Discover the

Minnesota Prairie Landowner Network

2026

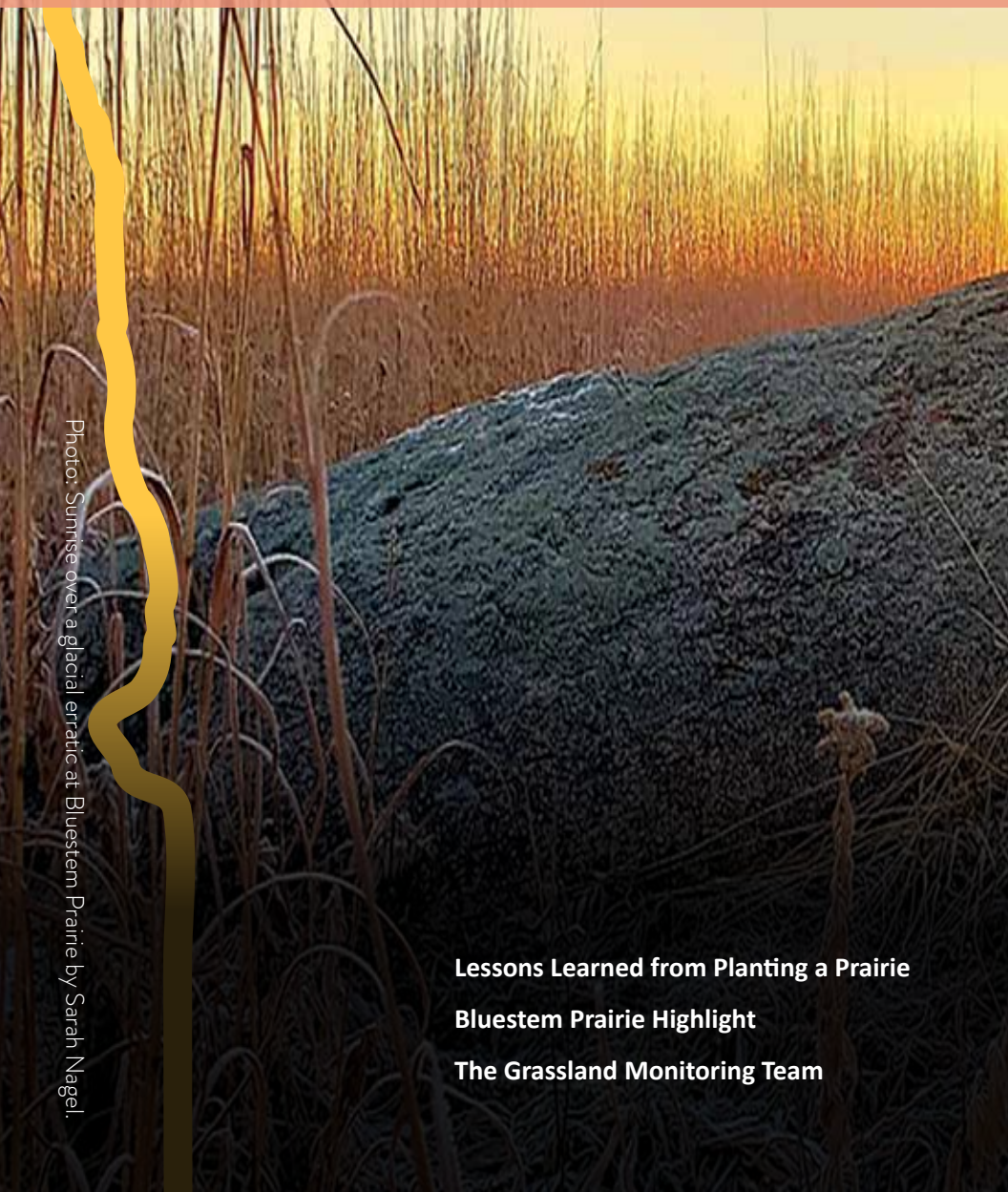

Photo: Sunrise over a glacial erratic at Bluestem Prairie by Sarah Nagel.

Lessons Learned from Planting a Prairie

Bluestem Prairie Highlight

The Grassland Monitoring Team

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The Minnesota Prairie Landowner Network is a partnership project of the Minnesota Prairie Conservation Plan with specific support from the Minnesota Department of Natural Resources and The Nature Conservancy.

