

# SEEDS OF DIVERSITY



Iowa DNR Prairie Resource Center

June/July 2011

## Deer Proofing Your Plants

By Bill Johnson

While getting ready for school on a frosty morning in April, I rubbed the sleep from my eyes at the morning breakfast table and looked aimlessly out the window. As my eyes came into focus, I suddenly spotted a deer in the backyard. What a beautiful April surprise! I called to my sisters, mom, and dad: “Look, look! There is a deer in the yard!”

“April Fools!” my sister hollered back from the bathroom.

“NO, no there really is a deer in the backyard,” I urgently replied. My family soon came running to the back window just in time to see a white tail bob through the oak trees and back down to the creek.

White-tailed deer were an unusual visitor at my house back in the late seventies. I still feel that special sentiment when I see a deer today, be-

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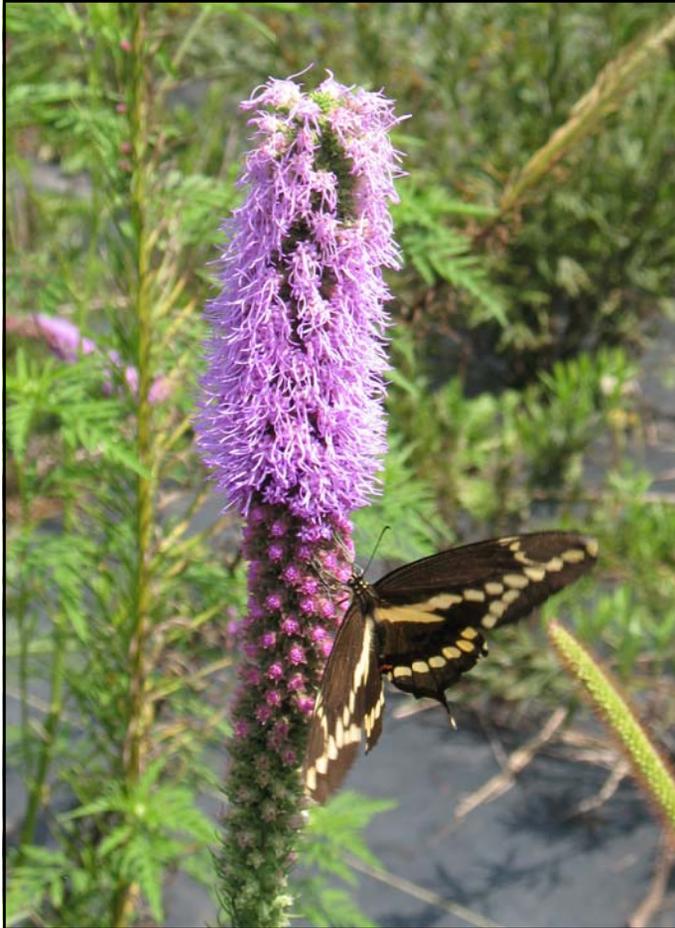


cause I recall when they were not so ordinary. Deer have become common and have unfortunately lost the label of “unusual” or “special” for most people. Today, many urban and rural landowners find deer munching in their flowerbeds or gardens. What can they do to keep the deer away? There are many remedies being sold in stores that will keep deer at a distance; unfortunately, their sight, smell or sound is unpleasant to us as well as to the deer. It would be nice if there were some flowers attractive to the landowner but not to deer.

Growing plants in single-species plots, like we do at the Prairie Resource Center, is like a smorgasbord for pests and fungi, whether they be insects, diseases or animals. Deer have species preferences just like you and I. Once they find something they like, they do not move until they are satisfied. One row of plants may be browsed continually, while other species are avoided. Experience has taught us that Mother Nature has developed her own deer repellents.

One common family of plants avoided by deer is the mint family. The overpowering smell of mint when the leaves are crushed is Mother Nature’s deer guard. Prairie sage also has a strong odor that keeps deer at bay. Other species that seem to have protection from deer are ones such as pale purple coneflower. The spines emanating from the center of the flower are another protection against browsing by animals. Milkweeds, too, seem to be protected from the browsing of deer. Could it be the white milky sap that





flows within its stems? Blue flag iris, great St. Johns wort and blazing stars can be added to the list of plants deer avoid.

Remember, even deer-avoided plants have diseases or insects to keep them in check. For example, butterfly milkweed is susceptible to root rot, blazing stars corms are a tasty treat for 13-lined ground squirrels and Bergamot is predisposed to powdery mildew. If plants did not have pests keeping them in check, they would become too abundant.

Growing monoculture rows of plant species has taught me that pests like an easy life where they do not have to travel long distances. Mix them together in a prairie, and damage by pests does not seem to be as great. Backyards can be treated the same way. Mix deer-avoided plants in with deer-appealing plants. Deer are browsers and will still find some of those species delicious—but hopefully not all of them.

## Getting the Most Out of Forb Seed in a Reconstructed Prairie

By Bill Johnson

I have planted hundreds of acres of prairie in my career with the Iowa DNR—from single-species production fields to high-diversity reconstructions. I have had a number of learning experiences—“mistakes” that have forged my knowledge of prairie reconstruction. The most memorable learning experience came in the form of a Halloween snowstorm. I had initiated a diverse prairie seeding on the Union Hills Waterfowl Production Area near Clear Lake in late October 1997. I had completed about half of a 50-acre reconstructed prairie, but the storm stopped additional seeding until spring. This reconstruction included 35 species of forbs (wildflowers) and 6 species of grasses, highly diverse reconstruction in that era. To this day, I



can still see the line in the area where I was forced to stop because of the deep snow. On the fall-planted portion is a dynamic and diverse reconstructed prairie—and on the spring-planted portion is a grass-dominated reconstruction with just a few forbs. From this experience, I learned that forbs benefit from natural cold moist stratification.

