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Glade, Prairie, and Savanna Herbaceous Establishment

Missouri Job Sheet JS-MO643Glade, Prairie, and Savanna Herbaceous Establishment

Natural Resources Conservation Service (NRCS) Missouri Conservation Practice 643
January 2017

Landowner/Producer:		**Farm #:**
Field/Stands(s):	**Acres:**	**Tract #:**
Designed By:		**County:**
Contact Information:		**Date:**

DEFINITION

Restoring and conserving rare or declining native vegetated communities and associated wildlife species

PURPOSES (check all that apply)

- ☐ Establish glade community
- ☐ Establish prairie community
- ☐ Establish savanna community
- ☐ Overseed remnant glade
- ☐ Overseed remnant prairie
- ☐ Overseed remnant savanna
- ☐ Increase native local ecotype plant community diversity
- ☐ Provide habitat for rare and declining wildlife species

A successful planting is often the result of proper site preparation, the use of locally adapted seed, proper seeding methods and maintenance after planting.

CONDITION WHERE PRACTICE APPLIES

Savanna restoration will only be applied on fields with ecological site map units designated as “savanna” that have map units containing a major component tied to a savanna ecological site comprising over 50% of the field. Savannas occurred primarily in upland landscapes with limited occurrence in bottomland. Savannas in Missouri contain widely spaced, open grown oak trees (10 to 30% canopy coverage) with an herbaceous, prairie-like understory.

Prairie restoration will only be applied on fields with ecological site map units designated as “prairie” that have map units containing a major component tied to a prairie ecological site comprising over 50% of the field. Prairie communities are largely devoid of trees (less than 10%) with an abundance of forbs (wildflowers), grasses and sedges.

Glade restoration will only be applied on fields with ecological site map units designated as “glade” that have map units containing a major component tied to a glade ecological site comprising over 50% of the field. Glade communities primarily occur south of the Missouri River on south and west facing slopes. Drought tolerant forbs and grasses are common on glades. A few trees, such as eastern red cedar, also occur on glades.

SPECIFICATIONS

Any vegetation that would hinder planting or provide excessive competition to the seeding should be removed with the appropriate treatment. See Brush Management Job Sheet (JS-MO314).

Site preparation is planned as follows (check all that applies):

☐ Removal of existing woody vegetation
☐ Chemical control of herbaceous vegetation
☐ Mechanical means such as plowing, disking or roto-tilling
☐ Prescribed burning based on a current approved prescribed burn plan
☐ Other:

In some cases existing woody vegetation will need to be removed to restore the desired plant community. A combination of practices may be used to reach your objectives. After removal of woody vegetation less than 10% canopy should remain for prairie, less than 30% for glade, and 10 to 30% for savanna. Cut stumps, other than cedar or pine, shall be treated with an approved herbicide to prevent resprouting.

Field	Acres	Planned Treatment	Species Removed	Percent Canopy Remaining	Time of Treatment

Prescribed burning, disking, haying, mowing or grazing shall be used to remove old, dead herbaceous vegetation to prepare the site for an herbicide application or for overseeding into remnant plant communities. Prescribed burning can also be used to remove cut woody vegetation after it has had time to dry.

Field	Acres	Planned Treatment	Time of Treatment

If a chemical application is needed, use the following products at label rates. One to three herbicide applications may be necessary to remove undesirable herbaceous vegetation from an existing remnant community or future planting site. Crop fields being converted to prairie or savanna should still receive at least one chemical application to eradicate winter annuals and persistent perennial weeds. Crop fields being converted should be sprayed in October - November or late February to early March before seeds begin to germinate. Old fields with perennial weeds such as tall fescue, smooth brome, or tall goldenrod may require two entire growing seasons and multiple herbicide applications to correctly prepare the site.

Avoid tilling the ground prior to planting as this will only increase weed competition and potential soil erosion.

