



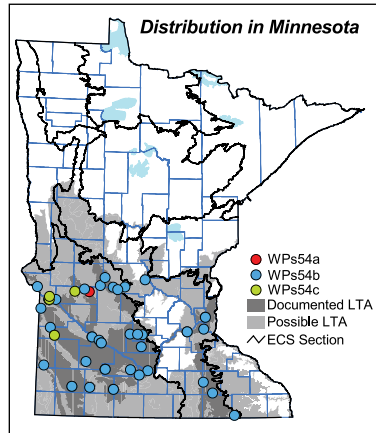
## Southern Wet Prairie

Grass-dominated but forb-rich herbaceous communities on poorly drained to very poorly drained loam soils formed in lacustrine sediments, unsorted glacial till, or less frequently outwash deposits. Typically in slight depressions, sometimes on very gentle slopes. Flooded for brief periods at most; upper part of rooting zone is not saturated for most of growing season, but saturation usually persists in lower zone for much of season.

### Vegetation Structure & Composition

Description is based on summary of vegetation data from 51 plots (relevés).

- Graminoid** cover is usually continuous (75–100%). Tallgrasses dominate, but several midheight and low grasses and sedges are also important. Prairie cordgrass (*Spartina pectinata*) and big bluestem (*Andropogon gerardii*) are the dominant tallgrasses; Indian grass (*Sorghastrum nutans*) and switchgrass (*Panicum virgatum*) are frequently important. Narrow reedgrass (*Calamagrostis stricta*) is a major species in the western part of the state. Woolly sedge (*Carex pellita*) is often an important component, and rigid sedge (*C. tetanica*) and flattened spikerush (*Eleocharis compressa*) are frequently present. Mat muhly grass (*Muhlenbergia richardsonis*) is sometimes abundant, growing under taller species or even forming most of the cover on saline sites in western Minnesota.
- Forb** cover is sparse to patchy (5–50%). Canada goldenrod (*Solidago canadensis*) and giant, sawtooth, or Nuttall's sunflower (*Helianthus giganteus*, *H. grosseserratus*, or *H. nuttallii*) are typically most common. Other common taller forbs are giant goldenrod (*Solidago gigantea*), tall meadow-rue (*Thalictrum dasycarpum*), eastern panicled aster (*Aster lanceolatus*), and great blazing star (*Liatris pycnostachya*). Common midheight species are heath aster (*Aster ericoides*), clasping dogbane (*Apocynum sibiricum*), Virginia mountain mint (*Pycnanthemum virginianum*), and golden alexanders (*Zizia aurea*). Common strawberry (*Fragaria virginiana*), golden or false golden ragwort (*Senecio aureus* or *S. pseudoaureus*), and northern bog violet (*Viola nephrophylla*) are typically common in the lowest layer. Forb diversity and height decrease where soil salinity is elevated.
- Shrub layer** is absent to sparse (0–25% cover). The low semi-shrub prairie rose (*Rosa arkansana*) is most frequent; red-osier dogwood (*Cornus sericeus*) and pussy willow (*Salix discolor*) are occasional.



### Landscape Setting & Soils

WPs54 occurs predominantly in a low-relief landscape interrupted by areas of greater relief associated with stagnation moraines and large erosional features created by glacial meltwaters; an exception is the deeply dissected PPL in the southeast corner of the state, where WPs54 is rare. WPs54 occupies plane or concave surfaces in shallow depressions and drainageways in ground moraines and end moraines and in smaller inclusions of outwash and lacustrine sediments. In southwestern and southeastern Minnesota, outside the boundaries of the Wisconsin glacial deposits, WPs54 occurs in similar settings on older, loess-mantled ground moraines. Soils are poorly drained loams, most commonly fine textured, although coarser-textured loams and even loamy sands also support WPs54 where the water table is persistently close to the surface. All soils are mollisols, characterized by thick, dark upper horizons with high base saturation and dominantly bivalent cations. The organic content is high to very high, but all wet prairie soils are considered mineral soils.



