KERR CENTER GUIDE





Native Plants for Native Pollinators in Oklahoma

DAVID REDHAGE MAURA MCDERMOTT



The Kerr Center Guide to:

Native Plants for Native Pollinators in Oklahoma

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Maura McDermott



KERR CENTER FOR SUSTAINABLE AGRICULTURE

2015

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In partnership with the Xerces Society for Invertebrate Conservation, the center is providing education to agriculture and conservation educators, farmers, ranchers and the public about the importance of native pollinators and how to preserve and establish habitat for them. Projects include a labeled landscape, horticulture and range plantings, riparian conservation, working with landowners to establish pollinator habitat, and extensive educational outreach including workshops, publications, public presentations, and web pages. We want to thank Jennifer Hopwood, Ann Stine, and Eric Mader of the Xerces Society for their work on this project and publication. Their expertise is much appreciated; their contributions were extensive and invaluable.

We would also like to thank the administration, staff, and trustees of the Kerr Center for their interest in, and support of, our work with native plants, pollinators and ecosystems.

In particular, a big thank you to Christy Price, of our Board of Trustees, whose appreciation for the beauty and wonder of the natural world inspired us throughout the project.

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BRANSFORD, W.D. and DOLPHIA,

Lady Bird Johnson Wildflower Center, p. 32

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POLLINATORS

We share the world with a stupendous number of pollinators. In their variety and adaptability they match the flowering plants that fill every corner of the Earth. We rarely notice them, but in truth, they are indispensable to life on the planet.



About Bees

Six North American bee families:

Apidae: Honey, Bumble, Carpenter, Digger, Squash, Long-horned and Sunflower bees

Colletidae: Polyester bees

Andrenidae: Mining bees

Halictidae: Sweat bees Megachildae: Leafcutter and Mason Bees

Melittidae: Oil Collecting Bees



There are 4,000 species of bees in North America

About Honey Bees

The European honey bee, *Apis mellifera*, is the only species of honey bee in North America, introduced by European colonists in the early 1600s. Before this, no honey bees existed on the continent.

With the emergence of large scale agriculture, much native bee habitat has been cleared and agriculture's dependence on managed pollination through honey bees has increased. The long-term decline in the health of honey bees, therefore, is a threat to a stable supply of many fruits and vegetables.

What is going on? The introduction of exotic mites and parasites and the mysterious Colony Collapse Disorder combined with decades of stagnant honey prices have contributed to the 50% decrease in the number of managed bee hives since the late 1940s.*



The good news: efforts to protect native pollinators and increase their habitat will also benefit honey bees.

*Information from *Attracting Native Pollinators* by the Xerces Society.

INTRODUCTION

In the last few years, the Kerr Center has stepped up its efforts to conserve and create habitat for pollinators. These include honey bees as well as native pollinators — native bees, wasps, flies, butterflies, moths, beetles, and hummingbirds.

We have held workshops and created educational resources for those who want to do the same, whether they live on a suburban lot, operate a farm or ranch, or manage a public landscape.

Why? Honey bees, the work horses of the pollinator world, are in trouble. Disease, pesticides and other threats have decimated honey bee colonies.

In response, many are looking to native bees and other pollinators to fill the gap and provide pollination of food crops. But, native pollinators also face threats from many sources, including loss of habitat from intensive farming/ranching practices and urban development.

Some, like the monarch butterfly, are now in danger of extinction. Oklahoma provides crucial habitat for this beloved butterfly.

Milkweeds and other native plants are not only essential for monarchs, they provide food and homes

for native bees and other insects which provide billions of dollars worth of "pollination services" each year.

While native pollinator habitat has been studied and promoted in different regions of the United States, limited work has been done in the eastern Oklahoma region. We are helping to fill that gap!

The 4,000 acres of the Kerr Ranch offer a wide diversity of habitats for native plants and the pollinators attracted to them. We are incorporating management techniques such as rotational grazing to preserve pollinator habitat as much as possible. Hives of honey bees have also been set on the ranch to increase pollination and set of legumes in ranch pastures.

Our organic horticulture plots use pollinator-friendly cover crops in their rotation schemes, and no pesticides. In addition we have planted pollinator plants around the ranch, and established a new pollinator-friendly landscape around our office.

In our new office landscape we use plants which are well-adapted to our climate and soil, attractive and low-maintenance.

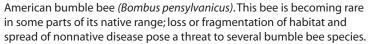
Our goal is to create is a landscape attractive to pollinators throughout the growing season that is also a great outdoor classroom where visitors can learn to identify native plants and how to grow them. Plantings feature flowers, trees, shrubs and grasses native to eastern Oklahoma and associated with native pollinators.



This publication grew out of these efforts. We hope it will raise awareness about the importance of protecting pollinators, and inspire others to join this conservation effort. Pollinators and Pollinator Habitat on the Kerr Ranch and Farm

PASTURES OF **PLENTY**







With almost fifty species in North America, bumble bees can be hard to identify. This unknown bee may be a brown-belted bumble bee.



Brown belted bumble bee (Bombus griseocollis) Note pollen moistened with nectar in "hair baskets" on her hind legs.



Calf in golden indigo. Cattle avoid eating it, grazing instead on spring grass that grows beside it.



Golden indigo grows in large stands in Kerr Ranch pastures. Blooming in early spring (April), it provides crucial nectar and pollen for queen (mother) bumble bees to feed their young.

SUMMER PASTURES OF PLENTY



June meadow of golden coreopsis and penstemon.



Large carpenter bee, *Xylocopa virginica* – cutting a slit at the base of the flower to nectar rob.



Swallowtail butterfly in July meadow. *Liatris* spp. (blazing star, snakeroot) attract a wide range of pollinators, including bees and many kinds of butterflies.



Carpenter bees are often mistaken for bumble bees, but are shiny in comparison.

Walking Down a **COUNTRY ROAD**



Long-tongued bumble bees can harvest the nectar in larkspur.



Leaving roadsides un-mowed provides spring beauty and pollinator habitat.



Fuzzy phacelia blooms in April-May in eastern Oklahoma and is attractive to flies, beetles and native bees.



Beetles. Often overlooked, many species of beetles (flower, blister, long horned, soldier, scarab and more) pollinate a variety of flowers.



Hover fly (*Syrphidae*). Also known as flower flies, Syrphid flies look like bees. Flies pollinate native plants and crops such as carrots, strawberries and onions.



Hawk moth, probably *Hemaris diffini*, Snowberry Clearwing, feeding on larkspur nectar. There are 10,000 moth species in North America, and some are important pollinators.



Indian paintbrush blooms in April and is attractive to bees and hummingbirds.



American bumble bee.



Giant coneflowers (*Rudbeckia maxima*) in June attract a full range of pollinators.



Pale coneflower in a roadside native prairie. *Inset*: Honey bee.

Growing close to the ground, Hairy petunia is easy to overlook in a native prairie, but attracts honey and native bees, beetles, flies and wasps.



Honey and native bees are attracted to another small flower, Tall Wine cup.

PLANTING for **POLLINATORS**

The Kerr Center office landscape has been planted with pollinator-friendly native grasses and plants. (Many of these are included in the pollinator profiles.)



Bee heavily laden with pollen. We plant sunflowers in our horticulture plots each year. Avoid planting pollenless (double-petaled) ornamental varieties.

Some of the cover crops we plant on our organic horticulture farm pull double-duty as "bee pastures."



Green sweat bee (*Agapostemon* sp.). Sunflowers attract the full gamut of pollinators.

Honey bee on buckwheat in summer.

Honey bee on crimson clover in spring.

Native Plants for Pollinators: **PLANT PROFILES**

In this section we profile 38 native plants. Many have been planted in our office landscape and labeled for visitors. Others occur in natural communities on the Kerr Ranch, in pastures or meadows or roadsides.

Each plant profile has a bulleted list of information including the plant's common and scientific names, its growth habit, plant family, pollinators and bloom period in Oklahoma.

We also include growing information, including sun exposure, soil type, native habitat, uses in the landscape, and propagation. In some cases we note whether the plant is favored by livestock.

Finally, we include impressions-- observations and experiences-- from David Redhage, who manages our native plant and pollinator project. His "tips from the field" will give the reader a feel for the beauty and value of these plants and the pollinators that visit them, as well as observations about their use in a garden or landscape planting.