Field	Acres	Herbicide	Time of First Treatment	Time of Second Treatment	Time of Third Treatment

REMNANT NATIVE VEGETATION

Existing desirable trees, shrubs and herbaceous vegetation should be maintained based on the planned community. The amount of desirable vegetation may limit site preparation activities. If desirable native forbs, grasses and sedges are intermixed with undesirable herbaceous vegetation consider the following techniques to control unwanted vegetation: 1) use selective herbicides to reduce the chance of killing native vegetation; 2) apply herbicides when native vegetation is dormant; 3) use other control methods such as prescribed burning; or 4) use a combination of different techniques. Tillage should be avoided if remnant vegetation is present on the site.

The following fields contain existing desirable native vegetation that should be maintained. Refer to other planned treatments for management recommendations for these fields.

Field	Acres	Woody Species	Herbaceous Species

PLANTING DATES

Once the site has been prepared for seeding, whether for overseeding a remnant or establishing a new plant community, a dormant seeding is the required method of establishment for native forbs, grasses and sedges. Many forb species require 30-90 days of cold, moist stratification before germinating, and a dormant seeding is the easiest way to achieve the necessary stratification. The best months for a dormant seeding are December and January.

The site will be planted:
☐ Dormant seeding (November 16 – March 15 for Northern Missouri)
☐ Dormant seeding (December 1 – February 29 for Southern Missouri)

PLANTING METHODS

Planting methods will vary from site to site, depending upon the conditions of the site. Broadcasting seed by hand may be the most practical way of planting restored glades or savannas and areas less than 3 acres. For hand seeding, mix the seed with an inert carrier such as cat litter, pelletized lime, dried distiller's grain, cotton seed hulls, milogranite, rice hulls, sawdust or sand to better distribute the seed over the entire area. Mix the seed and carrier at a 1:1 or 1:2 ratio. For small areas an ATV-mounted spreader or seeder can also be used. Traditional planting methods will be more practical on larger fields.

Another alternative is to mix the seed with potash or lime and spread with a fertilizer buggy. Broadcast seedings should not be dragged, disked or harrowed after planting. Instead use a cultipacker (with teeth up) to roll the ground, or with dormant seedings just let the action of freezing and thawing work the seed into the ground. **If you do not see seed on the top of the ground when you are finished, then you planted too deep.**

The site will be planted using (check all that apply):
☐ Broadcast
☐ No-till drill
☐ Other:

SEEDING MIXES AND LOCATION AND LAYOUT (SEE PLAN MAP)

If you are establishing native forbs with cost-share, be certain you are following the requirements of the RESTORATION and MANAGEMENT of RARE or DECLINING HABITATS (643) conservation practice which require plant material selection based on plant material selection will be based on:

1. The use of Missouri Source Identified Class (herbaceous material) – Missouri source is defined as a native plant that source genetically originated in Missouri; was not introduced; and existed within the state borders prior to arrival of settlers. The location of the wild growing parents must be within Missouri and implies that the geographical location is known.

2. All seed from herbaceous material shall comply with Missouri seed laws including Missouri Crop Improvement Association guidance. All seed will comply with AOSCA (Association of Official Seed Certifying Agencies) certification procedures (including appropriate tagging) to include third-party verification by the Missouri Crop Improvement Association of source, genetic identity, and genetic purity of wildland collected or field or nursery grown plant germplasm materials. Seed must be Missouri origin (grown in Missouri) and certified as Missouri Source Identified Class. If Missouri origin (grown) source Identified class seed is not available Missouri source identified class seed may be obtained only from adjoining states.

Source Identified Certification means:

- Parent seed is collected from natural remnant Missouri populations
- No selection, testing, or breeding for specific traits
- Production fields are inspected to verify species, source, and lack of noxious weeds.
- Seed is certified for purity and germination.

Improved varieties or cultivars shall not be used for glade, prairie or savanna restoration projects. Reseeding of glades is only necessary on under rare circumstances, and only after the need is verified based on an on-site evaluation conducted after prescribed burning has been applied to the site. Consider the site's past uses and history before planning new seeding or over-seeding. Depending upon the level of restoration required, some sites may only need native forbs or grasses or both native forbs and grasses. See Table 1 and 2 for approved grasses and forbs.

