



Chapter One:

## Reconstructing a Tallgrass Prairie

A Seeding Guide for Missouri

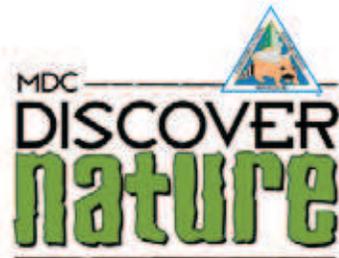
# Chapter One: Reconstructing a Tallgrass Prairie

A Seeding Guide for Missouri



**SHAW NATURE  
RESERVE**

a division of the  MISSOURI BOTANICAL GARDEN

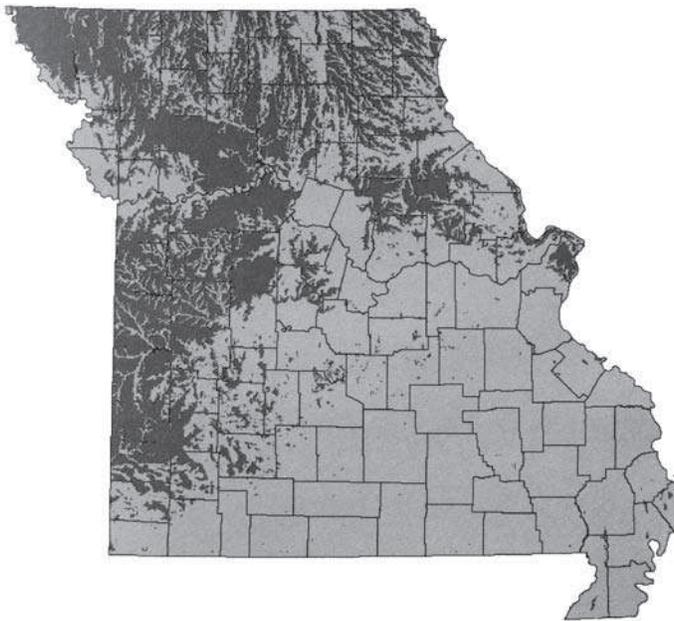


## Introduction

This reconstruction method is designed for early winter seeding in Missouri. It will take two to three years for most seedlings to flower and at least three years for plants to overcome initial weeds. Timing and patience are important to achieve success. With careful attention to maintenance during the first year or two, you can create a

beautiful and low-maintenance restoration on a small budget. With yearly burning or mowing, your restoration will survive for generations to enjoy. This method is simple and has been used at Shaw Nature Reserve in Gray Summit, Missouri, over many years.

### Determine Goals



### Presettlement Prairie

The range of the original tallgrass prairie is shown in the dark areas on the map above. While it dominated northern and western Missouri, its range also extended throughout southeastern Missouri in patches between rocky glades, open woodlands, and forested river bottoms. In Missouri, about 4 percent of the original prairie exists today, mostly

in the western part of the state. Prairie landscapes are being reconstructed on state and private lands throughout the Midwest. They are used to reduce mowing on small farms, highway right-of-ways, college and corporate campuses, and golf courses.

# Introduction

Before beginning prairie reconstruction you should evaluate your site and determine what you hope to achieve. Ask yourself why you are reconstructing the site and what goals you have for it. The answers will help you decide on the site location, layout, size and seed mixture, all of which are described in this booklet. There are four basic reasons to reconstruct a tallgrass prairie:

#### Maintenance

It is becoming more common for homeowners and owners of large properties to reduce mowing by replacing turf with prairie plants that need mowing only once a year.

#### Beautification

Tallgrass prairies with a diversity of grasses and wildflowers bloom from April through November and attract a host of colorful birds, butterflies and insects. Homeowners, landowners and city parks use prairies for beautification.

#### Education

A tallgrass prairie reconstruction is a good opportunity to teach local cultural and natural history, while providing opportunities to develop math, reading, writing, art and science skills.

#### Ecological Reconstruction

Prairie reconstruction provides needed habitat for wildlife. Over 95 percent of the original tallgrass prairie is gone in Missouri, replaced by agriculture and urban development. A prairie reconstruction project with a diversity of native plants attracts a diversity of insects, birds, amphibians and mammals and provides opportunities to observe nature up close.

### Labor Comparison

<b>Lawn</b> • Weekly mowing	<b>Field</b> • Mowing once to three times per year
<b>Highway Right-of-way</b> • Mowing four to six times per year	<b>Tallgrass Prairie</b> • Mowing or burning once per year or every other year

## Site Evaluation

### A. Map the area.

Note existing structures, utilities, traffic use, slope, north-south aspect, soil type, vegetation, patterns of shade and light, soil moisture and drainage, erosion, size and shape of the site. Maps will help you decide where to locate a prairie and may be useful in explaining the project to neighbors, city officials or maintenance crews.

