

The Seed

A Publication of the Nebraska Statewide Arboretum

A Focus on Wildflowers

Celebrate Nebraska Wildflower Week the first week in June!

Inspired by a similar national event, the aim of Nebraska Wildflower Week is to increase awareness and appreciation of wildflowers and native plants in the wild and in the landscape through an array of events and activities across Nebraska.

Nebraska Wildflower Week will be observed in early June. National Wildflower Week, which is coordinated by the Lady Bird Johnson Wildflower Center in Texas, is observed in early May.

The Nebraska Statewide Arboretum (NSA) is serving as coordinator and clearing house for information for Nebraska Wildflower Week.

"There will be tours of wildflower displays at NSA sites, wildflower walks at state parks and natural areas, native plant sales, wildflower art shows and all sorts of other activities," says Bob Henrickson. For more information, go to arboretum.unl.edu/wildflower.

"Part of the prairie mystique is the pure Americana embodied in things that most people have never seen before, and will see nowhere else. Flowers with the old homespun names of rattlesnake master, blazing star, blacksamson, prairie smoke, compass plant, butterfly milkweed, wild indigo, windflower, kittentails, spiderwort, Culver's root, queen-of-the-prairie, blue-eyed-grass, shooting star, catchfly, and many others, all woven into the fabric of tall grasses in a pioneer quilt of form and color." John Madson



Gardening with Prairie Plants

By Bob Henrickson, Nebraska Statewide Arboretum

Why would anyone want to garden and landscape using prairie plants? Prairies, after all, cover vast areas, reaching from horizon to horizon, not across small lot sizes in towns and cities. Won't a natural prairie around my home look like a weed patch and defy the old rule that says a good neighbor should have a "perfect" lawn. What exactly should a prairie landscape look like? How do I maintain it?

The idea of using prairie plants in the landscape is still new to many people and the number one concern is how a prairie garden would fit into a well-manicured lawn neighborhood. Happily, I've learned I can coexist using a natural landscape look by simply providing a mowed edge or a fence next to the prairie so the casual observer knows that this is a planned landscape. Natives can also be used in a more formal setting by using plants with a uniform habit and planting them in a formal, orderly design.

Continued on page 6



Homestead National Monument near Beatrice and prairie coneflower, *Ratibida columnifera*.

Restless about Natives

Jim Locklear, Nebraska Statewide Arboretum

It's hard to imagine controversy surrounding something as wonderful as gardening, but there is often heated debate over the issue of native versus non-native plants. As noted horticulturist Michael Dirr has written, "Friendships are solidified and shattered over native plants."

The battle lines are usually drawn by folks who, for a number of different reasons, feel native plants are the best choice for use in our cultivated landscapes. Most enthusiasts are content to simply inspire wider use of natives, but some take a more activist approach.

The rhetoric can get downright goofy. One New York writer sees an "anti-humanist" ideology in the American native plant gardening movement and wonders about parallels to the nationalism and racism of a similar gardening movement in pre-World War II Germany—a link between native plants and fascism?

While these matters are being debated in the pages of horticultural publications, the average Nebraskan just wants to know the best plants for their landscape.

The great advantage of our natives is that they are well-adapted to local growing conditions and require less water, fertilizer, pesticides, etc. to grow and maintain.

A less practical but more stirring reason for the use of natives is that they reflect a sense of the natural landscape—what landscape architects call a sense of place. Native plants appeal to people who are tired of landscapes that look like every other place in the country. Using Nebraska natives allows you to bring a regional character to your surroundings.

Thankfully, Nebraska has a wealth of beautiful, hardy native plants, particularly wildflowers and grasses, which make wonderful garden and landscape plants. Using them in the landscapes of our homes, businesses and communities is a way to capture the essence of the prairies, woodlands and other natural plant communities that give Nebraska its great beauty and unique character. So celebrate living in Nebraska, but don't get goofy about it.



Inside:

Nebraska's Prairie Wildflowers

The Prairie Lithospermums

Historical Uses of Wildflowers

Wildflower Week Proclamation

Favorite Wildflowers

Planting a Prairie

Wildflowers for All Seasons

Wildflower Viewing Roadways

Prairie Grasses for the Garden

Nebraska Statewide Arboretum

IANR

arboretum.unl.edu

Nebraska's Prairie Wildflowers



Plains coreopsis (above); prairie in Red Willow county; gayfeather and prairie coneflower (top right).

By Bill Whitney, Prairie Plains Resource Institute

Over the past three decades many Nebraskans have awakened to the beauty and utility of native wildflowers. Many factors are responsible. The Nebraska Game and Parks Commission and Fontenelle Forest Nature Center in Bellevue have published excellent color photo guides of wildflowers. Conservation organizations, government agencies and individual landowners have developed a growing interest in preserving prairie remnants and restoring native prairies, rangelands and wetlands. Outdoor education activities that never existed prior to 1980 have begun to educate people of all ages about Nebraska's natural history. In addition, native plant landscaping, seed and nursery businesses have begun offering and promoting more wildflowers. Because of all these changes, people can now find information as well as plant materials for many of their own projects—something that was either difficult or impossible in the past.

Despite all the progress, however, there is always more that can be done.



Here are just a few ideas:

There are plenty of challenging and rewarding possibilities for people who have an interest in restoring prairies and wetlands since there is much more to be learned about establishing, propagating and producing native plant seed. This is especially true of some of the less common species that do not produce much seed. In addition, there is potential to develop commercial seed and seedling production activities to make prairie and wildflower plantings more readily accessible to more people over a larger geographic area. Increased entrepreneurial activity in the future would be beneficial for the consumer. It would increase the overall market for wildflower related things and, over time, has the potential to create many new jobs.

Much has been done in native wildflower horticulture in Nebraska. Recent efforts by the University of Nebraska and the Nebraska Statewide Arboretum attest to this fact. Their pioneering use and promotion of grasses and wildflowers in urban settings has added a distinctively regional aesthetic to the landscape, bringing attention to the various colors, textures and seasonal changes of this region's flora. At a more personal level, the home gardener can always find new ways to develop and apply the art of native wildflower landscaping in new ways and situations. With the current wealth of native plant information and plant materials, the sky is the limit. In the future, I'd like to see more commercial landscapes incorporate wildflowers into their plantings—adding a little more diversity and beauty into oftentimes bland settings.

My favorite recommendation regarding wildflowers concerns enjoyment and education. We can't do too much in these pursuits, and anything



we do further cultivates our awareness of place. I would encourage people to learn and teach others about wildflowers by visiting the places where they occur. This can be done any time during the growing season on the many prairie preserves and public wildlife areas across the state. The species in bloom vary with the season, from pasqueflower on the northeast Nebraska prairies in May, to prairie clovers and purple coneflowers in the eastern tallgrass prairies, to the many species of goldenrods and sunflowers occurring statewide.