### Natural History

Although WPs54 is characterized by wet-mesic or wet conditions, WPs54 is not as strongly influenced by wetland processes associated with inundation and soil saturation as Wet Meadow communities. Flooding episodes are brief following snowmelt and heavy rains. The water table typically remains within the rooting zone of most plants for several weeks during the growing season, but at least the upper part of the zone is not saturated for most of the season. In some situations on slopes, groundwater seepage maintains continuously moist but not saturated soil conditions. The dominant plant species in WPs54 lack the physiological and morphological adaptations to tolerate anoxic soil conditions that typify the plants of wetter communities. In western Minnesota, local areas of salt accumulation within wet sites favor species tolerant of salinity, including several species associated with droughty upland sites that can tolerate osmotically induced moisture stress. Recurrent fire is essential for the existence of WPs54, as environmental conditions are otherwise favorable for the development of forest. Fire also recycles nutrients bound up in litter and promotes flowering and seed production; fire temporarily opens up the soil surface and so probably plays an important role in plant regeneration. Before Euro-American settlement, grazing and trampling by large ungulates were presumably regular occurrences in WPs54, although it is possible that wet prairies were less favored than upland prairies. The contribution of this disturbance to the composition and structure of the vegetation is not well understood, although confined grazing by domestic livestock can quickly destroy wet prairies, promoting the replacement of most of the native species by introduced ones. Disturbance can be especially severe when soils are saturated. Episodic grazing probably allows for the persistence of some native species that cannot otherwise reproduce in the dense canopy of tall grasses and forbs of WPs54; these would include shorter-stature species and especially annual or biennial plants. Spatial patchiness in grazing intensity also influenced fire behavior, providing a shifting patchwork of refugia for fire-sensitive animal species.

### Similar Native Plant Community Classes

- **WPn53 Northern Wet Prairie**

WPn53 is similar to WPs54 but is more likely to have abundant shrubs, with the shrub component increasing northward in the community's range. Important shrubs include several willows (*Salix* spp.), bog birch (*Betula pumila*), and in the LAP, shrubby cinquefoil (*Potentilla fruticosa*). Species of WPs54 that do not occur in WPn53 are limited to only part of the range of WPs54 or are not common. Elevated soil salinity is more common in WPn53 than in WPs54. The boundary between the ranges of these two classes is set more or less by convention, and further study may determine that it should be repositioned or abandoned.

WPs54 Indicator Species	(freq%)		WPs54 Indicator Species	(freq%)	
	WPs54	WPn53		WPs54	WPn53
Gray-headed coneflower ( <i>Ratibida pinnata</i> )	27	-	Tufted hair grass ( <i>Deschampsia cespitosa</i> )	-	64
Canada tick trefoil ( <i>Desmodium canadense</i> )	22	-	Bog birch ( <i>Betula pumila</i> )	-	43
Skyblue aster ( <i>Aster oolentangensis</i> )	22	-	White aster-like goldenrod ( <i>Solidago tarrnicoides</i> )	-	20
Wild garlic ( <i>Allium canadense</i> )	16	-	Kalm's lobelia ( <i>Lobelia kalmii</i> )	-	20
Cup plant ( <i>Silphium perfoliatum</i> )	12	-	Crawe's sedge ( <i>Carex crawei</i> )	2	12
Tussock sedge ( <i>Carex stricta</i> )	24	1	Slender willow ( <i>Salix petiolaris</i> )	10	54
Veiny pea ( <i>Lathyrus venosus</i> )	18	1	Seaside arrowgrass ( <i>Triglochin maritima</i> )	6	27
Prairie phlox ( <i>Phlox pilosa</i> )	33	4	Bebb's willow ( <i>Salix bebbiana</i> )	10	43

- **UPs23 Southern Mesic Prairie**

UPs23 grades into WPs54 at the moist end of the moisture gradient in UPs23, without a distinct floristic boundary between the two classes. UPs23 typically occurs on drier sites, on perceptibly convex sites or slopes, but topographic differences between the classes are not always apparent. Big bluestem and prairie dropseed (*Sporobolus heterolepis*) are more important in UPs23 than in WPs54. Conversely, prairie cordgrass and mat muhly grass are much less important in UPs23 than WPs54. Sedges (*Carex* spp.) are only a minor component of UPs23 but important in WPs54.