Conservation of the monarch butterfly is critically important as it represents other pollinators and is experiencing precipitous declines, therefore, it is recommended that at least 1 species of approved milkweed (Asclepias spp.) is included in the seed mix (see Tables 1 and 2). Also see the Monarch Habitat Information Sheet (IS-MO643Monarch) for more specific information related to the monarch. A general recommendation is to plant at least three pounds of pure live seed (PLS) per acre, comprised of at least 9 species with no single species exceeding 15 percent of the total mixture. Annuals and biennials combined also should not exceed 10 percent of the mixture. A minimum of three flowering species will be included for each season (spring, summer, fall) for native pollinator plantings (see the Native Forb Information Sheet (IS-MO643Forbs) on the Missouri NRCS e-FOTG site at http://efotg.sc.egov.usda.gov/treemenuFS.aspx under Section IV, Upland Wildlife Habitat Management (645) standard). This helps ensure a nice diversity, and that the stand will be dominated by perennials, which will persist over time.

The native grass mixture for prairie and savanna restoration will contain a minimum of 4 species with the total amount of the grass seed in the mix to equal 4 pounds PLS per acre. Glades will require a minimum of 3 species and 3 pounds PLS per acre.

For prairie and savanna plantings little bluestem will be planted at 2.8# PLS/acre, with all other grass species limited to no more than 0.4 PLS/acre. Glades will be planted to little bluestem at 1.2# PLS/acre, plus either sideoats grama or broomsedge at 1.4# PLS/acre. All other grasses will be limited to no more than 0.4# PLS/acre.

Glade

Field(s)	Restoration practice	Acres to be seeded	Missouri Native Forb Mix (Total Pounds)	Missouri Native Grasses	Total Pounds (by specie)

Prairie or Savanna

☐ **A *shrub planting is planned for the prairie*** ☐ **A *tree and/or shrub planting are planned for the savanna.***

Field(s)	Restoration practice	Acres to be seeded	Missouri Native Forb Mix (Total Pounds)	Missouri Native Grasses	Total Pounds (by specie)

OPERATION AND MAINTENANCE: Care after Planting

☐ ***First and second year maintenance:*** Removal of competing vegetation is normally carried out for one growing season following establishment. Where applicable, mow as often as necessary during the first growing season to control competing vegetation. Competing vegetation and native grasses and wildflowers should be cut to a height of 6 inches when the average weed height is 1 foot. A flail-type mower is preferred, as it thoroughly cuts and shreds the vegetation and avoids smothering native grass and wildflower seedlings. Do not mow once the planting has gone dormant in late fall. During the second year mow only if weeds are out-competing the native grasses and wildflowers. The second year mowing should only be completed between March 15th and May 1st, or make certain that you mow above the height of the forb seedlings. Mow, clip or use approved herbicides as often as necessary to control noxious weeds and undesirable plants during the establishment period. Avoid the use of broad spectrum herbicides and spot treat infestations with a selective herbicide.

☐ ***Long-term Management:*** Once the stand is established the introduction of management practices is essential to maintain the vegetative community. Management practice will vary by program and landowner objectives. See 643 Restoration and Management of Rare or Declining Habitats for management recommendations by community type. **Prescribed burning is essential to the restoration and management of glade, prairie, and savanna. Long term management is not feasible without prescribed burning even if other management methods are used.**

PRIMARY HABITAT CONSIDERATIONS:

- RESTORATION and MANAGEMENT of RARE or DECLINING HABITATS (643).
- Provide natural food and cover for many declining animal species.

REFERENCES:

Refer to the following job sheets, information sheets or detailed management plan for additional information.

JS-BIOL-20 Native Forb and Non-native Legume Interseeding
JS-BIOL-30Controlling Undesirable Species
JS-MO314Brush Management
JS-MO612Tree and Shrub Establishment
IS-MO338Prescribed Burning Information Sheet
IS-MO643Glade Information Sheet
IS-MO643Prairie Information Sheet
IS-MO643Savanna Information Sheet

Comment:

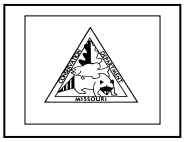


TABLE 1 – APPROVED GRASS/GRASS LIKE – species selection will only be made from appropriate habitat type based on planting site evaluation.