Prairie Plains Resource Institute is one of many groups with special places to visit for appreciating wildflowers. Below are four areas in east-central Nebraska to visit, several of them offering Wildflower Week tours (see events on back cover). Call 402/694-5535 or email ppri@hamilton.net for more information.

Ratzlaff Prairie, southwest of Henderson, Nebraska, is a great place to see prairie violets or rough rattlesnake root, two of many wildflower species there.

The **Frank L. and Lillian Pokorny Memorial Prairie** north of Schuyler contains 20 acres each of virgin tallgrass prairie and prairie restoration. Here one can see prairie sunflowers, rosinweed, lots of compass plant and leadplant, to name but a few.

The **Olson Nature Preserve** in northern Boone County is a community educational resource of exceptional scenic and natural beauty. Here one can experience the wildflowers of the Nebraska sandhills such as four-point evening primrose, flax, hairy puccoon and bladderpod, as well as some special wetland wildflowers and marsh plants such as swamp milkweed, Joe-pye weed, sweetflag and bur reed.

On the **Griffith Prairie** northwest of Aurora, in addition to gorgeous bluff topography and the Platte River, one can see upland blue-eyed grass, ragwort, silver scurf pea, blazing star and showy vetchling, to name just a few.

Other sites offer great native wildflower opportunities too, such as Wachiska Audubon's many prairies in eastern Nebraska, Nebraska Audubon's Spring Creek Prairie near Denton, Bauermeister Prairie next to Zorinsky Lake (Papio NRD) in west Omaha and Ninemile Prairie near Lincoln. Native vegetation is more common as one travels west, with public areas such as Halsey Forest in the Sandhills and Fort Robinson near Crawford offering great chances to see wildflowers up close.

My real message, though, is to encourage exploration of your own area. Find places nearby that have a variety of native plants, learn about the place and its plants and then enjoy them—enjoy the beauty, the history, the lore and the sharing with others. That's what it's all about.

The Prairie *Lithospermums*



By Harlan Hamernik, Bluebird Nursery, Inc.

Some of the Great Plains' more outstanding perennial wildflowers are in the genus *Lithospermum*. *Litho* is Greek for stone and *spermum* is Greek for seed. You may more easily recognize its common name, puccoon, which is an American Indian name for dye plants. Various yellow, red and purple stains were made by boiling the different plant parts in water along with beads, porcupine quills and other objects to be colored. These dyes were also used for face and body paints. Melvin Gilmore, in "The Uses of Plants by Indians of the Missouri River Region," reported that Omaha-Ponca children chewed roots with the gummy resin of *Silphium laciniatum* (compass plant) to make red gum and the flower parts to make yellow gum. When I was a child, I used to chew the same gum during the small grain harvest, and look what it did to me!

In my opinion, the most beautiful of these prairie gems is *Lithospermum carolinense*, the Carolina puccoon; however it does need a deep well-drained gravely site to make it happy enough to make a bushel+ size mound covered with nearly 1" rich, deep yellow flowers during the last half of May and most of June. The name indicates that it was probably named in one of the Carolinas, most likely North Carolina.

An attractive cousin, *Lithospermum canescens* (its leaves have a gray or whitish pubescens), is commonly called hoary (canescent) puccoon. It produces loads of five-petaled blooms of a showy soft, deep orange in early spring, on stems 12-16" tall. This is an excellent choice for the rock garden or for naturalizing in well-drained sandy or rocky sites.

The third important puccoon in the middle states is *Lithospermum incisum*, the fringed puccoon, which stands out in the sandy prairies with its soft yellow, frilly flowers displayed in head-like clusters over interesting narrow leafed foliage.

Don't, don't rush to the nearest garden center to pick up these incredible wildflowers! They are rarely available, mainly because they are difficult to propagate from seeds or cuttings, and they don't move as bareroot plants, either. If you are fortunate to collect some of the stone-like, polished whitish seeds before birds and rodents find them, plant them in a drier, well-drained permanent site and be prepared to wait a year or two for germination and another year for flowers.

In the meantime, enjoy them in drier sandy prairie sites during late May and June along with other Great Plains wildflowers resplendent in color and fragrance.

Historical Uses of Prairie Wildflowers

By Becky Seth, Naturalist, Pioneers Park Nature Center

I find it fascinating to consider the process by which humans learned to use the plants that grew around them. The wisdom handed down from generation to generation was born of necessity, and must certainly have taken more than one fatal turn. How did people learn that one plant was good to eat, and another that looked very similar was deadly? How did they find that a specific part of a plant, and not another, could ease or cure disease? That wisdom has largely been lost for most of us. As we increasingly turn to native wildflowers for their beauty and drought resistance, it is interesting to note their historic usefulness as well.

One of my favorite prairie plants is leadplant, *Amorpha canescens*. A perennial shrub with attractive grayish-green foliage, its lavender flowers reward close inspection with their contrasting yellow-orange stamens. The leaves, gathered in late summer and dried, make a delicious tea. Both Plains Indians and settlers used the plant in this way and both had descriptive common names for it. The Omaha-Ponca called it "buffalo bellow plant" since it blooms during the bison rutting season when the bulls bellow. The settlers called it "devil's shoestring" because the extensive, tough root system made plowing difficult and popped when cut.

I enjoy planting leadplant alongside butterfly milkweed, *Asclepias tuberosa*. Their bloom times overlap and the brilliant orange of this milkweed seems to remind my eye to notice the stamens of the leadplant. Besides attracting butterflies, this milkweed's root was used in various ways to treat a large range of medical problems including diseases of the lungs, which explains one of its common names, "pleurisy root."

Although some of the other milkweeds may be considered more desirable for the average gardener, the lowly common milkweed, *Asclepias syriaca*, has enough uses that it could compete with the cattail as "nature's grocery store." It is, of course, an important food source for the monarch butterfly. The milkweed's somewhat toxic latex sap makes the monarch unpalatable to predators. So it is somewhat surprising that the shoots, buds, flowers and young seedpods are all edible if cooked first. Milkweed flower fritters are an annual mid-summer treat at the Nature Center. The fibers in the stems can be used to make rope and the seed's silken parachutes as stuffing material for clothing and quilts.

In June, a blanket of the bright rose blooms of purple poppy mallow, *Callirhoe involucrata*, rising above attractive, deeply divided leaves is a stunning sight. The flowers make an equally bold statement on a salad. The roots served as a boiled vegetable for both Plains Indians and settlers. The Teton Dakota treated head colds with smoke from the dried, burning roots.

