



Bethany Garden Field Guide

Grasses, Forbs, and Woody Plants of the Prairie Garden

By Hannah Nuest

Illustrations by Emma Kellogg

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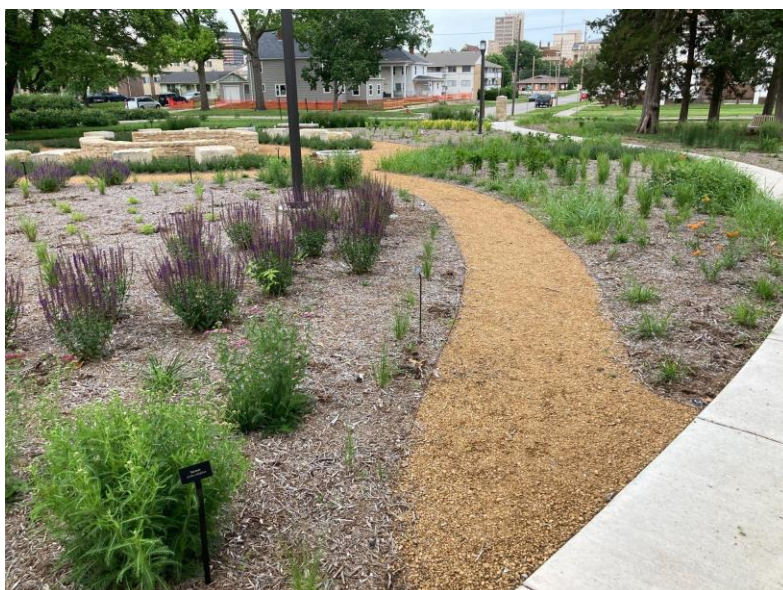
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Introduction

Welcome to the Bethany garden! We are so pleased to have you here, and hope that you enjoy using this space to relax and learn about the plants. I have put together this little field guide to help you with the latter. I focus here on the plants in our prairie garden, which is made up of mostly native species from the tallgrass prairies.

Plenty of prairie plant field guides exist, but this one is specially for Bethany and narrows down to only species present in our garden. While a typical field guide will include highly detailed descriptions for each species, packed with intimidating botanical jargon, here I try to stick to the most important details as well as interesting facts about each plant. Most of the photos in this guide were taken in the Bethany garden, either by myself or others where noted.



The Bethany garden had its grand opening in October 2022, and is experiencing its first spring and summer blooms in 2023 as I write this guide. Prairie plants do not always flower in their first year; producing flowers and seeds requires significant resources, and plants may skip a bloom as they build up energy stores in their roots. However, as of summer 2023, we have seen an impressive display of flowers. Months of bright orange butterfly milkweed, my favorite; tall purple coneflowers; cardinal flower and royal catchfly with bright red blooms ahead of schedule; even sideoats grama with its orange anthers sticking out of tiny florets.

The aim in growing and stewarding this garden is to practice what many Christians, including the Episcopal church, call Creation Care. We believe that all living beings are God's creatures and that we are called to care for them. The prairie garden not only creates a peaceful space for humans to enjoy, but replants the area with native species and teaches us about the endangered ecosystem that once covered Topeka and much of Kansas. Over the years these plants will also develop deep, durable root systems that may lock carbon dioxide in the soil even more reliably than trees². In this way prairie ecosystems help combat climate change.

¹ Cover image by Michele Moss.

² See Rosen in References.

Useful Terms

Dicots: A group of flowering plants with broad leaves and branching veins. These include forbs and woody plants. There are many more species of dicots than monocots, the other group of flowering plants.

Monocots: A group of flowering plants with narrow stems and leaves with parallel veins. These include grasses, sedges, and several other groups.

Forb: A plant that is usually a dicot, and neither woody nor grassy. They tend to have showy flowers, which is why people sometimes call them “wildflowers.”

Inflorescence: The whole flower or seed head of the plant.

Floret: A tiny flower, usually in a cluster of many other florets.

Spikelet: A flowering structure containing one or more florets. (This term is typically used to describe monocots.)

Common name: When scientists talk about species, they use a scientific name, which is *italicized* and in Latin. A common name is a simpler name we use to describe a species, and usually doesn't come from scientists. All species have just one scientific name, but may have more than one common name.

Genus (plural Genera): A group of related species. The first word of the scientific name of a species is its genus. For example, *Monarda bradburiana* (Eastern beebalm) and *Monarda fistulosa* (Wild Bergamot) are part of the same genus *Monarda*.

Family: A group of genera. For example, our garden includes several members of Lamiaceae, the mint family, such as wild bergamot and lead plant.

Meristem: The growing part of the plant.

Rhizome: Horizontal underground stems.

Pollinators: Animals such as butterflies and bees that carry pollen from the flower of one plant to another of the same species, so that the plant can produce seeds.

Help Us Monitor Plants and Wildlife at Bethany Garden

Thanks to the app iNaturalist, there is an easy way you can help us keep track of how the garden is doing with just a phone.

Start by downloading the free app and making an account. When you're in the garden, take a picture of any living thing, whether a plant, fungus, bee, or butterfly. Upload the photo to iNaturalist. Add the species name if you know what it is. If you are unsure, the app will provide a suggestion. Once you've uploaded your observation, others who use iNaturalist can help identify the species.

Anyone with the iNaturalist app can find the Bethany house area on the map and see what observations people have made here. This is helpful to us in two main ways:

Tracking pollinators. Many of our flowering plants provide nectar to pollinators, such as bees, butterflies, and wasps, who in turn spread their pollen and help them produce seeds. Uploading pollinators seen at Bethany garden to iNaturalist helps us get a sense of what species the garden is supporting!

Forecasting blooms. It is interesting for us to see when various species are blooming at Bethany, compared to when they are expected to bloom. iNaturalist uploads include a date and can help us to better keep track of this.

To start using iNaturalist, visit inaturalist.org, find the app on the App store or Google Play, or scan this QR code:



³ Image by Caroline Howard.