David Redhage. Under his direction, the Kerr Center's office landscape has been redesigned and replanted with low maintenance, pollinator-friendly plants, shrubs, vines and trees.



Purple prairie clover growing in the Kerr Center greenhouse.



Old film cans make good containers for gathered seed.

Seed Gathering, Growing and Transplanting **TIPS FROM THE FIELD**

Gathering wildflower seeds can be enjoyable but challenging. It's a great reason to spend time outside, and you are able to collect seeds adapted to your location. I always make sure to only collect a small amount of seed, leaving some for wildlife and reseeding.

With its 4,000 acres of pasture, meadow, woods, garden and riparian areas, the Kerr Ranch and Farm is a great place to collect seeds. The biggest challenge is knowing when to collect them. You can find references on when plants flower and the time of the year to collect seed, but usually the time is given in months, not days. There is a reason for this. Each location has a unique microclimate and flowering dates and seed collection dates can change from year to year.

I often go out at different times of the year to identify flowering stands of a plant I may want to collect. Later as the flowers mature I check it every other day until the seed looks ready to harvest.

During my hunt for native plants, I have been surprised a few times. Once I found an unexpected abundance of Illinois bundleflower along a railroad track. Just before putting in an order for compass plant, I stumbled onto a patch in a pasture.

In the last few years, I have successfully collected seed and grown plants from pale coneflower, Illinois bundleflower, rattlesnake master, yellow puff, compassplant, golden coreopsis, wild bean, basket-flower, partridge pea, and tall thistle. I have also purchased seed and grown plants of maximilian sunflower, partridge pea, purple prairie clover, Illinois bundleflower and swamp milkweed.

After gathering the seed, the next challenge is separating the seed from the seed head. There are many suggested techniques, but at my scale, by hand has worked the best.

Finding information on germinating wildflower seed can be difficult, but the best references I have seen are the Prairie Moon Nursery Catalog (Minnesota), the Tallgrass Prairie Center Native Seed Production Manual, and Growing and Propagating Wildflowers by William Cullina. The main drawback for these references is they are all based on the central or northern prairie growing regions.

The Kerr Center is located where the South Central Plains meet the Ouachita Mountains region. Many of the seeds I grow are listed in these references. Occasionally I have been unable to locate germination information, since some of the plants I want to grow are only located in the southern U.S.

Two examples are hydrolea (Hydrolea ovata), a wetland plant with small but strikingly deep blue flowers and celestial lily (Nemastylis geminiflora). I have tried collecting seed and growing both with no success to date.



Maximilian sunflower grown from seed in "conetainers," ready to transplant.

Collecting seed locally does seem to improve the chance of a successful planting because the plants are adapted to the local environment. If purchased, seeds should be selected from seed houses specializing in the state or region where they're to be planted.

In addition to planting from seed, we have also purchased seedlings from nurseries specializing in native plants, and have had good success with those. Once the plants are large enough and the weather is right, I set the plants out in the landscape.

— David Redhage

(For more of David's impressions, see individual plant profiles.)

See **Resources** section for where to get more information on establishing native pollinator habitat.

Amorpha canescens **Leadplant** (aka Prairie shoestrings)

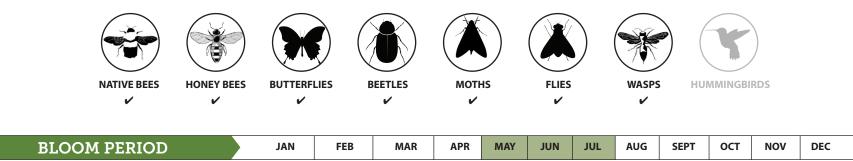
- Native plant: Perennial legume. Pea family.
- **Pollinators:** Butterflies, moths, native bees (long tongue and short tongue), and wasps are attracted by the nectar.
- Bloom period: Oklahoma: May-July
- Exposure/soil: Sun.
- Environment/range: Drought tolerant. Prairies, fields, roadsides throughout Oklahoma, except southeast corner.
- Landscape: Shrub three feet tall. Purple flower racemes and silvery-gray leaves. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery. May be better suited for an informal landscape.
- Propagation: Potted plants, seeds.
- Value to livestock: Very nutritious, readily eaten by livestock. Considered a decreaser under grazing.

IMPRESSIONS: Adds variety to a landscape with the silvery-gray foliage. Host for Dogface Sulphur and Gray Hairstreak butterflies. May be slow to develop and take up to three years to flower. Roots can penetrate up to 15' deep in the soil. The deep roots allow it to survive drought and prairie wildfires.

NATIVE PLANTS FOR POLLINATORS: PLANT PROFILES



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Amsonia tabernaemontana Bluestar (aka Eastern bluestar)

- Native plant: Herbaceous perennial. Dogbane family.
- Pollinators: Butterflies.
- Bloom period: Oklahoma: April-May
- Exposure/soil: Full sun to partial shade. Moist soil.
- Environment/range: Fields, well drained stream banks.
- Landscape: Borders, shady wildflower garden. We grow a related species, Thread-leaf bluestar (*Amsonia hubrichtii*), in the Kerr Center's office landscape.
- Progagation: Seed.

IMPRESSIONS: Found in pastures at the Kerr Center Ranch. The intense blue color stands out.



10 BLOOM PERIOD JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT	NOV DEC
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Andropogon gerardii Big bluestem

- Native plant: Perennial found throughout Oklahoma. Grass family.
- **Pollinators:** Larval host for many species of butterflies (Delaware Skipper, Dusted Skipper, Common Wood Nymph).
- Bloom period: Oklahoma: August-November
- **Exposure/soil:** Full sun. Drought tolerant. Moist soils; acid to calcareous sands, loams, and clays.
- Environment/range: Grasslands, roadsides, fields.
- Landscape: Grown as an ornamental.
- Propagation: Root division, seeds.

IMPRESSIONS: Can be used in landscaping with careful placement. Can get very large. Good to include in prairie mixes. Adds variety to a habitat.





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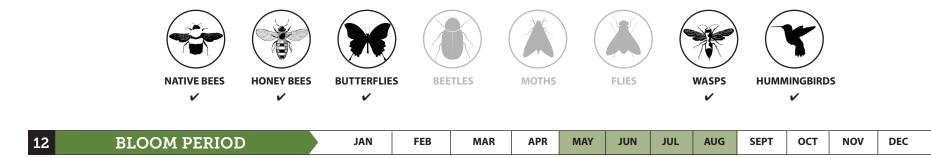


Monarch feeding on a native milkweed, its only host plant. Photo by Orchard Galore.

Asclepias tuberosa Butterflyweed

- Native plant: Perennial. Milkweed family.
- **Pollinators**: Special value to native, honey and bumble bees, long-tongued bees, sphecid wasps, and various butterflies, including Swallowtail, Fritillary, Monarch, Grey Hairstreak, and Queen, as well as hummingbirds. Host plant for the monarch butterfly.
- Bloom period: Oklahoma: May-August
- Exposure/soil: Sun. Drought tolerant. Sandy soils.
- Environment/range: Widely distributed; dry prairies.
- Landscape: The seeds are sold for landscape use and as a cut flower. It fits well into a landscape or restored prairie.
- Propagation: Seed or transplant.
- Value to livestock: Livestock don't eat it; some literature indicates it can increase on abused range. Sound grazing management should keep it in check, while allowing a small but visible presence for pollinators.

IMPRESSIONS: Butterfly weed brings back childhood memories for me. I remember seeing it in the pasture field outside the kitchen window as a child. I tried (successfully) to leave it when cutting the field for hay, unknowingly paying homage to Robert Frost's poem "The Tuft of Flowers," in which the scythe spared a patch of Butterflyweed. (Of course I was using a tractor and sickle bar mower, not a hand scythe.)