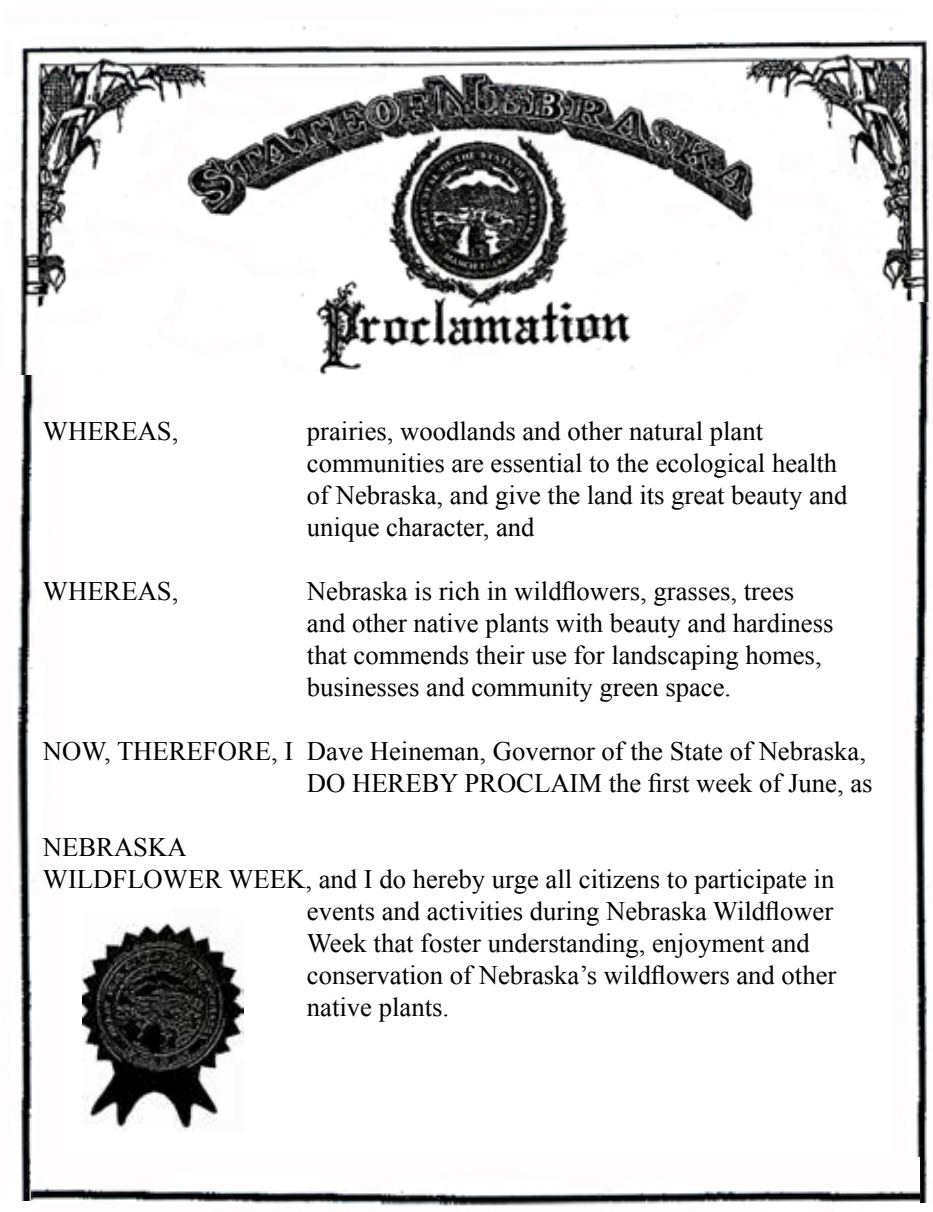
The pink-to-purple petals of wild bergamot, *Monarda fistulosa*, are also edible. Plants of this native bee-balm may have a minty or a lemon-rose scent. Minty leaves were used as seasoning while the lemon-rose leaves and flowers were rubbed on the body as perfume, put in sachets and brewed for tea. The tea was found helpful for treating colds or abdominal pain, and boiled leaves were applied externally to relieve acne and fevers.

The medicinal properties of purple coneflower, or *Echinacea*, are well known. While we think of it primarily as a tea to boost the immune system, Plains Indians used it as a topical anesthetic for toothache and burns. The spiky seedhead was used to comb children's hair—with care, I suspect. The *Echinacea* native to this area, *E. angustifolia*, is less showy than the *E. purpurea* used extensively in our gardens.

White sagewort, *Artemisia ludoviciana*, can be invasive in the garden, but dries beautifully for winter bouquets. I especially like it with the red seedheads of smooth sumac.



Pioneers Park Nature Center prairie (top); leadplant in bloom with close-up of foliage inset; milkweed in flower (bottom).


STATE OF NEBRASKA

Proclamation

WHEREAS, prairies, woodlands and other natural plant communities are essential to the ecological health of Nebraska, and give the land its great beauty and unique character, and

WHEREAS, Nebraska is rich in wildflowers, grasses, trees and other native plants with beauty and hardiness that commends their use for landscaping homes, businesses and community green space.

NOW, THEREFORE, I Dave Heineman, Governor of the State of Nebraska, DO HEREBY PROCLAIM the first week of June, as

NEBRASKA
WILDFLOWER WEEK, and I do hereby urge all citizens to participate in events and activities during Nebraska Wildflower Week that foster understanding, enjoyment and conservation of Nebraska's wildflowers and other native plants.

Plains Indians used white sagewort for both medicinal and religious purposes burning it in bunches as incense. It was sometimes used as a towel. Among settlers, it was occasionally used to prepare a hair rinse to prevent baldness.

As we enjoy the beauty of Nebraska wildflowers, it is fascinating to learn a bit about their historic uses and the folklore surrounding them. The Prairie Legacy and Wild Tea Gardens at Pioneers Park Nature Center, a Nebraska Statewide Arboretum affiliate, feature these and many more wildflowers and shrubs that were utilized by Plains Indians and early settlers in various ways. These gardens have accompanying brochures with more information. Open daily with free admission, we invite you to visit our gardens, and the hiking trails that wind through our 668 acres of prairie, wetlands and woodlands.

