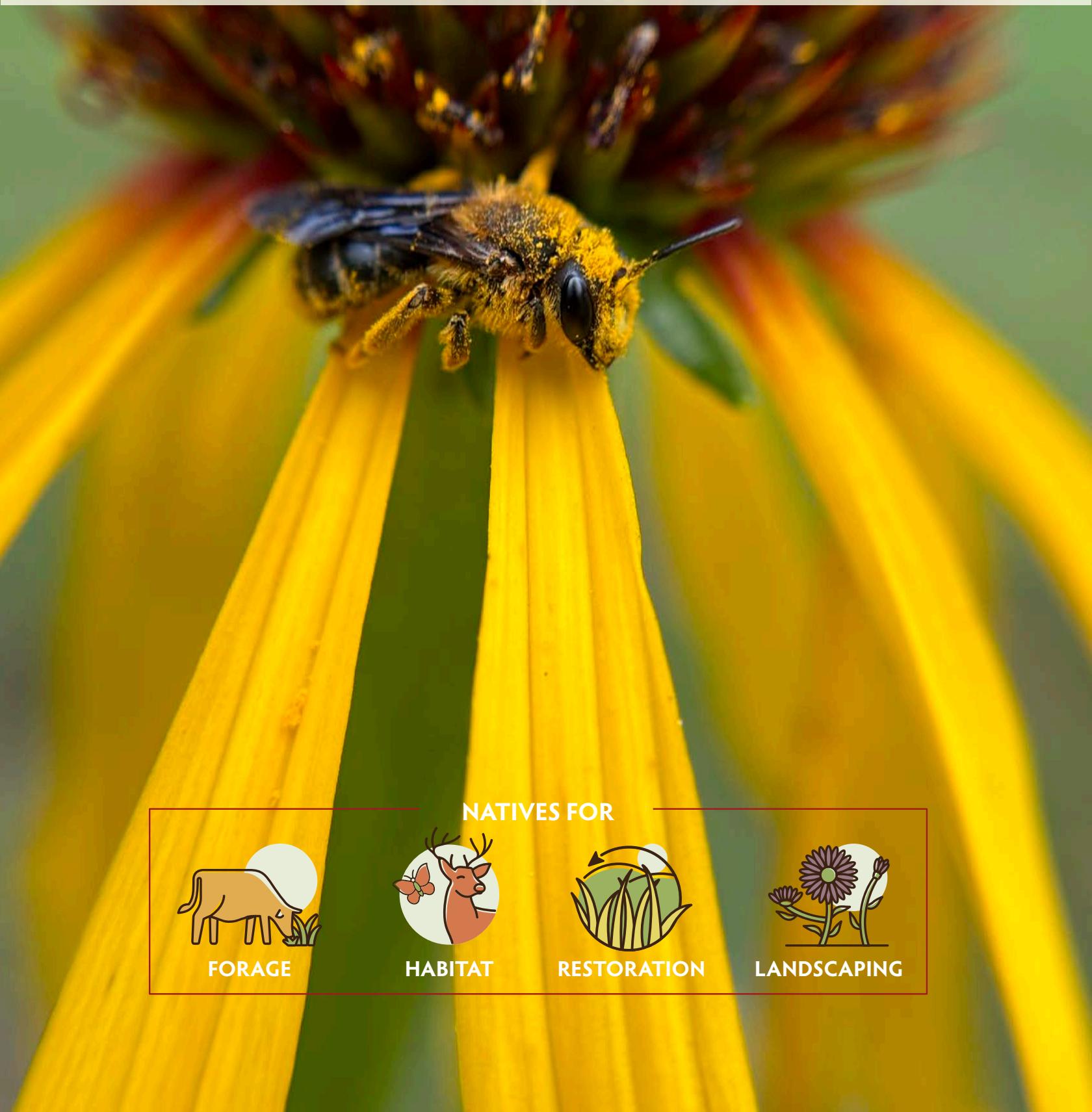


NATIVE GRASS
& WILDFLOWER
Seed



Hamilton Native Outpost

PURCHASING
& RESOURCE
Guide



WE MAKE PLANTING *native seeds* EASY

We'll take care of growing, harvesting, and cleaning seed on our family's farm. You simply follow these four steps, and soon you'll be enjoying the many benefits of a diverse grassland.



