coastal Plain disjuncts.
- 21a. Vegetation dominated by northern wild rice (*Zizania palustris*) or southern wild rice (*Zizania aquatica*).
.....[Wild Rice Marsh](#)
- 21b. Vegetation dominated by species such as cattails (*Typha latifolia*), giant reed (*Phragmites australis* var. *americana*), bulrushes (*Schoenoplectus* spp.), river bulrush (*Bolboschoenus fluviatilis*), lake sedge (*Carex lacustris*), bur-reeds (*Sparganium* spp.), water-plantains (*Alisma* spp.), common spike-rush (*Eleocharis palustris*) and occasionally cut grass (*Leersia oryzoides*); wild rice may also present locally but is not dominant across large areas. Non-native cattail (*Typha angustifolia*, *T. X glauca*) and giant reed (*Phragmites australis* var. *australis*) may be occasional to locally common; if dominant, go to Ruderal Marsh (couplet 4a).
.....[Emergent Marsh](#)
- 19b. Standing water absent or less than 6 inches deep throughout community in growing season, though water may be deeper in local pools (peatlands, fens, wetland prairies, sedge meadows, and coastal plain marsh, in part).

- 26a. Community structure characterized by a repeated, alternating pattern of low peat rises (strings) and hollows (flarks), especially evident on aerial photos. Strings may support scattered and stunted black spruce, tamarack, northern white-cedar, low shrubs including bog birch, shrubby cinquefoil, bog rosemary (*Andromeda glaucophylla*), leatherleaf (*Chamaedaphne calyculata*), and sedges (*Carex oligosperma*, *C. limosa*, *C. lasiocarpa*). The alternating flarks are often inundated and may support many sedges of bogs and fens, along with ericads, sundews (*Drosera* spp.), orchids, arrow-grasses (*Triglochin* spp.), and shrubs such as bog birch and shrubby cinquefoil (*Dasiphora fruticosa*). Soils are deep peat and slightly acid to circumneutral. Extremely rare in Wisconsin, known from only a handful of sites. [Patterned Peatland](#)
- 26b. Community structure lacking repeating pattern of low peat rises and alternating hollows.
- 27a. Sphagnum mosses abundant or at least locally dominant on scattered low peat mounds, soils peat. Groundlayer dominated by ericaceous shrubs or sedges.
- 28a. Occurring in kettle basins within glaciated areas in southern Wisconsin or rarely in the Driftless Region and dominated by leatherleaf, few-seeded sedge (*Carex oligosperma*), or wiregrass (*Carex lasiocarpa*). Poison sumac often present, especially near edge of upland and/or lake. "Bog" indicators more typical of northern Wisconsin often present including cranberries (*Vaccinium macrocarpon* and *Vaccinium oxycoccos*), sundews (*Drosera* spp.), pitcher plant (*Sarracenia purpurea*), and rose pogonia (*Pogonia ophioglossoides*) [Bog relict](#)
- 28b. Occurring in central or northern Wisconsin, within or north of the climactic tension zone.
- 29a. Tree canopy cover typically 10 to 30%, consisting of scattered and stunted black spruce and tamarack. Occurring in central and northern Wisconsin. Soils strongly acidic (pH <4.5) deep peat. [Muskeg](#)
- 29b. Trees absent or occurring in localized areas with overall canopy cover typically less than 10%.
- 30a. Vegetation surface uneven and dominated by pronounced Sphagnum hummocks (often 18-24" or more in height) with intervening hollows; hummocks dominated by ericaceous shrubs such as leatherleaf, bog rosemary, Labrador tea, and bog laurel (*Kalmia polifolia*). Soil very strongly acidic, deep fibric peat. Occurring usually in the center of large peatland basins or occasionally on firm peat above a lake margin, always where the rooting zone is elevated above the influence of minerotrophic groundwater. [Open Bog](#)
- 30b. Vegetation surface more even or with widely scattered low hummocks (usually less than 18-24" high). Soils strongly acidic to weakly minerotrophic. Occurring in broad depressions on lakeplains and outwash plains or along the margins of lakes, usually in contact with groundwater or surface water.
