

Minnesota Biological Survey
Wetland Prairie System – Condition Ranking Guidelines
(This is a working document that is periodically revised as new information is available)
May 2014 version



Condition Ranks for Native Plant Communities

Condition Ranks for native plant communities reflect the degree of ecological integrity of a specific occurrence of a native plant community. Condition Ranks are assigned by considering species composition, vegetation structure, ecological processes and functions, level of human disturbance, presence of exotic species, and other factors. Condition Ranks are assigned on a scale of A to D.

- A-rank occurrences have excellent ecological integrity. They have species composition, structure, and ecological processes typical of the natural or historic range of the community and have been little degraded by recent human activity or invasive species.
- B-rank occurrences have good ecological integrity. They include plant communities with modest degradation or that were degraded in the past but have recovered and now have relatively natural composition and structure. B-rank occurrences normally will return to A-rank condition with protection or appropriate management.
- C-rank occurrences have fair ecological integrity. They show strong evidence of human-caused degradation, but retain some characteristic species and have some potential for recovery with protection and management.
- D-rank occurrences have poor ecological integrity. The original composition and structure of the community have been severely altered by human-caused degradation or invasion by exotic species. They have little chance of recovery to their natural or historic condition.

- The Wetland Prairie System contains the following native plant community classes and types:
 - WPn53 Northern Wet Prairie
 - WPn53a Wet Seepage Prairie (Northern)
 - WPn53b Wet Brush-Prairie (Northern)
 - WPn53c Wet Prairie (Northern)
 - WPn53d Wet Saline Prairie (Northern)
 - WPs54 Southern Wet Prairie
 - WPs54a (Wet Seepage Prairie (Southern))
 - WPs54b (Wet Prairie (Southern))
 - WPs54c (Wet Saline Prairie (Southern))
- For information on the plant community classes and types in this System, please refer to the Wetland Prairie System in *Field Guide to the Native Plant Communities of Minnesota: The Prairie Parkland and Tallgrass Aspen Parklands Provinces* (MNDNR 2005) or *Field Guide to the Native Plant Communities of Minnesota: The Eastern Broadleaf Forest Province* (MNDNR 2005).
- For checklists and distribution maps of native plant species in Minnesota, refer to the MNDNR’s State Checklists on the MNDNR website at: http://www.dnr.state.mn.us/eco/mcbs/plant_lists.html

1) What is an A-rank Occurrence?

- Site has structure and composition free of human-caused degradation from overgrazing, draining, flooding, poorly-timed haying, siltation, herbicide application/drift, invasive species invasion, fertilizer drift, fire suppression, tree planting, and ATV use. A-rank occurrences are considered high-quality prairie and typically have the following conditions:
 - A diverse assemblage of native species is present, including “decreaser” species (see Weaver 1954) that decline with persistent moderate to heavy grazing (Table 1). Note that Wet Saline Prairies (WPn53d, WPs54c) typically have low diversity and abundance of forb species.

- The vegetation composition shows little evidence of degradation in the form of increased relative abundances of grazing increasers (Table 2).
- Non-native, invasive species (Table 3) are absent or barely present with the exception of Kentucky bluegrass (*Poa pratensis*), which is almost universally present today in wet prairies. Kentucky bluegrass is at most a minor constituent of A-rank prairies.
- Site has a natural water regime (hydrology), such as no evidence that natural water table levels have been altered by ditching, irrigation pumping, upslope gravel mining, water impounding, etc.

2) What is a B-rank Occurrence?

- Site has structure and composition similar to that of an A-rank occurrence, but has altered species abundances and richness due to moderate levels of degradation from overgrazing, poorly-timed haying, woody plant invasion, minor wetland drainage, fertilizer drift, minor herbicide exposure, invasive species, tree planting, or low to moderate ATV use. B-rank occurrences are considered high-quality prairie and typically have the following conditions:
 - Native species richness is high but some decreaser species appropriate to the site are missing, and other decreaser species are much less common than in A-rank sites (Table 1).
 - Species that increase in response to human-caused degradation are more abundant than in A-rank occurrences (Table 2). Examples include grazing increasers due to grazing or woody species due to fire suppression.
 - The invasive species Kentucky bluegrass and redtop (*Agrostis gigantea*) may be present at moderate levels of infestation, but other invasive species are absent or barely present. Reed canary grass (*Phalaris arundinacea*), if present, is confined to narrow zones on the margins of the wetland.
 - In sites that have been grazed, the ground surface may have minor compaction and hummocking from livestock.

3) What is a C-rank Occurrence?

