

Midwest Tallgrass Prairie

Historically, tallgrass prairies covered parts of Nebraska, Illinois, Iowa, and Kansas. To the west, the tallgrass prairie graded into shortgrass prairie. To the east the tallgrass prairie included increasing numbers of trees, first as scattered oak savannahs and gallery forests, eventually becoming forests with prairie openings. These extended eastward into the Ohio Valley.

Tallgrass prairie is primarily made up of grasses and forbs, with some shrubs and trees. Prairie plant communities are a result of fire and drought, although some community structure is in part from grazing by bison and elk. Drought acts both as a direct stress on the prairie ecosystem, and to make conditions more likely that fire will occur by drying potential fuels. In pre-Colombian times, natural fire sources were primarily from lightning strikes, although there is evidence that deliberate fires started by Native Americans were also common. Fires in the prairie usually occurred in five- to ten-year cycles, with moderate regularity. Fire in tallgrass prairies acts to burn above-ground biomass, killing woody plants, allowing sunlight to reach the soil, and changing the soil pH and nutrient availability. Grassland fires can cover large areas in a short time as fire fronts are driven by prairie winds. However, because grass provides a low quality of fuel, grassland fires usually are not intense.

Productivity usually increases following a fire in the prairie. Growth is stimulated by the removal of litter and preparation of the seedbed. In addition, perennials have greater seed production, germination, and establishment after a fire. The seeds of some forbs, such as prairie sunflower, scarify and leave dormancy following fire. Growth of native species such as big bluestem, little bluestem, and Indian grass all increase significantly following a fire. Fire promotes grasses at the expense of woody species; those woody species that do occur in savannahs are usually thick-barked species such as bur oak. Because of predominantly westerly winds across American prairies, trees are sometimes found on the eastern bank of streams and rivers that stop fires spread by these winds.

When fire is removed from a prairie ecosystem, woody shrubs and trees eventually replace grasses and forbs. Mowing is not a good replacement for fire in prairies because it does not reduce litter. Grazing is not a good replacement because it exerts a selective pressure on some grass species while leaving others untouched.

Almost exclusively, burning is prescribed for the restoration and maintenance of prairie reserves. In most managed prairies, prescribed fire is introduced on a two- to three-year cycle. The time of the year during which these fires are ignited is of primary importance. Plant recovery following a prairie fire is fastest in the spring and fall when soil moisture is high and plants are not producing seeds. If the area is burned when soil moisture is low, or when plants are starting to produce seeds, the recovery will take longer following the fire.

(info from http://www.nifc.gov/preved/comm_guide/wildfire/fire_6.html)

Tallgrass Prairie: Midwestern United States

Historically, tallgrass prairies covered parts of Nebraska, Illinois, Iowa and Kansas and extended into the more eastern states in the Midwest. Tallgrass prairie is made up of grasses, forbs, shrubs and trees and is further characterized by relatively moist soils. Prairies depend on fire to maintain the ecosystem stability and diversity.

One benefit of fire in this community is the elimination of invasive plants, thereby helping to shape and maintain the prairie. In most managed prairies, prescribed fire is introduced on a two- to three-year cycle. Grassland fires can cover large areas in a short period of time.

The time of year during which these fires are ignited is of critical importance. Plant recovery following a prairie fire is fastest in the spring and fall when soil moisture is high and plants are not producing seeds. Growth of native species such as big bluestem, little bluestem and Indian grass increases significantly following a fire. Introduced species that initiate growth earlier in the spring and continue growing later in the fall than native species can be placed at a disadvantage by properly timed spring and fall fires, since the introduced species do not grow as quickly under these conditions.

If fire was excluded, the tallgrass prairie would vanish, and shrubs, trees and exotic grasses would dominate the ecosystem. Before European settlement of the grassland, naturally occurring fire helped to maintain the grasslands. Today many of the prairies that remain are managed by prescribed burning.

(from http://www.nps.gov/fire/educational/edu_tea_firefacts08.html)