"The milk plant is very odoriferous. The natives make a sugar of the flowers, gathering them in the morning when they are covered with dew, and collect the cotton from the pods to fill their beds. They eat the tender shoots in the spring, as we do asparagus."
Lieutenant John C. Fremont

Favorite Wildflowers



Western red lily and Turk's cap lily (above and below, NEBRASKAland Magazine/ Nebraska Game and Parks Commission photos by Jon Farrar from his book *Wildflowers of Nebraska and the Great Plains.)*

"There is no way I could pick just one wildflower as a favorite. Each is special in its own way, especially when you consider how it evolved to prosper in its own niche in the world. And not just the showy, spectacular flowers are appealing. Who isn't captivated by the inconspicuous flowers of fog-fruit, if for no other reason than its charming name. But when I think back to the three-year hunt for wildflowers to photograph for the *Wildflowers of Nebraska* field guide I wouldn't hesitate to name two that were most memorable. Early on a foggy morning on July 7, 1989 I found myself in a meadow on Hay Creek northwest of Cody, only a few miles from South Dakota, surrounded by the neon-bright, red-orange blossoms of western red lilies and nodding plumes of cottongrass. Two days later I photographed the spectacular blooms of the Turk's cap lily in the Elkhorn River valley north of Scribner. It was a grand slam of Nebraska's showiest wild lilies."

Jon Farrar, Author of *Wildflowers of Nebraska and the Great Plains* and Senior Editor, *NEBRASKAland Magazine*





Seedheads of butterfly milkweed, one of Gladys Jeurink's perennial favorites.

Right now (mid-April), my favorite is bluebells, the *Mertensias* that are in bloom. They do well in dark shade. They're fun in that they die down in early May. Mine are growing under a cottonwood tree. I love to sit under a cottonwood tree so I have my furniture under one, but in early March I move the furniture out and let the bluebells take over. They make a solid blue mass. I'll move my furniture back in when they die down.

In early June I have Mexican hats that I love, a pure yellow one and a yellow one with an orange hat. They're just opposite the bluebells in that they like hot, dry spots. They get maybe 2' tall, and on those tall stems they look just like those pictures of people you see with big Mexican sombreros. Mine are growing out in the parkway.

I have a lot of wildflowers, but my very favorite are butterfly milkweeds. They're bright orange and you can't miss them. I always have as many in my garden as I can. There are some new seed ones but I go for the old weed. They're fun in that they form these great seedheads. If you cut down the slit, the seeds are there and they form the head of the 'baby' with the 'parachutes' forming the blanket around it. We used to play with them when we were kids; we would have a whole bunch of 'babies'!

Gladys Jeurink, long-time Master Gardener (see Gladys' flowers on "Backyard Farmer")

My favorite wildflower is Barr's milkvetch, Red orophaca, *Astragalus barrii* Barneby.

These tough little cushion-plants are confined to badlands buttes and gumbo flats out here in the High Plains, as though they are on small islands in vast seas of short-grass. The species is a High Plains endemic, hanging on but doing well in these places, just as its discoverer, Claude Barr, himself did. He was a very special person and he and his namesake are two of a kind. Neither should be forgotten.

Ron Weedon, Curator of the High Plains Herbarium at Chadron State College





Penstemon and Barr's milkvetch (bottom).

"My hands-down favorite is *Pulsatilla patens*, in its native environment in the hills, and in the garden. I love Baptisia australis, including its small relative, Baptisia minor, for the stalwart, shrublike habit, striking flowers, and silvery-black winter appearance—and it handles the shade, which is a surprise to many people. While all the asters are favorites, butterfly magnets that they are, I am intrigued by Aster ptarmicoides—earlier blooming, stronger foliage, smaller stature. Joepye weed is another favorite—what is not to like about something that rises to six feet and blooms in purple clouds? I consider New Jersey tea an awesome plant; another of shrublike proportions, with beautiful red seedheads contrasting with white flowers and green foliage on the same plant at the same time. I wish I had the room and the sun for compass plant—that bold texture, the truly functional nature of those leaves, and the strong flowers. Coming from eastern Iowa, I have to include Mayapple on the list, especially since it wants to colonize even in heavier soils. Add our native columbine to that list as well. And the bitty pussytoes, encountered in the most unlikely and desolate of places in its native haunts, has made itself perfectly at home in the brick sidewalk. Here's the problem—I like them ALL!!!"

Kim Todd, Assistant Professor, Agronomy & Horticulture

"The prairies and hills are very dear to me. I worked in Georgia for many years and am happy to be back in Nebraska. *Echinacea angustifolia* is one of my favorites. It's such a survivor. As a cut flower it lasts for weeks. Ethnobotanically, it was called toothache plant. It can really numb a tooth, I've tried it! It was important to the Lakota medicinally, and throughout the pre-settlement and settlement period in Nebraska.

Rudbeckia triloba is another favorite. My grandmother had it around her sod house in Loup County. I carried seed with me to Georgia and brought it with me when I came back. It's very adaptable, it can take heat, humidity and dry wind and, like many prairie plants, offers late summer bloom. Goldfinches like the seed. It's an annual but once established, tends to self-sow. In March, I break off the seedheads and scatter them and they come up wherever the seed touches soil.

Saponaria or bouncing bet was almost always included in early Nebraska gardens. It's very tough, can survive drought and minus 30° winters. One of the things I like about it is that it's a dusk-bloomer, so when I get off work at 6 p.m. or so it still looks bright and fresh no matter how hot it is."

Lucinda Mays, Chadron State College

"I'm a little prejudiced toward the penstemons not only because of their beauty but also because I have the pleasure to work with them. There is such a great variety of types and sizes and colors and they're constantly changing throughout the season. Husker Red is one of my favorites as well as *Penstemon grandiflorus*. Like many people, I associate my favorite wildflowers with people I have met. In my work with wildflowers I've met a lot of really great people, people who have a passion for wildflowers. Since I'm a native of Nebraska, I feel a special connection to our native plants."

Dale Lindgren, native son and Professor of Horticulture

I was converted to wildflowers as a horticulture undergraduate in Richard Sutton's landscape plants class at UNL decades ago. These native plants astonished me—farm girl/city transplant attempting to tame an acre of former pastureland on the northern edge of Lincoln. So much, in fact, that my yard has twice received weed notices (tall natives in city right-of-way) along with the Mayor's Water Landscape Conservation Award (1994). Also, for years I worked as a horticulturist/grounds manager/arboretum curator on a college campus, and the last thing I wanted to do evenings and weekends was fuss with plantings at home. By now my yard is a low-maintenance (unirrigated/unsprayed) haven for insects, birds and wildlife, with a diversity of wildflowers, native grasses, trees and shrubs. Oh, I guess we have a few mowed areas, too.

It's hard to limit it, but my favorite wildflowers/native grasses in my yard are *Amorpha canescens,* leadplant; *Andropogon gerardii,* big bluestem; *Asclepias tuberosa,* butterfly milkweed; *Baptisia*, wild indigo*; Bouteloua curtipendula*, side-oats grama; *Echinacea purpurea,* purple coneflower; *Liatris*, gayfeather; *Monarda*, beebalm; *Pulsatilla patens,* pasque flower; *Rudbeckia hirta,* black-eyed Susan; *Schizachyrium scoparium,* little bluestem; *Solidago*, goldenrod; *Tradescantia*, spiderwort.