### B. Survey vegetation.

A plant survey of the site and surrounding area may reveal clues to the plant community that existed and helps you decide what needs to be done first. For example, if native prairie grasses and forbs grow in a nearby fence row or roadside, seeds of these plants could be collected and used in the project, or at least guide plant selection. You may find that the site is covered with shrubs, vines or weedy vegetation. If possible, avoid areas that are infested with crown vetch, bird's foot trefoil, Johnsongrass, sericea lespedeza; they are difficult to control. This will help prioritize the reconstruction steps.

### C. Research land-use history.

Has the land recently been in row-crop production? If so, has the herbicide Atrazine been used? Atrazine may prevent germination of prairie seeds up to a year after its application. Herbicide-resistant row crops can be an advantage by keeping the field weed-free until seed-sowing time in late November and early December. We recommend Roundup-Ready crops be used in the season immediately preceding prairie seeding.

### D. Is the site suitable for a tallgrass prairie?

Look for evidence that a prairie existed on the site. Are there stories about prairies in the area? Do prairie plants exist in the area? If there are trees, the site may have been prairie anyway. Much of the tallgrass prairie south of the Missouri River has been replaced with forest over the past 200 years. If you have attractive specimen trees, consider seeding the site with savanna species. They are more tolerant of shade and drought.

See sample seed list for savannas on page 13.



### Prairie Borders

Left to right: Small backyard prairie landscape with prairie dropseed grass edge and split-rail fence. Corporate prairie landscape with buffalo grass edge. Large front-yard prairie landscape with

mowed fescue edge along driveway. Each has well-defined borders that create a gentle visual transition from walkway to taller prairie. Fencing also prevents prairie plants from flopping at the edges.

### E. Create a schedule.

Before going further, it is important to plan step-by-step in advance so each step is done in sequence.

See sample schedule below.

Prairie Reconstruction Schedule	
Season 1	
Spring	Mow tall fescue repeatedly to prevent flowering and seeding.
Summer	Herbicide application for tall fescue using glyphosate.
Fall	Herbicide application for woody plants using stronger herbicide.
Late Fall	Herbicide application for winter annuals using glyphosate.
Early winter	Mix/sow seed. Late November or early December is ideal.
Winter	Seeding can occur in January but no later.
Season 2	
Spring	Seed germinates in April. Survey seedlings to determine seedling density and weediness. Begin mowing seeded area every two weeks if annual weeds appear. Spot spray perennial weeds.
Summer	Continue mowing every 2-3 weeks. Spot spray perennial weeds.
Fall	Continue mowing every 3 weeks. Spot spray perennial weeds.
Season 3	
	Begin maintenance mowing/burning once per season in winter. Spot spray perennial weeds.
	Keep in mind that sites with heavy perennial and woody weeds may require two full seasons of herbicide applications before seeding.

## Tips for Species Selection

### Diversity

The more diverse the plant life, the greater the diversity of wildlife that use it for food and shelter. A diversity of native plants also tends to provide blooms from early spring through early winter. Typical commercial prairie seed mixes include about 25 species.

Soil moisture determines proper species selection.

**Dry:** Well-drained soil, on south- or west-

facing slopes with shallow or rocky soils. Soil surface dries quickly.

**Mesic:** Medium soil moisture, often gently sloped land. Soil surface retains moisture several days.

**Wet:** Poorly drained soil, usually in flat, low ground. Soil surface remains inundated with water after rain.

The species selection guide in this document lists species for dry, mesic and wet sites.

### Prairie Plants to Avoid or Use Sparingly in Seed Mixes

Sunflowers Helianthus spp.	Most sunflower species are aggressive and should be included in seed mixes at very low rates. You may choose to seed over an established prairie 3-5 years after original seeding.
Partridge pea, Illinois bundle-flower and Black-eyed Susan	These species are aggressive and should be included in seed mixes at low rates.
Tall goldenrod Solidago altissima	This native species of goldenrod spreads rapidly by seed and rhizomes. It is considered a weed and should never be included in seed mixes.
Tall prairie grasses Indian grass	Many tall grass species are aggressive and should be included in seed mixes at low rates.
Big Bluestem Switch grass Eastern Gama grass Cord grass	

## Tips for Site Preparation

Existing vegetation must be removed.

This process is more important than any other step, so be sure it is done thoroughly before seeding prairie. It may take more than one season to control difficult weed species.