WPs54 Indicator Species	(freq%)	
	WPs54	UPs23
Bluejoint ( <i>Calamagrostis canadensis</i> )	25	1
Spotted water hemlock ( <i>Cicuta maculata</i> )	35	2
Autumn sneezeweed ( <i>Helonium autumnale</i> )	37	3
Prairie loosestrife ( <i>Lysimachia quadriflora</i> )	33	4
Riddell's goldenrod ( <i>Solidago riddellii</i> )	41	6
Golden or False golden ragwort*	43	9
Woolly sedge ( <i>Carex pellita</i> )	41	9
Northern bog violet ( <i>Viola nephrophylla</i> )	41	9

\*Golden or False golden ragwort (*Senecio aureus* or *S. pseudaeureus*)

UPs23 Indicator Species	(freq%)	
	WPs54	UPs23
Stiff sunflower ( <i>Helianthus pauciflorus</i> )	-	50
White sage ( <i>Artemisia ludoviciana</i> )	-	43
Porcupine grass ( <i>Stipa spartea</i> )	2	58
Leiberg's panic grass ( <i>Panicum leibergii</i> )	2	43
Leadplant ( <i>Amorpha canescens</i> )	6	74
Missouri goldenrod ( <i>Solidago missouriensis</i> )	4	47
Rough blazing star ( <i>Liatris aspera</i> )	6	59
White prairie clover ( <i>Dalea candida</i> )	8	55

### • WMs92 Southern Basin Wet Meadow/Carr

WPs54 and WMs92 occur in similar landscape settings, but soils in WPs54 are only briefly saturated in late spring, while soils in WMs92 are saturated throughout summer. As a result, WMs92 is more likely to have wetland species tolerant of long periods of inundation or saturated soils. WMs92 is usually strongly dominated by slough sedge (*Carex atherodes*) or occasionally by lake sedge (*Carex lacustris*); whitetop (*Scolochloa festucacea*) is typically codominant or an important subdominant with slough sedge, while bluejoint (*Calamagrostis canadensis*) is usually the major grass with lake sedge. Prairie cordgrass may be present in WMs92 but is much less common than in WPs54. The other typical prairie grasses of WPs54 are very rare in WMs92.

WPs54 Indicator Species	(freq%)	
	WPs54	WMs92
Big bluestem ( <i>Andropogon gerardii</i> )	80	-
Heath aster ( <i>Aster ericoides</i> )	67	-
Virginia mountain mint ( <i>Pycnanthemum virginianum</i> )	57	-
Great blazing star ( <i>Liatris pycnostachya</i> )	53	-
Indian grass ( <i>Sorghastrum nutans</i> )	51	-
Golden alexanders ( <i>Zizia aurea</i> )	49	-
Switchgrass ( <i>Panicum virgatum</i> )	47	-
Golden or False golden ragwort*	43	-

\*Golden or False golden ragwort (*Senecio aureus* or *S. pseudaeureus*)

WMs92 Indicator Species	(freq%)	
	WPs54	WMs92
Slough sedge ( <i>Carex atherodes</i> )	-	95
Water parsnip ( <i>Sium suave</i> )	-	41
Whitetop ( <i>Scolochloa festucacea</i> )	-	36
Common mint ( <i>Mentha arvensis</i> )	-	32
Marsh skullcap ( <i>Scutellaria galericulata</i> )	-	27
Tufted loosestrife ( <i>Lysimachia thyriflora</i> )	-	23
Great water dock ( <i>Rumex orbiculatus</i> )	-	18
Lake sedge ( <i>Carex lacustris</i> )	2	27

### • WMs83 Southern Seepage Meadow/Carr

WMs83 can appear similar to WPs54 but occurs on organic and mineral soils where groundwater seepage maintains high soil moisture conditions, whereas WPs54 is always on mineral soils. Sedges (*Carex* spp.) dominate WMs83, whereas grasses dominate WPs54. The major prairie grasses of WPs54 are rare in WMs83, except prairie cordgrass, and it is not common. Cattails (*Typha* spp.) are frequently present in WMs83 but absent from WPs54.