- 31a. Vegetation dominated by few-seed sedge (*Carex oligosperma*) and/or wiregrass sedge (*C. lasiocarpa*). Common shrubs are leatherleaf, bog rosemary and occasionally bog birch, plus stunted tamarack and black spruce. Other indicator species include mud sedge (*Carex limosa*), pitcher-plant (*Sarracenia purpurea*), round-leaved sundew (*Drosera rotundifolia*), pod grass (*Scheuchzeria palustris*), bogbean (*Menyanthes trifoliata*) and the pink-flowered orchids (*Calopogon tuberosus*, *Pogonia ophioglossoides* and *Arethusa bulbosa*). Usually occurring north of the climatic tension zone in kettle depressions and on level areas or shallow depressions of glacial outwash and lakeplains, often on the margins of "bog" lakes with a floating or grounded mat of peat and sedge rhizomes. [Poor Fen](#)
- 31b. Vegetation dominated by common yellow lake sedge (*Carex utriculata*), few-seed sedge (*Carex oligosperma*), wiregrass sedge (*C. lasiocarpa*), and bluejoint grass (*Calamagrostis canadensis*); wool grass (*Scirpus cyperinus*) occasional. Small tamarack and white pine scattered. Common shrubs are hardhack (*Spiraea tomentosa*), bristly dewberry (*Rubus hispidus*), leatherleaf, black chokeberry (*Aronia melanocarpa*), Kalm's St. John's-wort (*Hypericum kalmianum*) and sometimes bog birch (*Betula pumila*). Indicator forbs include swamp-candles (*Lysimachia terrestris*) and bog goldenrod (*Solidago uliginosa*). Minerotrophic herbaceous plants and orchids usually lacking. Occurring almost exclusively in the Central Sand Plains on the lakebed of Glacial Lake Wisconsin. [Central Poor Fen](#)
- 27b. Sphagnum mosses absent or local. Soils various. Ground layer dominated by sedges, rushes, grasses, and/or forbs. Ericaceous shrubs absent to sparse.

- 32a. Prairie grasses or bluejoint grass common. Soils loam, silty clay loam, sandy clay loam, sandy clay, clay, or silty clay, sometimes overlain by a few inches of sand.
- 33a. Dominated by big bluestem, little bluestem, Indian grass, and prairie dropseed. Bluejoint grass, cordgrass, and tussock sedge may be present but are uncommon to rare. Forbs usually short (<2 to 3 feet), though may include some taller species such as prairie blazing-star (*Liatris pycnostachya*), prairie phlox (*Phlox pilosa*), prairie coneflower (*Ratibida pinnata*), prairie dock (*Silphium terebinthinaceum*), and Culver's-root (*Veronicastrum virginicum*). "Marsh forbs" (see 33b) absent to sparse [Wet-mesic Prairie](#)
- 33b. Dominated by cordgrass and bluejoint grass with tussock sedge or yellow-headed fox sedge (*Carex annectens*) with at least occasional wet prairie indicators such as winged loosestrife (*Lythrum alatum*) and cowbane (*Oxypolis rigidior*). Big bluestem may be present and rare, but little bluestem, Indian grass, and prairie dropseed absent. Vegetation (including forbs) usually tall (~3+ feet) and rank, may include forbs noted above (33a) as well as "marsh forbs" such as Joe-Pye-weed (*Eutrochium maculatum*), boneset (*Eupatorium perfoliatum*), common water hemlock (*Cicuta maculata*), swamp milkweed (*Asclepias incarnata*), and water smartweed (*Persicaria amphibia*)..... [Wet Prairie](#)
- 32b. Prairie grasses absent to uncommon. Soils sand or peat (occasionally mucky mineral, silty clay loam or clay loam). If heavier mineral soils at surface, soils saturated.
- 34a. Occurring along the shorelines of Lake Michigan and Superior, or in estuarine complexes near the Great Lakes, with hydrology influenced at least indirectly by Great Lakes water levels.
