

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD AND SPECIFICATIONS**

**RESTORATION AND MANAGEMENT OF RARE OR DECLINING  
HABITATS**

(acre)

**CODE 643**

**DEFINITION**

Restoring and managing rare and declining habitats and their associated wildlife species to conserve biodiversity.

Prepare species and seeding rate specifications to achieve desired habitat condition.

Use only high quality and ecologically adapted plant materials.

**PURPOSE**

Provide habitat for rare and declining species.

Adapt vegetation to Ecological Site Description and the planned purpose. Species recommendations will be based on landowner objectives and site potential.

**CONDITIONS WHERE PRACTICE APPLIES**

Sites that previously or currently support the rare and declining habitat targeted for restoration or management.

Site preparation, planting dates and methods, and plant material care and handling shall optimize vegetation survival and growth.

Below are major native plant communities considered rare or declining in Missouri.

Quality criteria for animals (wildlife – at least 0.5 index) will be met as measured by the use of the WHAG-Community Models for the respective habitat type.

1. Tallgrass prairies of all types
2. Oak savanna
3. Woodland
4. Oak-Shortleaf Pine woodland.
5. Bottomland Forest
6. Glades
7. Giant Cane

Management practices and activities shall not disturb cover during the primary nesting period in Missouri (May 1- July 15).

Grazing and haying of natural communities can be used to improve habitat conditions or plant diversity for wildlife. This practice is not intended solely as a grazing practice and must be approved by an Area Biologist. A grazing plan is required and will detail the habitat manipulation needed to meet restoration and management goals.

**CRITERIA**

Use appropriate Ecological Site Description to determine native community for restoration.

Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.

Protect the soil resource from erosion and compaction.

All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the restoration.

Control undesirable species and noxious weeds. Where possible, control will be done on a "spot" basis to protect native forbs and legumes that benefit native pollinators and other wildlife.

The site will first be evaluated to determine if the habitat can be restored through management techniques.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service or download the standard from the electronic Field Office Technical Guide for Missouri.

**NRCS MOFOTG  
November 2015**

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Follow-up habitat assessments should be performed on a regular basis, and management recommendations made to obtain the desired objectives.

PRESCRIBED BURNING (338) must be a planned companion practice, if appropriate. Fire is typically needed for restoration and management goals. Never conduct a fire without a written prescribed burn plan.

UPLAND WILDLIFE HABITAT MANAGEMENT (645) will be used for recommended methods/objectives for woody cover manipulation for all habitat type restorations.

All heavy machinery such as a bull dozer or skid steer are not authorized for use under this practice.

Heavy machinery (clipper) is not an acceptable restoration method for glade, savanna, oak-shortleaf pine woodland or woodland sites.

### CONSIDERATIONS

Confer with other agencies and organizations to develop guidelines and specifications for conserving declining habitats.

In selection and management of plant species, consider long term land owner and land use objectives, and habitat needs of target wildlife species. Special site conditions may require seeding in addition to restoration techniques. A thorough site investigation will be conducted to determine restoration needs.

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.

Consider using this practice to enhance the conservation of threatened and endangered species.

When determining the size and location of the restored area, consider the minimum habitat requirements of desired wildlife species, and other species of concern that may be affected.

Vegetative manipulations to restore plant and/or animal diversity can be accomplished by prescribed burning or mechanical, biological or chemical methods, or a combination of the four.

### PLANS AND SPECIFICATIONS

Prepare site-specific plans and specifications following appropriate related standards and specifications.

Restoration site specific plans and specifications shall be developed based on this standard. A plan includes information about the location and extent, vegetation establishment, management and maintenance requirements.

Specifications will include:

- Management methods needed to restore existing vegetation to the desired condition.
- Site preparation sufficient to establish and grow selected species.
- Species selection and seeding rates to accomplish the planned purpose.
- Planting dates, care, and handling of the seed and other plant materials to ensure that they have an acceptable rate of survival.
- Statement detailing species selection and sources, and that only viable, high quality seed and plant materials will be used.

### OPERATION AND MAINTENANCE

A restoration project may require many years to achieve the biological diversity that approximates a native habitat. Proper management of the restored area is essential for the restoration to achieve and maintain the full potential of the site for the desired habitat type. As the vegetation matures, and goes through successional stages, changes in management practices including introduction of new species may be required to maintain and enhance the desired habitat type.

Haying and grazing (**if approved by an Area Biologist**) and other restoration/management activities will be planned and managed (including exclusion) as necessary to achieve and maintain the intended purpose.

Vegetation management and maintenance activities shall not be conducted during the nesting season except when necessary to achieve the desired habitat condition.

Habitat conditions should be evaluated on a regular basis to adapt the conservation plan and schedule maintenance to ensure the desired habitat condition.

Management and maintenance activities should be rotated across the restoration area to mimic natural disturbance regimes.

