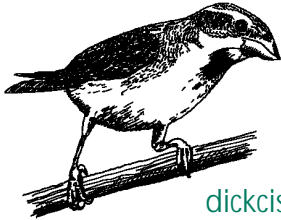


WARM SEASON GRASSES



dickcissel

Grasslands are areas often referred to as prairies or meadows, consisting primarily of grasses with associated wildflowers. These areas provide essential habitat for many species of wildlife. Presently, Michigan has only small remnant prairies scattered across the state. At the time of Michigan's settlement, there were approximately 2.35 million acres of prairies either occurring as tall grass prairies in southern Michigan, or as dry sand prairies in both the central northern Lower Michigan and parts of the Upper Peninsula. Historically ranging from several to thousands of acres, prairies have drastically declined because they have been converted to agricultural lands or lost because of fire suppression.

Within grasslands, a variety of wildlife such as pheasants, wild turkeys, songbirds, foxes, hawks, skunks, and sandhill cranes eat abundant insects, seeds, and small rodents that grasslands produce. Also, mice, voles, shrews, and woodchucks, and many kinds of ground-nesting birds raise their young there. The size of the grassland plays a role in attracting certain species of wildlife. Grasslands one to five acres in size are activity

zones for deer and rabbits. Other wildlife species, such as bobolinks and meadowlarks, may require 20 or more acres of grassland to survive.

There are two types of grasses: cool season and warm season. For more information about cool season grasses, please refer to the chapter on **Cool Season Grasses**. Warm season grasses are "bunch grasses" (grow in clumps) that develop most rapidly during summer when warm nights follow hot days. They include the native prairie species such as big bluestem, little bluestem, Indiangrass, and switchgrass. To increase diversity and provide additional food and cover, many warm season grasses are mixed with native wildflowers such as bergernot, leadplant, coreopsis, aster, blazing star, black-eyed susan, and other coneflowers.

Most wildlife managers in Michigan prefer that warm season grasses and cool season grasses be incorporated into most wildlife plans that have grasslands because they provide excellent wildlife habitat. In fact, Michigan landowners have planted a portion of their land that is set-aside in the federal Conservation Reserve Program (CRP) to warm season grasses. These grasses have stiffer stems that stand up to snow and provide more substantial winter cover than cool season grasses. Also, bunch grasses allow young wildlife to move easily through vegetation,

are drought tolerant, native to Michigan, and have a longer life than cool season types. Furthermore, bunch grasses, which possess deep root systems, promote better soil infiltration of water that then percolates into groundwater supplies. Besides making better use of water, they are efficient at removing nutrients--nitrogen, phosphorus and potassium--from the soil. Thus, warm season grasses are useful as buffer strips around wetlands as well as in areas where erosion is a problem. Unfortunately, warm season grass seed is usually more expensive. Also, they normally take three to five years to establish compared to one year for cool season types, and may require more maintenance during the early years of establishment, which would include mowing and burning.

Stand Composition

Soil type will determine what kinds of warm season grasses to plant. The Natural Resource Conservation Service office can supply, free of charge, a soil survey of your property. The survey will identify what types of soil you have



and where it might be located. The soil may be wet, moist, or dry; and composed of sandy, loam, or clay. Before planting, your soil should be tested for pH and fertility. The test should determine if lime or fertilizers need to be applied to the soil for the particular type of grass you choose to plant. Nitrogen should not be applied to warm season grass plantings. Soil test boxes are available from your county Michigan State University Extension office. A small fee will be charged for this service.

The kind of habitat you wish to establish will also determine what kind of warm season grasses and forbs you should plant. For example, if your goal is to provide one acre of grasses for nesting waterfowl, a commonly used mixture is 2 lbs. of big bluestem, 1 lb. of little bluestem, 2 lbs. of Indian grass, 0.5 to 1 lb. of switchgrass and 0.5 lb. of wildflowers. Use native Michigan seed whenever possible. For more information on soil testing, soil surveys, and seed mixtures, see the chapter on **Grassland Plantings** in this section.