Common Name	Scientific Name	Habitat Type *
GRASSES/GRASS LIKE		
Winter bent grass	*Agrostis hyemalis*	S, DP, MP, WP
Big bluestem	*Andropogon gerardii*	S, DP, MP, WP, G
Splitbeard bluestem	*Andropogon ternarius*	DP, G
Broomsedge	*Andropogon virginicus*	S, DP, MP, WP, G
Sideoats grama	*Bouteloua curtipendula*	S, DP, MP, G
River oats	*Chasmanthium latifolium*	S, MP, WP
Canada wildrye	*Elymus canadensis*	S, MP, WP
Virginia wildrye	*Elymus virginicus*	S, MP, WP, G
Cluster fescue	*Festuca paradoxa*	S, DP, MP, WP
Junegrass	*Koeleria cristata*	S, DP, MP
Switchgrass	*Panicum virgatum*	S, DP, MP, WP, G
Beaked rush	*Rhynchospora globularis*	MP, WP
Little bluestem	*Schizachyrium scoparium*	S, DP, MP, G
Tall nutgrass	*Scleria triglomerata*	S, DP, MP, WP, G
Indian grass	*Sorghastrum nutans*	S, DP, MP, G
Prairie cordgrass	*Spartina pectinata*	WP
Tall dropseed	*Sporobolus compositus*	S, DP, MP, G
Prairie dropseed	*Sporobolus heterolepis*	S, DP, MP, G
Porcupine grass	*Stipa spartea*	DP, MP
Purple top	*Tridens flavus*	S, MP
Eastern gamagrass	*Tripsacum dactyloides*	S, DP, MP, WP
Short's sedge	*Carex shortiana*	S, MP, WP
Six weeks fescue	*Vulpia octoflora*	S, DP, MP, G

*** S = Oak Savanna, DP = Dry Prairie, MP = Mesic Prairie, WP = Wet Prairie, G = Glade**

TABLE 2 – APPROVED FORBS - species selection will only be made from appropriate habitat type based on planting site evaluation.

Common Name	Scientific Name	Habitat Type *	Flower Information **	General Information ***
Alum root	*Heuchera richardsonii*	DP, MP, G	1,2 - Sp - Su	Calyx is mainly green, may have cream colored tips.
Anemone, Meadow	*Anemone canadensis*	WP	1 - LS – Su, showy	
Aster, Aromatic	*Symphyotrichum oblongifolius*	DP, MP, G	2 - LSu – F, showy	POL, Fragrant, prefers drier sites.
Aster, New England	*Symphyotrichum novae-angliae*	WP	2 - LSu – F, showy	POL, Prefers wetter sites, leaves clasp the stem
Aster, Southern Prairie	*Aster paludosus*	DP, S, MP	2,3 – LSu - EF	
Aster, Purple daisy	*Symphyotrichum patens*	S, DP, MP, G	2 - LSu - F	POL
Aster, Silky	*Symphyotrichum sericeum*	DP, G	2 - LSu – F, showy	POL
Aster, Skyblue	*Symphyotrichum oolentangiense*	S, DP MP	2 - LSu – F, showy	POL
Aster, Smooth	*Symphyotrichum laevis*	S, DP, MP	2 - LSu – F, showy	POL
Aster, White upland	*Solidago ptarmicoides*	S, MP, DP, G	2,3 – LSu - EF	
Aster, Willowleaf	*Symphyotrichum praealtum*	WP	2,3 - LSu – F,	POL, Pale lavender color, likes moist areas
Barbara's button	*Marshallia caespitosa*	DP, MP, WP	1 - LS - ESu	Foliage green through winter.
Bean, Small Fuzzy	*Strophostyles leiosperma*	DP, MP, S	2,3 – ESu - MF	
Beardtongue	*Penstemon digitalis*	DP, MP, WP, G	1 - LS – MSu, showy	POL
Beardtongue, Prairie	*Penstemon tubaeflorus*	S, DP, MP	1 - LS – MSu, showy	POL
Beardtongue, Purple	*Penstemon cobaea*	S, DP, G	1,2 - LS – ESu, showy	POL
Beggar tick **(A)**	*Bidens frondosa*	WP	2 - Su, showy	Food
Beggar's lice	*Desmodium canescens*	S, DP, MP, G	1,2 - LS – Su, showy	Legume, food
Bergamot, Wild	*Monarda fistulosa*	S, DP, MP, WP, G	2,3 - LS – EF, showy	POL, mint
Bergamot, Savanna	*Monarda bradburiana*	S, DP, G	2,3 - LS – EF, showy	POL, mint
Black-eyed Susan **(B)**	*Rudbeckia hirta*	S, DP, MP, G	2,3 - LS – F, showy	Food
Black-eyed Susan, Missouri	*Rudbeckia missouriensis*	DP, G	2,3 - ESu – F, showy	Food, blooms for a long period.
Blazing Star, Eastern	*Liatris scariosa*	S, DP, MP	2,3 LSu-EF	POL, blooms during monarch migration.
Blazing star, Prairie	*Liatris pycnostachya*	DP, MP, WP, G	2,3 - MSu – F, showy	POL, blooms during monarch migration.
Blazing star, Glade/Narrow-leaved	*Liatris mucronata*	S, DP, G	2,3 - MSu – F, showy	POL, blooms during monarch migration.
Blazing star, Rough	*Liatris aspera*	S, DP, G	2,3 - MSu – F, showy	POL, blooms during monarch migration.
Blazing star, Squarrosa	*Liatris squarrosa*	S, DP	2,3 - MSu – EF, showy	POL, blooms during monarch migration.
Blazing star, Squarrulosa	*Liatris squarrulosa*	S, DP, MP, G	2,3 MSu – EF, showy	POL, blooms during monarch migration.