If starting with a turf lawn, use clear plastic, tin or organic mulch to kill turf in small areas. Apply in spring/summer and remove just before early winter seed sowing. Secure plastic and tin so they don't blow away. For areas larger than 5,000 square feet, use an herbicide such as Roundup (glyphosate) (or Rodeo, near water,) to kill existing turf. Apply once or twice in late summer and fall for early winter seed sowing. When using herbicides, always wear eye and skin protection.

If you are starting with an old field or highway right-of-way, it is impractical to use mechanical means to remove weeds. You can use hand tools to cut down or dig out small numbers of trees and shrubs.

The preferred method is to use glyphosate (or Rodeo near water) to kill grasses and broadleaf weeds. Use Roundup Pro or Garlon to kill undesired tree saplings, shrubs and vines (if woody plants are too big, they must be cut down and removed from the site). Apply in mid-summer, late-summer and fall for early-winter seed sowing. Old fields typically have a diversity of grasses, broadleaf weeds and brush and require more herbicide applications than a lawn. Fields with heavy perennial and woody weeds require a two-year treatment before seeding. The table on Page 8 lists difficult weeds and suggestions for their control.

Tree saplings and shrubs such as oaks, hickories, hackberry, blackberry, sumac, sassafras, autumn olive or woody vines can be a problem if not killed before sowing seed. A stronger herbicide may be needed.

See table on Page 8 for treatment instructions.



Top: Various size herbicide sprayers. Bottom: Fifty-gallon spray rig with a 15-foot boom is practical for sites larger than a half acre.

Difficult to Kill Weeds Must be Controlled Before Seed Sowing Occurs	
Agressive Weeds	
Crown vetch <i>Coronilla varia</i>	Spray 2% solution of Roundup* over several-year period. Seeds are long-lived in the soil. Prescribed burning can stimulate spread. Highly invasive.
Sweet clover <i>Melilotus</i> spp.	Mow over several-year period or spray with a 2% solution of 2,4-D amine and surfactant. Do not let sweet clover make seeds as it is difficult to control. Highly invasive.
Curly dock <i>Rumex crispus</i>	Spray 2% solution of Roundup in spring or early summer before plants flower.
Red clover <i>Trifolium pratense</i>	Spray 2% solution of Roundup in spring or early summer before plants flower.
Thistle <i>Cirsium arvense</i> , <i>C. vulgare</i>	Spray 2% solution of Roundup in spring or early summer before plants flower.
Sericea lespedeza <i>L. cuneata</i>	Spray 2% solution of Garlon 4 <sup>+</sup> over several-year period. Seeds are long-lived in the soil. Prescribed burning can stimulate spread. Highly invasive.
Johnsongrass <i>Sorghum halepense</i>	Spray Outrider <sup>®</sup> before plants flower. Roundup is not 100 percent effective. Highly invasive.
Tall goldenrod <i>Solidago altissima</i>	Spray 2% solution of Roundup in spring or early summer before plants flower.
Yellow nutsedge <i>Cyperus esculentus</i>	Spray Nutsedge herbicide during the growing season.
Tree saplings, shrubs and vines	Apply a solution of Garlon 4 mixed in commercially available basal oil, diesel fuel, or kerosene to bark of uncut stems. Or apply 20% solution of Roundup Pro mixed in water with a surfactant to cut stumps. These applications can take place in any season but are most easily applied in winter.

## Soil Preparation

After existing vegetation is killed, the ground should not be tilled, disked or plowed. Disturbing soil brings up weed seed. Dead vegetation should be cut to a few inches high, using a mower or weed whip. Having some dead vegetation helps hold seed in place and prevent erosion during winter months. Seeding can be done directly in the mowed, dead vegetation in early winter.

Slopes with a grade above 1:2 may need to be stabilized. Several materials are available to keep seeds and soil in place while plants establish themselves.

## Seed Purchasing

Purchasing seed mixes from a native seed nursery is cost-effective and ensures a balanced mix. While collecting your own seed is fun, it is time-consuming.

## Seed Collection

For prairies less than an acre you may be able to collect seed by hand. Collect in apple-picking bags, paper or plastic grocery bags, and buckets.

Slope-Stabilization Mats Control Erosion		
Type	Brand name	Description
Fiber mat	Geojute <sup>®</sup>	Open mesh construction allows plants to grow with ample light to pass through. Absorbs almost five times its weight. Decomposes in two years or less.
Wood shavings mat	Curlex <sup>®</sup> No.1	Expands when wet, causing the material to adhere to the surface, and releases moisture to germinating seeds. Product is entirely biodegradable in two months.
Straw mat	North American Green, S75 Single Net Straw Blanket	The interwoven strands move independently of each other providing better moisture absorption, flexibility and conformance with the soil surface. Decomposes in one year.