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Lessons Learned from Planting a Prairie

By Phil Doll, Prairie Monitoring Specialist, Minnesota DNR

In November 2021, I began the process of converting 10 acres of former cropland on my property to prairie. These 10 acres had recently been used to grow soybeans, corn, wheat and alfalfa. The soils in this area are excessively drained sandy loam and about half of the site lies on a south facing hillside. The entire site receives full sun. I initially seeded the site with a custom mix of 10 native grasses, two native sedges and 30 native wildflower species. My planting is now in its fourth growing season, and these are some of my observations during those first few years.

What I Knew:

First, I knew that I had a relatively good seed bed since the recent cropping history included corn and soybeans. Still, I spent some money and hired a local farm service company to spray the field with herbicide one last time in September of 2021 to eliminate any sprouting weeds. I knew that the soils and topography would favor dry prairie species on my site. I spent a lot of time working with a seed vendor to create a custom mix of 42 species that would have a chance to grow and grow well. I also knew 42 species wasn't going to be enough for me. I wanted more, much more. To achieve this, I spent time hand collecting hard-to-buy seed and adding it to the planting. I've added hand-collected seed every year so far, and I'm close to 90 species. Of the 90 species seeded, I've confirmed around 60 have established.

What I Didn't Know:

Once the seed was in the ground, I didn't know what the future would bring. The sleep-creep-leap motto is often used to describe the first three years after planting a prairie. The first year, it sleeps. The second year, it creeps. And the third year, it leaps. It's normal for new prairie plants to take time to establish and grow. Early on, prairie plants focus much of their energy

into developing roots before producing much aboveground growth. But, the first two years in my case were marked with exceptional drought. I was left wondering what would happen to my site. Would I need to reseed because of the drought? Would seeds germinate and then die due to the heat and lack of moisture? Or would they grow, go dormant, and spring back to life when more favorable conditions returned? Would they not germinate at all and wait for more favorable (wetter) conditions? Only time would reveal answers to my questions. So, my only choice was to wait and watch.

The one good thing about the droughty conditions is that the weeds didn't grow much either. In the first year, the dominant weed was common ragweed, but it only grew to be about 4 inches tall. There was no reason to worry about it. Mowing it wouldn't have done much good as it wasn't tall enough to be mowed. In the second year, the dominance of the ragweed was replaced by another annual weed. This time a cool season non-native grass: green foxtail. Again though, it wasn't very tall, so I elected again just to ignore it and not do any mowing.

The other thing I didn't know was revealed to me by my

(Left) Year 2 of prairie restoration. (Right) Year 3 of prairie restoration.

neighbor. He and his family have farmed this area and my land for decades. One day during the second year, he saw me walking around my planting studying the plants. He waved me over. As I approached, he said, "It looks like you've got some sweet clover out there" with a smirk on his face. He then proceeded to tell me that this field was used to grow sweet clover as a cash crop back in the 1940's and 50's. He remembered some years that the sweet clover grew 10' tall. That led me to more thoughts and questions. Is the decades-old sweet clover seed bank still viable? How big of headache will the sweet clover be? More questions time would have to answer for me.

What I Know Now:

First, the drought questions were answered. The beginning of the third year was very wet. May, June, and July brought over 15 inches of rain – 5 plus inches in each month. And those itty-bitty prairie plants I had been watching the first two years took off like crazy. First, the large-flowered penstemon went bananas. Then, the black-eyed Susan, yarrow, ox-eye sunflower, bergamot, and anise hyssop – they all bolted and bloomed like crazy – it was a spectacular sight! All the neighbors made sure to tell me how wonderful it looked. I would watch cars slow down to peek as they drove by on the gravel road.

Most of the planting area looked great despite the prior droughty conditions, yet the south facing hillside was telling a different story. Here, the persistent hot and dry weather did prove to be too much. This area had empty patches and large gaps between native plants. But I've learned that's ok and used the bare spots as an opportunity to add more plant diversity. These are the areas where I've planted pasque flower plugs and added a lot of my hand-picked seed. Slowly but surely, it seems to be working. The beginning of the fourth year brought the first pasque flower blooms – and I'm also seeing new species show up from hand-picked seed – downy paintbrush, oval-leaf milkweed, prairie smoke, blanket flower, hairy false goldenaster, and porcupine grass have all emerged.