## REFERENCES

USDI, NBS, Biol. Report 28, Endangered Ecosystems of the United States  
 NRCS Threatened and Endangered Species Policy  
 The Endangered Species Act  
 The Terrestrial Natural Communities of Missouri by Paul W. Nelson  
 Missouri Savanna Restoration Handbook  
 Missouri NRCS Practice Information Sheets

Missouri NRCS JS-BIOL Job Sheets

MDC FOREST LAND MANAGEMENT GUIDE – Use of Prescribed Fire

## INTERNET SITES

WWW.MDC.MO.GOV

HTTP://PLANTS.USDA.GOV/POLLINATORS/NRCSDOCUMENTS.HTML

HTTP://WWW.XERCES.ORG

HTTP://WWW.PLANT-MATERIALS.NRCS.USDA.GOV/TECHNICAL/POLLINATORS.HTML

HTTP://PLANTS.USDA.GOV/POLLINATORS/USING\_FARM\_BILL\_PROGRAMS\_FOR\_POLLINATOR\_CONSERVATION.PDF

## CRITERIA FOR SELECT HABITAT TYPES

### OAK SAVANNA

Oak savanna once occupied a major part of the landscape of Missouri. This community is characterized by widely spaced, open grown scattered oak trees, occasional groupings of trees of various ages, the almost complete absence of a shrub layer, and herbaceous, prairie-like understory. Tree canopy is 10-30 percent with some shrub thickets on northeast-trending lee side of hills or in upland drainages where fire was less frequent or less intense. Savannas are generally regarded as transition areas where prairie and woodland intermingle. They are distinguished from woodlands in that savannas are strongly associated with prairies on nearly level to dissected plains and are generally dominated by grasses and forbs. Periodic fires, native herbivores and local conditions of topography, bedrock, and soils also influenced their development.

This practice 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.

*Example:*

*Map unit: 10010 Armstrong sil, 5-9% slopes.*

*Major Component: Armstrong, tied to R109XY046MO Till Upland Savanna*

*Therefore, if the field is over 50% of the map unit 10010, it would qualify for Oak Savanna Restoration*

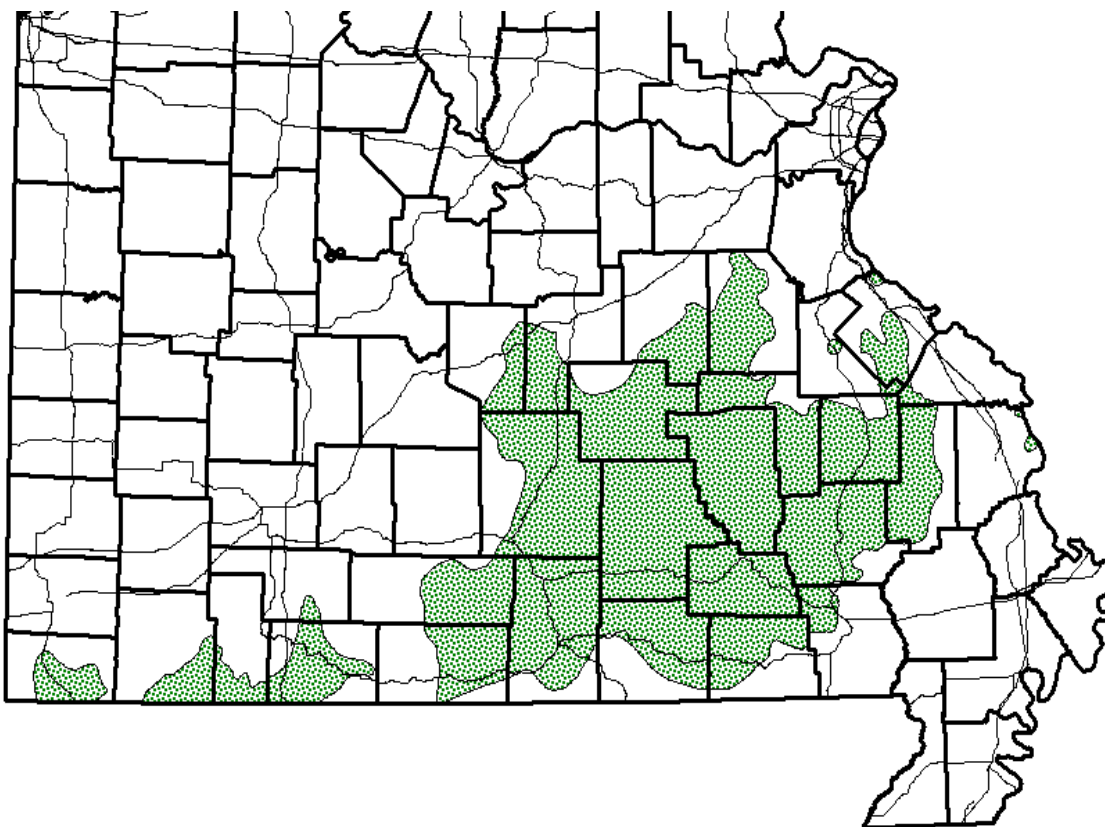
Base restoration activities on appropriate provisional ESD reports, located in Section II of the Missouri FOTG.