### Local Ecotype Seed

This seed originates naturally near your prairie project. The closer the seed originates to the project site, the more likely the plants will succeed because they are genetically adapted to the environment and are more disease-resistant. When purchasing seed, ask for seed that comes from as close to the project site as possible.



Collecting grass seed using pruners and apple picking bag. It is easy to cut a hand while using pruners. A bag over the shoulder or tied around your waist lets you use both hands.

### Seed Drying, Cleaning and Storage

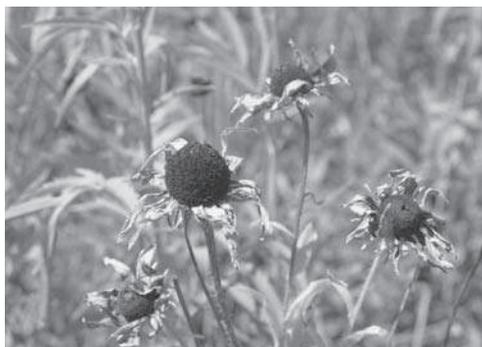
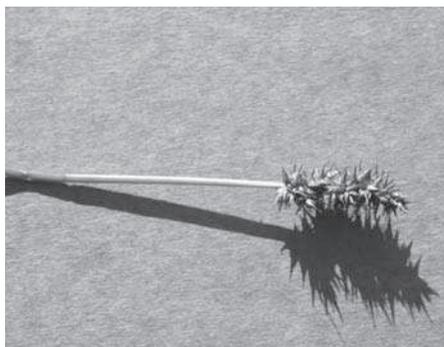
#### Drying

Dry seed in cardboard trays, open paper bags or other open containers. Spread out large quantities of seed in a large, dry

space. Seed dries in about two weeks, more quickly in air-conditioned environment. Be sure to include plant name, date collected and collection location with the seed.



Unripe seed heads are green or still have color in their flower petals. Wait until petals turn tan or brown. From left, Sedge, Black-eyed Susan, and White wild indigo.



Ripe seed heads are tan, brown or black. From left, Sedge, Black-eyed Susan, and White wild indigo.

### Cleaning

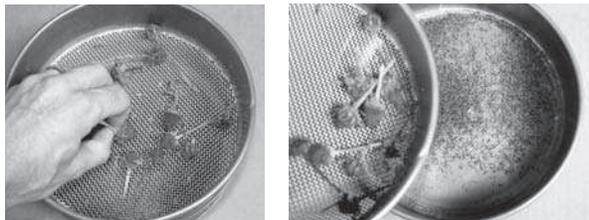
Seeds may be cleaned in kitchen colanders, sieves, window screens and other household items. Large wooden screens may be made of variously sized metal screening purchased from a hardware store.

### Storing

Once seed is dried and cleaned, it may be stored in Ziploc® or paper bags. These can be stored in a refrigerator or in a garage or basement as long as they are dry, mouse-free and out of direct sunlight.



Labeled seed being dried in cardboard trays, paper bags, and on a sheet of plastic.



Seed heads are cleaned in different-sized screens. Seed and fine particles fall through. Stems and larger parts stay on top.



Seeds can be stored in Ziploc® or paper bags.

## Seed Mixes

### Getting Started

Pre-mixed prairie seed can be purchased from local native plant nurseries (see nursery source list). Try to acquire seed from local sources since it will be hardier and more disease-resistant in our climate than seed from other states.

8-10 pounds pure live seed (PLS\*) per acre is appropriate (double if on steep slopes, hard construction soils or on weedy sites). If you collect seed yourself, use 15 pound-per-acre weight to account for chaffy unclean seed.

For smaller sites, sow 1 ounce mixed seed per 200-300 square feet.