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Enjoy native plants for years to come. Learn how to manage your planting with mowing, grazing, and more.

RECOMMENDED GUIDE:

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PASTURE WALKS



Check out our schedule for upcoming pasture walks on our website and get them on your calendar!

<https://hamiltonnativeoutpost.com/field-days/>



QR CODES

Use QR codes like this throughout the guide to quickly find online resource using your phone. Test this one to visit our homepage.

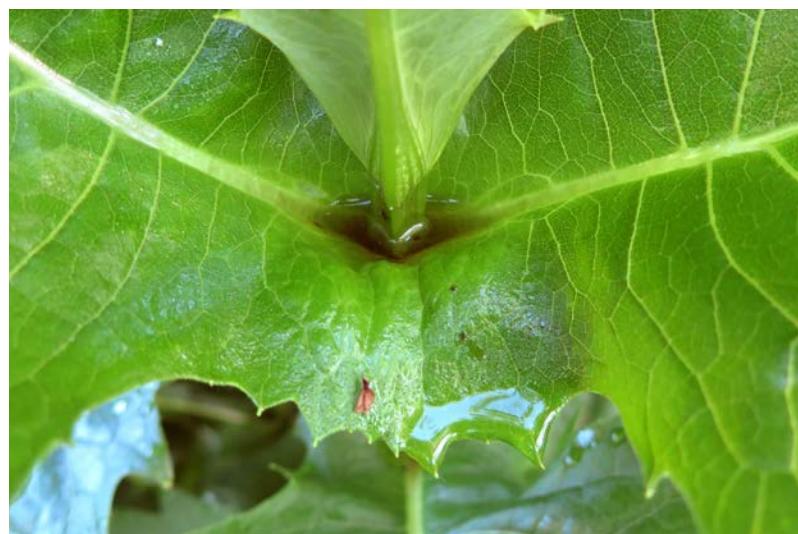
Guide to using QR Codes:

- On **iPhone**, open the camera and point it at the QR code. Tap the link above the code to open it.
- On **Android**, open the camera. Tap the cog icon and toggle on “Scan QR codes”. Point the camera at the code and click the link that pops up.

Feature Plant

CUP PLANT

Cup Plant, which is also called Carpenter's Square, is adaptable by design but mysterious in nature. It is an excellent wildlife plant due to the food and shelter it provides, but it also has an extra design element that allows it to serve as a drinking fountain. As a livestock forage, Cup Plant is wonderful for beef and dairy cattle, chickens, and honeybees (it can even be made into silage). Because the leaves cup together in such a way to hold water and the thick, square stems, this plant is quite a novelty for kids (and adults) making it a great addition to a teaching garden. A very tasty reason to grow Cup Plant is that in early spring the basal leaves can be blanched and used in the place of spinach. Medicinally, the plant was used by various Native Americans to treat many ailments ranging from head colds to rheumatism and morning sickness. It was also used for cleansing and purification before beginning a buffalo hunt or other important undertakings by the Winnebago people. In a wildflower meadow, it can serve as an intriguing vertical element and has even received awards in other countries for its landscaping qualities. One last notable use is as an energy crop to produce biogas. With all of that said, the mysterious nature of the plant begs the question, "What is the purpose behind the leaves cupping together to form a small basin to hold water?" Is the water a trap for insects that are then digested by the plant, or does it serve as a physical barrier to crawling insects hoping to move up the plant's stem, or something else? This mystery remains unsolved, but because of its adaptable design, you might find a spot for this plant in your wildlife habitat, pasture, or it may even fit nicely into a certain spot in a wildflower meadow.