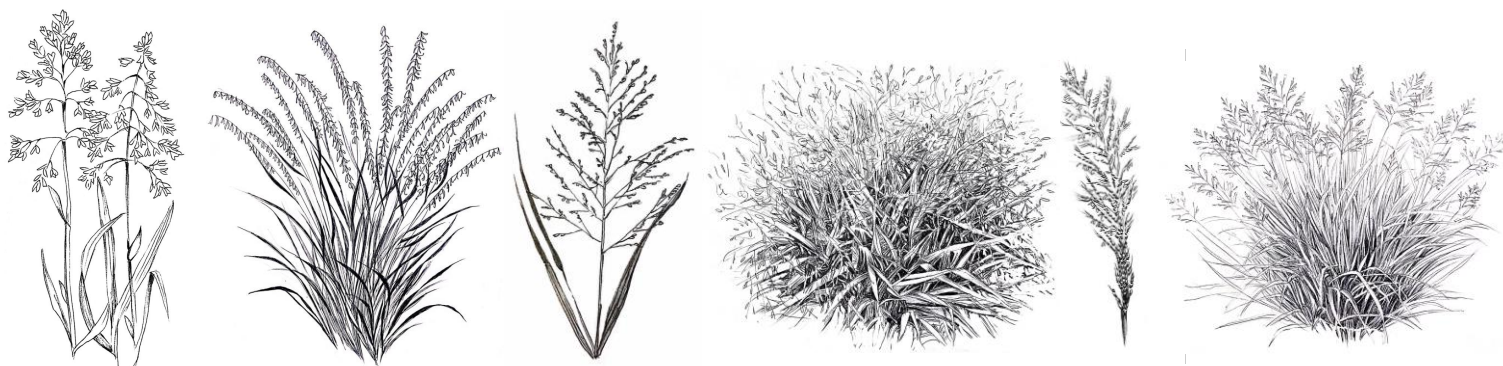


Intro to Grasses and other Monocots

Don't skip this section for the wildflowers. Yes, the forbs with their big bright flowers are awesome, but there simply would be no prairie without grasses! Ignoring the grasses in a prairie is like ignoring the trees in a forest. Those you'll see in the Bethany Garden are tall, varied, and colorful. This is not your boring old lawn grass. While grasses dominate the prairie, there are also a small number of other monocots. There are several families in the monocot group, including Poaceae (grasses), Cyperaceae (sedges), Iridaceae (irises), and more. Many monocot species are particularly well-adapted to life on the hot dry prairie. Their leaves are narrow and avoid excessive water loss. Their growth points are close to the ground so that they can sprout back after grazing or even fires. Many of them employ a unique type of photosynthesis called C4 that uses water very efficiently.

Monocots are the reason I prefer to say “forb” rather than “wildflower.” Believe it or not, grasses have flowers too! Unlike the plants we typically call “wildflowers,” however, grasses pollinate mostly by wind, so they produce very small flowers with tiny pollen grains that float on the wind, rather than conspicuous blooms to draw in pollinators like bees and butterflies.

Keep in mind that grasses are typically not the same color year-round. Gorgeous autumn coloration is not just for trees! Many grasses are green or bluish-green in the spring and summer, and turn to golden, orange, and even reddish hues in the fall and winter. Visit the garden each season to note the changes.



Prairie Blue-eyed Grass *Sisyrinchium angustifolium*

Family: Iridaceae

Bloom time: May-June

Also known as: narrow-leaf blue-eyed grass, pointed blue-eyed grass



The first thing I want you to know about this plant is that **IT IS NOT A GRASS**. You may have noticed by now that there are two names for each species: the common name, in bold, and the scientific name, in italics. Scientific names are consistent. Each species only has one, and that name provides useful, accurate information about the species, as the first word in the scientific name tells you the genus.

Common names are a whole different story. These are the names we usually use to talk about plants outside of, say, scientific papers or field guides. These names are often given by local observers. This can lead to confusion, because the same species may have different names in different places. Common names, often dubbed by non-experts, can also lead us astray when an iris that looks an awful lot like a grass is actually an iris.

These monocots have narrow green leaves, not unlike a grass. However, unlike grasses, their flowers are showy, with penny-size white, blue, or purplish blooms appearing in early spring and attracting pollinators. Those flowers may look small to us, but are *much* bigger than the tiny flowers of a wind-pollinated grass.



Sweetgrass *Hierochloe odorata*

Height: 10-24 inches

Bloom time: May-July

Okay, so sweetgrass is not actually native to Kansas, and calling it a prairie plant may be a bit of a stretch. They are at times found in low prairies, but more often in other places like marshes, wet meadows, streambanks, and mountain canyons. Oddly enough, sweetgrass is native to both North America, mainly the northern U.S. and Canada, and Eurasia.

The relatively wide range and sweet vanilla scent are partly responsible for its spiritual significance in many Indigenous tribes. It is actually for this reason that sweetgrass was chosen for Bethany garden. Many of these groups have traditionally braided and burned the plant, used it as perfume, or for medicinal purposes.

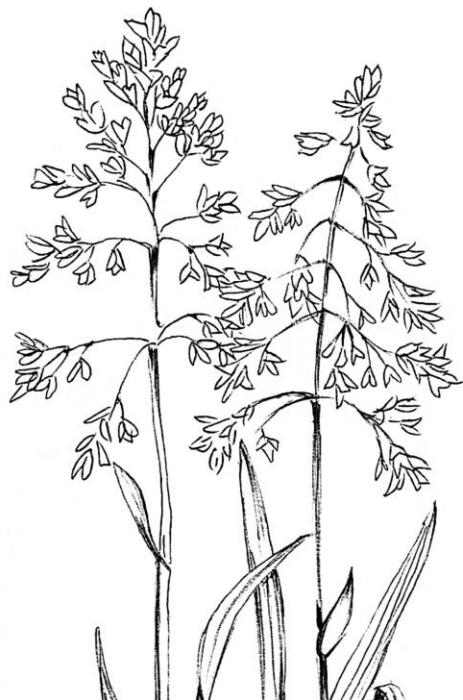


Botany professor and Potawatomi Nation member Robin Wall Kimmerer is author of the book *Braiding Sweetgrass*, which discusses the plant and several other species, while connecting scientific knowledge to Indigenous traditions. In the preface, she points out the parallels

⁴ Bottom right: Ann Palmer

between the scientific name, which essentially translates to “the fragrant holy grass,” and the Potawatomi word “*wiingaashk*, the sweet-smelling hair of Mother Earth.”

Sweetgrass is a particular shade of bright glossy green quite distinct from our other grasses. The blades flop over without the support of upright stems, and tend to be white or purplish-red at their bases. The inflorescence has small bronze spikelets.



From far away, it can be easy to confuse with nutsedge, a similarly colored non-native weed that plagues our garden. I have often found these growing amongst patches of sweetgrasses, perfectly camouflaged. Take a closer look and you will see that like most sedges, the leaves of nutsedge have a spiral arrangement and the stem is triangular.

