

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

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

(Ac.)

**CODE 643**

**DEFINITION**

Restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems.

**PURPOSE**

To return aquatic or terrestrial ecosystems to their original or usable and functioning condition and to improve biodiversity by providing and maintaining habitat for fish and wildlife species associated with the ecosystem.

**CONDITIONS WHERE PRACTICE APPLIES**

Sites or areas that once supported or currently support a unique, dwindling, or imperiled native plant and animal community.

This standard addresses the following rare or declining vegetation types in Tennessee:

1. Native Tallgrass Prairies – Historically applicable statewide.
2. Cedar (Limestone) Glades/Barrens – Applicable to the inner Nashville Basin of the Interior Plateau. Characterized as shallow soils over limestone dominated by annual and perennial forbs, some annual grasses and small amounts of perennial grass, and ringed with thickets of cedar and hardwoods.
3. Oak Savannas - Applicable from the Southern Appalachians west. Characterized as having an oak dominated tree canopy from 10 up to 50 percent, with predominantly forb and native grass understory. Should be situated on sites ecologically adapted to fire. Bottomlands

are not suitable.

4. Barrens – Applicable to the Highland Rim areas of the Interior Plateau. Characterized as deep soils that developed under forest vegetation, but maintained as “treeless” and in native grasses dominated by bluestems.
5. Southern Appalachian Bogs--Applicable to palustrine systems with permanently saturated to intermittently dry places often fed by seepage water in relatively flat areas with acidic, wet organic or mucky mineral soils.
6. Southern Appalachian Balds – Applicable to high mountain elevations dominated by herbaceous communities. Balds are typically on federal lands.

**CRITERIA**

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

Methods used shall be designed to protect the soil resource from erosion and compaction.

Invasive plant and animal species and noxious weeds shall be controlled. When possible, control will be limited to that necessary to control undesirable species while still protecting vegetation that benefits native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.

Undisturbed areas shall be conserved on a sufficient extent of the area to sustain disturbance-intolerant species.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard contact your Natural Resources Conservation Service [State Office](#) or download it from the [Field Office Technical Guide](#) for your state.

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Plant species and seeding rate specifications will be prepared to achieve desired condition.

Only high-quality and ecologically adapted plant materials will be used. When feasible, only local ecotypes will be used.

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

A pretreatment assessment of the targeted area will be documented to provide a baseline for comparison with post-treatment conditions. Goals or success criteria will be established using reference sites for guidance and comparison. Where no such reference site exists, use ecological site description or historic data to establish restoration goals.

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

#### **CRITERIA SPECIFIC TO NATIVE TALLGRASS PRAIRIES**

Native prairie plantings will consist of at least three native grass species and two native forbs. A maximum of four pounds of pure live grass seed per acre and two to five pounds of forb seed are required for seeding establishment purposes.

Chemically eradicate, by use of an approved herbicide, all existing non-native plants when natural regeneration or establishment of native grasses is planned.

#### **CRITERIA SPECIFIC TO CEDAR (LIMESTONE) GLADES/BARRENS**

Forbs must dominate the seeding rate when establishing cedar glades by planting. Forbs planted must be adapted to cedar glades/barrens.

Eliminate cedar tree encroachment within open glade areas. When cedar trees cannot be controlled by prescribed burning, they must be cut.

Require livestock access control to prevent plant damage by consumption and trampling.

#### **CRITERIA SPECIFIC TO OAK SAVANNAS**

Establish hardwood species with thick bark that can withstand fire, i.e. white oak, post oak, bur oak, black oak, blackjack oak, persimmon, shagbark hickory, and mockernut hickory.

When converting existing woodlands, this vegetation type requires that less than 30 percent of the site remains in woody cover.

Include at least four native grasses and ten forb species in the establishment of the herbaceous plant community.

Establish woody vegetation in a widely spaced pattern to a basal area of approximately 10 to 20 square feet per acre. When planting trees, plant a minimum of two tree species at a density not to exceed 25 seedlings per acre (approximately 40' x 40' spacing).