WPs54 Indicator Species	(freq%)	
	WPs54	WMs83
Heath aster ( <i>Aster ericoides</i> )	67	-
Great blazing star ( <i>Liatris pycnostachya</i> )	53	-
Indian grass ( <i>Sorghastrum nutans</i> )	51	-
Switchgrass ( <i>Panicum virgatum</i> )	47	-
Riddell's goldenrod ( <i>Solidago riddellii</i> )	41	-
Rigid sedge ( <i>Carex tetanica</i> )	39	-
Big bluestem ( <i>Andropogon gerardii</i> )	80	4
Mat muhly grass ( <i>Muhlenbergia richardsonis</i> )	33	2

WMs83 Indicator Species	(freq%)	
	WPs54	WMs83
Great water dock ( <i>Rumex orbiculatus</i> )	-	63
Common marsh marigold ( <i>Caltha palustris</i> )	-	41
Broad-leaved cattail ( <i>Typha latifolia</i> )	-	37
Tufted loosestrife ( <i>Lysimachia thyriflora</i> )	-	28
Marsh skullcap ( <i>Scutellaria galericulata</i> )	-	28
Lake sedge ( <i>Carex lacustris</i> )	2	35
Porcupine sedge ( <i>Carex hystericina</i> )	2	30
Marsh bellflower ( <i>Campanula aparinoides</i> )	4	57

### • WMp73 Prairie Wet Meadow/Carr

WMP73 and WPs54 are nearly indistinguishable in topographic character, but WMP73 is subject to shallow flooding and soil saturation of longer duration than is WPs54. Prairie cordgrass and woolly sedge (*Carex pellita*) are major species in both, but narrow reedgrass and Sartwell's sedge (*Carex sartwellii*) are major species in WMP73 and minor components of WPs54. Tussock sedge (*C. stricta*) is sometimes common in both. The upland prairie grasses that are common in WPs54 are absent from WMP73, and forb diversity is lower in the latter. WMP73 has been documented only in western Minnesota, in the CGP, RRV, and LAP.



WPs54 Indicator Species	(freq%)	
	WPs54	WMP73
Big bluestem ( <i>Andropogon gerardii</i> )	80	-
Heath aster ( <i>Aster ericoides</i> )	67	-
Great blazing star ( <i>Liatris pycnostachya</i> )	53	-
Indian grass ( <i>Sorghastrum nutans</i> )	51	-
Switchgrass ( <i>Panicum virgatum</i> )	47	-
Northern plains blazing star ( <i>Liatris ligulistylis</i> )	41	-
Stiff goldenrod ( <i>Solidago rigida</i> )	35	-
Prairie phlox ( <i>Phlox pilosa</i> )	33	-

WMP73 Indicator Species	(freq%)	
	WPs54	WMP73
Common mint ( <i>Mentha arvensis</i> )	-	56
Linear-leaved, Marsh, or Downy willow-herb*	4	56
Red-stalked spikerush ( <i>Eleocharis palustris</i> )	4	44
Dark green or Pale bulrush**	12	89
Water smartweed ( <i>Polygonum amphibium</i> )	12	78
Sartwell's sedge ( <i>Carex sartwellii</i> )	16	89
Spotted Joe pye weed ( <i>Eupatorium maculatum</i> )	14	67
Rough bugleweed ( <i>Lycopus asper</i> )	18	67

\*Linear-leaved, Marsh, or Downy willow-herb (*Epilobium leptophyllum*, *E. palustre*, or *E. strictum*) \*\*Dark green or Pale bulrush (*Scirpus atrovirens* or *S. pallidus*) \*

## • OPp93 Prairie Extremely Rich Fen

OPp93 may sometimes resemble examples of WPs54 that are influenced by groundwater seepage (WPs54a). Vegetation data for WPs54a are available from only one plot, making tabular summary of differences largely meaningless. The comparison of OPp93 with WPN53 in the fact sheet for the latter should work reasonably well for OPp93 versus WPs54a.

## Native Plant Community Types in Class

### • WPs54a Wet Seepage Prairie (Southern)

Grass-dominated, forb-rich herbaceous communities typically on slight slopes where seepage of groundwater maintains soil moisture. On very organic-rich mineral soil. Typical wet prairie species are common, but some species associated with wet meadows are also common. Tussock sedge (*Carex stricta*) is characteristic and often a major component with bluejoint. Other species present in WPs54a that are uncommon in other types in the class include interior sedge (*Carex interior*), clustered muhly grass (*Muhlenbergia glomerata*), and fringed brome (*Bromus ciliatus*). Giant goldenrod, spotted Joe pye weed (*Eupatorium maculatum*), flat-topped aster (*Aster umbellatus*), and swamp thistle (*Cirsium muticum*) are much more common than in other types in the class. WPs54a has been documented only in the northern part of the CGP. Description is based on field observation and vegetation data from 1 plot.