A strong forb component in a reconstructed prairie is a priority of many land managers and private landowners. Unfortunately, forbs are some of the most expensive and difficult seed to buy and produce. How can we expand the number of acres that a limited amount of forb seed will plant and still have a high-quality reconstructed prairie? Here are some tips to maximize forb seed use in a reconstructed prairie.

#1. Place forb seed where it belongs. Match up soil types and seed, place moist soil species in the hydric soils and dry species with xeric (well-drained) soils, and combine what remains for the mesic sites. This will reduce the amount of forb seed needed and save money when purchasing the seed. The downside is that extra time and effort will have to be expended during the reconstruction of the prairie; it takes more time to seed it when matching seed to soil types.

#2. Increase the amount of low-cost perennials in the mix and decrease the higher-cost species. The price of forb seed can range widely from species to species. Early successional species such as Gray-headed coneflower, Stiff goldenrod, Bergamot, Hoary vervain, Prairie cinquefoil, Oxeye, purple prairie clover, and rattlesnake master have a fairly low cost per seed. Your reconstructed prairie can and should have other species included in the mix, but these early successional species will hold the spots for the more expensive or conservative species to be planted in the years following the initial reconstruction.



#3. Add to the reconstruction in later years. Species can be added to a reconstruction for years after the initial seeding is completed. It is *best* if seeds are added in the first couple of years after the initial seeding, but seed can be added to a prairie anytime.

#4. Reduce the amount of grass seed in the mix. Not all the seed added to a reconstruction survives to produce a mature plant. Many times forbs in a mix only last a year or two due to competition with other species in the mix, especially native grasses. Competition reduces their vigor, and they eventually perish. Native grasses can establish very quickly and dominate the reconstruction before the forbs get a foothold, giving them a leg up in the new seeding. Reducing the amount of native grass seed in a reconstruction will allow forb seedlings more openings and less competition, giving them a better chance at survival.

#5. Take care of what you have. As I noted before, competition kills many seedlings when you're establishing a prairie reconstruction. Annual weeds are also competitors for the newly emerging seedlings. I recommend mowing the site regularly—when vegetation height reaches 12 inches,—down to a height of 4–6 inches. This allows sunlight to penetrate down to the newly emerging seedlings in a reconstruction. Mowing should be done for at least a year after planting. You might mow once a month or every two weeks, depending on rainfall and temperature.

#6. Plant at the correct time and depth. Planting forb seed during the dormant season (November through March) will allow forb seed to stratify, breaking dormancy in the seeds.



**New Jersey tea in flower-This prairie reconstruction was planted in January and 55 species have been identified to date.**

This will allow the majority of the forb seed to germinate in the first year of a reconstruction. Most forb species need cold moist stratification in order to maximize germination. Seeding at an improper depth is also a big culprit in the loss of forb seed. Many forb seeds are extremely small and need to be planted on the surface at an 1/8-inch depth. Of course, if you are planting during the dormant period, plant seed on the surface, and Mother Nature will place the seed at the correct depth.

Knowledge of history is important so that we don't make the same mistakes as previous generations. I hope this list of my learning experiences will ease the journey of your own prairie reconstruction.

## Species Spotlight-Lead Plant (*Amorpha canescens*)

July marks one of my favorite times to visit the prairie, because it has many of my favorite prairie species in bloom - Butterfly milkweed, Pale purple coneflower, Purple prairie clover, and Lead plant. Many prairie plant species are beautiful during the 2-3 weeks when they are in bloom, but Lead plant has uniqueness that makes it exceptional all through the year.

Lead plant has attractive purple flowers that begin blooming in late June or early July, but with Lead plant its attractive silvery-green foliage is beautiful throughout the growing season. This long lived perennial has compound leaves with as many as 50 leaflets. The leaves are covered with fine hairs giving them a silvery appearance. The flowers are purple with orange stamens extending beyond the petals. The fruit is ½ inches long and also has small fine hairs on the exterior. Lead plant is a member of the Fabaceae or legume family therefore its seed is bean shaped, brown, and less than 1/8<sup>th</sup> inch in length. Lead plant is a native shrub; its stems become woody especially if it has not been burned for many years. In years with fire, Lead plant puts on a show of flowering and seed production. Fire also stimulates seed germination, scarifying seed production from past seasons (breaking their hard outer covering) as the hot fire passes. Breaking of the outer cover allows water to penetrate the small lead plant seed, thus germination can begin.

Many species put on a show in the prairie for a couple weeks during the blooming period, but Lead plant puts on a show from spring to fall with its striking purple flowers and silvery foliage. July is a great time to see this prairie sensation.



**Top-Lead plant in early June.**

**Right-Lead plant in flower in early July.**



# Activities at the Prairie Resource Center

**Saturday August 27, 2011-Butterfly Identification and Monarch tagging 1 PM-3 PM.** Prairie flower seed production plots at the Prairie Resource Center are magnets for local and migrating butterflies. Come join Stephanie Shepard with the Iowa DNR Wildlife Diversity Program as she leads the group in butterfly identification and tagging of monarchs from 1-3 pm Saturday August 27, 2011. We will meet at the Prairie Resource Center office and continue to the wildflower plots.



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