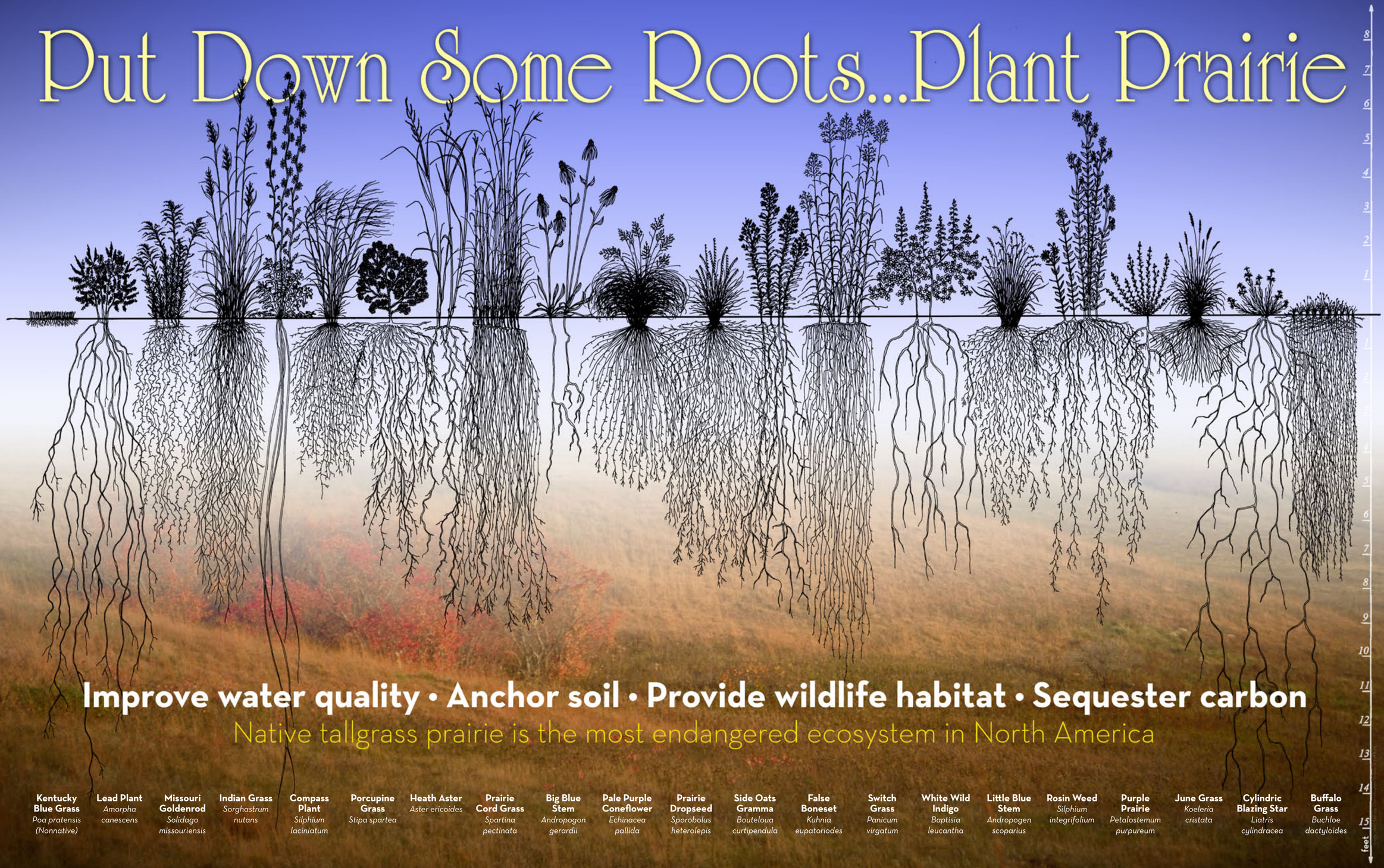
Put Down Some Roots...Plant Prairie



Improve water quality • Anchor soil • Provide wildlife habitat • Sequester carbon