Blue Grama *Bouteloua gracilis*

Height: 6-20 inches

Bloom time: June-August



In our garden, this grass is easily identifiable by its distinctive comb-like inflorescence, which can look like an eyebrow when it droops at the ends. Both the smooth stems and the leaf blades are very slender, with the latter tapering. There may be long white hairs near where the leaf meets the stem. No other plants in the garden are quite like blue grama, especially when the inflorescence is present, but go

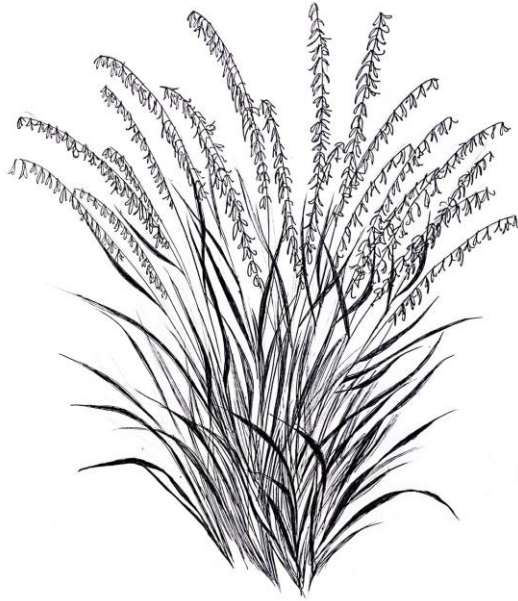
out to a prairie remnant and you might find that they are easy to confuse with a very similar species, *hairy grama*.



Sideoats Grama *Bouteloua curtipendula*

Height: 1-3 feet

Bloom time: July-September



This one rocks an asymmetrical side mullet with red or purple highlights when in bloom. The name is particularly easy to remember because it so clearly describes the species' most noteworthy feature - the oat-like florets hanging on just one side of the stem. In her novel *Of Green Stuff Woven*, Bishop Cathleen compares the florets on the stem to the beads on the string of a rosary that some might use for prayer.

Some of the many leaf blades have clusters of small white hairs poking out from their edges close to the stem. The nodes, or joints (a bump on the stem) are purplish.



In just this summer, we have seen sideoats grama grow so much in volume! When I first arrived here at the end of May, the grasses were so hard to tell apart, as many of them were

very short and did not yet show an inflorescence. Sideoats grama was one of the first to grow a seedhead, and now covers so much ground.

**Big
*gerardii***



Height: 2-7
Bloom time: July-September
Also known as: turkey-foot



**Bluestem
*Andropogon***

feet



Big bluestem is perhaps the best-known plant of the tallgrass prairie. At its prime, it is also one of the most easily identifiable, with its several feet in height and three (give or take) branched inflorescence resembling a “turkeyfoot” - which happens to be one of its nicknames.

But how do you identify big bluestem in its earlier stages, before it reaches its towering height and displays its iconic inflorescence? I have had this exact challenge at the Bethany garden, where our big bluestems are seeing their first summer. It can be tough to identify grasses when they are not flowering, but other characteristics can help.

⁵ Top left: taken at Camp Wood YMCA July 2023

Looking closely at the leaf (blade), there is a ridge down its center. It may have purplish streaks. There are several white hairs on the margins. Where the blade meets the stem (culm), there is a very short membrane, known as a *ligule*. A ligule, in grasses that have it, is like the armpit of the plant. Sometimes fuzzy, sometimes not. The stem of big bluestem is smooth, while the *sheath*, the part of the blade which wraps around the stem, can be smooth or hairy.

Big bluestem turns red or orange after frost, which is likely why Omaha and Ponca tribes called it *hade-zhide* or “red hay.”



Little Bluestem *Schizachyrium scoparium*

Height: 2-4 feet

Bloom time: July-September

Also known as: prairie munchkin



No, little bluestem is *not* simply a smaller version of big bluestem. Sharing the subtribe Andropogoninae, they are more closely related to each other than they are to any other grasses at Bethany, but they are not in the same genus. They both tend to have bluish-green stems in spring and summer, which is why they share *bluestem* in their common names. In little bluestem, the stem is waxy, sometimes purplish, and a bit flattened, particularly at the base. The leaf blades are pointed and tapering, and the ligules are fringed membranes (see page 10). The aboveground plant may be “little” compared to taller grasses, but the roots can extend 8 feet down.

The tiny flowers are purplish or maroonish in color. Little bluestem is one of those rare cases where the flowers give way to seedheads that are even more appealing. Feathery silver-white tufts line the tops of the stems. Look out over a field with lots of little bluestem at this stage and it looks like scads of sparkling bits of cotton, or even snowflakes, settled over the



grasses. Watch the stems turn red to bronze or orange after the frost. Unlike most other plants, little bluestem stays standing through winter, serving as shelter for animals.

Little bluestem is Kansas' official state grass.

Note that is totally beside the point: I did find that the scientific name actually used to be *Andropogon scoparium*, suggesting a previous misplacement in the same genus as big bluestem. I couldn't find any information on when or how little bluestem changed genera, but if you search *Andropogon scoparium* you will come across websites that apparently didn't get the memo. There are also species formerly called *Schizachyrium* that have since moved to *Andropogon*,

so these two genera have clearly done their fair share of trading species. *But you said scientific names were consistent and reliable??* Usually, yes. However, nature, and especially plants, can be quite confusing, even to scientists, and defy easy categorization. Plenty of plants may show similar traits but are not so related as they appear.