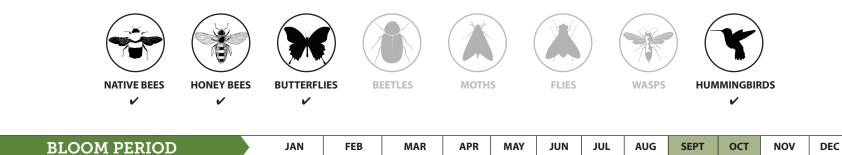
Asclepias incarnata Swamp milkweed (aka Pink milkweed)

- Native plant: Tall perennial. Milkweed family.
- **Related species:** Showy milkweed, common milkweed, purple milkweed, butterflyweed, antelope horn milkweed. Twenty-six species native to Oklahoma. Milkweeds are an important food source for the monarch butterfly.
- **Pollinators:** Special value to native, honey and bumble bees, host and nectar plant for queen and monarch butterflies.
- Bloom period: Oklahoma: September-October
- Exposure/soil: Average to wet soil. Will tolerate heavy clay.
- Environment/range: Widely distributed; marshes, lakeshores.
- Landscape: Nice in a landscape or wetland garden. Showy flowers, interesting seed pods. Grown in the Kerr Center landscape.
- Propagation: Seed or transplant.

IMPRESSIONS: It seems to be attractive to monarchs as a host plant. I observed monarch caterpillars eating its leaves.



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Bumble bee, possibly Bombus griseocolis.



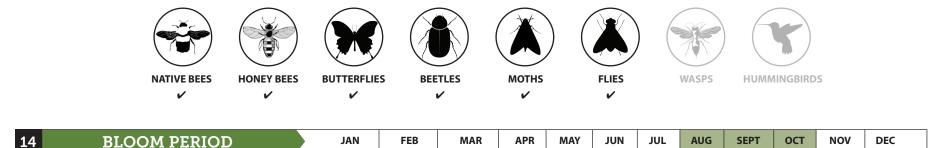
Syrphid or Hover fly.

Aster spp. **Aster**

Note: Some new plant ID books list aster as Symphotrichum, Ionactis, Eurybia, Doellingeria, and Chlorocantha spp. due to work in molecular analyses. Taxonomists now interpret Aster to be a Eurasian genus with one native to North America and one introduced from Europe.

- Native plant: Perennial; various species widely distributed in Oklahoma. Aster family.
- Pollinators: Butterflies, moths, bees, flies, and beetles. Special value to native bees.
- Bloom period: Oklahoma: August-October
- Exposure/soil: Full sun. Dry.
- Environment/range: Prairies, old fields, stream-sides.
- Landscape: Very good landscape plants for fall flowers. We have several *Aster* species (Drummond's, Bluebird smooth, and Mary Nell) in the Kerr Center landscape purchased from an Oklahoma plant nursery.
- Propagation: Seeds, division, softwood cuttings in the spring.

IMPRESSIONS: Excellent plants highly recommended for late summer/fall. A pollinator magnet. We have observed butterflies, bees, and flies in the Kerr Center Landscape. Low maintenance and tough as nails. Asters frequently hybridize in the wild.



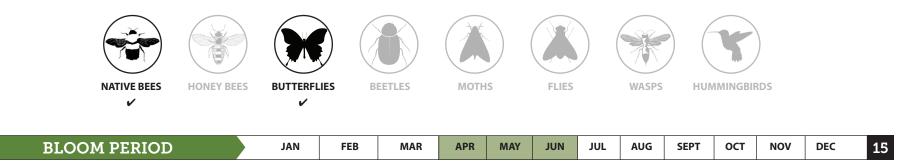
Baptisia bracteata var. leucophaea Cream wild indigo (aka Cream false indigo)

- Native plant: Herbaceous perennial. Pea family.
- **Pollinators:** Native bees, including bumble bees. Important early pollinator plant. Butterfly larval host.
- Bloom period: Oklahoma: April-June
- Exposure/soil: Sun, partial shade. Moist, well drained soil.
- Environment/range: Prairies, open woods, roadsides.
- Landscape: Not currently used in formal landscapes. Good for wildscapes and prairie restorations.
- Propagation: Seed.

IMPRESSIONS: Sprawling plant that is slow to mature when grown from seed. Found at the Kerr Center on native prairie sites. Not obvious in a tallgrass prairie; you need to walk around to see it.



American bumble bee.





Baptisia sphaerocarpa Yellow wild indigo (aka Golden wild indigo, Bush pea)

- Native plant: Short perennial. Pea family.
- **Related native species:** Blue wild indigo (*Baptisia australis*), Cream or Large-bracted wild indigo (*Baptisia bracteata*), White wild indigo (*Baptisia alba*), Large White wild indigo (*Baptisia leucantha*).
- Pollinators: Native bees, especially long-tongued bees such as bumble bees.
- Bloom period: Oklahoma: April-June
- Exposure/soil: Sun. Average soil. Drought tolerant.
- Environment/range: Prairies, pastures, meadows; sporadic, but widely distributed.
- Landscape: Looks best in plantings of more than one. Unusual-looking seed pods develop in late spring. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Value to livestock: Grows in rotationally-grazed spring pastures on Kerr Ranch. Not eaten by cattle. While it is listed as poisonous to cattle, no Kerr Center livestock have been observed eating it or have been known to die from it.

IMPRESSIONS: Important plant for native bees. Queen bumble bees emerging from nests in spring are frequent visitors to stands of this prairie native and its beautiful golden flowers.



RIOD JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC

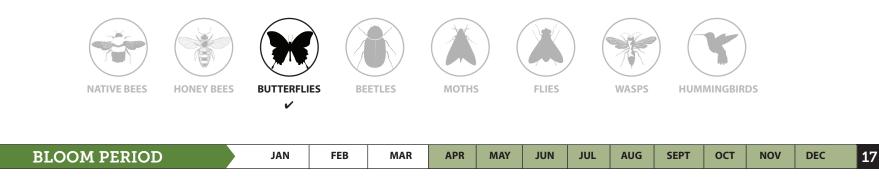
Bouteloua dactyloides **Buffalograss**

- Native plant: Perennial found throughout Oklahoma. Grass family.
- Pollinators: Butterfly larval host for green skipper butterfly.
- Bloom period: Oklahoma: April-December
- **Exposure/soil:** Full sun. Drought-tolerant. Well-drained loam, clay, caliche, or limestone, but not sand.
- **Environment/range:** Grasslands; in the eastern part of the state found on dry sites.
- Landscape: New varieties selected for turf and forage.
- Propagation: Seed.

IMPRESSIONS: Good for drought tolerant, low maintenance turf. Established in the Kerr Center Landscape.



Buffalograss with Switchgrass in the back.





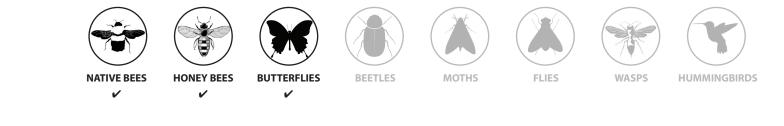
Centaurea americana Basket-flower (aka American star-thistle)

- Native plant: Annual found across most of Oklahoma. Aster family.
- Pollinators: Blooms attractive to butterflies and bees.
- Bloom period: Oklahoma: May-July
- Exposure/soil: Full sun, part shade. Dry-moist soil.
- Environment/range: Grasslands, roadsides.
- Landscape: Occasionally grown as an ornamental. Can be up to 5' tall.
- Propagation: Seed.

IMPRESSIONS: Resembles a thistle but does not have spines. Drought tolerant. Plants reseed on their own. Seeds are attractive to many bird species.

I have found the seeds easy to collect. Simply wait until the seedhead is dry and you can cut it, turn it over in a container and shake/strike it against the container side or bottom. The seeds will readily fall out.

While it can be grown in a formal landscape, my experience has shown it will grow to the maximum height in a well-managed landscape and can fall over or lean out of a flower bed. I think it works great in a natural area.



18 BLOOM PERIOD JAN FEB MAR APR MAY J	JUN JUL	. AUG	SEPT	ост	NOV	DEC
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Chamaecrista fasciculata Partridge pea

- Native plant: Annual legume. Pea family.
- Pollinators: Bees, wasps, butterflies, bumble bees.
- Bloom period: Oklahoma: June-September
- Exposure/soil: Sun. Average soil. Drought tolerant.
- Environment/range: Prairies, pastures, meadows, roadsides throughout Oklahoma.
- Landscape: Best used in native meadows or areas dedicated to wildlife.
- Value to livestock: Livestock rarely eat the plant. Some sources indicate it is capable of causing gastrointestinal dysfunction in livestock.