- 35a. Located in coastal embayments, often behind a barrier sandspit or near the mouth of estuarine rivers. Vegetation usually a floating mat dominated by wiregrass sedge (*Carex lasiocarpa*), twig-rush (*Cladium mariscoides*), sweet gale (*Myrica gale*), and buckbean (*Menyanthes trifoliata*)..... [Great Lakes Shore Fen](#)
- 35b. Located in depressions in open dunes or between dune ridges. Soils moist or submerged sand (sometimes covered by a thin layer of muck or marl). Water level sometimes deepening to several feet in center of depression. Species various, but often include Baltic rush (*Juncus balticus*), northern green rush (*Juncus alpinoarticulatus*), silverweed (*Potentilla anserina*), twig-rush (*Cladium mariscoides*), golden-seeded spike-rush (*Eleocharis elliptica*), hairy panic grass (*Dichanthelium acuminatum* var. *fasciculatum*), and sedges (e.g., *Carex aquatilis*, *C. aurea*, *C. lasiocarpa*, *C. oligosperma*, *C. viridula*, and in far northern Wisconsin, *C. michauxii*). [Interdunal Wetland](#)
- 34b. Occurring elsewhere, or, if near the Great Lakes, hydrology not influenced by Great Lakes water levels.
- 36a. Occurring in shallow sandy depressions or on perimeters (or rarely entire shallow basins) of softwater seepage lakes with drying shores and other isolated depressions characterized by large water table fluctuations (both seasonally and from year to year). Soils sand or peaty sand.
- 37a. Occurring along the margins of sand-bottomed seepage lakes and ponds on glacial lakebeds (especially Glacial Lake Wisconsin in the Central Sand Plains) as well as on sandy outwash plains. Vegetation usually exhibiting strong zonation with an aquatic zone, shorted-statured emergent zone, and drier upland zone.
- 38a. Vegetation includes species disjunct from the Atlantic Coastal Plain, including dwarf umbrella-sedge (*Fuirena pumila*), half-chaff sedge (*Lipocarpha* spp.), beak-rush (*Rhynchospora* spp.), nut-sedge (*Scleria* spp.), brown-fruit rush (*Juncus pelocarpus*), milkworts (*Polygala cruciata* and *P. sanguinea*), tooth-cup (*Rotala ramosior*), meadow-beauty (*Rhexia virginica*), and yellow-eyed grass (*Xyris torta*); may also contain species listed below (see 38b)..... [Coastal Plain Marsh](#)
- 38b. Vegetation lacks Coastal Plain specialists (see 38a), dominated by graminoids such as Arctic rush (*Juncus arcticus*), narrow-panicle rush (*J. brevicaudatus*), Smith's bulrush (*Schoenoplectus smithii*), little green sedge (*Carex viridula*), yellow sedge (*C. flava*), broom sedge (*C. scoparia*), clustered beak-rush (*Rhynchospora capitellata*), and containing forbs such as silver-weed (*Argentina anserina*), brook lobelia (*Lobelia kalmii*), purple false foxglove (*Agalinis purpurea*), common false foxglove (*A. tenuifolia*), and northern St. John's-wort (*Hypericum boreale*)..... [Inland Beach](#)
- 37b. Occurring in moist sandy depressions with a high water table, but with little to no standing water; not associated with seepage lakes. Vegetation zonation weak, usually a mixture of species of coastal plain marsh as well as sedge meadow, oak barrens, and/or pine barrens..... [Moist Sandy Meadow](#)

- 36b. Occurring in depressions in glacial lakeplains and outwash plains, abandoned glacial lakebeds, stream corridors, and margins of lakes. Soils usually organic at surface or if mineral at or near surface, soil texture usually clay loam to sandy clay loam (silt loam on degraded sites), rarely sand.