Water collection at base of leaves

STATS

Latin: *Silphium perfoliatum*

Height: 6-8 feet

Sun: Full or Part Sun

Soil Moisture: Average to
Moist

Life Cycle: Perennial

Bloom Time: July – September

Root System: Fibrous

Functional Diversity Group:
Native Forb (Wildflower)



Find additional notes about
using Cup Plant in wildlife,
forage, restoration and
landscaping situations online:

[https://hamiltonnativeoutpost.com/
product/cup-plant/](https://hamiltonnativeoutpost.com/product/cup-plant/)



Packet Collections



THE Edible COLLECTION



1 PACKET EACH: Wild Bergamot, Leadplant, White Prairie Clover, Ohio Spiderwort, Eastern Gama Grass, Cup Plant, Maygrass (Combined packets cover 35 sq. ft.)

Plus *Edible Wild Plants of the Prairie* by Kelly Kindscher.

7 PACKETS + 1 BOOK FOR \$46

THE Hummingbird COLLECTION



1 PACKET EACH: Wild Bergamot, Summer Phlox, Blue Sage, Woodland Bergamot (Combined packets cover 25 sq. ft.)

5 PKTS FOR \$15

THE Honeybee COLLECTION



1 PACKET EACH: Ohio Spiderwort, Blue Indigo, Partridge Pea, Rattlesnake Master, Showy Goldenrod, New England Aster (Combined packets cover 30 sq. ft.)

6 PACKETS FOR \$18

THE Cattlemen's EXPERIMENT COLLECTION

1 PACKET EACH: Big Bluestem, Indiangrass, Eastern Gama Grass, Switchgrass, Virginia Wild Rye, and Cup Plant (Combined packets cover 30 sq. ft.)

Plus *Native Grass Forages* by Patrick Keyser

6 PACKETS + 1 BOOK FOR \$43



Contents subject to change

ENRICHING PLANTINGS THROUGH OVERSEEDING

Overseeding is a practical tool for enhancing native plantings, pastures, and meadows, boosting diversity and resilience by introducing new species into established vegetation.

You can overseed native species into an established native planting or even into an introduced cool-season grass pasture to boost the overall quality of the site. The new plants can fill in gaps between the existing plants. This approach is a practical and flexible way to increase plant diversity without starting from scratch. Overseeding can improve resilience, soil health, and visual interest while helping a planting continue to evolve and adapt over time.

WILDLIFE & POLLINATOR



For wildlife, overseeding can create a more robust and stable habitat by providing a wider range of food sources, structure, and seasonal coverage. Add forb diversity with the Wildlife Chuckwagon or Butterfly & Hummingbird Mix, or if grasses are needed, consider a Companion Grass or Hide & Sneak Mix.

LANDSCAPING



In a wildflower meadow, overseeding can bring color during natural bloom lulls or introduce distinctive and enjoyable species that add character and interest to the landscape. Choose an adapted mix such as the Dry'n Rocky (dry soils), Prairie Patchwork (average soils), Wet Meadow (wet soils), or Shadows & Sunbeams (part shade) Mix and/or add species that you love.

FORAGE



In a pasture setting, added species can extend the grazing season and offer more consistent forage throughout the year, not to mention boosting soil health and wildlife habitat. If the planting only has Native Warm Season Grasses, consider adding the Grazing Native Cool Season Grass Mix and the Grazing Native Forb & Legume Mix.

RESTORATION



Prairies, glades, and savannas each have their unique plant communities, and overseeding can add some of the species that are missing from those plantings. Choose a premade mix such as one listed for wildlife or landscaping or add species that you love.