Twyla Hansen, horticulturist and poet-at-large

Planting a Prairie

By Ion Exchange Native Seed & Plant Nursery, www.ionxchange.com

Prairies thrive in sunny, open areas. When selecting a site, look for areas with maximum sun exposure and lack of competition. Trees, especially those with a high surface root density like maple and basswood, shade out prairie species and compete for soil nutrients and water. Spruce and most other conifers are not good in prairies.

Site Preparation

The amount of ground preparation needed depends on what is growing on your site. The primary objective is to clear the site of existing vegetation. If you are starting with a clear site, simply rake the open soil lightly. This improves the condition of the seed bed, giving seeds a better chance to germinate and grow.

Seeds broadcast into existing vegetation have relatively little chance of success. If weeds, turf or other vegetation currently exist on your site, they will need to be eliminated. The most effective way to clear the site is with a Glyphosate herbicide such as Roundup. Because it is a non-residual, contact herbicide, Roundup does not continue its herbicidal activity in the soil. Be sure to follow all label directions.

Allow 10 to 21 days after herbicide application before disturbing the vegetation with other procedures. If the existing vegetation was tall and/or dense it will be necessary to remove the dead plant material. It can be burned off or it can be mowed and then mulched or raked away. To create a seed bed of freshly worked soil, rototill the area to a depth of 1 to 4".

At this point, you can rake the soil to create a smooth, firm seed bed. However, weed seeds frequently lie dormant beneath the soil surface and germinate after they have been exposed. If your area was initially densely populated with weeds, especially problem weeds such as quack grass, thistle, leafy spurge or sweet clover, we recommend you repeat the spray/till process to further eliminate these weeds before planting. After the first tilling, allow the weed seeds to germinate and begin growing. Then repeat the spraying and tilling process as described above. This second round is optional, but does produce a cleaner seed bed. Finally, rake the soil to create a smooth, firm seed bed.

Seeding and Planting Dates

Prairie seed can be planted in the spring or fall. The best time to seed in Iowa is from spring thaw through early August. In the fall, seeding can take place from September 20 through freeze-up. On prepared seed beds on sites with little competition, winter seeding can also be effective.

Potted seedlings can be planted anytime from spring thaw to freeze-up, although those planted in mid-summer may require supplemental watering.

Seeding or Planting

Hand broadcasting is the simplest and most reliable method of seeding. Adjustable hand-held spreaders may work with the grass seed although they tend to get plugged. Wildflower seed should always be hand broadcast.

The key to a successful seeding is seed-to-soil contact. Soil contact helps the seeds retain moisture, which is necessary for germination, and provides a substrate for seedling growth. Spread grass seed first. To ensure even coverage, divide the seed in half and broadcast the first half over the entire area. Work slowly. Broadcast the second half at a perpendicular angle to the first seeding. Lightly rake the grass seed into the soil.

Wildflower seed should be broadcast last and can be spread evenly or concentrated in bands or swaths across your prairie area. Much of this seed is quite small. Spreading it thinly will produce the best results. Do not rake in the flower seeds. Watering at this point is helpful but not necessary.

If you are including potted seedlings in your prairie landscape, these should be added after seeding. Seedlings can be planted throughout the site or in designated areas of the project. Ideally, natural rainfall will provide enough water, but dry weather during the first 10 days may necessitate supplemental watering.

Mulching and Maintenance

While mulching is not required, it does provide some erosion control and aids in soil moisture retention. Mulch lightly (soil visible through mulch) with clean oat or wheat straw. Make sure not to use hay, because it contains seeds you do not want to introduce to your area. Cover crops of oats or wheat can also be used to reduce erosion and discourage competitive weeds the first year.

A prairie landscape takes time to develop, requiring patience and careful management the first few years. However, if your prairie was planted correctly and you follow these maintenance instructions, your prairie will mature into a unique, self-sustaining natural landscape.

Year One

Most prairie plants are perennials. Although perennial seeds will germinate the first year, the young seedlings' root growth will be two to three times their above-ground growth, and they may not flower until the second or third year. While this lack of visual growth can be frustrating, keep in mind that it is the strong root system of prairie perennials which enables them to be nearly maintenance-free at maturity.

During this early stage of growth, weeds will take advantage of the lack of above-ground vegetation and appear on your site. To minimize the effects of tall weeds shading prairie seedlings and to prevent these weeds from setting seed, you should plan to cut your planting one, two or even three times during its first growing season. This is generally done on 30-day intervals using a scythe, mower or line trimmer. Scything is often best, as the cutting height should be kept between 5-8". Mowing is also effective, but it is important to keep the blade set as high as possible. Hand weeding is also useful during the first growing season, especially to remove individual noxious weeds. These and invading woody plants may have to be treated with spot spraying. At no time should fertilizers be used. Prairie plants are well-adapted to their environment and do not need fertilization. This expensive, time-consuming and often environmentally unfriendly procedure is not only unnecessary on a natural landscape but is detrimental because it can encourage weeds and other undesirable vegetation.

Year two

During the second season, residual seeds from the first season will germinate and some of the faster-growing native plants will flower and produce seed. There might still, however, be a need for weed control and one mowing might be necessary sometime between mid-June and mid-August. The height and density of the weed cover should help determine if and when to mow. In areas where weeds are especially dominant, the advantages of cutting the weeds and preventing them from setting seed offset any disadvantages of cutting prairie plants. Spot spraying might still be necessary this year.



Year Three

By the third year (and in the years to follow) your patience will begin to pay off. Both grasses and flowers will be mature, providing beautiful, low-maintenance returns. One cutting per year can be used as a clean-up procedure. The best time to cut off old prairie vegetation is in early May or late November (after you've enjoyed the gold, lavender, russets and maroons of an autumn prairie). In areas where prairie plants were especially tall and dense, mulch or rake away the dead plant material.

Fire is another method of removing old prairie thatch. In natural prairie ecosystems, fire not only gets rid of accumulated thatch, it also helps reduce woody plant invasion and stimulates the growth of many native grasses and wildflowers. Rotation between prescribed burns and cutting is ideal for prairies and savannas. Keep in mind that a controlled burn is a useful maintenance tool, but requires some expertise. Be certain to check local regulations and permit procedures and, when burning, always use caution.



Restored prairie at Lincoln Creek Prairie near Aurora (top photo courtesy of Bill Whitney, Prairie Plains Resource Institute). Butterfly milkweed brightens the landscape.