And what about the sweet clover? Yes, it is present throughout, but to this point it

Year 4 of prairie restoration.

hasn't been abundant enough to be too worrying. Now that the prairie plants are beginning to dominate, the sweet clover is growing with much less vigor. On the other hand, the number of boxelder seedlings that I am finding does worry me. The smallest ones are easy to yank out of the ground. But I'll need to implement a prescribed fire and some spot mowing in the next year to help control the larger ones. I'll also have to work harder at eliminating nearby seed sources.

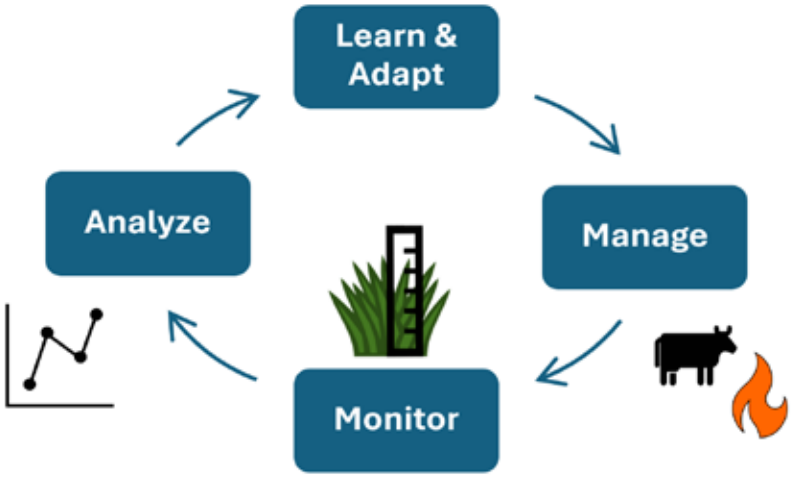
All in all, it's a great joy to watch a young prairie planting take shape. Every new bloom is an event worth celebrating. And the wildlife it attracts is amazing – from the crickets, bumble bees and monarchs to the mourning doves, bluebirds and sparrows. I look forward to watching, documenting and learning from the whole experience for many years to come.

Phil is a Grassland Restoration Specialist for the MN DNR. He works with DNR staff and partners to assess and evaluate the plant communities on past grassland restorations. The information is then applied to enhance existing restorations as well as improve the results of future restoration opportunities.

The Grassland Monitoring Team

In 2007, grassland managers and scientists from multiple agencies formed the Grassland Monitoring Team (GMT) with the goal of improving management of native prairies. The team established standard vegetation sampling methods and developed a framework for adaptive grassland management in the Northern Tallgrass Prairie Region. Since 2008 more than 13,000 acres of native prairie across 152 sites in Minnesota, North Dakota and South Dakota have been surveyed. Here are some of the findings from those efforts using an adaptive management approach.

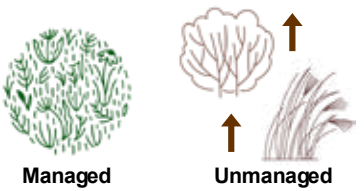
Adaptive management is a flexible, science based approach to conservation that treats management actions like experiments—testing what works best and adjusting over time. It helps improve grassland management by learning from real-world outcomes.



Any kind of management – burning, grazing, or both – helps improve prairie health

• Managed prairies had more native plants and fewer invasive Brome grasses within just 6 years.

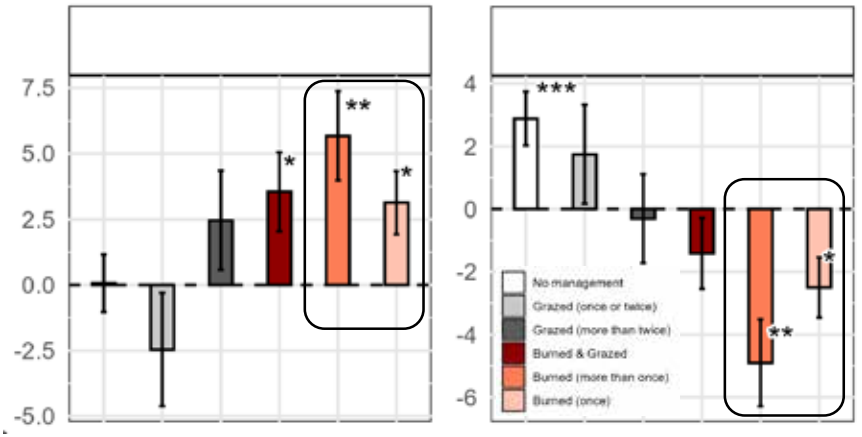
• Leaving prairies unmanaged led to more invasive Brome grasses and woody plants taking over.