Native tallgrass prairie is the most endangered ecosystem in North America

Kentucky Blue Grass *Poa pratensis (Nonnative)*

Lead Plant *Amorpha canescens*

Missouri Goldenrod *Solidago missouriensis*

Indian Grass *Sorghastrum nutans*

Compass Plant *Silphium laciniatum*

Porcupine Grass *Stipa spartea*

Heath Aster *Aster ericoides*

Prairie Cord Grass *Spartina pectinata*

Big Blue Stem *Andropogon gerardii*

Pale Purple Coneflower *Echinacea pallida*

Prairie Dropseed *Sporobolus heterolepis*

Side Oats Gramma *Bouteloua curtipendula*

False Boneset *Kuhnia eupatorioides*

Switch Grass *Panicum virgatum*

White Wild Indigo *Baptisia leucantha*

Little Blue Stem *Andropogen scoparius*

Rosin Weed *Silphium integrifolium*

Purple Prairie *Petalostemum purpureum*

June Grass *Koeleria cristata*

Cylindric Blazing Star *Liatris cylindracea*

Buffalo Grass *Buchloe dactyloides*

Artwork by Conservation Research Institute, Heidi Natura

What is a Prairie?

The classic image of the prairie is of a sea of tall waving grasses and forbs (wildflowers) with rich black soil and plants adapted to modest rainfall and regular fires. These expansive prairies once stretched across western and southern Minnesota with tallgrass prairies on moist uplands and in wet depressions. Prairies of short and mid-height grasses grew on drier areas such as gravelly slopes. Between the western prairies and the eastern deciduous forests, smaller prairie patches mixed with woodlands and savannas.

Why do we need prairie?

The prairie landscape of the Midwest was one of our nation's most diverse terrestrial ecosystems. Today less than one percent of the original expanse of Minnesota native prairie remains. Over 900 species of plants have been recorded on remaining prairies in Minnesota, with up to 300 or more species per individual prairie remnant. Almost half of Minnesota's rare species are prairie plants and animals.

What are the benefits of planting prairie grasses and wildflowers?

Prairies are sometimes called upside-down forests because much of the plant and animal life is below ground. Many prairie plants have roots 5 to 15 feet deep. Extensive root systems improve the ability of the soil to infiltrate water, reducing runoff and wet conditions. Deep roots decrease erosion by anchoring soil. Prairie plants also increase soil organic matter, storing carbon and rebuilding the soil. They require less long-term maintenance than traditional landscaping. Established prairie plants provide resistance to invasive species, and are a potential source of biofuel. A recent survey for Mn/DOT found that prairie flower vegetation is the only roadside vegetation that has a powerful positive effect on attractiveness, naturalness, maintenance, and safety. This suggests that the prairie flower roadside plantings could be widely used for positive aesthetic effects.

How can you help?

Everyone in the prairie region of Minnesota can help promote prairie planting and conservation. Native landscaping provides an attractive alternative to traditional landscaping and requires less water, chemicals, and maintenance. Roadsides provide an opportunity to restore native prairie grasses and flowers because they are permanent grassy areas. The DNR Roadsides for Wildlife program provides cost share to local road authorities, conservation groups, and individuals to plant native prairie species along roadsides. Other programs provide assistance with shoreland restorations, native buffer programs, and living snow fences. Rain gardens are a great solution to reduce runoff in yards, school grounds, and near parking lots. If you know of an existing native prairie, work with local conservations groups to protect and maintain this precious resource.

Photo: Fred Harris, MNDNR

Tallgrass Prairie Facts

1. Native tallgrass prairie is the MOST ENDANGERED ecosystem in North America. (Kansas State University)
2. Native prairie root systems are the BEST natural soil anchors on earth.
3. One acre of established prairie can produce 24,000 pounds of roots. (Iowa State University)
4. One acre of established prairie can ABSORB 9 inches of rainfall per hour before runoff occurs. (University of North Iowa)
5. One acre of established prairie will INTERCEPT as much as 53 tons of water during a one-inch hour rain event. (University of Nebraska-Lincoln)
6. Prairie foliage represents a surface area 5 to 20 times larger than the soil area beneath it. (University of Nebraska-Lincoln)
7. Prairie planted in roadside ditches makes our highways safer by INCREASING the holding capacity for snow in the ditch provided the shoulder is mowed. Mn/DOT.
8. Natural competition of prairie plants REDUCES the occurrence of weeds in an area. (Iowa State University)
9. Greater prairie diversity creates greater biotic barriers to PREVENT weed invasion. (University of Minnesota)
10. One acre of reconstructed prairie can produce more net bioenergy than land used to grow corn for ethanol. (University of Minnesota)