Gardening with Prairie continued from cover



Grasses are the mainstay of the prairie garden, whether at home in the garden or in natural areas (below, Fort Robinson State Park).

"The valley of the north fork is without timber; but the grasses are fine, and the herbaceous plants abundant... the whole country resembled a vast garden."

"For a short distance, our road lay down the valley of the Platte, which resembled a garden in the splendor of fields of varied flowers, which fill the air with fragrance."

Lieutenant John C. Fremont



Before I decided on prairie gardening I learned that there are many kinds of prairie, each with its own unique wildflowers and grasses. Prairie can be tallgrass, shortgrass, mixed grass, dry, wet, savanna, upland, rocky or sandy, to name a few. A prairie garden is simply a portrait of the vast prairie landscape. Which one is right for you?

There is no prairie without grasses

For me, gardening with prairie plants started while working for the UNL Botanical Gardens & Arboreta in the mid to late 80s. We planted a combination of little bluestem, sideoats grama, blue grama and prairie dropseed in the dreaded "heat strips" of parking medians to see if they would be a better choice than creeping junipers for these areas. The plants thrived and now some 20 years later there are still remnants of grasses remaining in these areas despite repeated construction projects nearby. To this day I still recommend this grass combination for the uniform, tufted habit, fine-texture, attractive seedheads and reliable winter color. In the prairie these grasses put down roots up to 5' deep, so you can imagine water is always within reach for these tough dudes.

Soon I was planting wildflowers on campus to complement the grasses and create more of a prairie look and feel. I planted sundrops (*Oenothera missouriensis*), winecups (*Callirhoe involucrata*), pale purple coneflower (*Echinacea pallida*), dotted gayfeather (*Liatris punctata*) and the prairie coneflowers (*Ratibida* species) to name a few and it didn't take long for me to get hooked on natives.

Over the years I have grown many different prairie wildflowers and still have to remind myself that there is no "prairie look" without grasses. Dr. John Weaver, the famous prairie ecologist from UNL, found over 90 percent of the foliage in some prairies to be big bluestem. I once had a garden with over 100 species of wildflowers, with a small sample of grasses mixed in. My prairie flower garden looked great for a number of years, but the aggressive wildflowers were slowly taking over the slower growing forbs. It started to look like a weed patch dominated by pitcher sage, New England Aster and Canada goldenrod.

What is native to you?

I don't consider myself a "prairie purist" when it comes to choosing plants for my pocket prairie. I know some folks figure as long as the plant is native to North America and it can grow in the wild on its own, that's all that matters. I like to think of my choices as "regionally native" to the Great Plains. What if Nebraska's borders were drawn vertically so that Pierre, SD and Manhattan, KS were part of our state? Plants don't draw borders, people do. Moreover, drive seven hours west of Lincoln and you're in Scottsbluff and seven hours east and you're at the Mississippi River near Dubuque, Iowa. Do I plant a seed that came from Ames, IA or do I plant the true "native" from Scottsbluff county? The only thing that matters to me is the habitat and climate in which they grow. I will gladly grow a marsh gayfeather (*Liatris spicata*) that came from an Iowa source in a moist site and a western wallflower (*Erysium umbellatum*) from the Nebraska Panhandle in a dry, raised garden. A reasonable approach for home gardeners is simply to use whatever prairie plants can be found; though for restoration plantings every effort should be made to collect and preserve the genetic diversity of the local species.

Most of the native prairie plants were a victim of the plow. Today we can only imagine the beauty of the prairie as seen by our ancestors. Pioneers were stunned by this world of grass and flowers, describing a prairie sunrise as "an iridescent glow as beautiful and wondrous beyond anything I had ever conceived." I've always had a warm place in my heart for the prairie pioneers who carved out the history of Nebraska before our border was drawn. I choose to plant a Nebraska wildflower because its history is here on the Plains, like my ancestors. The same butterfly milkweed I admire was looked on with fondness and admiration by the folks that traveled through or settled here.



There are lots of wonderful wildflowers to choose from; here prairie and purple coneflower and beebalm contrast and complement.

Preparing a Planting Bed

I live in an area where prairie once existed, so it makes sense to convert to a prairie garden with plants suited to climate and temperature extremes. A prairie landscape requires none of the water needed for conventional lawns and usually eliminates the need for chemicals on weeds and insect pests. But the well-drained prairie soils that once supported the plants have been forever altered— plowed, scraped, terraced and eroded away—to leave most of us with dense, heavy urban subsoil. For many prairie plants to thrive, especially dryland species, I've learned that soil preparation is essential.

Weeds are best eradicated before planting or sowing, because they outcompete slow-growing prairie seedlings and shade them too. Smothering is a popular technique for small areas of bluegrass, fescue and weeds. First cut the grass or weeds very short, then lay down a layer of clear plastic for up to 45 days to smother and cook them. You can also lay down layers of newspaper (at least 10 sheets) over aggressive weeds. Spread 4-6" of a sand/compost mix on top of the paper. Plant plugs and seeds directly into this mixture. You can also use the least toxic, shortest-lived herbicides on perennial and annual weeds that are unfazed by hand-weeding.

Designing Your Prairie Garden

There is no right way to design a prairie garden. I have tried well over 100 different species because I like to collect plants, but not all of them make good garden choices. Growing up, I even thought the plants growing in the road ditch were a part of the prairie. Okay, I'll admit I didn't know what a virgin prairie was. I grew up in corn country where the pastures were smooth brome and the wildflowers were chicory, crown vetch and bird's foot trefoil. To me these European imports were our wildflowers even though I didn't know their names at the time.

I do remember ironweed (*Vernonia fasciculata*) and hoary vervain (*Verbena hastata*) and always thought of them as weeds, even after I learned they are native. I learned they thrive in disturbed areas and overgrazed pastures, where the prairie grasses aren't there anymore to keep them in check. The competition between plants for space, nutrients, water and light is gone and cattle ignore eating these plants, so they spread like crazy. I've grown both of them in the garden and they do seed, but with competition from grasses they can be held in check. Dr. Weaver found over 200 individual plants per square yard in a tallgrass prairie near Lincoln! I'm amazed that, despite intense competition, prairie plants all seem to get along. Would you plant over 200 plugs in a square yard and hope they all got along?

I've chosen some of the best sun-loving wildflowers for the garden using the following prairie models. There are many more to choose from but this represents plants that are readily available through local sources or mail order nurseries.