### Sample Seed Mix: One-Acre Mesic to Dry Prairie

Scientific Name	Common Name	Weight Per Acre
<b>Grasses</b>		
<i>Andropogon gerardii</i>	Big bluestem	5.5 oz.
<i>Elymus canadensis</i>	Canada wild rye	12 oz.
<i>Panicum virgatum</i>	Switch grass	3 oz.
<i>Sorghastrum nutans</i>	Indian grass	3 oz.
<i>Schizachyrium scoparium</i>	Little bluestem	16 oz.
Carex species (6)	Mixed prairie sedges (3 oz. ea.)	18 oz.
<b>Total Grasses:</b>		<b>57.5 oz. or 3.5 lb.</b>
<b>Forbs</b>		
<i>Asclepias tuberosa</i>	Butterfly milkweed	8 oz.
<i>Aster novae-angliae</i>	New England aster	2 oz.
<i>Baptisia alba</i>	White false indigo	14 oz.
<i>Coreopsis lanceolata</i>	Lance-leaved coreopsis	2.5 oz.
<i>Coreopsis tripteris</i>	Tall coreopsis	4 oz.
<i>Echinacea pallida</i>	Pale purple coneflower	8 oz.
<i>Eryngium yuccifolium</i>	Rattlesnake master	5 oz.
<i>Heliopsis helianthoides</i>	False sunflower	4 oz.
<i>Helianthus occidentalis</i>	Western sunflower	1 oz.
<i>Lespedeza capitata</i>	Round-head bushclover	3 oz.
<i>Liatris pycnostachya</i>	Prairie blazing star	7 oz.
<i>Monarda fistulosa</i>	Wild bergamot	half oz.
<i>Ratibida pinnata</i>	Gray-headed coneflower	1.5 oz.
<i>Rudbeckia hirta</i>	Black-eyed-Susan	1 oz.
<i>Solidago rigida</i> or <i>speciosa</i>	Stiff or showy goldenrod	1 oz.
<i>Rudbeckia subtomentosa</i>	Sweet coneflower	1 oz.
<i>Vernonia</i> spp.	Ironweed	2.5 oz.
<i>Tradescantia ohiensis</i>	Ohio spiderwort	8 oz.
<b>Total Forbs :</b>		<b>74 oz. or about 4.5 lb.</b>
<b>Grand Total :</b>		<b>8 lb. PLS per acre</b>

## Sample Seed Mix: One-Acre Average to Dry Savanna or Open Woodland

Scientific Name	Common Name	Weight Per Acre
<b>Grasses</b>		
<i>Andropogon gerardii</i>	Big bluestem	3 oz.
<i>Carex</i> species (6)	Mixed sedges (3 oz. ea)	16 oz.
<i>Chasmanthium latifolium</i>	River oats	6 oz.
<i>Diarrhena obovata</i>	Beak grass	16 oz.
<i>Bromus pubescens</i>	Woodland brome	4 oz.
<i>Elymus hystrix</i>	Bottlebrush grass	4 oz.
<i>Elymus virginicus</i> var. <i>glabriflorus</i>	Woodland rye	4 oz.
<i>Panicum virgatum</i>	Switch grass	3 oz.
Total Grasses & Sedges:		56 oz. or 3.5 lb.
<b>Forbs</b>		
<i>Aster patens</i> or <i>A. turbinellus</i>	Purple daisy, prairie aster	3 oz.
<i>Blephilia ciliata</i>	Ohio horse mint	3 oz.
<i>Coreopsis pubescens</i>	Star coreopsis	3 oz.
<i>Echinacea purpurea</i>	Purple coneflower	12 oz.
<i>Heliopsis helianthoides</i>	False sunflower	5 oz.
<i>Liatris scariosa</i>	Savanna blazing star	16 oz.
<i>Monarda bradburiana</i>	Bradbury beebalm	3 oz.
<i>Phlox paniculata</i>	Garden phlox	half oz.
<i>Rudbeckia triloba</i>	Brown-eyed Susan	1 oz.
<i>Scutellaria incana</i>	Hoary skullcap	6 oz.
<i>Senna marilandica</i>	Wild senna	12 oz.
<i>Solidago ulmifolia</i> or <i>S. rugosa</i>	Woodland goldenrods	3 oz.
<i>Tradescantia ohiensis</i>	Ohio spiderwort	6 oz.
<i>Verbesina helianthoides</i>	Yellow wingstem	3 oz.
<i>Veronicastrum virginicum</i>	Culver's root	1 oz.
<i>Zizia aurea</i>	Golden Alexanders	3 oz.
Total Forbs:		80.5 oz. or 5 lbs.
Grand Total:		8.5 lbs. PLS per acre

\*PLS means pure live seed, which is seed that has been tested for purity and viability. This is done by most seed nurseries and should be included in your seed order.

## Sowing Seed by Hand

### When to Sow Seeds

Early winter is the optimum time to sow seed because most native wildflower seeds germinate better after exposure to cold temperature. This process, called stratification, happens naturally each winter. Without stratification, seed germinates at the wrong time and does not survive winter. Sow seed in November or December, if possible (early January at the latest).



This is a large volume of seed mixed with moist sawdust. White fluffy seed on top is showy goldenrod.

### Sowing Seed on Slopes

When sowing seed on slopes, incorporate a nurse crop such as oats or annual rye. Nurse crops are planted with your seed mix to prevent erosion and reduce weed growth during the first growing season and ideally are sown in November. Nurse crops typically disappear by the second growing season. Do not use winter wheat or winter rye as a nurse crop. Studies have shown they produce chemicals that prevent germination of prairie seedlings. Use no-til seed drill on slopes and in flood plains.