Common Name	Scientific Name	Habitat Type *	Flower Information **	General Information ***
Blue lobelia	*Lobelia siphilitica*	WP	2,3 MSu – F, showy	POL
Blue-eyed grass	*Sisyrinchium campestre*	DP	1,2 - LS - ESu	Resembles grass
Boneset	*Eupatorium perfoliatum*	WP	2,3 - MSu - F	POL
Brown-eyed Susan	*Rudbeckia triloba*	S, WP	2,3 - Su – F, showy	Food
Bunchflower	*Melanthium virginicum*	MP, WP, S (Wet)	2 – ESu - LSu	
Cardinal flower	*Lobelia cardinalis*	WP	2,3 - MSu – EF, vivid red, showy	POL
Catchfly, Royal	*Silene regia*	S, DP, MP	1,2,3 - LS – F, showy	Blooms for a long period. Flowers 2nd year.
Clover, Purple prairie	*Dalea purpurea*	S, DP, MP, G	1,2 - LS – Su, showy	POL, legume
Clover, White prairie	*Dalea candida*	S, DP, MP, G	1,2 - LS – Su, showy	POL, legume
Compass Plant	*Silphium laciniatum*	DP, MP, WP, G	1,2 - LS – Su, showy	POL, food
Coneflower, Gray-head	*Ratibida pinnata*	S, DP, MP, G	1,2,3 - LS – F, showy	POL, food, robust perennial. Extensive root system reduces erosion.
Coneflower, Ozark glade	*Echinacea simulata*	S, DP, MP, G	1,2 - LS – MSu, showy	POL
Coneflower, Pale purple	*Echinacea pallida*	S, DP, MP, G	1,2 - LS – MSu, showy	POL
Coneflower, Prairie	*Ratibida columnifera*	DP, MP, G	1,2,3 - LS – EF, showy	Ray flowers sometimes marked with dark red. Weak perennial on good soil.
Coneflower, Purple	*Echinacea purpurea*	S, MP, WP, G	1,2,3 - LS – F, showy	POL, prolific bloomer, flowers over a long period.
Coneflower, Black-eyed Susan, Sweet	*Rudbeckia subtomentosa*	MP, WP	2 - Su, showy	Food
Coneflower, Yellow	*Echinacea paradoxa*	S, DP, G	1,2 - LS – ESu, showy	POL
Coreopsis, Lanceleaf	*Coreopsis lanceolata*	DP, MP, G	1,2 - LS – MSu, showy	POL, food
Coreopsis, Finger/Prairie	*Coreopsis palmata*	S, DP, MP, G	1,2 - LS – MSu, showy	Food
Coreopsis, Plains **(A)**	*Coreopsis tinctoria*	DP, G	1,2 - Sp – ESu, showy	Food
Coreopsis, Tickseed/Tall	*Coreopsis tripteris*	S, DP, MP, WP, G	1,2 - LS – MSu	Food
Coreposis, Big flower	*Coreopsis grandiflora*	DP, MP	1,2 - LS – MSu, showy	Food
Culver's root	*Veronicastrum virginicum*	S, MP, WP	2 - Su, showy	POL, Whorled leaves.
Cup plant	*Silphium perfoliatum*	WP	2,3 - Su – F, showy	POL
Curly cup gum plant	*Grindelia squarrosa*	S, DP, MP, G	2,3 - Su - F	
Dragonhead, Narrow-leaved false	*Physostegia angustifolia*	S, DP, MP	2,3 – LSu - EF	
Flag, Blue	*Iris virginica shrevei*	WP	1,2 - LS – MSu, showy	Forms large colonies
Flag, Copper	*Iris fulva*	MP, WP	1 - Sp, showy	
Flax, Yellow	*Linum medium*	DP, MP	1,2 – LS - LSu	
Foxglove, Fascicled false	*Agalinas fasciculata*	DP, MP	2,3 – MSu - EF	
Gaura, Large-flowered	*Gaura longiflora*	DP, MP, WP, S	2,3 – MSu - EF	