Tallgrass Prairie Garden

A tallgrass prairie garden, neither too wet nor too dry (though many of these plants can tolerate overwatering and drought), can reach 5-6' high and is typically used in larger areas or as a backdrop planting. Big bluestem and indiangrass should always be present in this garden, along with switchgrass. To prevent lodging or floppy stems, avoid shady conditions and only water during times of drought. These warm season grasses take awhile to green up in the spring so plant cool season grasses like Canada wildrye (*Elymus canadensis*) or a native sedge, like fescue or prairie sedge (*Carex bicknellii* or *brevior*). These tufted grasses are green as soon as temperatures rise above freezing, competing for space with cool-season weeds like henbit and dandelions. If possible, enrich the soil for your tallgrass prairie garden by incorporating a few inches of compost.

- **Mat-forming groundcovers** bloom in early spring, covering the soil to compete with spring weeds but tolerating shade from tall grasses in summer. My favorites include pussytoes (*Antennaria neglecta*) for dry sites and wild strawberry (*Fragaria virginiana*), bracted spiderwort (*Tradescantia bracteata*) and meadow anemone (*Anemone canadensis*) for moist sites. They spread, so let them fight it out between clumps of grasses.

- **Spring flowers for moist sites:** wild columbine (*Aquilegia canadensis*), golden Alexander (*Zizia aurea*) and prairie phlox (*Phlox pilosa*).

- **Summer/fall favorites for dry** tallgrass prairie: white wild indigo (*Baptisia lactea*), pale purple coneflower (*Echinacea pallida*), Ohio

spiderwort (*Tradescantia ohioensis*), lance-leaf coreopsis (*Coreopsis lanceolata*), winecups (*Callirhoe involucrata*), prairie coneflower (*Ratibida pinnata*), wild bergamot (*Monarda fistulosa*), rattlesnake master (*Eryngium yuccafolium*), butterfly milkweed (*Asclepias tuberosa*), leadplant (*Amorpha canescens*), dotted gayfeather (*Liatris punctata*), showy goldenrod (*Solidago speciosa*), roundheaded lespedeza (*Lespedeza capitata*) and smooth aster (*Aster laevis*).

- **Summer/fall choices for irrigated** tallgrass prairie sites: queen of the meadow (*Filipendula venusta*), culver's root (*Veronicastrum virginicum*), swamp milkweed (*Asclepias incarnata*), thickspike gayfeather (*Liatris pycnostachya*), Joe-pye weed (Eupatorium purpureum), New England aster (*Aster novi-angliae*), elm-leaf goldenrod (*Solidago ulmifolia*) and Helen's flower (*Helenium autumnale*).

Dryland Prairie Garden

Upland prairies are always well-drained and are the driest prairies in this area. Upland prairie plants are usually knee-high or less. This garden should have a base planting of little bluestem (*Schizachrium scoparium*), sideoats grama (*Bouteloua curtipendula*), prairie dropseed (*Sporobolus heterolepis*) with an understory of blue grama (*Bouteloua gracilis*). Cool season grasses such as needlegrass and prairie junegrass should also be considered. When planning a border using plants native to dryland or rocky soils it is essential to improve the drainage of your site by raising the soil above the original grade. I use half topsoil or other organic soil and half gritty mix of gravel and sand and a light layer of gravel mulch for topdressing on my dryland garden to provide a nice, uniform cover. Xeric plants like to reseed in this mulch and young weeds come out readily by hoeing just under the mulch. Wood chips hold too much moisture and they can also cause rot.

- **Early spring-blooming gems** include: pasque flower (*Pulsatilla patens*), gumbo lily (*Oenothera caespitosa*), prairie smoke (*Geum triflorum*), pussytoes (*Antennaria neglecta*), narrow-leaf puccoon (*Lithospermum incisum*), Fremont's clematis (*Clematis fremontii*), ground plum (*Astragalus crassicarpos*) and prairie ragwort (*Senecio plattensis*).

- **Mid-spring to early summer** beauties include: dwarf blue indigo (*Baptisia minor*), evening primrose (*Oenothera missouriensis*), butterfly milkweed (*Asclepias tuberosa*), leadplant (*Amorpha canescens*), prairie skullcap (*Scutelleria resinosa*), desert globemallow (*Sphaeralcea coccinea*), shell-leaf penstemon (*Penstemon grandiflorus*), pale purple coneflower (*Echinacea pallida*), purple prairie clover (*Dalea purpurea*) and purple poppy mallow (*Callirhoe involucrata*).

- **Late summer to fall**: prairie coneflower (*Ratibida columnifera*) aromatic aster (*Aster oblongifolius*), Fendler's aster (Aster fendleri), showy goldenrod (*Solidago speciosa*) and dotted gayfeather (*Liatris punctata*).

Weedy Natives to Watch out for

The following list of aggressive wildflowers can be appropriate for garden use if they are maintained as a single mass planting, surrounded by a mowed surface or planted in a bed dominated by grasses. I've grown all of the following plants. Some take advantage and seed into open spaces and others spread even when given intense competition: Maximillian sunflower, sawtooth sunflower, Jerusalem artichoke, false sunflower (*Heliopsis helianthoides*), cup plant (*Silphium perfoliatum*), meadow anemone (*Anemone canadensis*), Canada goldenrod (*Solidago canadensis*), New England aster (*Aster novae angliae*) and ironweed (*Vernonia fasciculata*).

Short-Lived Prairie Plants for Re-Seeding

These wildflowers are nice additions to the prairie garden and although they are short-lived (1-3 years) they should still be included in your design. These beauties perpetuate in the garden by re-seeding themselves. You can gather seed and sow it where you want or let them seed out on their own for an unpredictable garden, just like a real prairie. The following plants are all dryland species best sited in well-drained soils. They love seeding in gravel mulch!

Here are some good combinations:

- Brown-eyed Susan (*Rudbeckia triloba*) with sand lovegrass (*Eragrostis trichoides*)
- Wild larkspur (*Delphinium virescens*) with lance-leaf coreopsis (*Coreopsis grandiflora*)
- Prairie Junegrass (*Koelteria pyramidata*) with prairie ragwort (*Senecio plattensis*) and pale penstemon (*Penstemon albidus*)
- Shell-leaf penstemon (*Penstemon grandiflorus*) with whorled milkweed (*Asclepias verticillata*
- For the western Great Plains, try western wallflower (*Erysimum umbellatum*) with narrowleaf puccoon (*Lithospermum incisum*) and pasque flower (*Pulsatilla patens*).





Rudbeckia with larkspur; a sea of prairie larkspur; and pathway into Toadstool National Monument in western Nebraska.