Switchgrass *Panicum virgatum*

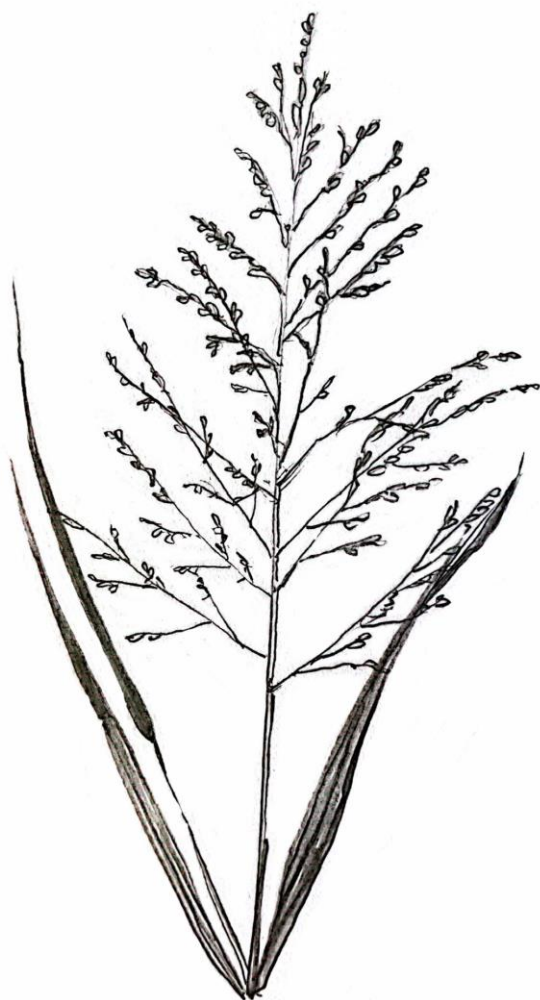
Height: 2-7 feet

Bloom time: July-September

Switchgrass towers over most of our other plants. The seed head is quite large, with widely spread branches. Early on, spikelets appear green but turn purplish or maroon as they flower. You can generally distinguish this grass from the other very tall grasses, big bluestem and indiagrass, by looking at the inflorescence, which is quite different in all three. But what if the plant you are looking at does not have one? Look at the upper surface of the blade, right where it meets the stem. Switchgrass often has a triangular white patch of hair in this spot.



⁶ Image taken at the Konza in November 2022 shows how grasses like little bluestem that turn red make prairies gorgeous year-round.



Indiangrass *Sorghastrum nutans*

Height: 3-7 feet

Bloom time: July-September

Indiangrass is another of our three very tall grasses, the others being switchgrass and big bluestem. Unlike the others, indiangrass has hairy nodes. The bluish-colored blades, on the other hand, are hairless and tapered at the base. One distinguishing characteristic you can usually find if you look really closely at indiangrass is something called an *auricle*. Two pointed structures, “rabbit ears,” protrude on either side of the blade where it meets the stem.

When looking at the inflorescence, you can distinguish between that of indiangrass and switchgrass by looking for awns, which look like hairs or bristles, coming off the silky-hairy spikelets. Indiangrass has these awns, while switchgrass does not. The inflorescence is also more contracted in indiangrass and known for being gold in color and feather-like.

Indiangrass provides nesting materials for native bees.



Purple Lovegrass *Eragrostis spectabilis*

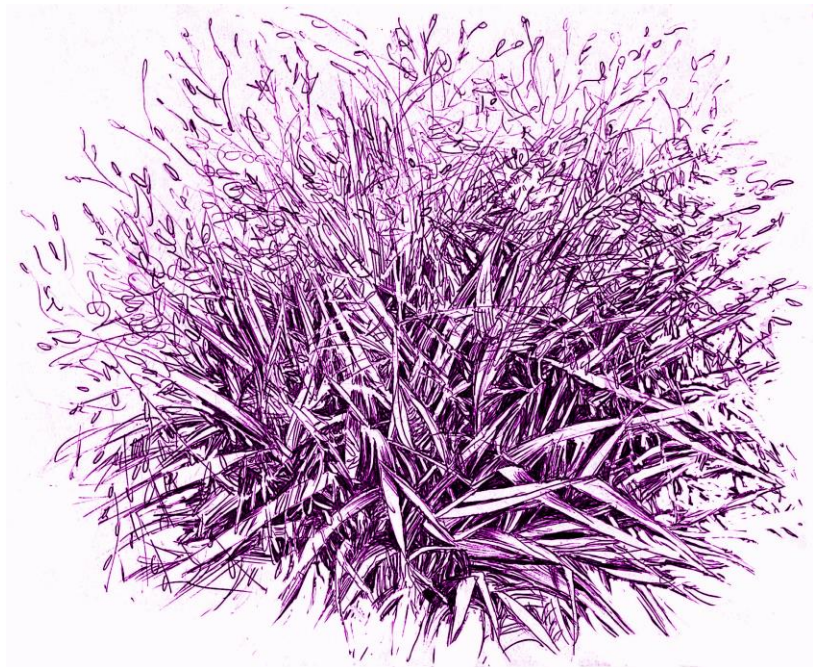
Height: 10-30 inches

Bloom time: August-September



Wispy, purple tinted inflorescences seem to pop very low from the plant. The stems are a lighter lime green compared to the darker blades. Ligules are short with a bit of hair. Close to the ground you may see white hairs surrounding the stem.

I got a little confused when I first encountered purple lovegrass. The inflorescence is situated so low that I thought it was a weed springing between the blades. There is a reason an inflorescence is also called a “seed head” - it’s generally at the top of the plant. To me, the purple lovegrass almost appears to have a disproportionately large “head” and no neck.



Tara Prairie Dropseed *Sporobolus heterolepis*

Height: 1-2 feet

Bloom time: August-October

Tara prairie dropseed is bright green in color with very thin needle or hair-like blades that taper to a point and practically stand up straight. Until the very end of July, I thought I would see nothing more of *Sporobolus* aside from those blades and stems when I happened upon one that was finally showing an inflorescence! It almost appeared to grow out of the middle of the stem rather than the top, given that the blade was taller and held tightly to the stem. The pinkish brownish flowers, expected to appear in August, are said to smell almost like

coriander. It will turn orange-red in the fall and drop its seeds to the ground - thus the name "dropseed."



