



Prairies & Oak Savannas

True prairies are treeless plant communities dominated by grasses and hundreds of wildflower species. They covered large areas in Southeastern Wisconsin before white settlement. Even more abundant were the oak savannas, which are prairies with a scattering of bur, black, or white oaks. Settlers called these habitats “oak openings” because the open areas between the trees permitted prairie grasses and wildflowers to grow. Certain prairie plants did well in the light shade of the oaks. The first settlers plowed the prairies and oak savannas and used them for grazing. Today, the rich diversity of the pre-settlement prairies is for the most part gone. Only a few degraded remnants remain. Restoring prairies brings back some of the original plant and animal diversity and contributes to the overall health of the landscape and the richness of peoples lives.

“From the first of May until the latter end of September the prairies become immense flower gardens, presenting to the eye every variety of the most fascinating colors. The first race that appears is a rich peach-blow tint, the next succeeding a reddish poppy color, then the violet, the blue, the purple, and the yellow in regular succession.

From their appearance in the spring until the frost ushers in, they are every fortnight succeeded by a new succession, each exceeding its predecessor in beauty and richness of color”

*Donald McLeod, 1846,
“History of Wisconsin*”
McLeod’s Spelling

Meadows are not the same as prairies, although to the casual observer they look very similar. Meadows are really old fields typically composed of a dense sod of non-native grasses and weedy wildflowers. They form when plowed fields and pastures are abandoned. Much abandoned farmland in our area is now meadowland. Compared to native prairies, meadows are much less diverse in their plant and animal life and, for this reason, may be considered less aesthetically pleasing than prairies or oak savannas. Meadows, however, do make prime sites for prairie restorations.

Suitable sites and conditions for prairie establishment

Prairies need sun. At least half of the day should be full sunlight to grow and maintain most prairie plants. (Shaded, wooded sites are difficult to convert to prairie because of the work involved in removing trees and shrubs and dealing with the stumps.) Flat open fields are good sites for establishing prairies. South and west facing slopes tend to be hotter and drier and need their own compliment of prairie plants. East facing slopes are good for general prairies. North facing slopes have less sun, stay cooler and moister and have more brush problems, therefore not well suited for prairies. If scattered, open grown oaks are present, the site may qualify as a potential oak savanna.

Soil moisture content will determine the type of prairie most appropriate for a given site.

Dry prairies need well-drained (never any standing water) sandy or shallow soil on steep west or south facing slopes. Dry prairies are sometimes called “short grass prairies” because of the relative short stature of the plants.

Mesic prairies (mesic is intermediate between wet and dry) thrive on soil with medium moisture and often with a loamy texture. They are well drained but not dry and may have standing water for short periods. Plants tend to be tall, up to ten feet, hence mesic prairies are sometimes called tall grass prairies.



Prairies

To till or not to till?

Preparing the ground to seed a new prairie usually involved tilling — disturbing the land mechanically with a roto-tiller, farm disk, or plow to eliminate weeds that would otherwise out-compete new prairie seedlings. Tilling is still very common, but recently herbicides have been gaining favor in place of tilling because fewer dormant weeds seeds are disturbed since the soil is not turned over. However, because some property owners prefer to avoid chemicals (due to environmental health concerns or to save money), tilling, or tilling in conjunction with limited herbicide treatments, is preferred.

To Till

Site preparation and weed management with tilling involves working the ground mechanically every two to three weeks during the growing season, usually June through August. This repetitive tilling will kill or severely stress weeds by forcing them to re-germinate multiple times. Tilling is often combined with herbicide treatment as an insurance measure and a way to reduce the number of times the land must be worked. Sometimes the decision to apply herbicides is made after examining how many weeds continue to emerge after tilling. If many remain, one or two herbicide applications should prepare the site for prairie seed. Ideally, the last herbicide treatment should occur the following spring, approximately two weeks before planting.

Using Plastic

Another technique to eliminate weeds is to cover the prairie site with large sheets of clear or black plastic from early or mid June until the following spring. This method is particularly successful in killing perennial weeds like quackgrass and smooth brome grass. The plastic prevents water from reaching the soil and increases soil temperatures which stresses and kills perennial roots. Black plastic also prevents light from reaching plants that do manage to sprout. Clear plastic allows light to pass through and may stimulate weed seed germination but the lack of water and high temperature eventually kills the seedlings. Black plastic is not as effective in getting rid of weed seeds because without light they are not stimulated to germinate. For this reason it's most effective to remove the black plastic in April, allow weed seeds to germinate, and then till or spray the weeds 1-2 times before planting prairie seeds.

Not to Till

Herbicide treatment alone can control the weeds on a site, it just usually takes more applications than it does in combination with tilling. In Southeast Wisconsin, controlling the weeds on a typical prairie restoration site with herbicides alone will involve 2 to 3 treatments over the June to August growing season, with one additional treatment recommended two weeks before spring planting the following year.

Wet prairies (also called low prairies) require a soil that retains moisture; floods in spring or has puddles after rain; and has a clay textured soil or one with a high organic content (a rich black soil). These conditions are found in low spots in the environment, often along ponds, lakes or streams. Plants are of medium stature.

Current plant life on a site can also give clues as to type of prairie most likely to succeed. In the best case scenario, the area will have an existing prairie remnant or at least a few remnant plants to provide clues about what may have been there in the past. The presence of large sprawling oaks may indicate a former oak savanna condition. Even weedy plants can indicate the suitability of a site for a particular prairie type.

Using the above information, a prairie type can be selected and appropriate plants purchased from a local prairie seed company.

Establishing a prairie:

Listed below are four basic steps involved in establishing and maintaining a prairie. We urge you to consult several of the publications and contacts listed at the end of this section if you plan to establish a large permanent prairie habitat.