Nebraska 's Top Ten Wildflower Viewing Roadways

Nebraska Department of Roads website,www.nebraskatransportation.org/docs/flowers/

1—Highway 2 from Grand Island to Alliance

2—Highway 20 from Valentine to Chadron

3—Highway 83 from North Platte to McCook

4—Highway 83 from North Platte to Valentine

5—Highway 6 from Imperial to McCook

6—Highway 8 from Falls City to Fairbury

7—Highway 11 from Scotia through Burwell to Butte in Boyd County

8—Highway 61 from Ogallala to Merriman

9—Highway 71 from Gering to Crawford

10—Highway 12 from Ponca to Valentine; for diversity

Other great roadways for wildflower viewing:

Highway 87 from Alliance to Hay Springs

Highway 29 from Mitchell to Harrison

Highway 92 from Oshkosh to Gering

Highway 34 from Benkelman to McCook

Highway 275 from Clearwater to O'Neill

Prairie Grasses for the Garden



By Bob Henrickson, Nebraska Statewide Arboretum

Prairies are, by definition, grasslands. Prairie ecologist John E. Weaver found that although grasses dominate tallgrass prairie and individual grass clumps are large, they occupied less than 14 percent of the total ground area, leaving plenty of room for prairie wildflowers.

When designing a pocket prairie I always recommend that at least 50 percent of the plant material be prairie grasses. If prairie wildflowers are allowed to grow on their own without competition from grasses for space, sunlight and moisture, they soon take advantage by growing too large and flopping, or by spreading to take over the bed. In a prairie garden, you need to make root competition so fierce that all the grasses and forbs are shortened and nothing is allowed to be aggressive.

A garden with a plethora of grasses will keep any aggressive wildflowers in check through competition. Moreover, many spring and early summer wildflowers simply set seed and go dormant as taller grasses grow above them later in the season. They look great early in the season, but by mid-summer a sweep of wildflowers can look tired and unattractive. Grasses will work to hide the dormant stems of these spring bloomers through the summer and into fall, all the while forming colorful, showy seedheads. Just remember not to pamper prairie grasses; overwatering and/or mulching them can make them grow too large and flop over.

Grasses can be categorized as either short or tall and they can also be categorized by season: cool season grasses green up as soon as temperatures rise above freezing; warm season grasses grow in the heat of summer and bloom in late summer or early fall.

Tall Prairie Grasses for Wet/Dry Soils
big bluestem, *Andropogon gerardii*
Indiangrass, *Sorghastrum nutans*
switchgrass, *Panicum virgatum*
Canada wildrye, *Elymus canadensis*
prairie cordgrass, *Spartina pectinata*
bottlebrush grass, *Hystrix patula*

Shorter Prairie Grasses for Sunny, Dry Sites
prairie Junegrass, *Koeleria macrantha*
little bluestem, *Schizachyrium scoparium*
sideoats grama, *Bouteloua curtipendula*
blue grama, *Bouteloua gracilis*
prairie dropseed, *Sporobolus heterolepis*
Plains muhly, Muh*lenbergia cuspidata*

Prairie Grasses for Sandy Soils
sand bluestem, *Andropogon hallii*
Indian ricegrass, *Oryzopsis hymenoides*
sand dropseed, *Sporobolus cryptandrus*
sand lovegrass, *Eragrostis trichoides*
hairy grama, *Bouteloua hirsuta*
western wheatgrass, *Pascopyrum smithii*

Prairie Savannahs and Woodlands

Prairies are often bordered by savannah areas with scattered trees. Here on the Great Plains we had bur oak savannahs. The sun-loving prairie and forest species that grew among them are ideal for creating a prairie style garden in areas of your property with partial or full shade.

Even in an area dominated by large shade trees it is possible to garden with some of the benefits of a prairie. Instead of mowing your lawn once a week, you mow once a year. In fall, instead of raking leaves you simply let them drop onto your beds. To let your neighbors know this is a "planned landscape," knee-high islands of savannah grasses and wildflowers can be surrounded by mowed areas of bluegrass or fescue. Once established, these areas will not need watering, mowing or fertilizing and won't create run-off. With wildlife habitat disappearing at an alarming rate, creating a prairie savannah can help benefit both you and the environment.

The forest understory includes more forbs, shrubs and sedges than grasses. Many native woodland species tend to bloom early in the spring and then go dormant to avoid the dense shade and dry conditions that occur during the growing season.

The following wildflowers and grasses will tolerate shade.

Wildflowers and Grasses for Part Shade
prairie phlox, *Phlox pilosa*
Ohio spiderwort, *Tradescantia ohioensis*
bracted spiderwort, *Tradescantia bracteata*
wild columbine, *Aquilegia canadensis*
prairie alumroot, *Heuchera richardsonii*
culver's root, *Veronicastrum virginicum*
smooth aster, *Aster laevis*
purple meadow rue, *Thalictrum dasycarpum*
obedience plant, *Physostegia virginiana*
golden alexander, *Zizia aurea*
turtlehead, *Chelone glabra*
wild geranium, *Geranium maculatum*
wild bergamot, *Monarda fistulosa*
New Jersey tea, *Ceanothus americanus*
bottle gentian, *Gentiana andrewsii*
silky wildrye, *Elymus villosus*
bottlebrush grass, *Hystrix patula*
prairie sedge, *Carex bicknellii*
prairie dropseed, *Sporobolus heterolepis*

Woodland Wildflowers for Dense Shade
woodland phlox, *Phlox divaricata*
Solomon's seal, *Polygonatum biflorum*
false Solomon's seal, *Smilacina stellata*
mayapple, *Podophyllum peltatum*
sweet cicely, *Osmorhiza claytoni*
dog's tooth violet, *Erythronium albidum*
bloodroot, *Sanguinaria canadensis*
Jack-in-the-pulpit, *Arisaema triphyllum*
harebells, *Campanula rotundifolia*







Prairie grasses are great companions for wildflower plantings. They help keep them upright, hide dormant spring-bloomers and add visual interest through fall and winter.

Top to bottom, left to right: emerging seedhead of big bluestem; Junegrass with little bluestem; brown-eyed Susan with little bluestem; sand lovegrass with coneflower heads; switchgrass with little bluestem and sideoats grama; little bluestem with perennials (opposite).





Be part of it!

Join the Nebraska Statewide Arboretum

Your membership dollars stay in the state, and 70 percent of funding flows back into Nebraska's communities. You receive garden-related publications, discounts on books, prints, notecards and plants and free admission to more than 250 botanical gardens and arboreta across America.

Member Categories

Basic.....$45
Patron.....$100
Contributor.....$250
Sustainor.....$500
Guarantor.....$1,000

(circle member category desired)

Name .....
Address.....
City .....
State/zip .....
Telephone .....

Return to:
Nebraska Statewide Arboretum
P.O. Box 830715
University of Nebraska
Lincoln, NE 68583-0715
402/472-2971