Common Name	Scientific Name	Habitat Type *	Flower Information **	General Information ***
Germander, American	Teucrium canadense	S, DP, MP, WP	2,3 - Esu – EF	
Goat's rue	*Tephrosia virginiana*	S, DP, MP, G	1,2 - LS – MSu, showy	Legume, may have pink/cream flowers.
Golden alexander	*Zizia aurea*	S, DP, MP, WP, G	1,2 - LS - ESu	Blooms for a long period in the spring.
Goldenrod, Gray	*Solidago nemoralis*	S, DP, MP, G	2,3 - LSu - F	POL
Goldenrod, Riddell's	*Oligoneuron riddellii*	WP	2,3 - LSu – F, showy	POL
Goldenrod, Rigid/Stiff	*Oligoneuron rigida*	S, DP, MP, G	2,3 - LSu – F, showy	POL
Goldenrod, Savanna	*Solidago petiolaris*	S, DP, G	2,3 - LSu – F, showy	POL, likes partial shade.
Goldenrod, Showy	*Solidago speciosa*	S, DP, MP	2,3 - LSu – EF, showy	POL
Hyacinth , Prairie	*Camassia angusta*	MP, WP	1,2 - Sp – ESu, showy	Plant dormant by early summer.
Hyacinth, Wild	*Camassia scilloides*	S, DP, MP, G	1,2 – Sp - ESu	
Illinois bundle flower	*Desmanthus illinoensis*	MP, WP, G	1,2 - LS - MSu	Legume
Indian paintbrush **(A)**	*Castilleja coccinea*	DP, MP, WP, G	1,2 - Sp – Su, showy	Can be summer seeding on poor sites with established grass
Indigo, Blue wild	*Baptisia australis*	S, DP, MP, WP, G	1,2 - Sp –Esu, showy	POL, legume
Indigo, Cream wild	*Baptisia bracteata*	S, DP, MP, G	1 - Sp – LS, showy	POL, legume
Indigo, White wild	*Baptisia alba*	S, DP, MP, WP, G	1,2 - LS – MSu, showy	POL, legume
Ironweed, Missouri	*Vernonia missurica*	MP, WP	2,3 - MSu - F	POL
Ironweed, Giant	*Vernonia gigantea*	S (Wet), WP	2,3 – MSu - EF	
Ironweed, Yellow	*Verbesina alternifolia*	S, BF, WP	2,3 – LSu - MF	
Leadplant	*Amorpha canescens*	S, DP, MP, G	1,2 - LS – Su, showy	POL, legume, somewhat woody
Lespedeza, Slender	*Lespedeza virginica*	S, DP, MP, G	1,2,3 - LS - EF	Legume, food
Lespedeza hairy	*Lespedeza hirta*	S, DP, MP, G	2,3 - LSu – F	Legume, food
Lespedeza, Postrate	*Lespedeza procumbens*	DP, G	2,3 – LSu - MF	
Lespedeza, Roundhead	*Lespedeza capitata*	S, DP, MP, G	2,3 - MSu - F	Legume, food, bloom may be greenish/cream colored
Lespedeza, Violet	*Lespedeza violacea*	S	2,3 – MSu - MF	
Lousewort/Wood betony	*Pedicularis canadensis*	S, DP, MP, G	1 - LS	
Milkweed, Butterfly	*Asclepias tuberosa*	S, DP, MP, G	1,2 - LS – Su, showy	POL
Milkweed, Common	*Asclepias syriaca*	DP, MP, WP	1,2 – LS - LSu	
Milkweed, Marsh/Swamp	*Asclepias incarnata*	WP	3 - F, showy	POL, milky sap
Milkweed, Purple	*Asclepias purpurascens*	S, DP, MP	1,2 - LS –MSu, showy	POL, milky sap
Milkweed, Spider	*Asclepias viridis*	DP, MP	1,2 – LS - ESu	
Tall Green Milkweed	*Asclepias hirtella*	S, DP, MP, WP, G	2 - Su	
Milkweed, Whorled	*Asclepias verticillata*	S, DP, MP, G	1,2,3 – LS - EF	
Hairy Mountain Mint	*Pycnanthemum pilosum*	S, DP, MP, WP, G	MSu-F	POL, mint
Mountain mint, Virginia/Common	*Pycnanthemum virginianum*	WP	2 - Su	POL, mint
Mountain mint, Slender	*Pycnanthemum tenuifolium*	S, DP, MP, WP, G	1,2 - LS – Su	POL, mint, spreads slowly