Big bluestem is a three to six foot tall perennial whose seed matures in September or October when the normally blue-green grass turns straw color with darker purple tones. Palatable to livestock when pastured during the growing season, big blue is often referred to as the "prairie king" because of its importance in native grasslands. Big bluestem responds best on well-drained upland sites containing loamy sands, sandy

loams, and loams but will also grow on poorly drained soils and wet areas

Indiangrass is a three to five foot tall native grass with similar soil requirements as big bluestem, especially in lowland prairies where the two grow together. It is also common along rivers and sandy hill areas. Its blue-green leaves are similar in color to cabbage leaves, and the six to 10-inch long flower heads are yellow or bright bronze. Fully bloomed--usually in September--the plump heads add beauty to the prairie and are easily identified. It produces excellent quality hay when harvested early and is relished by livestock.



At four to eight feet tall, **switchgrass** is one of the tallest of all native prairie grasses and stands up better to snow than the others. It is also the best adapted to a wide range of soil conditions on both uplands and lowlands and has strong tolerance to pre-emergent herbicides such as atrazine. Thus it can be planted with corn or in the year following corn without herbicide carry-over fears. It grows well in valleys and swales where it receives runoff water. Triangular in outline with one seed at the end of each branch, switchgrass seedheads



mature in September when the entire plant turns a yellow-orange color. Its smooth hard seed and strong seeding vigor make it easier to plant and establish than the other warm season grasses. However, unless you include it as a minor addition to a mix of warm season types, it will easily dominate the stand. Sometimes pure stands of switchgrass two to 10 acres in size are planted to promote outstanding winter cover for wildlife. It produces abundant good-quality hay and pasture.

Little blue-stem grows from two to three feet tall and is red-brown color in fall with white-tufted seed heads. Widely tolerant to drought, little blue is a reliable producer of native hay and forage as well as an outstanding check against erosion on steep slopes. On meadows and well-managed pastures, it often forms pure stands that maintain themselves against invasion by other species. On drier sites such as gravel slopes and well-drained overflow areas, it occurs in clumps.



Stand Size

Grasslands from less than an acre in size to fields of a 1,000 acres in size will be used to one extent or another by many wildlife species, from insects to deer. Some wildlife species need a large grassland for their survival while other wildlife need small areas or may use only a portion of the grassland for their habitat requirements. Pheasants, bobolinks, and meadowlarks are among many wildlife species that do best in habi-

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pheasant chicks



tats where the predominant landscape type is grass. Township-sized areas containing 25 percent grassland have the highest benefit to these species. Grasslands from 20 to 40 acres are usually more beneficial to nesting wildlife than are smaller fields because they make it more difficult for predators to locate nests. One consideration, however, is that if your plan calls for making a large field from several smaller fields, the removal of fencerows may destroy travel corridors and habitats for other kinds of wildlife. Also, warm season grass fields larger than 150 acres begin to have less favorable impact on many species because of the loss of edge. On the other hand, dickcissels and vesper, grasshopper, and henslow's sparrows respond best to large grasslands, up to 1,000 acres in size.

Stand Planting

Warm season grasses take about three to five years to reach maximum height, and so landowners should not judge their efforts too early. Seedbed preparation is critically important. Because the seeds of warm season grasses are tiny and fluffy (except for switchgrass), they are difficult to run through typical planters and broadcasters. Planting alternatives include no-till grain drills specifically designed to plant the fluffy native grass seed, hand seeding, or purchasing more expensive debarbed grass seed (seed that has had the fluffy material

removed) which then can be planted more easily with a conventional planter. Plant at the total rate of 4 to 6 lbs./acre of pure live seed (PLS) for a mixture of two or three grasses. PLS takes into account that a quantity of seed will contain seed hulls, inert materials, and seed that will not germinate. A 10 lb. bag of seed may contain only 7 lbs. of PLS. Add wildflowers at the rate of 0.5 lbs. to 1 lb. per acre.

Stand Management

The quality of a warm season grass stand usually peaks at five to seven years after establishment. Subsequently, they become dominated with matted grasses and dead vegetation, which reduce their vigor and offer less variety. In time, woody plants (trees and shrubs) become established. The grassland then becomes a brushland and becomes habitat for other wildlife species such as deer, rabbits, and songbirds who prefer brushy habitats.

Watch your native grass stands for signs of deterioration, such as poor reproduction. To keep the stand productive for years, management tools such as burning, mowing, and grazing may be needed. The careful use of selective herbicides is another consideration. These tools stimulate regrowth and reduce the competition from woody plants, increase stand vigor, and promote quality grassland habitat.