### • WPs54b Wet Prairie (Southern)

Grass-dominated, forb-rich herbaceous communities. Big bluestem and prairie cordgrass are the usual dominant species, either together or separately. Switchgrass and Indian grass are frequently present and often are major components. Woolly sedge (*Carex pellita*) and mat muhly grass are often common. The forb component of WPs54b is species rich. Canada goldenrod is usually present and often abundant. Other common forbs are tall meadow-rue, eastern panicled aster, Virginia mountain mint, clasp dogbane, heath aster, great blazing star, golden alexanders, giant, sawtooth, or Nuttall's sunflower, and giant goldenrod. Documented in the southern half of the MIM and throughout the CGP. Description is based on summary of vegetation data from 44 plots.

### • WPs54c Wet Saline Prairie (Southern)

Grass-dominated herbaceous communities, most commonly present as small inclusions in wet prairies but sometimes more extensive. Zonation related to differences in salt concentration is usually evident; bare, salt-encrusted patches are sometimes present. WPs54c is much less species rich than other types in this class. Several species characteristic of mesic and drier habitats are common. Little bluestem (*Schizachyrium scoparium*) is commonly dominant, with switchgrass and mat muhly grass. Big bluestem and Indian grass are sometimes present as major components. Prairie cordgrass is usually present but subdominant or minor. Among grass species distinctive of WPs54c relative to the other types in WPs54, foxtail barley (*Hordeum jubatum*), scratchgrass (*Muhlenbergia asperifolia*), and salt grass (*Distichlis spicata*) are most common, while rough dropseed (*Sporobolus asper*), plains bluegrass (*Poa arida*), and western wheatgrass (*Elytrigia smithii*) are less frequent. The most abundant forbs in WPs54c are usually heath aster, western ragweed (*Ambrosia psilostachya*), and Canada goldenrod. Alkali plantain (*Plantago eriopoda*) is distinctive and often common. Several species very common in other types in the class are rare to absent in WPs54c, including woolly



sedge (*Carex pellita*), tall meadow-rue, golden alexanders, and common strawberry. WPs54c has been documented only in the western part of the CGP. Description is based on summary of vegetation data from 6 plots.