IMPRESSIONS: Excellent plant for pollinators. The plants not only have flowers but nectaries located at the base of the leaf petioles. Promoted for wildlife food plots. Liked by white-tail deer, bobwhite quail, wild turkey, pheasant, prairie chicken and songbirds. Host plant for various sulphur butterflies.





Bumble bee.





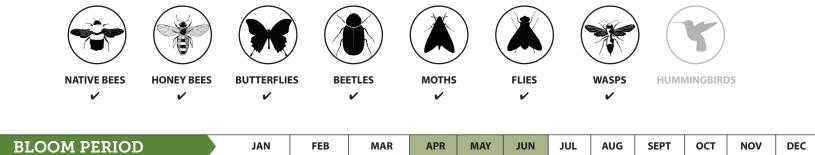
Megachile leafcutter bee.

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Coreopsis lanceolata Lanceleaf tickseed (aka Lanceleaf coreopsis)

- **Native plant**: Perennial found mainly in Eastern half of Oklahoma. Aster family.
- Pollinators: Blooms attractive to bees and butterflies.
- Bloom period: Oklahoma: April-June
- Exposure/soil: Full sun or partial shade. Dry soil.
- Environment/range: Grasslands, roadsides.
- Landscape: Grown as an ornamental.
- Propagation: Seed.

IMPRESSIONS: This beautiful flower should be part of any natural wildflower landscape in Oklahoma.

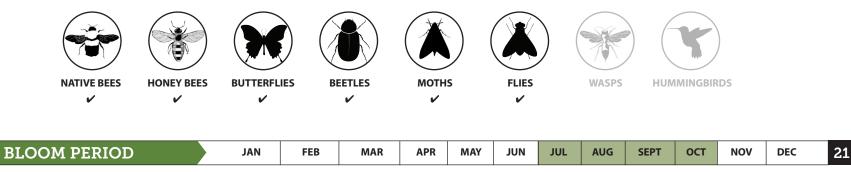


Coreopsis tinctoria **Golden coreopsis** (aka Plains coreopsis, Plains tickseed)

- Native plant: Annual, widespread in Oklahoma. Aster family.
- Pollinators: Blooms attractive to bees and butterflies for nectar.
- Bloom period: Oklahoma: July-October
- Exposure/soil: Full sun. Moist soil.
- Environment/range: Grasslands, roadsides, fields.
- Landscape: Grown as an ornamental.
- Propagation: Seed.

IMPRESSIONS: I prefer the common name golden coreopsis since it better describes this flower. To me this flower stands out in grassy areas and should be part of any natural wildflower landscape in Oklahoma.



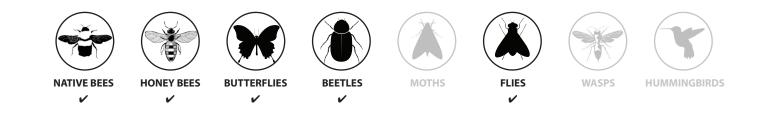




Dalea purpurea Purple prairie clover

- Native plant: Small, slender, perennial legume. Pea family.
- **Pollinators:** Attracts native bees (including polyester bees), bumble bees, honey bees. Host plant for various sulfur butterflies.
- Bloom period: Oklahoma: June-August
- Exposure/soil: Sun. High drought tolerance.
- Environment/range: Widely distributed in Oklahoma prairies and roadsides.
- Landscape: Striking when in bloom. Kerr Center has included it in its office landscape beds.
- Value to Livestock: Young growth is high in protein and is nutritious for livestock. While not considered an important indicator of range condition, it decreases in abundance with overgrazing.
- **Seeds/propagation:** Seeds mature in late summer. Scarify seedcoat with sandpaper before planting.

IMPRESSIONS: Like most legumes, it attracts pollinators and should be added to any prairie restoration project. It can grow one to two feet in height and is deep rooted. Multiple stems arise from the same plant. The plant looks frail in the landscape and you wonder how it can compete in a prairie setting, but it is considered one of the more important legumes found in native prairies.



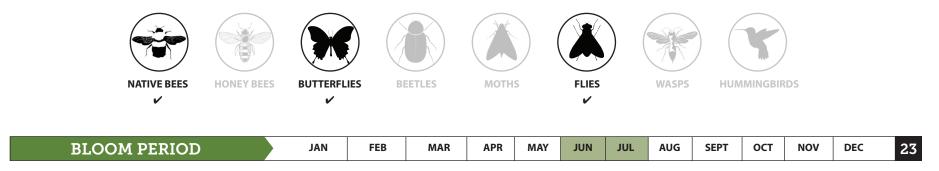
22	BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC

Desmanthus illinoensis Illinois bundleflower

- Native plant: Deep rooted perennial legume. Pea family.
- Pollinators: Butterflies.
- Bloom period: Oklahoma: June July
- Exposure/soil: Various, but not coarse sands or dense clays.
- Environment/range: Found throughout the prairie regions of the United States, in open, wooded slopes, rocky prairies, stream banks, roadsides; drought-tolerant.
- Value to Livestock: The plant itself can grow up to three feet tall and is eaten by livestock. It decreases under heavy grazing and is considered an important indicator of range conditions.
- Propagation: Scarify and inoculate seeds.

Impressions: Illinois bundleflower is an important plant for wildlife and livestock in the prairie system. An interesting aspect of this plant are its flowers. While small, the flowers develop into waferlike seedpods, which twist into a curled mass as they dry. At first glance, the mass of seed pods looks like a flower structure instead of individual seedpods. Seeds are desirable for wild birds. The plant is considered a nutritious and palatable browse for wildlife.







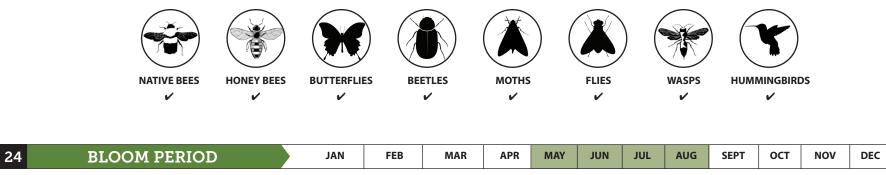
Bumble bee (*Bombus pensylvanicus*) on a purple coneflower (*Echinacea purpurea*).

Buckeye butterfly visiting pale coneflower.

Echinacea spp. Coneflower

- Native plant: Herbaceous perennial. Aster family.
- **Pollinators:** Native bees such as bumble bees, sweat, mining and sunflower bees; honey bees; and butterflies such as monarchs, swallowtails, sulfurs, fritillaries and others.
- Bloom period: Oklahoma: May-August
- Exposure/soil: Sun. Various soils, prefers dry.
- Environment/range: Prairies, roadsides throughout Oklahoma.
- Landscape: Wildflower garden.
- Propagation: Seed, potted plants.

IMPRESSIONS: Beautiful plant in a landscape. Several species are native to Oklahoma. *Echinacea pallida* (Pale coneflower) is found on the Kerr Center Ranch.



Eryngium yuccifolium Rattlesnake master

• Native plant: Deep rooted, erect perennial. Carrot family.

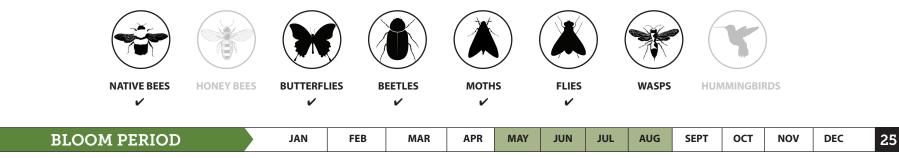
- **Pollinators:** The globelike blossoms attract numerous small native bees and syrphid (hover) flies. The thick hollow stems break down slowly and prove nest sites for tunnel-nesting bees. Host plant for rattlesnake master borer moth (*Papaipema eryngii*), an endangered species.
- Bloom period: Oklahoma: May-August
- Exposure/soil: Sun to partial shade. Moist soil.
- Environment/range: It is well adapted to eastern Oklahoma conditions and can be found in native prairies. On the Kerr Ranch it grows in the Rails-to-Trails roadside prairie.
- Landscape: Place it carefully in the landscape since it is very unique looking. Think specimen planting rather than large groupings. It would be excellent to include in a native prairie restoration project or in rough areas of a yard.
- Value to livestock: Here at the Kerr Center it has been found in pastures containing fescue/bermuda. It is not common in grazed pastures on the ranch, most often being found in remnant prairies and road ditches. This is probably due to cattle eating the nutritious new growth. It is considered a decreaser (i.e. it is readily eaten by livestock and therefore decreases) on overgrazed pastures.
- **Propagation:** *Eryngium* spreads by seed and rootstock. The seed stems are 24-36 inches tall. Coldmoist stratify seeds at 40 degrees for 2 months.