A **prescribed burn** is a planned fire, burning with a specific purpose. It is best done on a day with light wind, relatively low humidity, in early spring when vegetation is dry. Discuss your plans with local authorities, obtain the necessary burning permit, and observe all restrictions and safety

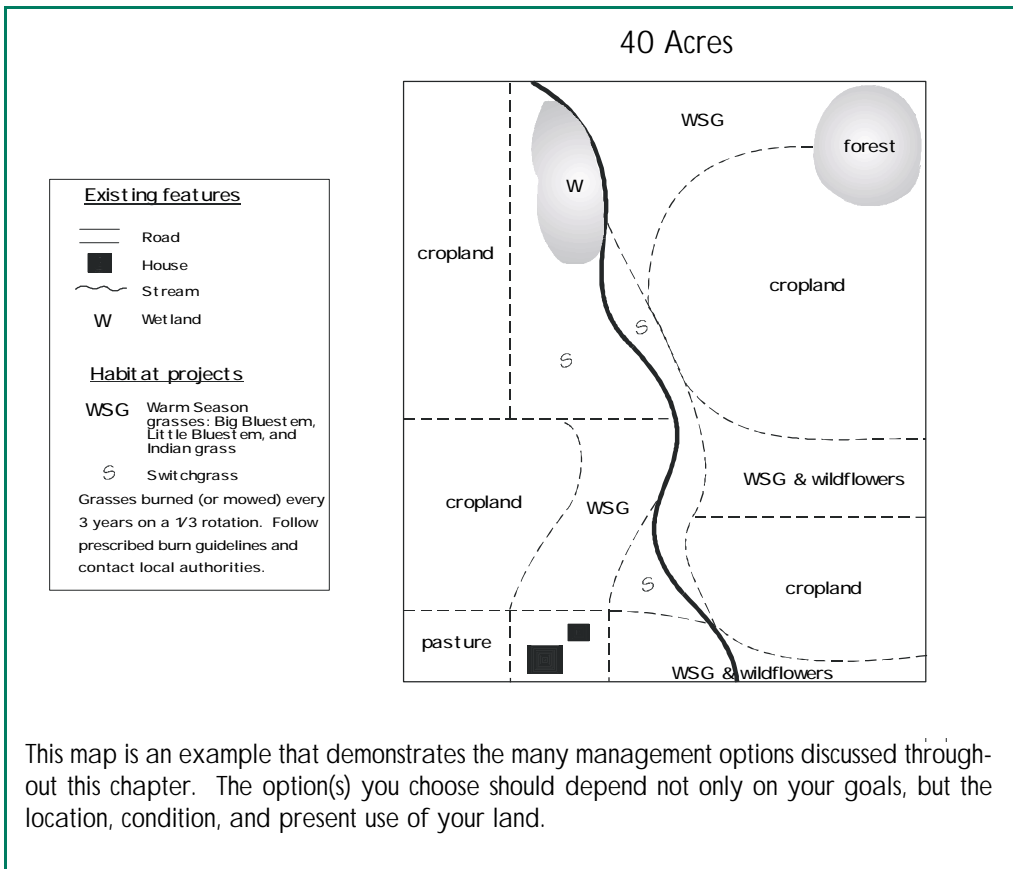
procedures. Trained individuals using appropriate equipment should conduct burns. For more information see the **Prescribed Burning chapter**.

Mowing or grazing in a three to five year rotation will slow encroachment of woody plants. Depending on your goals, and the size of your grassland, you may wish to divide the field into three to five segments of equal size and treat one segment each year. Mow in strips 30 to 60 feet wide and leave unmowed areas of 60 to 100 feet wide between them, or mow blocks of grass on a three to five year rotation. Mowing, haying, or grazing the grass stands should occur between July 15 and August 31. This will give nesting birds an opportunity to hatch their eggs. Do not mow or graze warm season grasses below eight inches in height, damage to the plant could occur if cut below this level. When haying or grazing, fertilizers should be added every three to five years to return nutrients back to the soil.

Chemical treatment will also control woody plants, but correct application is critical. If you ignore label instructions, you may destroy non-target vegetation, which could have a negative impact on wildlife.

In summary, warm season grasslands were originally found throughout much of Michigan. They are an extremely important component of many wildlife species habitat needs. Efforts must continue to protect and enhance the grasslands that remain in Michigan and landowners can play a major role towards that objective.

WARM SEASON GRASSES



FOR ADDITIONAL CHAPTERS CONTACT:
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Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information, and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this manual provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: CONTACT YOUR LOCAL CONSERVATION DISTRICT