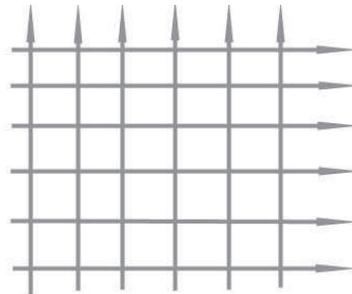
Mix seed with a larger volume of slightly moist sand, sawdust or similar inexpensive material to improve seed distribution. Four parts sawdust to one part seed is a good percentage.

### Sowing Seeds

Sow using a grid-shaped pattern by spreading half the seed mixture over the entire area as you move in one direction. Then spread the other half of the seed mixture over the same area as graph indicates.

### Seeding Rates for Nurse Crops of Oats or Annual Rye

Oats	60-90 lb. per acre
Annual Rye	15 lb. per acre



Here are some tips for hand seeding:

- A. Line up helpers, evenly spaced at the edge of the plot. As they walk forward, they should remain the same distance apart. It helps to walk toward a landmark, a trick that helps workers stay on course.
- B. Fan out seed as it is thrown. Avoid throwing clumps of seed mixture in one small area.
- C. Sowing seed on snow is acceptable, but some seed may be eaten by birds. Sowing seed on a steep slope may result in seed washing away in a heavy rain. You may need to use erosion mats on steep slopes. Gentle slopes are fine.
- D. Sow seed on undisturbed ground. Tilling, disking or plowing brings unwanted weed seeds to the surface. During winter freezes and thawing, seeds sown on the surface work their way into the soil to the proper depth. Therefore, there is no need to cover the seed or rake it in when sowing.



Sowing seed can be done by hand if the site is less than five acres. Use a commercial seed drill for larger plots. Ten people can sow seed over five acres in a morning.

#### How to Calculate an Acre of Land

An acre contains 4,840 square yards or 43,560 square feet. If your plot is about 200 feet by 200 feet then you have 40,000 square feet or just under one acre.

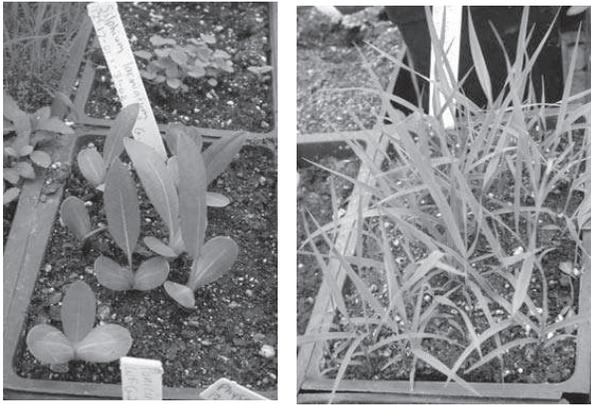
### Sowing Seed with a No-till Drill

This method is used for plots larger than an acre. No-till seed drills plant the seed in rows by cutting slits in the soil and planting seed at the proper distance, and depth. No-till drills cause minimal soil disturbance which results in less weed seed germination. Seed drills may be borrowed from various state agencies or hired through a landscape contractor who specializes in prairie seeding.

To learn how to borrow and use a no-till seed drill, contact the Missouri Department of Conservation private lands conservationist in your county. He or she will be listed at <http://www.mdc.mo.gov/landown/contacts.html>.



Commercial seed drill



Top left: Compass plant. Top right: Switch grass.  
Bottom: Wild bergamot .

Prairie seed begins to germinate in April and continues through June. Some germination even occurs the next spring. Seedlings may be difficult to see because of their small size and the annual weed competition.

You can learn to identify prairie seedlings by reading the Central Region Seedling ID Guide for Native Prairie Plants. This is a ring-bound publication by the Missouri Department of Conservation and the USDA-NRCS.



Six-week-old prairie seedlings: Wild Bergamot, left, and Prairie blazing star.

## Maintenance

### What to do in year one

Vigorous annual and biennial weeds can shade out prairie seedlings during the first summer because prairie wildflowers and grasses grow more slowly than these weeds. Control weeds by keeping them mowed to a height of 6-12 inches throughout the first growing season. Most prairie seedlings are less than six-inches tall in their first growing season and seldom are damaged by mowing. Always cut weeds before they are 12-inches high to avoid shading out prairie seedlings. When weeds are cut at taller heights, the long clippings may smother seedlings. Controlling weeds also prevents production of weed seeds that produce problems in the future. Mowing weeds on a regular basis in year one is a key step for a successful prairie seeding.