IMPRESSIONS: I love the name of this plant. Not only is the name memorable, but the plant is unusual looking. It looks like it wants to be yucca plant with its succulent looking leaves; however, the leaves also have short spines scattered on the edge. The flower structure draws attention to the plant since it resembles a thistle. It certainly draws in pollinators!

I have collected seed from plants on the ranch. When removing the seeds, it would be a good idea to wear gloves, preferably leather. Note: Raking the seeds, with their sharp ends, off of the seed heads with your thumb can lead to sore thumbs (I know).





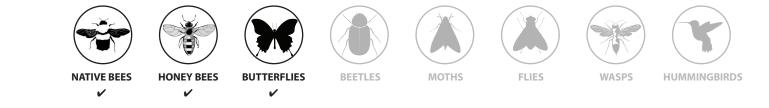




Gaillardia pulchella Indian blanket (aka Firewheel, Blanket flower)

- **Native plant**: Short lived annual found across the western two-thirds of Oklahoma, with some populations in the east. Aster family.
- Pollinators: Blooms attractive to bees and butterflies.
- Bloom period Oklahoma: May-September
- Exposure/soil: Full sun. Dry.
- Environment/range: Grasslands, roadsides.
- Landscape: Occasionally grown as an ornamental.
- Propagation: Seed.

IMPRESSIONS: State wildflower of Oklahoma. This beautiful flower should be part of any natural wildflower landscape in Oklahoma.



26 BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC
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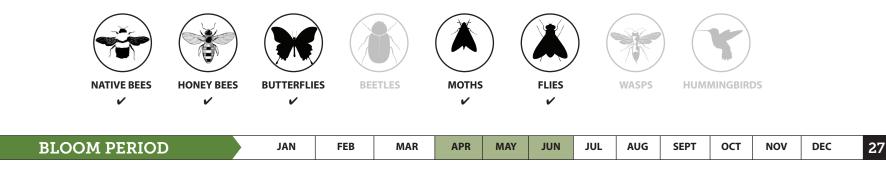
Glandularia canadensis **Rose verbena**

(aka Sand verbena, Rose vervain)

- Native plant: Native perennial. Verbena family.
- Pollinators: Butterflies, bees, moths and flies.
- Bloom period: Oklahoma: April-June
- Exposure/soil: Full sun. Can tolerate poor, rocky and acidic soil.
- Environment/range: Prairies, woodland edges. Widely distributed in Oklahoma.
- Landscape: The wild form can be grown in a landscape, but is best suited for a native wildscape. Grows along roadsides on Kerr Ranch.
- Propagation: Seed, division or stem cuttings.

IMPRESSIONS: Flowers very early in the spring. The early flowers and plant are beautiful and eye catching in the landscape. Later in the summer, the center of the plant turns brown and the plant sprawls, looking rough. Allan Armitage in the book Armitage's Native Plants for North American Gardens (2006, p. 401), recommends cutting the plants back hard in mid-summer if they look rough. He indicates they will come back looking good.







Syrphid fly.

Helianthus angustifolius Narrow-leaf sunflower (aka Swamp sunflower)

- Native plant: Perennial. Aster family.
- Pollinators: Butterflies, bees, and flies are attracted to the flowers.
- Bloom period: Oklahoma: September-October
- **Exposure/soil:** Sun. As the name suggests, it likes wet soils, but will adapt to garden soil.
- Environment/range: Eastern Oklahoma.
- Landscape: Good in landscapes. Can grow two to six feet tall, so plant accordingly. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Propagation: Seed or by division.

IMPRESSIONS: With a good site and ample water, this plant can get tall and bushy. Some sources suggest pruning back in late spring for a bushier plant. Good for attracting late fall pollinators.



Helianthus maximiliani Maximilian sunflower

- Native plant: Perennial. Aster family.
- Pollinators: Native bees, honeybees, bumblebees, butterflies.
- Bloom period: Oklahoma: August-October
- Exposure/soil: Full sun. Tolerates a range of soil types and moisture levels.
- Environment/range: Statewide; frequent on dry prairies.
- Landscape: Does well in landscape plantings, but due to its height may need some support. Grown in Kerr office landscape, Cannon Horticulture Plots, and native prairie from transplants started from purchased seed.
- Propagation: Seed, potted plants.
- Value to livestock: Considered a decreaser under grazing.
- **IMPRESSIONS:** Can grow up to 10' tall and can send roots down 15' deep.



Longhorned/sunflower bee, Melissodes spp.





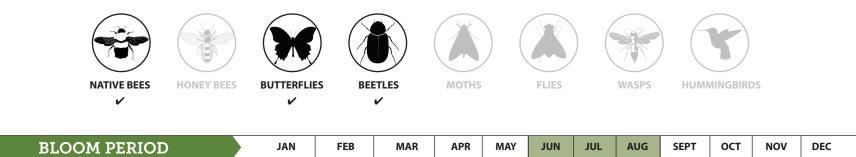


30

Hypericum prolificum Shrubby St. Johnswort

- **Native plant:** Native shrub found in eastern Oklahoma. St. John's-Wort family.
- **Pollinators:** Bumblebees, sweat bees, halictid bees, leaf beetles. Host plant for Gray Hairstreak butterfly caterpillars.
- Bloom period: Oklahoma: June-August
- **Exposure/soil:** Partial to full shade. Moist soils in native habitat even flood tolerant. Tolerates a wide range of soil pH.
- Environment/range: Sandy, open woods, meadows, seepages.
- Landscape: Does well in landscapes. Specimen plant, borders and foundation plantings. Shrub grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Propagation: Cuttings and seed.

IMPRESSIONS: This plant is becoming more common in landscapes and seems to require little care. If you only want a native St. Johnswort, check the scientific name. The main introduced species is Hypericum perforatum. Check the BONAP website (Biota of North America, www.bonap.org) to indentify native St. Johnswort species. It is only recently that the native plants have been selected for landscape use.



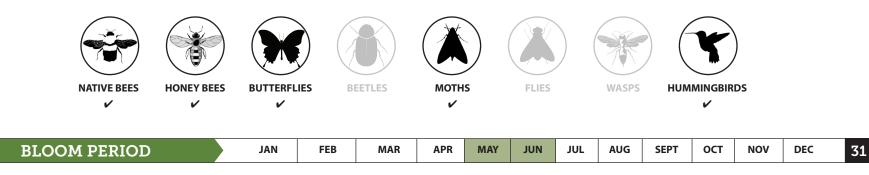
Lonicera sempervirens Coral honeysuckle

• Native plant: Perennial vine.

- **Related species:** Several cultivars available: "Cedar Lane," "John Clayton" and "Major Wheeler."
- Pollinators: Butterflies, bees, nectar source. Also larval host plant.
- Bloom period: Oklahoma: May-June.
- Exposure/soil: Sun to part sun. Various soils, well drained is best.
- Environment/range: Woodlands. Central and eastern Oklahoma.
- Landscape: Vines 15'-20' long. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Propagation: Seeds, softwood cuttings, layering.

IMPRESSIONS: A good substitute for Japanese honeysuckle (L. japonica). Host plant for the Spring Azure Butterfly and the Snowberry Clearwing Moth. Needs structure to help it climb. Don't plant were livestock can access it, they will eat it to the ground.







Marshallia caespitosa Barbara's buttons

- Native plant: Perennial in southeastern Oklahoma. Aster family.
- Pollinators: Butterflies for the nectar.
- Bloom period: Oklahoma: May
- **Exposure/soil:** Sun to partial shade. Adapted to dry loam, clay, sandy and rocky soils.
- Environment/range: Prairies. Can form large populations.
- Landscape: Front border or rock gardens. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.

IMPRESSIONS: After planting in the Kerr Center landscape we found a large population in a remnant prairie near the main office. Probably better in clump plantings vs. individual scattered plants in the landscape.



JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC
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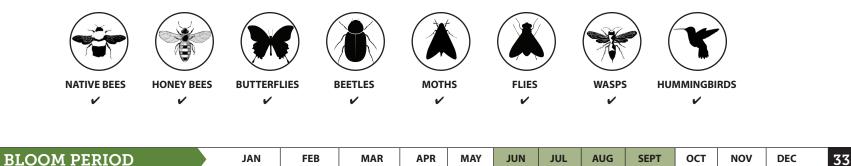
Monarda fistulosa **Beebalm** (aka Wild bergamot)

- Native plant: Herbaceous perennial. Mint family.
- Related species: Monarda Russeliana (Russell's Horse Mint) and many others.
- Pollinators: Bees, butterflies, hummingbirds. Moth host plant.
- Bloom period: Oklahoma: June-September
- Exposure/soil: Full sun to partial shade. Thrives in a wide range of soil types and moisture regimes.
- Environment/range: Widespread throughout North America east of the Rockies. Range of habitat types from open woods to fields and wet meadows and stream and woods margins.
- Landscape: Good in a native flower garden and restored meadows.
- Propagation: Root division; seeds.

IMPRESSIONS: Easy to grow and attracts pollinators. Seeds are available commercially. Can compete with grasses in a native meadow.



Silver spotted skipper (Epargyreus clarus).



DEC



Sweat bee.



Nemastylis geminiflora **Celestial lily** (aka Prairie iris)

- Native plant: Perennial bulb. Eastern Oklahoma. Iris family.
- Pollinators: Bees, flies.
- Bloom period: Oklahoma: March-April
- Exposure/soil: Full sun. Well-drained soil.
- Environment/range: Prairies.
- Landscape: Have not grown it in a landscape.
- **Establishment:** Assume it would be similar to iris propagation, but we have not attempted it.

IMPRESSIONS: The name celestial lily is very appropriate. When you first see it down in the prairie grass on a sunny day in early spring, you will understand. Have seen small sweat bees on this flower. Flowers bloom for one day, opening in the late morning, closing in the afternoon. While not rare, it is not available commercially; but if you have it, enjoy its early spring beauty.



OCT NOV DEC	JUL AUG	JUN JUL	MAY	APR	MAR	FEB	JAN	34 BLOOM PERIOD
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Passiflora incarnata Maypop

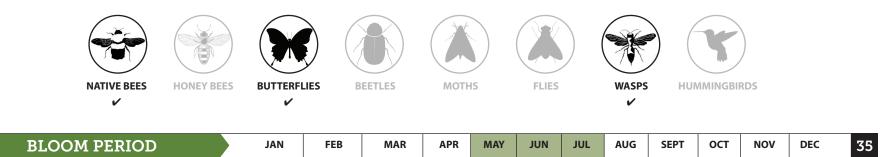
- Native plant: Herbaceous perennial. Passion-Flower family.
- **Pollinators:** Bumblebees. Butterfly larval host for the Gulf Fritillary, Red-banded Hairstreak, Banded Hairstreak, and Zebra Longwing.
- Bloom period: Oklahoma: May-July
- **Exposure/soil:** Sun to partial shade. Wide range of soil types and moisture conditions.
- Environment/range: Fences, among small trees.
- Landscape: Fences, lattice.
- Propagation: Seed.

IMPRESSIONS: Low maintenance plant for the landscape and very drought tolerant. Found naturally on the Kerr Center Ranch. Some report the plant can be invasive.





Carpenter bee.





Panicum virgatum Switchgrass

- Native plant: Perennial found throughout Oklahoma.
- Pollinators: Larval host for skipper butterflies.
- Bloom period: Oklahoma: August-October
- Exposure/soil: Full sun. Dry to moist soils; a range of soil types.
- Environment/range: Grasslands.
- Landscape: New varieties selected for use as a bunchgrass.
- Propagation: Seed, potted plants of named varieties.

IMPRESSIONS: Drought tolerant. Planted in Kerr Center landscape as a bunchgrass. I would be very careful deciding to use this grass in a mixed native prairie restoration. While easy to establish compared to other native warm season grasses, it can dominate a planting and suppress native wildflowers. In native seed mixes used at the Kerr Center, switchgrass is included at less than 3% of the seed mix. So far, it has worked well in the landscape. Switchgrass is being researched as a potential perennial biofuel source.

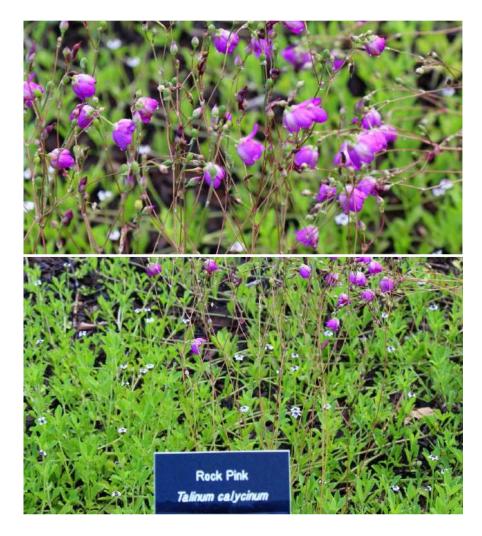


36 BLOOM PERIOD JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC
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Phemeranthus calycinus **Rock pink** (aka Flower-of-an-hour)

- Native plant: Herbaceous perennial. Purslane Family.
- Pollinators: Used by honeybees, butterflies and small bees such as sweat bees.
- Bloom period: Oklahoma: May-June, only open in the late afternoon.
- Exposure/soil: Sun. Rocky-sandy soils. Drought tolerant.
- Environment/range: Rocky-sandy soils in eastern Oklahoma.
- Landscape: Good low maintenance plant for rock gardens and other sunny locations. Must have well drained soil. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.

IMPRESSIONS: Beautiful small flower, but each flower only lasts for one day. Stands out in a landscape setting due to the intense color of the flowers.





	BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC	37
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Honey bee.



Phyla nodiflora Fogfruit or Frogfruit

- Native plant: Perennial. Verbena family.
- Pollinators: Butterflies and bees are attracted by the nectar.
- Bloom period: Oklahoma: April-September
- Exposure/soil: Sun, wide range of soils.
- Environment/range: Likes damp areas but handles drought and heat very well. Throughout Oklahoma.
- Landscape: Prostrate-growing plant used as a ground cover. Can cover a large area, so not recommended for small beds. May be considered a weed in lawns. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Establishment: By cuttings, runners and seeds.

IMPRESSIONS: With a good site and ample water, this plant can cover a large area. Very attractive to pollinators. You need to look close to see some of the smaller pollinators attracted by this plant. Very reliable plant with long bloom period. Frogfruit is a host plant for the Phaon Crescent, White Peacock, and Common Buckeye butterflies.



38 BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC
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Pycnanthemum tenuifolium Narrow-leaf mountain mint

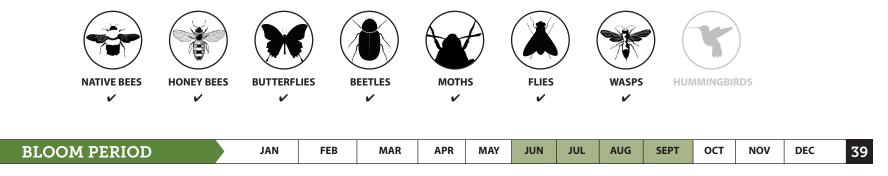
• Native plant: Perennial. Mint family.

- **Pollinators:** Attractive to a wide variety of pollinators, including butterflies, bees, wasps, moths, ants, flies and beetles. Butterflies include Hairstreaks, Blues, Common Buckeyes, Ladies and smaller Fritillaries. Attracts beneficial insects for biological control of pests.
- Bloom period: Oklahoma: June-September
- Exposure/soil: Full sun/partial shade. Variety of soils.
- Environment/range: Upland prairies, open woodlands in eastern Oklahoma.
- Landscape: Can be used in landscape plantings or as part of native meadow or restored prairie. Grown in Kerr office landscape from plants purchased from an Oklahoma native plant nursery.
- Value to livestock: Livestock rarely consume this plant.
- **Propagation:** Best: Tip cuttings or root division. Can be started from seed, but seeds are tiny.



Honey bee.



