

Management Recommendations for Conserving Native Prairie In Missouri

MISSOURI DEPARTMENT OF CONSERVATION

Introduction

Prairies once covered nearly one-third of the Missouri. The presettlement prairie region was primarily north of the Missouri River, along the western border, and in scattered patches in the southern and eastern part of the state.

Prairies are grasslands mostly devoid of trees and shrubs. The character of prairie plant communities is influenced by the climate, topography, soils, geology and natural processes in which the communities evolved. Prairie plant survival often depends upon extensive root systems, and approximately two-thirds of a typical prairie plant's growth is underground. This helps the plant find moisture needed for growth during dry spells. The roots combine with soil to form thick mats of sod. These sod mats help to retain moisture, and as the deep roots die and decay, they contribute to formation of rich soil.

The prairies of Missouri are considered "tallgrass" prairies. The two other major prairie types in the United States – shortgrass and mixed grass prairie – do not occur in Missouri, with the exception of a small band of loess hill prairies in northwest Missouri. These prairies contain several plant species that also occur in mixed grass prairies further west in Nebraska and Kansas. Soil substrate, soil moisture and landscape position modifiers are used to delineate twelve types of prairie in Missouri. For more information refer to [The Terrestrial Natural Communities of Missouri](#) by Nelson.

Reasons for Concern

Most of Missouri's prairie has been lost, only small remnants remain. Habitat loss continues as remnants are converted to croplands or cool-season

pastures and as commercial and residential development increases. Other concerns include inappropriate livestock grazing, encroachment from woody vegetation, soil disturbance and inappropriate herbicide usage.



Recommendations

Prairie plant conservation involves habitat or natural community conservation. Preserve enough large blocks of prairie to maintain genetic diversity of flora and fauna found in prairie ecosystems. Government agencies are currently working to restore and maintain prairies on public land. However, for restoration to be successful, management and conservation of prairie must also occur on private land.

Consult individual species BMPs for additional recommendations and specific beneficial and adverse practices for prairie-dependent species.

Prairie Land Management

- Simulation of the natural mechanisms that have allowed the prairie to survive such as moderate grazing, fire, and at times lack of these influences is vital to prairie management.
- If grazing occurs on the prairie, implement a patch burn grazing system. If this is not possible, a prescribed grazing system should be used to maintain the existing native plant community. A patch burn grazing system will mimic the combination of fire and nomadic grazing that once occurred on presettlement prairie. Patch burn grazing creates a mosaic of heavily grazed and lightly grazed areas that provide a diverse

vegetative structure and increased plant diversity in the same grazing unit.

- Prescribed burning is critical to restoring a prairie. Burning will help improve production, reduce undesirable cool-season grasses that can reduce production by using huge quantities of soil moisture, control cedar sprouts, and improve wildlife habitat. Spring burning two or more years in succession will usually control invading cool-season grasses and some woody vegetation. Summer or early fall burning will increase forb diversity, but may also reduce native warm-season grass yield but usually not total yield. Periodic burning will also benefit wildlife by improving nesting and brooding habitat. Plan to burn no more than one-half of the prairie each year so as to leave some previous year's growth for nesting cover. Burn the other portion the following year.
- Management also includes other human intervention such as mowing and haying as well as manual, biological, and chemical means of selectively removing non-native, invasive species and woody vegetation from the prairie. When possible, use spot treatments with selective herbicides to control invasive plants.
- Management to control competing woody growth is essential for maintaining or increasing populations of some prairie plants. To control woody growth, trees and shrubs should be cut when carbohydrate reserves are lowest (before July 1). Avoid treating all acres in any given year as woody cover control often requires the use of machinery. Avoid impacting greater than 75% of the prairie acres annually. Cut stumps should be treated with herbicides to prevent resprouting.
- If the prairie will be hayed, cut various times of the year to maintain plant diversity and vigor. Avoid second cuttings or grazing a prairie after haying. Avoid haying annually after August 15 as cutting at this time will eventually change stand composition of the prairie. Cutting heights on prairies should be a minimum of 3 to 4 inches. If possible, hay only one half of the prairie acres annually, leaving the other half idle for wildlife habitat. The following year, hay the idled half.
- Fertilizing a prairie will increase production, but better returns can be expected by modifying cutting heights and haying dates. Apply fertilizer in May when warm-season grasses are 4 to 6 inches tall. Prairies should only be fertilized

when used in conjunction with spring prescribed burns to control introduced cool-season grasses. Applying lime, phosphorus and potassium may improve forb diversity and production. Choose fertilizer blends with the lowest percentage of nitrogen available.

- Avoid the use of non-selective herbicides or broadcast applications of herbicides on or near native prairie remnants.
- Avoid establishing invasive vegetation, on prairie remnants or nearby where it could spread into the native plant community, and degrade or destroy the remnant plant community.
- Proper management includes monitoring sites that do not require restoration.
- With landowners as partners, protection can come from short-term agreements or long-term easements to save these scattered tracts of prairie. Purchase of some lands may be needed to prevent further loss.
- Tallgrass prairie can be recreated by converting cropland or non-native grassland to native grasses, forbs and legumes. If possible, recreate prairie adjacent or close to existing prairie to enhance the biological value and diversity of existing remnant tracts. Prairie recreation requires extensive site preparation for one or more years, the use of local genetic plant material from nearby sources, and extensive weed control the first year or two after establishment. Avoid using improved cultivars and, if possible, avoid genetic seed sources from other ecoregions or states.
- Degraded prairies can be restored by using a combination of management practices such as prescribed burning, woody vegetation control, herbicides, and if necessary, overseeding native plant materials.

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Legal

The Missouri Department of Conservation prepared these guidelines for conservation practices with assistance from other state agencies, contractors, and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat.

Compliance with these management guidelines is not required by the Missouri wildlife and forestry law or by any regulation of the Missouri Conservation Commission. Other federal, state or local laws may affect construction practices.

“State Endangered Status” is determined by the Missouri Conservation Commission under constitutional authority, and specific requirements for impacts to such species are expressed in the Missouri Wildlife Code, rule 3 CSR 10-4.111.

Species listed under the Federal Endangered Species Act must be considered in projects receiving federal funds or requiring permits under the Clean Water Act, with compliance issues resolved in consultation with the U.S. Fish and Wildlife Service.