Natural regeneration should be considered for all applicable sites and may be an acceptable method for oak savanna establishment.

#### **CRITERIA SPECIFIC TO SOUTHERN APPALACHIAN BOGS**

Remove or alter all constructed drainage features to the degree required to restore either the historic or target hydrologic condition.

Control and manage tree and shrub canopy to maintain open sunny areas. When restoring a bog by eliminating canopy closure, remove no more than 50 percent of the canopy cover per year until the acceptable canopy cover is reached (generally less than 20%) to avoid damaging herbaceous bog plants.

Control non-native plants.

Establish an adequate filter strip or riparian buffer around the site to maintain satisfactory water quality. Species selection shall be native and conducive to restoration of rare and or declining habitats.

Require livestock access control to prevent plant damage by consumption and trampling.

## CONSIDERATIONS

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

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. Where prescribed burning is conducted, it shall follow all guidelines delineated in the Prescribed Burning (Code 338) practice standard. Typical specific treatments may include tree canopy thinning, prescribed burning, species introduction (planting), chemical control of undesirable plants, mowing, disking, and planned grazing. Livestock exclusion, however, should be considered for all habitat types due to the difficulty of avoiding damage to the plant community.

Consider how land use and habitat in the associated landscape may influence the ability to achieve restoration and management objectives.

Consider the likelihood of being able to maintain or establish important ecological disturbances such as burning, flooding or grazing.

Consider how the short and long term effects of climate change may influence the ability to achieve restoration and management objectives.

Consider using southern exposure slopes, well-drained soils, or drought-prone areas when establishing oak savannas.

Use prescribed fire as the primary management tool for maintaining prairies, barrens, and cedar glades. To control woody invasion, burn in the late growing season and increase frequency to every year or every two years.

When establishing barrens, use little bluestem as the primary native grass species in the mixture.

In removing trees from a bog, consider girdling or tree injection instead of physical removal. This method will open the canopy with minimal

impact to the site while providing additional snag habitat.

In considering bog restoration sites, locate remnant bog plant communities.

Generally, the size of the restored or managed area should be large enough to support populations of all species associated with the targeted vegetation type.

Other conservation practices that will facilitate the restoration and management of rare and declining vegetation types include:

Access Control – Code 472

Brush Management – Code 314

Early Successional Habitat  
Development/Management – Code 647

Fence – Code 382

Filter Strip – Code 393

Forest Stand Improvement – Code 666

Integrated Pest Management – Code 595

Prescribed Burning – Code 338

Prescribed Grazing – Code 528

Riparian Herbaceous Cover – Code 390

Tree and Shrub Establishment – Code 612

Watering Facility – Code 614

Wetland Restoration – Code 657

## PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each vegetation type. Specifications shall be recorded using approved specifications sheets and job sheets. Narrative statements in the conservation plan or other acceptable documentation may provide supplemental information to the specifications and job sheets.

## OPERATION AND MAINTENANCE

Haying, grazing, prescribed burning, forest stand improvement, and other management activities will be planned and managed (including access control) as necessary to achieve and maintain the intended purpose.

Vegetation management and maintenance activities shall not be conducted during the primary nesting season of April 15 to August 15, except when necessary to achieve the desired vegetation condition.

Vegetative conditions should be evaluated and compared to reference conditions 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 to mimic natural disturbance regimes.

For oak savannas, maintain woody vegetation in a manner that prevents the site from exceeding 40 percent canopy cover.

For tallgrass prairies, control woody invasion to the extent that woody species do not constitute more than 10 percent of the plant community.

Rotate management and maintenance activities to mimic natural disturbance regimes.

Mowing to establish or maintain the vegetation types addressed in this standard should not be the sole method of disturbance. Mowing alone can damage desirable native grasses and forbs and may not reduce the number of woody stem on the site.

Grazing as a means of controlling woody vegetation in bogs should be light to moderate, limited to winter only (to reduce bog turtle mortality) at a stocking rate not to exceed NRCS recommendations.

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