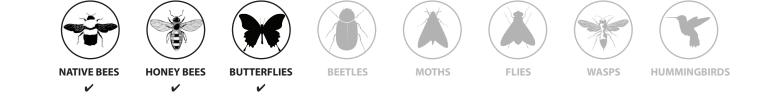




Ratibida columnifera Mexican hat

- Native plant: Herbaceous perennial. Aster family.
- **Pollinators:** Nectar source for butterflies and many kinds of native bees such as bumble bees, sweat bees, carpenter and leaf cutter bees.
- Bloom period: Oklahoma: May-August
- Exposure/soil: Sun. Wide range of soils. Drought tolerant.
- Environment/range: Prairies, highway right-of-ways.
- Landscape: Wildflower garden, bedding plant.
- Propagation: Seed.

IMPRESSIONS: Low maintenance plant for the landscape and very droughttolerant. Established in the Kerr Center landscape from seed.



MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC	1	BLOOM PERIOD JAN
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Rudbeckia maxima Giant coneflower (aka Giant browneyed Susan)

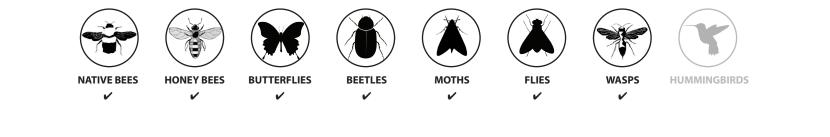
- Native plant: Perennial. Aster family.
- Pollinators: Native bees.
- Bloom period: Oklahoma: July-September
- Exposure/soil: Sun. Likes moist areas, but seems drought tolerant.
- Environment/range: Found in Arkansas, Louisiana and Texas but restricted to a few counties in southeast Oklahoma. Other related species (Mexican hat, Blackeyed Susan, and others) are common in prairies and meadows across Oklahoma.
- Landscape: Wildflower garden.
- Propagation: Potted plants.

IMPRESSIONS: Beautiful tall plant in a landscape. Makes a dramatic accent plant. Established in the Kerr Center landscape from plants purchased at an Oklahoma nursery.



Giant coneflower at the Kerr Center.

Giant coneflower seed heads.



BLOOM PERIOD JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC 41
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Schizachyrium scoparium Little bluestem

- Native plant: Perennial found throughout Oklahoma. Grass family.
- **Pollinators:** Larval host for many species of butterflies (Ottoe Skipper, Crossline Skipper, Dusted Skipper, Cobweb).
- Bloom period: Oklahoma: July-September
- **Exposure/soil:** Full sun to partial shade. Drought tolerant. Wide range of soil types.
- Environment/range: Grasslands, roadsides, fields.
- Landscape: Grown as an ornamental.
- Propagation: Root division.

IMPRESSIONS: A good plant for landscape use. A native that can be used in place of some introduced bunchgrasses. Nurseries are starting to carry named selections. Drought tolerant. Adds variety to a habitat and is good for beetle banks.



D JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC	MAR	FEB	JAN	BLOOM PERIOD	BLOOM PER	2
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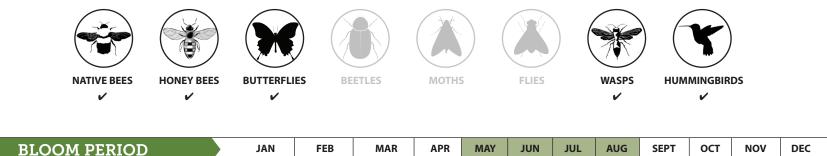
Silphium laciniatum Compassplant

- Native plant: Native warm-season perennial. Aster family.
- Pollinators: Bees, birds, butterflies.
- Bloom period: Oklahoma: May-August
- Exposure/soil: Clay or caliche soils in open areas.
- Environment/range: Tallgrass prairie plant. Grows across Oklahoma, except panhandle.
- Value to Livestock: The plant feels rough to the touch, but livestock must like is since it is considered a decreaser under grazing.
- **Propagation:** Most easily propagated by seed (collect in September and October). Sow unstratified seed in spring or stratified in fall. Use damp stratification (2 months at 40° F) and scarification. Seedlings take two to three years years to flower. Deep roots make division difficult.

Impressions: Compassplant is interesting due to its drought tolerance and plant structure. It can send roots down 15 feet into the soil, lending to its drought tolerance. The top of the plant can grow to a height of six feet. Compassplant may take two to four years to flower. The large seeds are favored by birds and small mammals. I feel any prairie planting should contain compassplant because it adds structural variation to the prairie, is long-lived, and pollinators like it.



43





Goldenrod with monarchs.

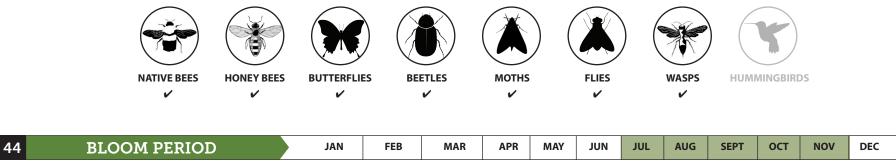


Goldenrod with tarantula wasp.

Solidago spp. Goldenrod

- **Native plant**: Herbaceous perennial widely distributed in Oklahoma. Aster family.
- **Pollinators**: Nectar source for butterflies, food source for bumblebees and other pollinators in the fall.
- Bloom period: Oklahoma: July-November
- Exposure/soil: Full sun. Dry soil.
- Environment/range: Prairies, old fields.
- Landscape: There are some named varieties available for landscape use.
- Propagation: Seed.

IMPRESSIONS: Important food source for late fall pollinators. Various species readily hybridize making field ID difficult in some cases. Wrongly accused of causing hay fever. Supports conservation biological control (attracts predatory or parasitoid insects that prey upon pest insects).



Sorghastrum nutans **Indiangrass**

- Native plant: Perennial found throughout Oklahoma. Grass family.
- Pollinators: Larval host for skipper butterflies.
- Bloom period: Oklahoma: September-November
- **Exposure/soil:** Full sun. Drought tolerant. Moist, rich soils: calcareous; wide range of soil types.
- Environment/range: Grasslands.
- Landscape: New varieties selected for use in landscaping.
- Propagation: Seed, potted plants of named varieties.

IMPRESSIONS: Planted in Kerr Center landscape as a bunchgrass. State grass of Oklahoma. I like including Indiangrass in prairie restorations and the landscape. The seed plumes add a unique color and form to landscapes.





BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC	45

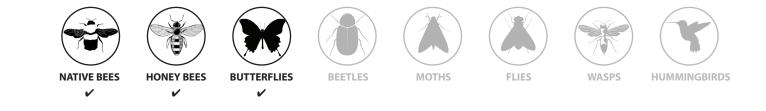




Tradescantia ohiensis Ohio spiderwort

- **Native plant**: Herbaceous perennial found throughout Oklahoma, but more common in the east. Spiderwort family.
- Pollinators: Native bees, especially bumblebees, honey bees, butterflies.
- Bloom period: Oklahoma: March-June
- **Exposure/soil**: Part shade, sun. Various-type soils, moist to dry.
- Environment/range: Prairies, open woods, roadsides.
- Landscape: Wildflower meadow, perennial garden.
- Propagation: Seed, root division.

IMPRESSIONS: Beautiful plant in a native landscape, especially when found in large groups. Important for early spring pollinators.