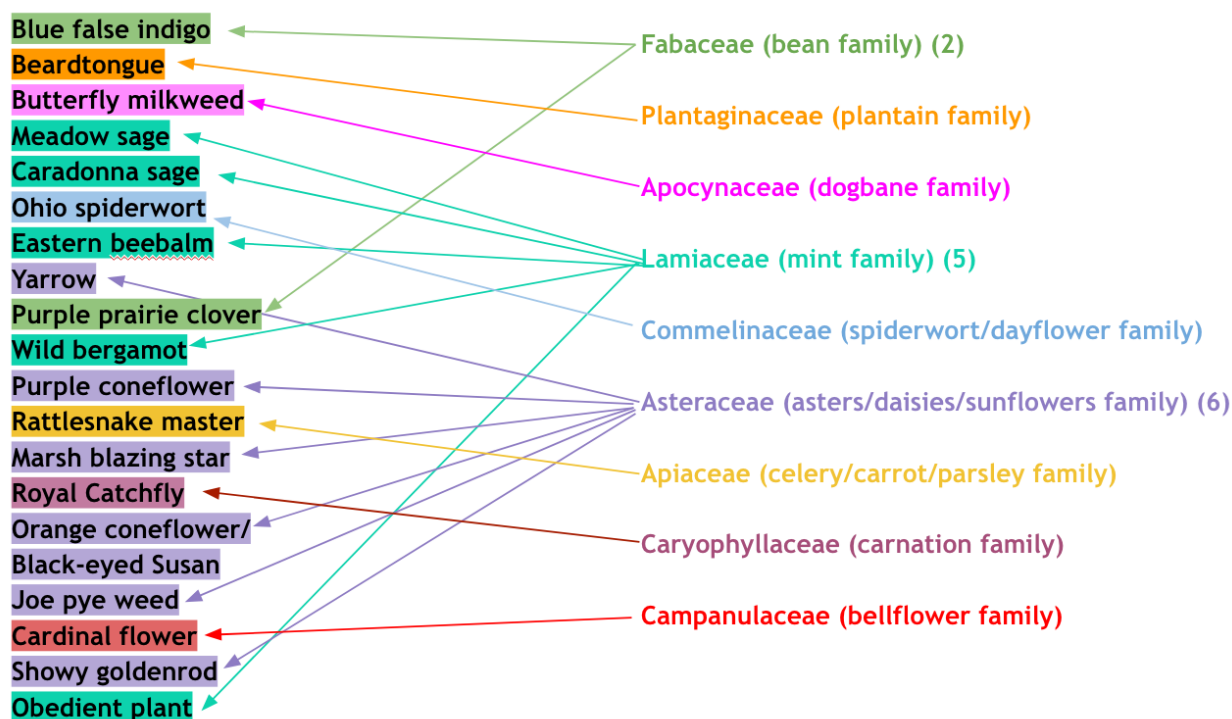
If you google *Sporobolus heterolepis*, you will find more "prairie dropseed" than "Tara prairie dropseed." That is because while they are the same species, the "Tara" is a more petite variant with a bit better posture than the standard arching version.

Intro to Forbs

A forb is a flowering plant that is typically not woody, like a tree or bush, nor grasslike. When people talk about *wildflowers*, they are usually referring to forbs. (I personally prefer to say “forb” rather than “wildflower,” because trees and grasses have flowers too!) In a typical prairie, forbs make up a relatively low percentage of the vegetation compared to grasses, but are highly diverse.

These species are ordered by *expected* bloom times. While we can usually predict with some accuracy how plants will change with the seasons, they work on their own schedules, not ours. Even if this or another field guide says a particular species is supposed to bloom in June, that plant in our garden may bloom earlier, or later, or not at all that year. Some forbs will flower for a very short time, while others will bloom all summer. Producing flowers requires resources and energy, and each plant will respond to weather conditions and its own internal clock, to try and pick the best possible time. I am writing this guide in the first spring/summer of the Bethany garden, and make some notes of plants that I’ve seen bloom earlier than expected.

Regardless of the accuracy of field guide flower forecasts, thanks to their varied blooming schedules, you can visit the garden and return a few weeks or even days later and see it totally transformed. The garden is host to 20 forb species from 9 families. See below which species come from the same families, and see if you can note any similarities between these plants in the garden.



Blue False Indigo *Baptisia australis*

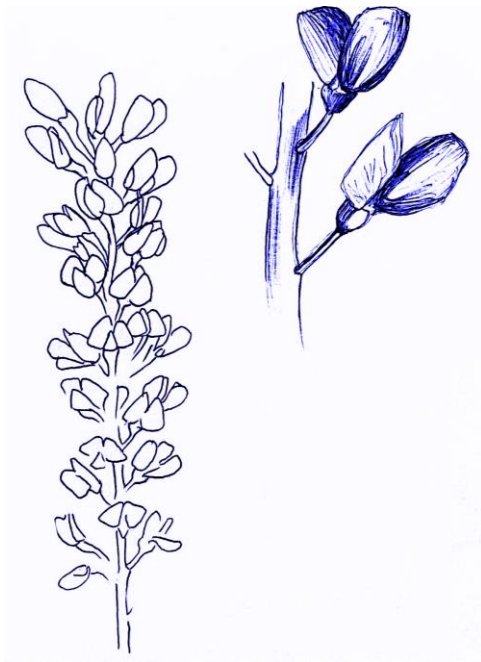
Family: Fabaceae (bean family)

Bloom time: May-June

Also known as: Blue wild indigo



Blue false indigo is an early bloomer. I arrived at the Bethany house on the last day of May and by then its indigo pea blossoms were already gone. The sap turns a similar purple color when extracted from the plant. Watch over the next few years and more mature *Baptisia* may develop distinctive, darkly colored seed pods that rattle in the wind like maracas. (Indigenous people have even used them as baby rattles!) Blue false indigo has alternating groups of three bluish-green leaflets going down the stem. Our *Baptisia* are fairly small right now, but over the years they may reach 3-4 feet in height with 6 foot long roots.



Beardtongue *Penstemon digitalis*

Family: Plantaginaceae (plantain family)

Bloom time: May-June

Also known as: Foxglove beardtongue, smooth beardtongue, smooth penstemon



The darker, even reddish or purplish coloration on the leaves and stems makes beardtongue stand out among the lighter green foliage of most of our plants even when it's not in bloom. There are usually 1-3 stems, and these as well as the leaves are smooth. The flowers are small, white, and bell-like in shape.



The etymology of the beardtongue has a fascinating, winding path. This species is also known as foxglove beardtongue, and this as well as *digitalis* making the second part of the scientific name is because of the resemblance between the flowers of beardtongue and those of *Digitalis*,

the foxglove genus. Foxglove and beardtongue both have similar tubular flowers. Actual foxgloves are native to Europe, their flowers formerly believed to serve as gloves for the little paws of foxes to quiet the sounds of their stalking. *Digitalis* is based on *digitus*, Latin for finger, the inspiration coming from the flowers' resemblance to a "finger hat" or thimble. In spite of the similarities in name and flower, beardtongue and actual foxgloves are not closely related.



"Beardtongue" is based on the one stamen in each flower that is covered in hairs. Unlike the other four stamens, this stamen is sterile and does not produce any pollen.

Butterfly Milkweed *Asclepias tuberosa*

Family: Apocynaceae (dogbane family)

Bloom time: May-August

Also known as: butterfly weed, pleurisy root



Butterfly milkweed has a fairly long blooming period and is, in my opinion, one of the prettiest plants on the prairie. Go somewhere like the Konza in early summer and there is no mistaking the bright orange amidst the sea of green.