Prescribed burning is a reliable tool for improving prairie quality in the short-term

• Even burning just once in 6 years helped increase native plants and reduced invasive Brome grasses.

• Burning more often (2+ times in 6 years) was even better at controlling Brome grasses.



High-quality prairies decline quickly without management

• In just 6 years without management, native plants (especially forbs) declined, while woody plants and invasives increased.

• Burning (at any frequency) was the most effective way to maintain quality.

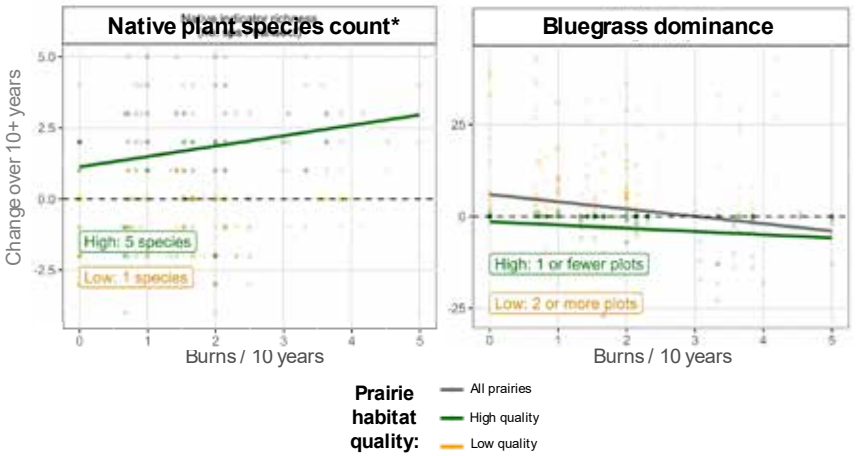
• Light to moderate grazing helped, but heavy grazing reduced native plants and increased invasive bluegrass species.

Burning frequently over the long term (10+ years) boosts plant diversity and controls invasives

• Frequent long-term burning increased the number of key native species in high-quality prairies.

• Burning also reduced invasive Kentucky bluegrass.

• Native plant diversity increased most with both burning and grazing.

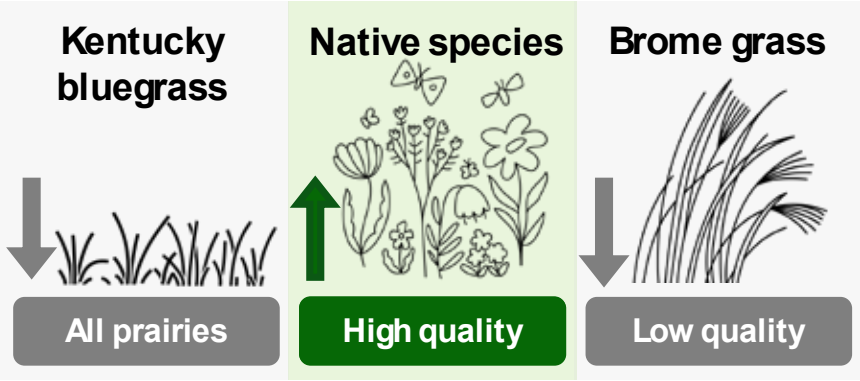


Grazing shows strong benefits—with long-term commitment

• In high-quality prairies, more frequent grazing over 10 years increased both native plant cover and the number of key native species.

• In lower-quality prairies dominated by invasive Brome grasses, long-term grazing helped significantly reduce invasive Brome grasses.

• Invasive Kentucky bluegrass also declined with more frequent long-term grazing.



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Bluestem Prairie Highlight

By Mary Enright, SNA Communications Outreach Specialist, Minnesota DNR

For thousands of years, tallgrass prairie was the largest ecosystem in North America, spanning over 170 million acres and hosting diverse communities of plants and animals. Over time, colonists developed tallgrass prairie for agriculture and other uses, leaving just 4% of native prairie in North America intact today. Bluestem Prairie is one of the most significant of these remaining native prairies in Minnesota, giving us a glimpse into what the Great Plains looked like hundreds of years ago.