- Site is still dominated by native species, but has moderate to heavy degradation from overgrazing, wetland drainage, haying, fire suppression, moderate herbicide exposure, siltation, significant invasive species invasion, or tree planting. C-rank occurrences are considered fair-quality prairie and typically have the following conditions:
 - Native graminoids still dominate throughout the site or co-dominate with shrubs, but overall plant species diversity is low due to loss of species that decrease in abundance with persistent moderate to heavy grazing (Table 1).
 - On sites degraded by grazing, heavy livestock traffic on wet soils breaks up the prairie turf and creates exposed bare soils prone to the invasion of invasive plant species. Native plant species that increase with grazing pressure are highly abundant (Table 2).
 - Invasive species are moderately abundant, including Kentucky bluegrass, field sow thistle (*Sonchus arvensis*), timothy (*Phleum pratense*), black medick (*Medicago lupulina*), white clover (*Trifolium repens*), red clover (*T. pratense*), Alsike clover (*T. hybridum*), Canada thistle (*Cirsium arvense*), or redtop (Table 3). Reed canary grass may be present as discrete patches covering no more than 20% of the site or is confined to zones on the margins of deeper wet depressions.
 - In sites grazed by cattle, the ground surface may be moderately compacted and hummocky.

4) What is a D-rank Occurrence?

- Site has been highly degraded and the native vegetation has been severely altered, but enough native species are present that the occurrence can still be recognized as the community type it was prior to being degraded. D-rank occurrences are considered poor-quality prairie and typically have the following conditions:
 - Site is dominated by exotic species, typically Kentucky bluegrass, quackgrass (*Elymus [Agropyron] repens*), and/or redtop, but native graminoids are common enough for the occurrence to be recognized as native prairie and not old field. The invasive species reed canary grass covers no more than 50% of the site.
 - Overall native species richness is low, as sensitive species such as grazing decreaseers are absent.
 - Disturbance increaseers are highly abundant.
 - In grazed sites, the ground surface is highly compacted and/or hummocky.
 - In sites where herbicide has been applied repeatedly native forbs are absent.

5) Mapping notes:

- Polygon sizes:
 - Map A-D rank occurrences that are 5 acres or larger.
 - Map smaller occurrences if they meet one of the following exceptions:
 - It is within a larger area of native plant communities important for conservation action.
 - It is habitat for a rare species.
 - It is one of the very few occurrences of the type in an LTA.
 - It is A- or B-rank.
- If a large prairie has a dense area of reed canary grass at one end but the rest is in good condition, map the intact prairie and not the reed canary grass-dominated areas unless native species are present within the reed canary grass-dominated zone, in which case map it all. If the reed canary-dominated zone is at least 2 acres in size, consider mapping it as a separate polygon.
- On rare occasions, a reconstructed or restored prairie may be sufficiently diverse—consisting of species and ecotypes appropriate for its location—to be ranked as a native plant community. If such a site is virtually indiscernible from a native occurrence, it may be mapped and ranked according to the criteria in these guidelines, but polygon attributes or other database entries should note that it is restored/reconstructed.
- On some landforms, wet prairies may occur in a complex mosaic with other communities such as mesic prairie, related to variation in microtopography. In such cases, where individual occurrences of wet prairie cannot be mapped separately, the occurrence may be mapped as part of a native plant community complex.

Revised by Fred Harris and Robert Dana

30 May 2014

Reference:

Weaver, J.E. 1954. North American Prairie. Johansen Publishing Co., Lincoln, NE.

Table 1. Examples of species that decrease with overgrazing¹ in Wet Prairie communities:

Common Name	Scientific Name	Limited Distribution
Fragrant false indigo	<i>Amorpha nana*</i>	
Big bluestem	<i>Andropogon gerardii</i>	
Sweet grass	<i>Anthoxanthum hirtum</i>	
Swamp milkweed	<i>Asclepias incarnata</i>	
Showy milkweed	<i>Asclepias speciosa</i>	
Canada milk-vetch	<i>Astragalus canadensis</i>	
Buxbaum's sedge	<i>Carex buxbaumii</i>	
Wood-sedge	<i>Carex tetanica</i>	
Indian paintbrush	<i>Castelja coccinea</i>	
Swamp thistle	<i>Cirsium muticum</i>	
Small white lady-slipper	<i>Cypripedium candidum</i>	
White prairie clover	<i>Dalea candida</i> var. <i>candida*</i>	
Purple prairie clover	<i>Dalea purpurea</i>	
Canadian tick-trefoil	<i>Desmodium canadense*</i>	
Flat-topped aster	<i>Doellingeria umbellata</i>	
Spotted Joe-pye weed	<i>Eupatorium maculatum</i>	
Northern gentian	<i>Gentiana affinis</i>	Northwestern MN saline prairie
Bottle gentian	<i>Gentiana andrewsii</i>	
Autumn sneezeweed	<i>Helenium autumnale</i>	
Yellow star-grass	<i>Hypoxis hirsuta</i>	
Junegrass	<i>Koeleria pyramidata</i>	
Marsh vetchling	<i>Lathyrus palustris</i>	
Rough blazing star	<i>Liatris aspera</i>	
Northern plains blazing star	<i>Liatris ligulistylis</i>	
Gayfeather	<i>Liatris pycnostachya</i>	
Michigan lily	<i>Lilium michiganense</i>	
Wood lily	<i>Lilium philadelphicum*</i>	
Kalm's lobelia	<i>Lobelia kalmii</i>	
Great lobelia	<i>Lobelia siphilitica</i>	
Pale-spiked lobelia	<i>Lobelia spicata</i>	
Prairie loosestrife	<i>Lysimachia quadriflora</i>	
Switchgrass	<i>Panicum virgatum</i>	
Swamp lousewort	<i>Pedicularis lanceolatus</i>	
Prairie phlox	<i>Phlox pilosa*</i>	Southern MN
Smooth rattlesnakeroot	<i>Prenanthes racemosa*</i>	
Virginia mountain mint	<i>Pycnanthemum virginianum</i>	
Gray-headed coneflower	<i>Ratibida pinnata</i>	Southern MN
Little bluestem	<i>Schizachyrium scoparium</i>	
Marsh skullcap	<i>Scutellaria galericulata</i>	
Cup-plant	<i>Silphium perfoliatum</i>	Southern MN
Upland white aster	<i>Solidago ptarmicoides</i>	
Riddell's goldenrod	<i>Solidago riddellii</i>	
Indian grass	<i>Sorghastrum nutans</i>	
Alkali cord-grass	<i>Spartina gracilis</i>	Northwestern MN saline prairie
Prairie cord-grass	<i>Spartina pectinata</i>	
Prairie dropseed	<i>Sporobolus heterolepis*</i>	
Bog aster	<i>Symphyotrichum boreale</i>	
Panicled aster	<i>Symphyotrichum lanceolatum</i>	
New England aster	<i>Symphyotrichum novae-angliae</i>	
Glossy-leaf aster	<i>Symphyotrichum firmum</i>	
Germander	<i>Teucrium canadense</i>	
Tall meadow-rue	<i>Thalictrum dasycarpum</i>	
Culver's root	<i>Veronicastrum virginicum</i>	
Golden alexanders	<i>Zizia aurea</i>	

¹species that appear to decrease in abundance with persistent moderate to heavy grazing

*species that appear to be the most sensitive to grazing

Table 2. Examples of species that increase with overgrazing² in Wet Prairie communities:

Common Name	Scientific Name
Common yarrow	<i>Achillea millefolium</i>
Ragweed	<i>Ambrosia</i> spp.
Clasping dogbane	<i>Apocynum sibiricum</i>
Heath aster	<i>Aster ericoides</i>
Sartwell's sedge	<i>Carex sartwellii</i>
Spotted water-hemlock	<i>Cicuta maculata</i>
Field horsetail	<i>Equisetum arvense</i>
Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
Giant sunflower	<i>Helianthus giganteus</i>
Sawtooth sunflower	<i>Helianthus grosseserratus</i>
Foxtail barley	<i>Hordeum jubatum</i>
Baltic rush	<i>Juncus arcticus</i> var. <i>balticus</i>
Rough bugleweed	<i>Lycopus asper</i>
Silverweed	<i>Potentilla anserina</i>
Seaside crowfoot	<i>Ranunculus cymbalaria</i>
Swamp buttercup	<i>Ranunculus fascicularis</i>
Golden ragwort	<i>Senecio aureus</i>
False golden ragwort	<i>Senecio pseudoaureus</i>
Late goldenrod	<i>Solidago altissima</i> subsp. <i>gilvocanescens</i>
Canada goldenrod	<i>Solidago canadensis</i>
Giant goldenrod	<i>Solidago gigantea</i>
Rough dropseed	<i>Sporobolus asper</i>
Blue vervain	<i>Verbena hastata</i>
Bunched ironweed	<i>Vernonia fasciculata</i>

²species that appear to increase in abundance with persistent moderate to heavy grazing

Table 3. Examples of invasive species in Wet Prairie communities:

Common Name	Scientific Name
Redtop	<i>Agrostis gigantea</i>
Spreading bentgrass	<i>Agrostis stolonifera</i>
Smooth brome	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Bull thistle	<i>Cirsium vulgare</i>
Horseweed	<i>Conyza canadensis</i>
Quackgrass	<i>Elymus repens</i>
Black medick	<i>Medicago lupulina</i>
Sweet clover	<i>Melilotus</i> spp.
Reed canary grass	<i>Phalaris arundinacea</i>
Timothy	<i>Phleum pratense</i>
Common plantain	<i>Plantago major</i>
Kentucky bluegrass	<i>Poa pratensis</i>
European alkali grass	<i>Puccinellia distans</i>
Common buckthorn	<i>Rhamnus cathartica</i>
Field sow thistle	<i>Sonchus arvensis</i>
Dandelion	<i>Taraxacum</i> spp.
Alsike clover	<i>Trifolium hybridum</i>
Red clover	<i>Trifolium pratense</i>
White clover	<i>Trifolium repens</i>
Stinging nettle	<i>Urtica dioica</i>