Aside from its striking orange flowers, which are larger and more abundant in older plants, you can tell the butterfly

milkweed by its hairy stem, and narrow alternating leaves, which are smooth on top but fuzzy underneath. Unlike many other milkweeds, which have milky sap, butterfly milkweed has watery sap. The taproot is quite deep. Hummingbirds, bees, and several butterfly species visit the flowers for nectar. Indigenous groups used butterfly milkweed to treat respiratory problems.



⁷ Top left: Brad Nuest. Bottom right: Caroline Howard

Meadow Sage *Salvia pratensis* + Caradonna Sage *Salvia nemorosa*

Family: Lamiaceae (mint family)

Bloom time: May-September

Walk into the garden entrance closest to the Bethany House in the spring or summer and you might see three large patches of purple flowers, blooming in tiny florets attached up a quarter to a third of their stems, like fuzzy lavender-colored tails. These plants all look very similar to each other - but there are actually *two* species here from the same genus.

To be honest, I have a difficult time telling these two apart. Beyond slight differences in flower color - *S. pratensis* is a brighter, almost neon color - the two appear nearly identical. Both have pointed, grayish-green leaves that smell of sage when rubbed. Meadow sage plants tend to spread a bit wider, covering more ground.



Native to Europe, Asia, and Africa, these two species are among our small number of nonnative plants. They may not technically be prairie plants, but add a nice pop of long-lasting color to the garden and attract bees and butterflies.

⁸ Top right: Caradonna sage. Bottom left: Meadow sage.

Ohio Spiderwort *Tradescantia ohiensis*

Family: Commelinaceae (spiderwort/dayflower family)

Bloom time: May-August

Also known as: Common spiderwort, reflex spiderwort, bluejacket, widow's tears



I'll admit this one perplexed me a little at first. I went out one June afternoon, field guide in hand, flipped to the page on Ohio Spiderwort and saw that it was supposed to bloom May-August. But in front of me all I saw were unenthusiastic, shriveled green buds closed shut.

The secret of the Ohio Spiderwort, it turns out, is that it generally only blooms in the *morning*. So if you want to see bright purple flowers, go out well before noon before they are scorched in the sun; like Cinderella, the magic fades when the clock strikes 12. They then turn to jelly, and are supposed to release a "tear" drop if you poke the bud in late afternoon. (I have yet to have any success trying this) This teardrop is why some people call this plant "widow's tears." For this same reason some also refer to them less elegantly as "cow-slobber."

The "spider" in spiderwort comes from either their former purported ability to heal spider bites, or the hairy stamens that some people think look like spider legs, even though there are six rather than eight.

Aside from the mysterious flowers, you can also identify this plant by the yellowish green stems that arch and oddly, look a little like spider legs.

Eastern Beebalm *Monarda bradburiana*

Family: Lamiaceae (mint family)

Bloom time: May-July

Also known as: Bradbury beebalm



As of summer 2023, our Eastern Beebalm plants have not yet flowered. When they bloom, it will look like a circle of little white or light purple snakes extending out, mouths open with thin little hissing tongues, as though guarding what lies in the center. Under each snake is a wide flap with pink or purple spots. The menacing serpents of course are not meant to scare anyone off but actually invite bees and butterflies right into the “mouth” of each snake for pollination. The leaves may be smooth or hairy and come to a point. Look very closely and you may notice a very light fringe on the edges of the leaves.



Yarrow *Achillea millefolium*

Family: Asteraceae (aster/daisy/sunflower family)

Bloom time: June-September

Also known as: Western yarrow



Most of the time, the flowers of *Achillea millefolium* are white. However, in our garden, we happen to have a rare pink variety of the species! These plants have fern-like leaves, although they are quite distant from actual ferns, which do not even flower. The stems are woolly-hairy. Yarrow in our garden has grown into large, spacious patches with light pink to hot pink flowers. Indigenous peoples have used the plant to heal everything from respiratory illness to toothaches and even to stop bleeding.

⁹Image by Caroline Howard.

Purple Prairie Clover *Dalea purpurea*

Family: Fabaceae (bean family)

Bloom time: June-August

Purple prairie clover produces some of my favorite flowers. They look to me like little purple tutus, and I love the way the speck-like orange anthers¹⁰ pop out. This species is a bit more subtle when not in bloom. The muted green leaflets are very narrow. Purple prairie clover can reach a height of up to three feet, though ours are currently on the shorter side and easily hidden by other plants.

Like many other legumes, the taproots of *D. purpurea* have nodes that are host to nitrogen-fixing bacteria. The plants and bacteria work together to produce a usable form of nitrogen that benefits not just purple prairie clover, but other plants that share the improved soil.

Bees, butterflies, beetles, and birds consume the nectar or seeds. Some species of ground-nesting plasterer bees rely exclusively on purple prairie clover and other *Dalea* species for food. Indigenous people enjoyed their sweet-tasting roots, and found their stems were so durable they could be used as brooms. In short, purple prairie clover has long been helpful to soil, bacteria, other plant species, and many animals including humans.



Wild Bergamot *Monarda fistulosa*

¹⁰ The *anther* is the part of the flower that holds the pollen.

Family: Lamiaceae (mint family)

Bloom time: June-August

Also known as: Mint-leaf beebalm

Wild Bergamot is the second of two species in the *Monarda* genus (see p. 22). Both *M. bradburiana* (Eastern Beebalm) and *M. fistulosa* are part of the mint family, and have much in common, such as similar looking flowers and leaves that make a nice slightly minty tea. When in bloom, you can tell the two apart clearly by wild bergamot's bright pink flower, where *M. bradburiana* is white or light purple. Bergamot tends to be significantly taller, standing at 1-4 feet where *M. bradburiana* is doing well to reach two. The leaves of *M. fistulosa* have a hairy underside, while those of *M. bradburiana* are usually smooth. Indigenous peoples used *M. fistulosa* for both perfume and medicine.

Another factor adding to easy confusion between our two *Monarda* species is that Wild Bergamot is also sometimes called beebalm. Beebalm comes from these and other *Monarda* species' ability to attract bees, while bergamot is based on the leaves' similar scent to a bergamot orange.

Our two *Monarda* species provide a great opportunity to notice commonalities between two members of the same genus as well as identifying the differences that will help you tell them apart.