photo by R. P. Dana, MN DNR

Jackson County, MN



### WPs54 Southern Wet Prairie — Species Frequency & Cover

	freq%	cover		freq%	cover
<b>Forbs, Ferns &amp; Fern Allies</b>					
Canada goldenrod ( <i>Solidago canadensis</i> )	78	●●●	Grass-leaved goldenrod ( <i>Euthamia graminifolia</i> )	22	●●
Tall meadow-rue ( <i>Thalictrum dasycarpum</i> )	69	●●	New England aster ( <i>Aster novae-angliae</i> )	22	●●
Heart aster ( <i>Aster ericoides</i> )	67	●●	Canada tick trefoil ( <i>Desmodium canadense</i> )	22	●●
Eastern panicled aster ( <i>Aster lanceolatus</i> )	61	●●	Skyblue aster ( <i>Aster oolentangensis</i> )	22	●●
Clasping dogbane ( <i>Apocynum sibiricum</i> )	61	●●	Swamp thistle ( <i>Cirsium muticum</i> )	22	●●
Virginia mountain mint ( <i>Physantherum virginianum</i> )	57	●●	Bottle gentian ( <i>Gentiana andrewsii</i> )	20	●●
Common strawberry ( <i>Fragaria virginiana</i> )	55	●●	Rough bugleweed ( <i>Lycopus asper</i> )	18	●●
Great blazing star ( <i>Liatris pycnostachya</i> )	53	●●	Veiny pea ( <i>Lathyrus venosus</i> )	18	●●
Giant, Sawtooth, or Nuttall's sunflower*	51	●●●	Swamp lousewort ( <i>Pedicularis lanceolata</i> )	16	●●
Golden alexanders ( <i>Zizia aurea</i> )	49	●●	Culver's root ( <i>Veronicastrum virginicum</i> )	14	●●
Giant goldenrod ( <i>Solidago gigantea</i> )	45	●●	Flat-topped aster ( <i>Aster umbellatus</i> )	14	●●
Golden or False golden ragwort ( <i>Senecio aureus</i> or <i>S. pseudaurus</i> )	43	●●	Great lobelia ( <i>Lobelia siphilitica</i> )	12	●●
Riddell's goldenrod ( <i>Solidago riddellii</i> )	41	●●	Yellow stargrass ( <i>Hypoxis hirsuta</i> )	12	●●
Northern bog violet ( <i>Viola nephrophylla</i> )	41	●●	Cup plant ( <i>Silphium perfoliatum</i> )	12	●●
Northern plains blazing star ( <i>Liatris ligulistylis</i> )	41	●●	Wood lily ( <i>Lilium philadelphicum</i> )	12	●●
Heart-leaved alexanders ( <i>Zizia aptera</i> )	39	●●	<b>Grasses &amp; Sedges</b>		
Autumn sneezeweed ( <i>Helenium autumnale</i> )	37	●●	Prairie cordgrass ( <i>Spartina pectinata</i> )	86	●●●
Spotted water hemlock ( <i>Cicuta maculata</i> )	35	●●	Big bluestem ( <i>Andropogon gerardii</i> )	80	●●●
Stiff goldenrod ( <i>Solidago rigida</i> )	35	●●	Indian grass ( <i>Sorghastrum nutans</i> )	51	●●●
Prairie loosesstle ( <i>Lysimachia quadriflora</i> )	33	●●	Switchgrass ( <i>Panicum virgatum</i> )	47	●●●
Prairie phlox ( <i>Phlox pilosa</i> )	33	●●	Woolly sedge ( <i>Carex pellita</i> )	41	●●●
Swamp milkweed ( <i>Asclepias incarnata</i> )	33	●●	Rigid sedge ( <i>Carex telanica</i> )	39	●●
White carnas ( <i>Zigadenus elegans</i> )	33	●●	Flattened spikerush ( <i>Eleocharis compressa</i> )	39	●●
Northern bedstraw ( <i>Galium boreale</i> )	29	●●	Mat mully grass ( <i>Muhlenbergia richardsonii</i> )	33	●●●
Purple prairie clover ( <i>Dalea purpurea</i> )	29	●●	Bluepoint ( <i>Calamagrostis canadensis</i> )	25	●●
Yarrow ( <i>Achillea millefolium</i> )	29	●●	Baltic rush ( <i>Juncus arcticus</i> )	25	●●
Pale-spiked lobelia ( <i>Lobelia spicata</i> )	29	●●	Tussock sedge ( <i>Carex stricta</i> )	24	●●●
Canada anemone ( <i>Anemone canadensis</i> )	27	●●	Prairie dropseed ( <i>Sporobolus heterolepis</i> )	24	●●
Gray-headed coneflower ( <i>Ratibida pinnata</i> )	27	●●	Narrow reedgrass ( <i>Calamagrostis stricta</i> )	24	●●
Marsh verbena ( <i>Lathyrus palustris</i> )	27	●●	Fowl manna grass ( <i>Glyceria striata</i> )	20	●●
Smooth scounging rush ( <i>Equisetum laevigatum</i> )	25	●●	<b>Semi-Shrubs</b>		
Cut-leaved bugleweed ( <i>Lycopus americanus</i> )	25	●●	Prairie rose ( <i>Rosa arkansana</i> )	29	●●
Maximilian's sunflower ( <i>Helianthus maximiliani</i> )	24	●●	<b>Shrubs</b>		
Field horsetail ( <i>Equisetum arvense</i> )	24	●●	Red-osier dogwood ( <i>Cornus sericea</i> )	18	●●
			Pussy willow ( <i>Salix discolor</i> )	16	●●

\* Giant, Sawtooth, or Nuttall's sunflower (*Helianthus giganteus*, *H. grosseserratus*, or *H. nuttallii*)