Prairie Ecology Principles

Prairie Grass

Grasses (family Poaceae) are highly adapted to life on the prairie. Most prairie grasses are sod grasses, which means they spread horizontally by sending out new shoots and roots and the result is a dense mat of plants and roots. Sometimes as much as 90% of the weight of a grass plant is in its roots. These deep and extensive roots store huge amounts of sugars, water, and energy and protect the plant from drought, grazing, and fires. Dense sod also discourages competition by other species. Height varies from ground cover to six feet tall. Depending on their time of growth they are either warm or cool season species. Cool season species grow most actively in spring and early summer, while warm season species begin growth in early summer and continue until fall. Warm season grasses include big bluestem, little bluestem, Indiangrass, sideoats grama, switchgrass, cordgrass, and prairie dropseed. Cool season grasses include porcupine grass, western wheatgrass, Canada wild rye, June grass, and Kalm's bromegrass.

Fabulous Forbs

Wildflowers are beautiful, provide nectar and seeds for insects and birds, and some (legumes) have nitrogen-fixing properties that enrich the soil. Some wildflowers will quickly establish and provide erosion control. Wildflowers are some of the best competitors against weeds. Common long-lived species that occur in a range of prairie habitats in Minnesota include: blue vervain, golden alexander, showy goldenrod, stiff goldenrod, Canada milkvetch, Culver's root, round-headed bush clover, white prairie clover, purple prairie clover, prairie rose, leadplant, birdsfoot coreopsis, heart-leaved alexander, smooth white aster, smooth blue aster, heath aster, stiff sunflower, black-eyed susan, grey-headed coneflower, and wild bergamot. Butterfly weed and dotted blazing star are restricted to dry sites. Bottle gentian, northern plains blazing star, and New England aster are restricted to moist habitats.

Provide a Variety of Landscapes, Habitat and Species

Minnesota's original prairies support species adapted to wet, mesic (moist) and dry habitats. When planting prairie species, it is important to consider both uplands and wetlands. There are prairie species that thrive in rocky, sandy, wet, or even salty conditions. Animals require a variety of habitats for feeding, nesting, and cover. If you wish to attract birds, plant species that hold seeds or fruit into the winter.

Use Local Native Prairie Seed

When purchasing seed or plants try to get them from a reputable native plant producer. They can help you find the best plants for your locations and soil type. Native plants are plants that are indigenous to a particular region. In Minnesota, plants are considered indigenous/native if they occurred in an area prior to European settlement. These plants are adapted to the specific climate, landscape, and soil conditions. Even within Minnesota, species may have distinct local ecotypes adapted to the conditions of certain regions (see map). Ask for seed that is as local in origin to your planting location as possible. Read the seed tag closely to find details on the origin of your seed. Yellow Tag certified seed has been independently assured to be of a particular ecotype and to have undergone minimal artificial selection. Avoid cultivars or non-native varieties that may mix with native species and dilute the gene pool.

Diverse seed mixes are better

It is important to develop seed mixes that are appropriate for the specific landscape where they will be planted. In general, plant as much diversity of wildflowers and grasses as your conditions and budget will allow. Try for at least 20-50 different prairie grass and wildflowers. Diverse plantings are less prone to weed invasion. An exception to this principle is where invasive species are a severe problem and/or where ongoing spraying of broadleaf herbicides will occur. In these locations it may be best to plant native grasses. What kills broadleaf weeds also kills native wildflowers. Avoid plants that are so aggressive they overrun the entire planting.

Erosion Control & Cover Crop

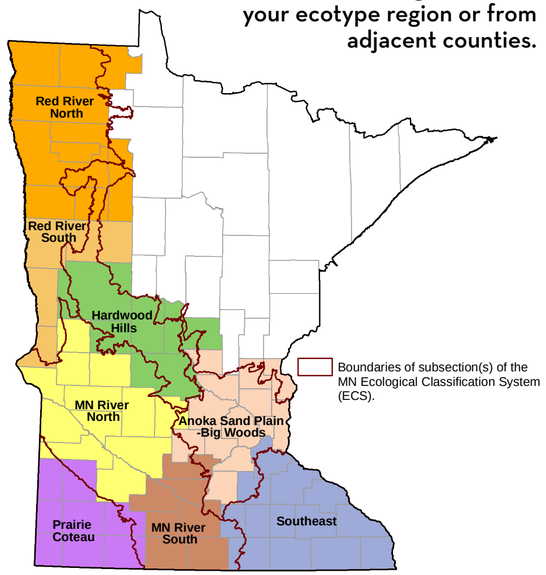
Established native prairie is excellent at erosion control. However, because many prairie species take a few years to become well established, it is important to use a seed mix that includes annual cover crops for immediate erosion control as well as cool-season native grasses to provide intermediate erosion control until the planting matures. Grasses for erosion control include Canada wild rye, slender wheatgrass, Virginia wild rye, June grass, sideoats grama, rough or northern dropseed, and blue grama. Forbs for erosion control include black-eyed Susan, partridge pea, penstemon, aster species, and purple prairie clover.