Purple Coneflower *Echinacea purpurea*

Family: Asteraceae (aster/daisy/sunflower family)

Bloom time: June-August

Also known as: Eastern purple coneflower



Purple coneflower and other members of *Echinacea* are classic prairie plants. The genus name comes from the Greek word for hedgehog, because of the rough pointed seedhead that Ponca, Lakota, and Omaha tribes occasionally used to comb hair. In spite of the “purple,” ours appear more pinkish. They can grow up to four feet tall and the rough-surfaced, serrated-edged leaves decrease in size moving up the solid prickly stem.

Echinacea species were the most commonly used medicinal prairie plant by Indigenous peoples, and today can be purchased from drug stores and health stores in the forms of pills, supplements, essential oils, cough drops, teas, lotions, salves, and soaps.

If you go visit other prairies, you may find *Echinacea purpurea* but are more likely to encounter the much more widespread *Echinacea angustifolia* (which, confusingly, is sometimes also called purple coneflower), a similar plant of smaller stature. Stay in the Flint Hills or visit select counties in Oklahoma or Texas and you may find the rarer Topeka purple coneflower (*Echinacea atrorubens*), which is constrained to a much smaller area.

Rattlesnake Master *Eryngium yuccifolium*

¹¹ Image by Caroline Howard.

Family: Apiaceae (celery/carrot/parsley family)

Bloom time: June-September

Also known as: Button snakeroot, button eryngo



Rattlesnake master is a very cool prairie plant, arguably the most punk rock of them all. It looks like it should have come from a whole different ecosystem, if not a different planet. The flower looks like the coronavirus (yes, that thing is really a flower). It may be unconventional, but attracts its share of butterflies and bees. The leaves are tough and spiky, similar to leaves of yucca, which is why the scientific name includes *yuccifolium*, although they are from entirely different families. Indigenous peoples used the leaf fibers to make rope and the roots to treat rattlesnake bites.



Marsh Blazing Star *Liatris spicata*

Family: Asteraceae (aster/daisy/sunflower family)

Bloom time: July*-September

Also known as: Dense blazing star/gayfeather, marsh gayfeather



When its distinctive purple bottle-brush-shaped inflorescence is not on display, other identifying characteristics of marsh blazing star include long, narrow, dark green leaves with a white line down the center. These leaves can decrease very dramatically in size from being long and voluminous at the bases to very thin and short close to the flower. Some describe these leaves as “grass-like” in appearance.

While marsh blazing star is most common in the eastern United States, some other similar species seen more often in Kansas include *Liatris pycnostachya* (prairie blazing star), *Liatris punctata* (dotted gayfeather), *Liatris squarrosa* (smooth gayfeather), and *Liatris aspera* (tall gayfeather).

*We have seen blooms in June.

¹² Bottom right: Caroline Howard.



Royal Catchfly *Silene regia*

Family: Caryophyllaceae (carnation family)

Bloom time: July*-August

Our royal catchfly plants are small now, around the 20 inches *Kansas Wildflowers and Grasses* lists as the species' minimum height; but watch out, because one day they may grow to be over five feet tall, making them even harder to tell apart from cardinal flower (see p. 32) which is not a close relative but has similarly colored flowers. The leaves are relatively uniform in size and come in opposite pairs, each pair perpendicular to the one above and below it.

*We have seen royal catchfly bloom in June.



Orange Coneflower + Goldstrum Black-eyed Susan
Rudbeckia fulgida

Family: Asteraceae (aster/daisy/sunflower family)
Bloom time: July*-October



Orange coneflower and Goldstrum black-eyed susans are simply two differently colored variations of the same species. You might assume from the word “coneflower” that these are closely related to another garden species, *Echinacea purpurea*, purple coneflower, but they actually are not. While they share a family, Asteraceae, these two species come from different genera. “Coneflower” appears in the common names of many *Rudbeckia* and *Echinacea* species. Black-eyed susans are also not sunflowers, in spite of their yellow flowers. Sunflowers are part of the same family but, once again, belong to a different genus (*Helianthus*), and bloom in late summer or fall.

The stem of this plant is hard and fuzzy, and its almond-shaped leaves have subtly spiky edges. Like other coneflowers, the yellow petals of the flowers point downward.

*We have seen blooms as early as June.



Joe Pye Weed *Eutrochium purpureum*

Family: Asteraceae (aster/daisy/sunflower family)

Bloom time: July-September



Joe Pye Weed is the tallest forb in the garden, reaching heights comparable to big bluestem and switchgrass. The leaves are quite large, some hand-sized and have a slightly rough surface. The flowers are big and pink, reminding me of fluffy cotton candy.



Cardinal Flower *Lobelia cardinalis*

Family: Campanulaceae (bellflower family)

¹³ Bottom right: Caroline Howard

Bloom time: August*-September



Reaching up to five feet, cardinal flower is an incredibly striking plant even when not in bloom. It is known for being especially adept at attracting hummingbirds. (I have not seen any yet, but let's all keep an eye out!) The leaves are pointed and alternate going down the smooth thick stem. They can vary dramatically in size; in ours, I've noticed they increase from the bottom of the stem up to the middle, where they peak in size before decreasing up to the flowerhead. In the 19th century people used cardinal flower and other *Lobelia* species to treat numerous ailments, from nervous disorders and asthma to convulsions and tetanus.

With their similarly colored, bright thin red petals, cardinal flower and royal catchfly (*Silene regia*, p. 29) are somewhat easy to confuse. This is especially true this year, since both began blooming ahead of their supposed schedules around the same time

in June. In spite of their somewhat similar looking flowers, you'll notice that these species are not just of different genera but different families. One way I keep from confusing their names is this: a *cardinal* is bigger than a *fly*, just as *cardinal* flower is (usually) bigger than royal catchfly.

*We have seen blooms as early as June.

Showy Goldenrod *Solidago speciosa*

Family: Asteraceae (aster/daisy/sunflower family)

¹⁴ Image by Caroline Howard.

Bloom time: August-October

Also known as: Showy-wand goldenrod, noble goldenrod



Solidago comes from the Latin *solido* which means “to heal” or “make whole.” Indigenous peoples used showy goldenrod, in particular its roots and stalks, for a variety of healing purposes; burns, muscle sprains, “difficult childbirths” and lung hemorrhages. These are among our most towering forbs. I read that they can reach up to five feet in height, and I think ours are already there. The stems are populated with tons of tiny, pointed leaves. The inflorescence, when it blooms in late summer and fall, consists of bright yellow petals densely packed into a cylinder. It has a sweet smell and brings in birds and butterflies.