Common Name	Scientific Name	Habitat Type *	Flower Information **	General Information ***
New Jersey tea	*Ceanothus americanus*	S, DP, MP, G	1,2,3 - LS – F, showy	POL, Somewhat woody.
Obedient plant	*Physostegia virginiana*	S, MP, WP, G	2,3 - MSu – EF, showy	POL, Mint, spreads slowly
Pea, Partridge **(A)**	*Chamaecrista fasciculata*	S, DP, MP, G	2,3 - Su – F, showy	POL, legume, food
Pea, Sensitive	*Chamaecrista nictitans*	S	2,3 – MSu - EF	
Petunia, Wild	*Ruellia humilis*	DP, MP, G	1,2,3 - LS - EF	Short
Poppy mallow, Fringed	*Callirhoe digitata*	DP, MP	1,2 - MS – LSu, showy	Spindly plant, slender, leafless stems
Poppy mallow, Purple	*Callirhoe involucrata*	DP, G	1,2 - MS – MSu, showy	
Prairie cinquefoil	*Drymocallis arguta*	DP, MP, G	1,2 - LS - Su	
Prairie dock	*Silphium terebinthinaceum*	S, DP, MP, WP, G	2,3 - Su - F	POL
Prairie parsley	*Polytaenia nuttallii*	DP, MP, WP	1,2 - LS - ESu	
Primrose, Evening	*Oenothera biennis*	MP	2,3 – ESu -MF	
Primrose, Missouri	*Oenothera missouriensis*	DP,G	1,2 - LS – MSu, showy	POL
Quinine, Wild	*Parthenium integrifolium*	S, DP, MP, G	1,2 - LS - Su	
Rattlebox	*Crotalaria sagittalis*	DP, G	1,2,3 - LS - EF	
Rattlesnake master	*Eryngium yuccifolium*	S, DP, MP, G	2 - Su	POL, Unique plant
Rose, Pasture	*Rosa carolina*	DP, MP, S	1 – LS	
Rose, Prairie	*Rosa setigera*	MP	1 - Sp, showy	POL, food
Rosinweed	*Silphium integrifolium*	S, DP, MP, WP, G	2,3 - Su – F, showy	POL, food
Sage, Pitchers	*Salvia azurea*	DP, MP, G	2.3 - Su – F, showy	
Scurfy pea	*Pediomelum tenuiflorum*	DP, MP, WP, G	1,2 - LS – MSu	Legume, food
Seed box	*Ludwigia alternifolia*	WP	2 – ESu - LSu	
Senna, Maryland	*Senna marilandica*	S, MP, WP	2 - MSu – LSu	POL, legume, food
Sensitive briar	*Mimosa nuttalli*	S, DP, MP, G	1,2 - LS – Su, showy	Legume
Shooting star	*Dodecatheon meadia*	S, DP, G	1 - LS, showy	Plant goes dormant by July 1st.
Skullcap, Downy	*Scutellaria incana*	S (S. MO), MP	2,3 – MSu - EF	
Snakeroot, Sampson's	*Orbexilum pedunculatum*	S, MP, WP	1,2 - LS – MSu	Legume
Spanish needles **(A)**	*Palafoxia callosa*	S, DP, G	2,3 - LSu – F, showy	Tolerates mowing/pruning.
Spiderwort, Ohio	*Tradescantia ohiensis*	S, DP, MP, WP	1,2,3 - LS – F, showy	POL
Spurge, Flowering	*Euphorbia corollata*	S, DP, MP, G	1,2,3 - LS – F	Milky sap
Sunflower, Ashy	*Helianthus mollis*	DP, MP, G	2,3 - MSu – F, showy	POL, food
Sunflower, Maximillian[1]	*Helianthus maximiliani*	DP, MP	2,3 – MSu – MF	POL, food
Sunflower, Ox-eye/false	*Heliopsis helianthoides*	S, DP, MP, G	1,2,3 - LS – F, showy	Food, blooms over a long period.
Sunflower, Sawtooth	*Helianthus grosseserratus*	DP, MP, WP, G	2,3 - MSu – F, showy	POL, food
Sunflower, Tickseed **(A/B)**	*Bidens aristosa*	MP	2 – MSu - LSu	
Sunflower, Western	*Helianthus occidentalis*	DP, MP, G	2,3 - MSu – F, showy	POL, food, good wildlife structure.
Sunflower, Willowleaf	*Helianthus salicifolius*	WP, MP, DP	3 – EF - MF	
Sunflower, Wingstem	*Verbesina helianthoides*	S, DP, MP	2,3 - LS - Su	
Sunflower, Woodland	*Helianthus strumosus*	S	2,3 - MSu – F	POL, food

