

Glade, Prairie, and Savanna Herbaceous Establishment

Job Sheet

Natural Resources Conservation Service (NRCS)
Missouri Department of Conservation (MDC)
University of Missouri Extension – The School of Natural Resources

For:	County:	
Field(s):	Farm #:	
Date:	Tract #:	Acres:
Designed By:	Contact Information:	

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

CONDITION WHERE PRACTICE APPLIES

Savanna restoration will only be applied on fields where transitional soils comprise at least 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 where herbaceous or transitional soils comprise at least 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 shallow soils (less than 20 inches) or rocky outcrops that comprise at least 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.



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

SPECIFICATIONS

Any vegetation that would hinder planting or provide excessive competition to the seeding should be removed with the appropriate treatment. See JS-BIOL-23 Woody Cover Control- Prairie/Glade/Savanna (JS-BIOL-23).

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, should 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)

Glade, prairie and savanna seedings require the use of Missouri source native plant materials (genetically originated from within Missouri). **Improved varieties or cultivars shall not be used for glade, prairie or savanna restoration projects.** Depending upon the level of restoration required, some sites may only need native forbs or grasses or both native forbs and grasses.

The forb mixture will be seeded at a minimum of 3.0 pounds PLS per acre for prairie, savanna and glade restoration. The forb mix will contain a minimum of 10 species with no single species to exceed 15% of the 3.0 pound mix and no more than 15% annual/biennials combined. See IS-MO643 Glad, Prairie, or Savanna Information Sheets and Table 2 – 643 Restoration and Management of Rare or Declining Habitats for approved forb listing.

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.

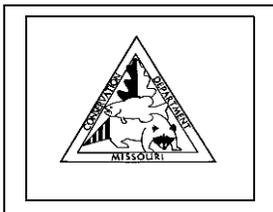
Long-term Management: Once the stand is established the introduction of management practices is essential to maintain the vegetative community. Management practice will vary by program and landowner objectives. See 643 Restoration and Management of Rare or Declining Habitats for management recommendations 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.**

REFERENCES:

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

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| JS-BIOL-20 Native Forb and Non-native Legume Interseeding | IS-MO338 Prescribed Burning Information Sheet |
| JS-BIOL-23 Woody Cover Control- Prairie/Glade/Savanna | IS-MO643G Glade Information Sheet |
| JS-BIOL-30 Controlling Undesirable Species | IS-MO643P Prairie Information Sheet |
| JS-MO612 Tree and Shrub Establishment | IS-MO643S Savanna Information Sheet |

Comment:



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