### Best equipment to use

String trimmers work well on projects less than an acre. Tractor-driven mowers are needed for larger areas. Adjust mower to cut higher than six inches.

### Common weeds

Common biennial weeds include Queen Anne's lace, bull and Canada thistle and curly dock. Common annuals include moth mullein, fleabane, mare's tail, foxtail grass, chicory, ragweed, lambs quarter, mustard and smartweed, to name a few.

### Weed with care

Weeding in year one is difficult because prairie seedlings are small and easily pulled along with weeds. If you can identify young weeds, it is safe to pull them as long as you do not disturb the desirable seedlings. Keep in mind that pulling weeds disturbs soil and can expose new weed seeds. To remove large weeds, cut them off at the base and remove seed heads from the site.

### What to do in year two

If weeds are a problem mow them at a height of 12 inches since prairie seedlings will be taller the second year. If biennials are a problem, mow them at 12 inches when they are in full bloom. This should kill them or set them back severely.

### Long-term maintenance

If burning your prairie is not an option, mowing will work once your reconstructed prairie is established. A late winter or early spring mowing is recommended once every year or two to control trees and shrubs. Standing prairie plants are full of overwintering insects and provide food and cover for winter birds.



Top: First year prairie receiving mowing. Bottom: Established prairie receiving annual late winter mowing.

## Resources

### Native Seed Nurseries

#### Hamilton Native Outpost

16786 Brown Rd.  
Elk Creek, MO 65464  
417-967-2190  
[www.hamiltonnativeoutpost.com/](http://www.hamiltonnativeoutpost.com/)

#### Missouri Wildflowers Nursery

9814 Pleasant Hill Rd.  
Jefferson City, MO 65109  
573-496-3492  
[www.mowildflowers.net/](http://www.mowildflowers.net/)

#### Pure Air Natives

St. Louis, MO  
636-357-6433  
[www.pureairnatives.com/](http://www.pureairnatives.com/)

#### Bluestem Prairie Nursery

(Seed Packets Only)  
Hillsboro, IL 62049  
217-532-6344

#### Shaw Nature Reserve

(Seed packets only, available on site)  
Gray Summit, MO  
636-451-3512

### Installation

#### Eastern Missouri

DJM Ecological Services  
St. Louis, MO  
314-518-4786  
314-478-2388  
[www.djmecological.com/](http://www.djmecological.com/)

Central Missouri  
Missouri Wildflowers Nursery  
Jefferson City, MO  
573-496-3492  
[www.mowildflowers.net/](http://www.mowildflowers.net/)

Western Missouri  
Applied Ecological Services  
Kansas City, KS  
785-594-2245

## Examples of Reconstructed Prairies (prairies created from agricultural fields, lawns, roadsides and construction sites)

### St. Louis Area

Shaw Nature Reserve  
[www.shawnature.org/](http://www.shawnature.org/)

Powder Valley Conservation Nature Center  
[www.conservation.state.mo.us/areas/cnc/powder/](http://www.conservation.state.mo.us/areas/cnc/powder/)

The Green Center  
[www.thegreencenter.org/home/](http://www.thegreencenter.org/home/)

Forest Park, Kennedy Woods  
Prairie-Savanna  
[levee.wustl.edu/~rlk/wgnss/savanna/](http://levee.wustl.edu/~rlk/wgnss/savanna/)

Weldon Spring Site, Howell Prairie  
[www.wssrap.com/howellprairie.htm](http://www.wssrap.com/howellprairie.htm)

### Columbia Area

Prairie Garden Trust

[www.prairiegardentrust.org/](http://www.prairiegardentrust.org/)

#### Jefferson City Area

Missouri Wildflower Nursery  
Brazito, Mo. [www.mowildflowers.net/](http://www.mowildflowers.net/)

Runge Conservation Nature Center  
[mdc.mo.gov/areas/cnc/ranger](http://mdc.mo.gov/areas/cnc/ranger)

#### Springfield Area

Ozark Regional Land Trust's Woods Prairie  
[www.orlt.org/](http://www.orlt.org/)

#### Kansas City Area

Burr Oak Woods Conservation  
Nature Center  
[www.mdc.mo.gov/areas/cnc/burroak/](http://www.mdc.mo.gov/areas/cnc/burroak/)

Powell Gardens  
[www.powellgardens.org/default.asp?page=NatureTrail](http://www.powellgardens.org/default.asp?page=NatureTrail)