Also see Savanna Information Sheet (IS-MO643Savanna) for additional guidance.

### OAK – SHORTLEAF PINE WOODLAND

This practice will only be applied on fields/stands associated that occur within the historic pine range of Missouri (see pine range map) and have map units containing a major component tied to a woodland ecological site comprising over 50% of the field.

### HISTORIC SHORTLEAF PINE RANGE



### WOODLAND

Upland woodlands on drier, shallower soils will typically have an open canopy (30 to 60% coverage) while lower slope and bottomland woodland canopies may range from 50 to 80% coverage. While woodlands are highly variable in canopy structure, the presence of an open understory and a rich herbaceous layer link the variety of expressions of this natural community type. As a rule, woodlands should have a more open canopy on south and west facing slopes, adjacent to glades or savannas and on gently rolling landscapes. Generally, woodlands on north and east facing slopes, in protective ravines, deeply dissected hills and in moist areas should have a more closed canopy. These sites may also be a forest stand within a woodland community and should be managed differently than true woodlands. This practice is not intended to change forestland to a more open condition. A resource planning professional must determine if the plant community has woodland characteristics or if the existing wooded stand should be managed as forest.

This practice will only be applied on fields with ecological site map units designated as “woodland” that have map units containing a major component tied to a woodland ecological site comprising over 50% of the field.

Woodland restoration often begins with thinning the existing woodland canopy and reintroducing prescribed fire to restore the plant community.

### **PRAIRIE**

This plant community has been largely replaced by agricultural practices. Prairies are plant communities largely devoid of trees and shrubs. Native warm season grasses with an interspersed of native forbs dominate prairies. Trees and shrubs that do occur comprise less than 10 percent canopy cover. Missouri has a wide spectrum of prairie types - dry prairie (loess hills/sand prairies), mesic prairie, and wet prairie. Historically, prairie occurred north of the Missouri River and in the southwestern part of the state.

This practice 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. See Prairie Information Sheet (IS-MO643Prairie) for additional guidance.

### **BOTTOMLAND FOREST**

**Bottomland Forest** was an important part of the Missouri landscape. These areas are vegetative communities with a mixture of trees and shrubs. These areas provided for landscape diversity and aided in protecting Missouri's stream and rivers. Native bottomland forest in Missouri has largely been cleared for agricultural production. Missouri has a wide spectrum of bottomland forest types, including the southern bottomland hardwood forests (Mississippi Delta).

This practice will only be applied on fields with ecological site map units designated as “floodplain, terrace, or backswamp” that have map units containing a major component tied to a floodplain, terrace, or backswamp ecological site comprising over 50% of the field.

See Bottomland Forest Information Sheet (IS-MO643Bottomland Forest) for additional guidance.

### **GIANT CANE RESTORATION**

This component is intended for application in those counties where giant cane/canebrakes were historically found. RIPARIAN FOREST BUFFER (391) will be used for establishing the appropriate buffer and planting materials/methods and maintenance. The Giant Cane restoration will be a component of either an existing riparian buffer or newly applied one. See Bottomland Forest Information Sheet (IS-MO643Bottomland Forest) for additional guidance.

### **GLADE**

Glade communities historically occurred south of the Missouri River on south and west facing slopes or on the high summits of ridges, knobs and domes where soils are thin and moisture conditions favor drought tolerant species. These areas are open, rocky barren areas dominated by drought adapted forbs, warm-season grasses and a specialized fauna. Trees and shrubs occur on glades (30% canopy or less) but are not dominant unless overgrazing and/or disruption of natural fire regimes have resulted in invasion by woody species like red cedar. Glades commonly have shallow soils, ranging from zero to 20 inches deep, interspersed with copious rock fragments and exposed bedrock. Limestone, dolomite, chert, sandstone, shale and igneous glades occur throughout the state. Glades may occur as large complexes sometimes over 100 acres or as inclusions in prairies, savannas, and woodlands. Some forb species are endemic to Missouri glades. Periodic fires, native herbivores and local conditions of topography, bedrock, and soil influence glade development. Glade communities have been degraded by overgrazing, cedar encroachment, and fire suppression.

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This practice 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.

The site should first be evaluated to determine if the habitat can be restored through management techniques (prescribed burning, brush management etc.) before recommending seeding the herbaceous component. Glade restoration almost never requires reseeding herbaceous vegetation. There is usually an adequate seed bank in the soil. The site can usually be assessed by a resource planning professional for seeding needs after the third burn. See Glade Information Sheet (IS-MO643Glade) for restoration information.