Obey Plant *Physostegia virginiana*

Family: Lamiaceae (mint family)

Bloom time: August-November

Stand directly over top of this plant and the stacked, dark green serrated leaves appear to form an X shape. Like many members of the mint family (including wild bergamot, eastern beebalm, and both of our sages), the stem is square shaped. Bend one of the purplish-pinkish flowers on its stalk, and it will stay in position - thus the name “obey” plant.





Intro to Woody Plants

Woody plants are a bit of an anomaly in both remnant prairies and our prairie garden. Compared to grasses and forbs, woody plants (trees, shrubs, bushes) are generally ill-suited to a typical prairie environment. If the heat and dryness don't take them out, grazing by herbivores such as bison or even prairie fires usually will. The growth points of trees and shrubs are usually at the tips rather than close to the ground like grasses, so they do not

bounce back so easily. Woody plants take longer to mature, making it harder to recover from disturbances long enough to produce seeds.

What is a woody plant? The short answer is that it is a plant with woody tissue. This woody tissue is durable and typically survives through the winter, unlike many non-woody (herbaceous) plants whose stems die off to regrow in the spring. Like me, you may have assumed that trees and shrubs made up their own family. Surprisingly, this is not the case. Woody plants are spread out among several different families. What this means, then, is that some tree species are more closely related to several non-tree species than they are to other trees. There is no one common tree ancestor from which all woody plants and no non-woody plants are descended; instead, woody tissue has appeared multiple times in multiple families.

I chose to divide the first two big sections of this field guide by relatedness. I put (almost) all of the dicots in the section called “Forbs,” and all the monocots in “Grasses and other monocots.” If I chose to organize the entire guide by relatedness, I would have grouped the woody plants with the other dicots. However, I decided to place them in a separate group to emphasize the uniqueness of woody plants in a prairie environment.



Lead plant *Amorpha canescens*

Family: Fabaceae

Bloom time: June-August

Also known as: prairie shoestring, devil's shoestring

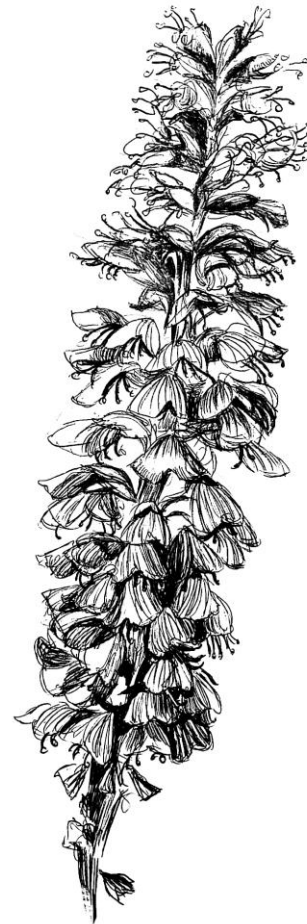


None of our lead plants have bloomed in this first summer. These shrubs are likely too busy building their extensive root systems, which can reach 16 feet and would help the plant withstand fire. Their flowers, when they do come, will be beautiful and worth the wait - a spike packed with petals of a violet color that author Shirley Shirley describes as “iridescent” and orange-tipped stamens. Over the next few years, the leaves will grow hair that changes their present bright green color to a more silvery shade. This color is the reason for the name “lead” plant.

The leaves were used for both tea and pipe smoking by Indigenous groups.

Similar to other legumes, lead plant fixes nitrogen in the soil, making it available to other plants. For more on this process, see purple prairie clover on page 24.

European settlers struggled to plow through lead plant’s tough, deep roots, which may be why some call it devil’s shoestring.



Prairie Rose *Rosa setigera*

Family: Rosaceae

Bloom time: May-June

Also known as: climbing prairie rose



Don't get too close...like many roses, prairie rose has sharp prickles on its stems. Thankfully, you can probably identify this one in our garden from several feet away. It is the only species we have that looks very decidedly like a shrub or bush. According to *Trees, Shrubs, and Woody Vines in Kansas*, this is the only North American species of climbing rose, which means that it "is often found climbing into and over other shrubs." It might be for the best, then, that lead plant, our only other shrub, is planted well out of reach.

The flowers have light pink petals and tons of golden stamens bursting from the center. The leaves come in groups of 3 or sometimes 5 leaflets with serrated edges. Nesting songbirds sometimes find shelter beneath the spiky branches.

Volunteer with Us!

Do you enjoy spending time in the gardens? Would you like to learn more about prairie species and help the garden thrive? We would *love* to have you volunteer with us!

The truth is, our prairie garden is quite young and does not have the stability and self-sufficiency¹⁵ of a native prairie remnant that has spent thousands of years building rich healthy soils, establishing tight knit mutualisms and highly diverse communities of not only plants but fungi and animals above and below-ground. We must support the young plants as they make long-term investments into their root systems and prevent invasive species, which often put few resources into their roots so they can quickly take up any space above ground, from drowning our native species.

To join the Bishop's Garden Brigade, visit bethanyhouseandgarden.com/volunteernow.

Recommended Prairie Visits

MacLennan Park (Governor's Mansion) Trail *Topeka, KS*

KU Field Station Rockefeller Prairie Trail *Lawrence, KS*
<https://biosurvey.ku.edu/rockefeller-experimental-tract>

Konza Prairie Biological Station *Manhattan, KS*
<https://kpbs.konza.k-state.edu/>

Tallgrass Prairie National Preserve *Strong City, KS*
<https://www.nps.gov/tapr/index.htm>



Recommended Reading

Konza Prairie: A Tallgrass Natural History by O. J. Reichman

¹⁵ It's actually kind of a stretch to call even the most diverse native prairie remnant "self-sufficient," if by that we mean able to persist without human intervention. Prairie ecosystems, especially tallgrass prairies, would not exist in their present form if it weren't for thousands of years of burning performed by Indigenous peoples. Contemporary prairie management still very often includes burning, as well as removal of particularly relentless invasive species such as Johnson grass and Chinese bush clover.

Wildflowers and Grasses of Kansas: A Field Guide by Michael John Haddock

A Pocket Guide to Kansas Flint Hills Wildflowers and Grasses by Iralee Barnard

Edible Wild Plants of the Prairie by Kelly Kindscher

Medicinal Wild Plants of the Prairie by Kelly Kindscher

Restoring the Tallgrass Prairie by Shirley Shirley

Prairie Fire: A Great Plains History by Julie Courtwright

Braiding Sweetgrass by Robin Wall Kimmerer

Of Green Stuff Woven by Bishop Cathleen Bascom



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¹⁶ Left image by Caroline Howard.

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