Flat Rock Creek  
Lenexa, Kan. [www.jocomuseum.org/overlandTrails/trail\\_6.htm](http://www.jocomuseum.org/overlandTrails/trail_6.htm)

Burroughs Audubon Library  
816-795-8177 [www.burroughs.org](http://www.burroughs.org)

#### Miscellaneous

Hamilton Seeds and Wildflowers  
Elk Creek, Mo.  
[www.hamiltonseed.com/](http://www.hamiltonseed.com/)

Cuivre River State Park  
Troy, Mo.  
[www.mostateparks.com/cuivre.htm](http://www.mostateparks.com/cuivre.htm)

Missouri Prairie Foundation Sites  
Western Missouri [www.moprairie.org/visit.html](http://www.moprairie.org/visit.html)

The Nature Conservancy's  
Wah' Kon-Ta Prairie  
Eldorado Springs, Mo. [nature.org/wherewework/northamerica/states/missouri/preserves/art472.html](http://nature.org/wherewework/northamerica/states/missouri/preserves/art472.html)

#### Web Site Resources

Shaw Nature Reserve  
[www.shawnature.org](http://www.shawnature.org)

Missouri Dept. of Conservation  
[www.mdc.mo.gov/landown/](http://www.mdc.mo.gov/landown/)

Wild Ones Natural Landscapers  
[www.for-wild.org](http://www.for-wild.org)

The Missouri Prairie Foundation  
[www.moprairie.org](http://www.moprairie.org)

Local Ecotype Seed  
[www.for-wild.org/download/LocalEcotypeBrochure.pdf](http://www.for-wild.org/download/LocalEcotypeBrochure.pdf)

American Prairie Foundation  
[www.americanprairie.org](http://www.americanprairie.org)

The Tallgrass Prairie in Illinois  
[www.inhs.uiuc.edu/~kenr/tallgrass.html](http://www.inhs.uiuc.edu/~kenr/tallgrass.html)

### Ecological Restoration

[www.ecologicalrestoration.info/](http://www.ecologicalrestoration.info/)

### Prairie Crossing Housing Development

[www.prairiecrossing.com/pc/site/about-us.html](http://www.prairiecrossing.com/pc/site/about-us.html)

### Diary of a Prairie Restoration

[www.illinoisraptorcenter.org/diarydirectory.html](http://www.illinoisraptorcenter.org/diarydirectory.html)

### Prairies for Children

[www.dnr.state.wi.us/org/caer/ce/eeek/nature/habitat/whatprai.htm](http://www.dnr.state.wi.us/org/caer/ce/eeek/nature/habitat/whatprai.htm)

### Missouri Native Grasses

[www.conservation.state.mo.us/conmag/1996/03/70.html](http://www.conservation.state.mo.us/conmag/1996/03/70.html)

### Bibliography

#### The Tallgrass Restoration Handbook:

For Prairies, Savannas, and Woodlands,

by Stephen Packard and Cornelia F. Mutel,

editors. 1997. Society for Ecological Restoration by Island Press, 1718 Connecticut Avenue NW, Suite 300, Washington, D.C. 2009-1148. xxxii + 463 pages.

#### Restoring the Tallgrass Prairie:

An Illustrated Manual for Iowa and the Upper Midwest by Shirley Shirley. 1994. University of Iowa Press, Iowa City. xiii + 330 pages.

#### Prairies, Forests, and Wetlands:

The Restoration of Natural Landscape Communities in Iowa by Janette R. Thompson. 1992.

University of Iowa Press, Iowa City. viii + 139 pages.

#### Ecological Restoration

edited by Dave Egan, the University of Wisconsin-Madison Arboretum, University of Wisconsin Press. Subscriptions available on the web: [www.wisc.edu/wisconsinpress/journals/journals/er.html](http://www.wisc.edu/wisconsinpress/journals/journals/er.html)

#### Prairie Establishment and Landscaping

by William E. McClain. 1997. Division of Natural Heritage, Illinois Department of Natural Resources, Springfield, IL

Natural Heritage Technical Publication #2. Available on the web: [www.dnr.state.il.us/conservation/naturalheritage/prairie/table.htm](http://www.dnr.state.il.us/conservation/naturalheritage/prairie/table.htm)

Prairie Plants and Their Use  
in the Landscape

by Neil Diboll. Article available on the web: [www.prairienursery.com/NeilsPage/AchWriting/PrairiePlantsUse.htm](http://www.prairienursery.com/NeilsPage/AchWriting/PrairiePlantsUse.htm)



The Seeding Guide is a collaborative effort between Shaw Nature Reserve and the Missouri Department of Conservation.



**SHAW** NATURE  
RESERVE

a division of the  MISSOURI BOTANICAL GARDEN