Importance of Weed Control

Weed control is very important both before planting and in the early years of prairie plantings. A site should be cleared of weeds before planting by using one or more herbicide treatments or tillings. Until a planting matures, weeds must be controlled through a combination of mowing, spot-spraying, and prescribed burning. Avoid broad-spectrum herbicides and broadcast spraying after the seeds have been planted.

Native Prairie Ecotype Regions

We recommend using seed from your ecotype region or from adjacent counties.



Who to Contact for Help or Possible Cost Sharing

For info on prairie protection programs and restoration:
www.mndnr.gov/prairierestoration

For info about native plant communities:
www.mndnr.gov/npc/index.html

For Roadsides for Wildlife information, plans, presentations, training, and legal mandates:
Carmelita.Nelson@dnr.state.mn.us
651-259-5014

For roadside cost-share projects (75% reimbursement-maximum $300/acre), local ecotype prairie planting, technical assistance, prescribed burning, and equipment coordination:
Pete.Schaefer@dnr.state.mn.us
507-225-3572

For free roadside signs, brochures, annual youth poster contest, and nest box info:
Larinda.Burg@dnr.state.mn.us
507-359-6035

For Living Snow Fence assistance:
Daniel.Gullickson@dot.state.mn.us
651-366-3610

For DNR Roadside for Wildlife Info:
www.mndnr.gov/roadsidesforwildlife

For invasive species and weed management info: www.mda.state.mn.us or www.mndnr.gov/eco/invasives

Other Prairie Contacts:

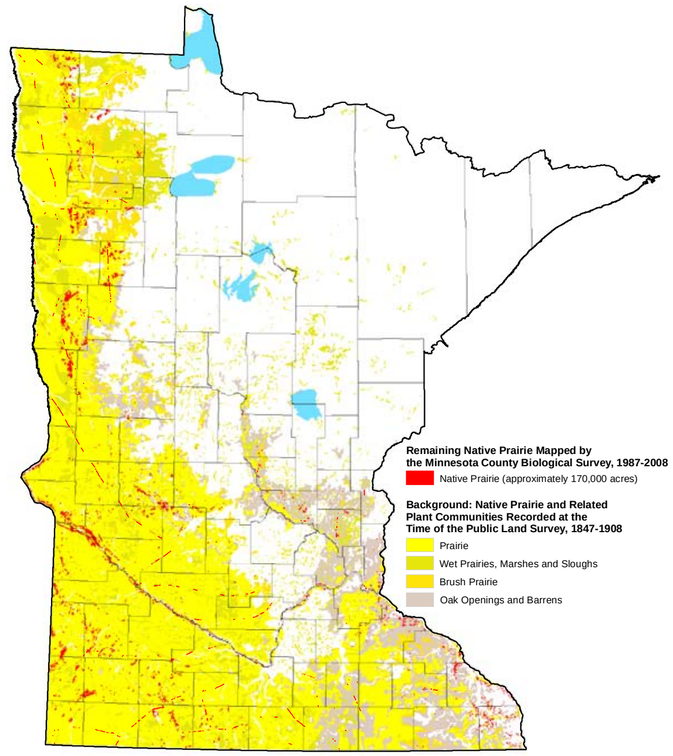
MN Native Wildflower/Grass Producers –
507-526-3049 www.mnnwgpa.org

Native Buffer Cost-Share Program -
Contact your local SWCD office

Pheasants Forever Habitat Teams –
www.pheasantsforever.org

Minnesota's Remaining Native Prairie

Native Prairie Recorded 1847-1908 (Shown in Shades of Yellow and Tan)
Remaining Native Prairie Mapped 1987-2008 (Shown in Red)



This map depicts native prairies documented by the DNR's Minnesota County Biological Survey from 1987-2008, in comparson with the prairie vegetation recorded during the Public Land Survey from 1847-1908. Less than 1% of the prairies recorded in Minnesota during the Public Land Survay remain. For more information and a larger version of the map, see **www.mndnr.gov/eco/mcbs/index.html**

Photo: Mike Halverson