Common Name	Scientific Name	Habitat Type *	Flower Information **	General Information ***
Tick trefoil, Showy	*Desmodium canadense*	S, DP, MP, WP, G	2 - MSu – LSu, showy	Legume, food,
Verbena, Rose	*Glandularia canadensis*	S, DP, G	1,2 – LS - LSu	
Vervain, Blue	*Verbena hastata*	WP	2,3 - ESu - MF	POL
Vervain, Hoary	*Verbena stricta*	DP, MP	1,2,3 – LS - EF	
Vetch, Canada milk	*Astragalus Canadensis*	MP	1,2 – LS - LSu	
White wingstem	*Verbesina virginica*	S, BF	2,3 – LSu - MF	
Yarrow	*Achillea millefolium*	DP, MP	1,2,3 - LS - F	

Under the "Common Name" column, A = Annual, B = Biennial, otherwise the plant is a perennial.

*** S = Oak Savanna, DP = Dry Prairie, MP = Mesic Prairie, WP = Wet Prairie, G = Glade, BF = Bottomland Forest**

****Blooming dates: In general, Sp = Spring (1) = April/May; LS = May; Su = Summer (2) = June—August; ESu = June; MSu = July; LSu = August; F = Fall (3) = September—early November; EF = September; MF = October; LF = late October—early November**

*****POL – important pollinators, native for food = important for wildlife**

White flowers blue/purple flowers green flowers red/orange flowers yellow flowers pink/violet flowers

[1]Maximillian sunflower (*Helianthus maximiliani)* will only be used at a rate of less than 0.1 seeds per square foot.