46 BLOOM PERIOD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ост	NOV	DEC
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POLLINATOR PLANT PROFILES **LISTED BY SCIENTIFIC NAME**

PAGE	SCIENTIFIC NAME	COMMON NAME	PAGE	SCIENTIFIC NAME	COMMON NAME
9	Amorpha canescens	Leadplant	28	Helianthus angustifolius	Narrow-leaf sunflower
10	Amsonia tabernaemontana	Bluestar	29	Helianthus maximiliani	Maximilian sunflower
11	Andropogon gerardii	Big bluestem	30	Hypericum prolificum	Shrubby St. John'swort
12	Asclepias tuberosa	Butterflyweed	31	Lonicera sempervirens	Coral honeysuckle
13	Asclepias incarnata	Swamp milkweed	32	Marshallia caespitosa	Barbara's buttons
14	Aster spp.	Aster	33	Monarda fistulosa	Beebalm
15	Baptisia bracteata	Cream wild indigo	34	Nemastylis geminiflora	Celestial lily
16	Baptisia sphaerocarpa	Yellow wild indigo	35	Passiflora incarnata	Маурор
17	Bouteloua dactyloides	Buffalo grass	36	Panicum virgatum	Switchgrass
18	Centaurea americana	Basket-flower	37	Phemeranthus calycinus	Rock pink
19	Chamaecrista fasciculata	Partridge pea	38	Phyla nodiflora	Fogfruit (Frogfruit)
20	Coreopsis lanceolata	Lanceleaf tickseed (coreopsis)	39	Pycnanthemum tenuifolium	Narrow-leaf mountain mint
21	Coreopsis tinctoria	Golden coreopsis	40	Ratibida columnifera	Mexican hat
22	Dalea purpurea	Purple prairie clover	41	Rudbeckia maxima	Giant coneflower
23	Desmanthus illinoensis	Illinois bundleflower	42	Schizachyrium scoparium	Little bluestem
24	Echinacea spp.	Coneflower	43	Silphium laciniatum	Compassplant
25	Eryngium yuccifolium	Rattlesnake master	44	Solidago spp.	Goldenrod
26	Gaillardia pulchella	Indian blanket	45	Sorghastrum nutans	Indiangrass
27	Glandularia canadensis	Rose verbena	46	Tradescantia ohiensis	Ohio spiderwort

SOURCES

- 1. Biota of North America Program. http://www.bonap.org/
- 2. Coffey, Chuck, and Stevens, Russell. 2012. Grasses of the Great Plains: A Pictorial Guide.
- 3. Denison, Edgar. 2008. Missouri Wildflowers (6th ed.).
- 4. Dole, John et al. 2004. Butterflies of Oklahoma, Kansas and North Texas.
- 5. Folley, Patricia. 2011. The Guide to Oklahoma Wildflowers.
- 6. Hatfield, Rich, et al. 2012. Conserving Bumble Bees (Xerces Society's "Bring Back the Pollinators Campaign.")
- 7. Hemmerly, Thomas. 2002. Ozark Wildflowers: An Ecological Guide to Flowering Plants in the Region.
- 8. Holm, Heather. 2014. Pollinators of Native Plants.
- 9. Kurz, Don. 1999. Ozark Wildflowers: A Field Guide to Common Ozark Wildflowers.
- 10. Ladd, Doug. 1995. Tallgrass Prairie Wildflowers: A Field Guide.
- 11. Lady Bird Johnson Wildflower Center. Austin, TX. http://www.wildflower.org/
- 12. Mader, Eric, et al. 2011. Attracting Native Pollinators: The Xerces Society Guide.
- 13. Moissett, Beatriz, and Buchmann, Stephen. 2010. Bee Basics: An Introduction to Our Native Bees.
- 14. McCoy, Doyle. 1987. Oklahoma Wildflowers.
- 15. McCoy, Doyle. 1976. Roadside Flowers of Oklahoma.
- 16. McCoy, Doyle. 1976. Roadside Flowers of Oklahoma, Vol. 2.
- 17. Phillips Petroleum Company. 1963. Pasture and Range Plants.
- 18. Prairie Moon Nursery. Winona, MN.
- 19. Redhage, David. 2014. Establishing Native Pollinator Habitat Organically: Tips from Our Experiences at Kerr Center.
- 20. Tyrl, Ronald, et al. 2008. Field Guide to Oklahoma Plants: Commonly Encountered Prairie, Shrubland, and Forest Species (2nd ed.).

KERR CENTER **RESOURCES**

The pollinator pages on the Kerr Center website, www.kerrcenter.com, include a primer on pollinator-friendly landscaping, a photo gallery, a list of frequently asked questions about pollinators, and a library that includes this publication along with:

Cover Crops as Beneficial Insect Habitats: Observations from a Demonstration Organic Market Farm

This short report by Kerr Center Horticulture Manager George Kuepper discusses using cover crops as beneficial insect habitat in rotational organic market farming, based on his experiences with the Cannon Horticulture Project.

Establishing Native Pollinator Habitat Organically: Tips from Our Experiences at Kerr Center This four-page fact sheet by David Redhage covers site selection and establishment techniques.

Flowering Periods for Select Oklahoma Wildflowers

This calendar shows flowering periods and photos for a dozen different Oklahoma wildflowers.

Native Milkweeds of Oklahoma

This table lists common and scientific names of Oklahoma's native milkweeds, where they grow in the state, and which are used as host plants for monarch butterflies.

Resource List for Native Pollinators and Plants

This is an extensive list of books, websites, and organizations with information about native plants and pollinators, as well as sources for seed and plants. The six individual resource categories are also published online as separate lists.

These lists include books on:

- Native Plant Identification
- General Plant/Landscaping
- Native Plant Propagation
 Pollinators

In addition, lists of

- Web Resources
- Seed Catalogs/Nurseries

Oklahoma Native Trees and Shrubs of Value to Pollinators

Trees and shrubs are sometimes overlooked in pollinator plantings, but many are important host plants and nectar plants.

This publication has a list of native trees and shrubs, size, bloom time, cultivation information, and commercial availability. It also includes which pollinators visit the plant, whether it is a host or nest plant and its value to other wildlife. Compiled in cooperation with the Xerces Society.





The Xerces Society for Invertebrate Conservation has a wealth of information about pollinators on its website, including books, reports/pdfs, brochures, fact sheets, etc.

A few highlights:

Farming with Native Beneficial Insects: Ecological Pest Control Solutions Attracting Native Pollinators: Protecting North America's Bees and Butterflies

Conserving Bumble Bees: Guidelines for Creating and Managing Habitat for America's Declining Pollinators

Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms

South Central Plants for Native Bees

ABOUT THE AUTHORS



David Redhage

DAVID REDHAGE

David heads the Kerr Center's Native Pollinator Enhancement Project. He has planned and coordinated the center's efforts to conserve native plants and establish habitat for the benefit of native pollinators and honey bees. He oversees management of a variety of habitats from pasture and meadows to office landscape.

In addition, he has photo-documented native plants and pollinators on the Kerr Center Ranch and written about establishing habitat for pollinators and native plants. He coordinates and presents pollinator information at educational events.

David has also been instrumental in setting up various riparian area management demonstrations and forestry projects on the Kerr Center Ranch. He has a long time interest in natural resource management.

As Chief Program Officer, David plans and manages educational programming at the Kerr Center. He is also the program manager for the USDA's Sustainable Agriculture Research and Education Program Professional Development Program, Southern Region (SSARE PDP).

David came to the Kerr Center in 1993 after receiving an M.S. in Agricultural Economics from the University of Missouri-Columbia.



Maura McDermott (left)

MAURA MCDERMOTT

Maura McDermott has a long-time interest in native plants and natural history. She has been assisting David Redhage in the photo-documentation of native plants and pollinators on the Kerr Ranch and has created the center's pollinator web pages.

Maura has been Communications Director for the Kerr Center since 1998. She is responsible for the center's website, newsletter, and public relations as well as publication production and multimedia.

Maura is co-author with Kerr Center president Jim Horne of *The Next Green Revolution: Essential Steps to a Healthy, Sustainable Agriculture,* published in 2001 by Haworth Press (now CRC). In 2005-7 she managed the Kerr Center's Oklahoma Community Foods grant/project and edited the centennial report on Oklahoma's food system, *Closer to Home: Healthier Food, Farms and Families in Oklahoma.*

KERR CENTER FOR SUSTAINABLE AGRICULTURE

The Kerr Center is a 501 (c)(3) private, non-profit educational foundation established in 1985. The home office, farm, and ranch are located near Poteau in southeastern Oklahoma.

The Kerr Center works for and with rural people and communities in Oklahoma and across the nation. Our focus is on education. The center holds educational events each year. In addition, center staff members conduct research and demonstration projects on the farm/ranch near Poteau.

The center also offers a variety of publications and web resources for use by farmers, ranchers, agriculture professionals, and leaders on the local and state level, including *Field Notes*, a free newsletter.

The Kerr Center operates on the earnings from its own endowment, grants, and donations.

Individuals may donate through the Friends of the Kerr Center program.

For complete information about Kerr Center programs, staff, and educational resources, along with a calendar of events, visit www.kerrcenter.com.







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