Just over 1% of Minnesota's original 18 million acres of native prairie remains today. The 1,310-acre Bluestem Prairie Scientific and Natural Area is found within the 6,078-acre Bluestem Prairie Preserve, owned by The Nature Conservancy. Located in Clay County, this prairie is characterized by a vast flat landscape interspersed with shoreline ridges left by Glacial Lake Agassiz. Bluestem Prairie provides essential habitat to a wide variety of native Great Plains species who depend on this unique landscape, including the greater prairie-chicken.

The Greater Prairie-Chicken:

Greater prairie-chickens are known for their vibrant and unique mating ritual. From early spring until June, male prairie-chickens gather in patches of short-grass known as "booming grounds" or "leks" at dawn to perform their fascinating courtship display. They call and dance, blowing up bright orange air sacs on their necks to produce low, humming "booming" sounds while drumming their feet. They do this to impress female prairie-chickens and protect their coveted territory. Males compete for space closest to the middle of the lek, where they have the highest likelihood of attracting a mate. These birds require prairies with different vegetation structures throughout their lives, including short stature grassland for visibility during mating season, to moderately dense grassland

Greater prairie-chickens perform mating rituals on their booming grounds at Bluestem Prairie.

for protection while nesting and raising chicks. As native prairie habitat becomes increasingly rare, Bluestem Prairie remains one of the best remaining habitats for greater prairie-chickens in Minnesota. From March to early June, visitors can reserve a blind, venture out to the lek at dawn, and observe this fascinating natural display firsthand.

Plant and Animal Diversity:

Home to over 313 plant species, the Bluestem Prairie Preserve hosts a diverse prairie community. A variety of native flowers bloom from spring to fall, making the prairie an ever-changing landscape. Visitor favorites include pasqueflower (*Anemone patens*) as its bloom signals one of the first signs of spring, the pink feathery seed heads of prairie smoke (*Geum triflorum*) in the early summer, and the showy blooms of bottle gentian (*Gentiana andrewsii*) in late summer and fall.

In addition to the greater prairie-chicken, Bluestem Prairie provides habitat and nesting grounds for over 115 bird species, along with small mammals like the plains pocket mouse and the prairie vole, and a diverse insect population. Together, these plant and animal species create an intricate prairie ecosystem.

Activities:

Visitors can experience Bluestem Prairie year-round in a variety of ways. In the spring, visitors can reserve prairie-chicken blinds from The Nature Conservancy by calling 218-498-2679. More information on how to reserve a blind can be found online at "prairiechickens.org/how-to-view". Snacks, binoculars, and blankets are recommended for those reserving a blind! Visitors can also enjoy off-trail hiking, birdwatching, and nature photography on lands owned by The Nature Conservancy. The neighboring Buffalo River State Park has designated Prairie View and Bluestem Trails that overlook the prairie, along with camping, picnic areas, and other amenities within the park. The adjacent Minnesota State University Moorhead Regional Science Center also offers events at its interpretive center and observatory. The Center has school programs in the fall, winter, and spring, and DNR naturalists host "Science Saturdays" open house events in the summer. These three adjoining properties give visitors the opportunity to explore the prairie along with river, forests, and wetlands in ways that best suit their interests. Please refer to each site's visitor guidelines to help you enjoy them and preserve their unique wildlife. Those who experience Bluestem

The sunset glows over Bluestem Prairie in early fall.

Prairie will get a break from the hustle and bustle of daily life to appreciate the sights and sounds of wildlife in its natural state.

Mary Enright has serves as a Conservation Corps MN & IA member placed with the MN DNR. She works on communications and outreach projects for the Minnesota Scientific and Natural Areas Program.

Showy goldenrod sways in the wind as as the sun sets over the horizon at Bluestem Prairie.

Photo: Sunrise over a glacial erratic at Bluestem Prairie, by Sarah Nagel.

Historically, Minnesota had 18 million acres of prairie and oak savanna (yellow/orange area on map above). Now less than 2% of native prairie and oak savanna remains (shown in red), about 250,000 acres. Much of this is in private ownership. Prairie partners and professionals across the state recognized the need for a forum for landowners to connect and discuss important prairie management and conservation information with each other.

Let's talk #PrairieManagement!

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