- 39a. Dominated by sedges, particularly tussock sedge (*Carex stricta*), wiregrass sedge (*C. lasiocarpa*), and/or lake sedge (*C. lacustris*), with bluejoint grass occasionally co-dominant. Sedge and bluejoint grass tussocks, if present, often tall (> 6 inches). Soils peat or muck, occasionally saturated clay loam to sandy clay loam, acid to neutral. Wet sedge meadow species such as water smartweed, great water dock (*Rumex britannica*), broad-leaved arrowhead (*Sagittaria latifolia*), marsh skullcap (*Scutellaria galericulata*), and wool grass (*Scirpus cyperinus*) more prevalent than fen specialists (see 39b), which are usually sparse.¹
- 40a. Located in northern Wisconsin, mostly north of the climatic tension zone. Vegetation dominated by sedges (*Carex stricta*, *C. lacustris*, *C. lasiocarpa*, *C. oligosperma*, *C. utriculata*) and bluejoint grass. Species such as leatherleaf, marsh cinquefoil (*Comarum palustre*), northern blue flag (*Iris versicolor*), and bog willow (*Salix pedicellaris*) more prevalent than those listed below (see 40b). Soils neutral to strongly acidic, shallow to deep peat. Frequently invaded by speckled alder with tamarack and/or cedar on the margin [Northern Sedge Meadow](#)
- 40b. Located in southern Wisconsin, mostly south of the climatic tension zone. Vegetation dominated by tussock sedge, lake sedge, and sometimes by wiregrass sedge. Species such as Joe-Pye-weed, jewelweed (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), giant goldenrod (*Solidago gigantea*), glossy-leaved aster (*Symphotrichum firmum*), and tall meadowrue (*Thalictrum dasycarpum*) more prevalent than species listed above (see 40a). Soils are typically neutral to mildly alkaline peat, occasionally saturated clay loam to sandy clay loam. Frequently invaded by dogwoods and willows (e.g., *Salix bebbiana*, *S. discolor*); alder absent to sparse. [Southern Sedge Meadow](#)
- 39b. Dominance usually shared by sedges, grasses, rushes, bulrushes, and forbs (in boreal rich fens, *Carex lasiocarpa* may be dominant). Sedge tussocks, if present, usually short (< 6 inches). Soils neutral to moderately alkaline deep peat or marl. Vegetation strongly influenced by surface and subsurface groundwater seepage. Fen specialists such as sedges (*Carex buxbaumii*, *C. leptalea*, *C. limosa*, *C. livida*, *C. sterilis*), Kalm's lobelia (*Lobelia kalmii*), bog goldenrod (*Solidago uliginosa*), pitcher-plant (*Sarracenia purpurea*), beak-rushes (*Rhynchospora alba* and *R. capillacea*), bog arrowgrass (*Triglochin maritimum*), twig-rush (*Cladium mariscoides*), golden-seeded spike-rush (*Eleocharis elliptica*), shrubby cinquefoil (*Dasiphora fruticosa*), and alder-leaved buckthorn (*Rhamnus alnifolia*) more prevalent than sedge meadow/marsh specialists (see 39a), which are usually sparse.
- 41a. Located in northern Wisconsin, often adjacent to lakes or cedar swamps. Northern shrubs and stunted trees present such as bog rosemary, leatherleaf, sweet gale, northern white-cedar, tamarack, and black spruce. [Boreal Rich Fen](#)
- 41b. Located in southern Wisconsin or occasionally in central Wisconsin, primarily in interlobate regions and occasionally in the Driftless Region. Species of prairies and calcareous southern wetlands present such as big bluestem, little bluestem, whorled loosestrife (*Lysimachia quadriflora*), cowbane (*Oxypolis rigidior*), swamp lousewort (*Pedicularis lanceolata*), Virginia mountain-mint (*Pycnanthemum virginianum*), Riddell's goldenrod (*Solidago riddellii*), and poison sumac (*Toxicodendron vernix*) [Calcareous Fen](#)

¹ Some wetland restorations may key here, especially where conducted on former agricultural land, but may not match the descriptions of naturally-occurring sedge meadow communities. For an alternate categorization of these sites, please see the U.S. National Vegetation Classification description for [Sedge species - Canada Bluejoint Midwest Wet Meadow Alliance](#).