- (1) Rid the site of brush, weeds and non-native grasses by periodic tilling and/or herbicide treatment for the entire growing season before the actual planting (see side box).
- (2) Prepare the soil to a smooth surface. Sometimes herbicide treated sites are seeded without this soil



Color is a big reason why people like prairies.

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disturbing step and planted directly.

(3) Plant the prairie seed with a tractor drawn drill (a specialized tool for planting seeds) or mix the seed with moist sand, sawdust or peat moss and hand broadcast. Cover bare areas with straw mulch.

(4) Mow at 4-6 inches for the first 2-3 years to cut tops of weeds before they produce seeds.

Maintaining a prairie or oak savanna

The goal of long term maintenance is to control the invasion of woody plants and non-native weeds.

Controlled burns in spring or fall are a good way to control woody plants. Burning also removes plant litter which tends to inhibit new growth and prevents seed germination. Large management areas should be divided into burn units, with each unit being burned on a 2-5 year rotation.

Mowing a prairie or meadow at a 5-6 inch height in late fall every 2-3 years can be an alternative to burning. Ideally, the cut plant litter should be raked and removed from the prairie site. Avoid mowing in spring when ground nesting birds may be present.

Maintaining a meadow

In some cases where money or time is an issue, it may be appropriate to maintain open space as a grassy meadow or “old-field” habitat. (Remember these areas are mostly non-native grasses and weeds persisting since farming practices ended). No site preparation or planting is necessary. Long term maintenance requires mowing the site once or twice a year to a height of 4-6 inches. (Avoid mowing in spring when ground nesting birds may be present.) Spot spraying of noxious weeds, such as thistle, may be desirable. Planting patches of native wildflowers will enhance the aesthetic quality of the site.



Compass Plant

Attracting Wildlife

Birds, small mammals and insects will be drawn to prairies and meadows as wildflowers and grasses provide needed food and shelter. Grassland birds such as meadowlarks, bobolinks and native sparrows may also be attracted to the area for nesting. Birdhouses may attract tree swallows and bluebirds. Small rock piles scattered throughout the area will provide shelter for small mammals and reptiles. Brush piles provide shelter for birds and small mammals but should not be used if fire is used as a management tool.

What if you can't burn?

If burning is not allowed in your community, or not feasible for some other reason, your only weed management choice is mowing. How does mowing compare to burning?

Mowing is fairly effective at weed control but not very effective at removing plant litter. Getting rid of plant litter involves another step, raking the site after mowing.

One important caution related to mowing (other than the personal safety issues), don't cut fields during the period from May to mid June when ground nesting birds are raising their hatchlings.



Oak Savanna, once the predominant prairie type in Southeast Wisconsin, is now exceptionally rare.

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Trails and paths.

A five to six foot wide path around the perimeter of a prairie or meadow can serve as a hiking and maintenance trail, as well as a fire break during controlled burns. Paths through a prairie or meadow should follow contours when steep slopes are present to avoid erosion problems. These internal paths can also serve as fire breaks and to mark boundaries for burn units receiving different fire rotations. Paths should be kept mowed throughout the growing season to provide a litter-free (less flammable) fire break. For this reason wood chips are not recommended for prairie paths.

Contacts

Consulting firms and prairie seed sources: Companies often have helpful publications and catalogs describing procedures for prairie establishment. Visit this web site for a list of Wisconsin nurseries and consultants.

www.dnr.state.wi.us/org/land/er/invasive/info/nurseries.htm

U.S. Fish and Wildlife Service (USFWS): The principal federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats. Prairie protection is a major focus. Provides financial assistance for prairie projects.

<http://www.fws.gov/midwest/maps/wisconsin.htm>

Wisconsin Department of Natural Resources (DNR): The DNR is a source for information and assistance with prairies including the animals and plants that live in these habitats and the restoration and management of impaired sites. <http://dnr.wi.gov/org/water/fhp/wetlands/shtml>

University of Wisconsin-Extension: Most Wisconsin counties have one or two UWEX agricultural educators who can answer questions about prairie protection. Visit this web link to find the location of the office in your county: <http://www.uwex.edu/ces/cty/>

Natural Resources Conservation Service: A federal organization that works with private landowners to conserve natural resources, including wetlands. Provides financial assistance for prairie and grassland restoration projects.

http://www.wi.nrcs.usda.gov/contact/office_search.html

Wild Ones: A non-profit organization that promotes environmentally sound landscaping practices to preserve biodiversity through the preservation, restoration and establishment of native plant communities including prairies.

Publications and other sources of information

Habitat Restoration Guide, Prairie Ridge Nursery, Mt. Horeb, WI, crmprairie@inxpress.com

Home on the Range: Restoring and Maintaining Grasslands for Wildlife, Publ-WM-228, Wisconsin DNR

How to Manage Small Prairie Fires, Wayne R. Pauly, 1985, Dane County Park Commission, Madison, WI

A Practical Guide to Prairie Restoration, Carl Kurtz., University of Iowa Press, 70pp. \$12.95, 1-800-621-2736

Prairie and Savanna Restoration on Private Land in Wisconsin, U.S. Fish & Wildlife Service, Madison, WI, 608-221-1206, <http://partners.fws.gov>

Prairie Primer, Stan Nichols, Lynn Entine & Evelyn Howell, 1996, UW Extension Publication #G2736 <http://cecommerce.uwex.edu/>

Prairie Restoration for the Beginner, Prairie Seed Source, North Lake, WI, 53064



Options for Open Space

A resource guide for private and public land owners and managers.

Produced by the Southeast Wisconsin Fox River Partnership Team to protect, restore and enhance the natural resources of the Fox River basin.

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