HOW TO OVERSEED: Sow the seed, making sure to get good seed-to-soil contact. Winter is usually the best season to overseed because of the dormancy in many of the seeds. Young plantings (around 5 years or less) are the most ideal environments for overseeding because the plants are not yet grown to their full potential, but mature plantings can also be receptive. If the planting only has warm season grasses, undesirable cool season grasses can first be removed with an herbicide. For more thoughts, visit our webpage www.hamiltonnativeoutpost.com/adding-diversity-to-existing-warm-season-grasses

A NOTE CONCERNING OVERSEEDING

Any seeding project comes with a degree of uncertainty—nature always gets a vote, and no approach is completely fool-proof. With overseeding, existing vegetation can compete with new seedlings for light, moisture, and nutrients, which adds another layer of risk. That said, overseeding into young stands of native warm-season grasses is often quite successful, while attempts in older native stands or introduced cool-season pastures tend to be more experimental and less predictable.

PLANTS & MIXES GUIDE

PAGE 7 MIXES

PAGE 8-11 WILDFLOWERS

PAGE 12-13 GRASSES

USE OUR INTERACTIVE
plant list ONLINE:



MIXES

See symbol key on next page

Specialty Use	Light	Soils	SEED MIXES	Comments
	W	W	○○○ Buck's Hangout	Mix of many of the fall favorites of the whitetail deer
×	W	W	○○○ Butterfly & Hummingbird Mix	Provides pollen and nectar for native pollinators from spring through fall
■	W	W	○○○ Companion Grass Mix - Dry	Mix of grasses designed to complement a wildflower mix planted in dry soils and full sun
■	W	W	○○○ Companion Grass Mix - Mesic	Mix of grasses designed to complement a wildflower mix planted in full sun & average soils - not too wet or too dry
■	W	W	○○○ Companion Grass Mix - Wet	Mix of grasses designed to complement a wildflower mix planted in wet soils but NOT in standing water
■	W	W	○○○ Companion Grass Mix - Shade	Mix of grasses designed to complement a wildflower mix planted in part shade areas (no more than 50% shade)
×	W	W	○○○ Dry'n Rocky Mix	Showy wildflower mix that is ideal for dry or rocky sites
■	W	W	○○○○○ Firebreak Mix	Plant in area where firebreak is needed then, once established, mow in August to create a firebreak for winter burns
W	W	W	○○○○○ Hide & Seek	Tall grasses that provide shelter for wildlife, especially larger animals
×	W	W	○○○○○ Prairie Patchwork Mix	Thrives in average soil-not to dry or too wet; this mix contains prairie plants that are colorful from May to October
■	W	W	○○○○○ Shadows & Sunbeams Mix	Ideal mix for partially shaded areas such as savannas; at least 50% sun is needed for these species
■	W	W	○○○○○ Streambank Mix	Grasses & wildflowers that are adapted to the variability of a streambank; use on bare spots, banks or gravelly areas
×	W	W	○○○○○ Wet Meadow Mix	Grows well in wet areas that dry out only in the dry summer weather but are not under water for long periods
×	W	W	○○○○○ Wildlife Chuckwagon Mix	Provides great habitat for quail, turkey, other game birds, and song birds as well as small & large animals
W	W	Customizable	○○○○○ Diverse Native Grassland for Cattle Mix	Livestock forage
W	W	Customizable	○○○○○ Native Warm Season Grass for Hay Mix	Hay for livestock
W	W	Customizable	○○○○○ Native Warm Season Grass Grazing Mix	Livestock forage
W	W	Customizable	○○○○○ Native Cool Season Overseeding Mix	Livestock forage



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- See plant photos
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SYMBOL KEY	LIGHT		Full Sun		Full Sun to Part Shade		● Full to Part Shade		SPECIALTY USES						
	Soils	Soil Type	Soils	Soil Type	Soils	Soil Type	Soils	Soil Type	Butterfly	Hummingbird	Cut Flower	Medicinal	Tea	Wildlife	Landscaping
PALATABILITY	m	Good	g	Average	g	Moist	g	Wet							

WILDFLOWERS

Specialty Use	Height	Blooms	Light	Soils	WILDFLOWERS	Color	Comments
m	36"-60"	Jul-Aug	g	g	Agrimony, Many-Flowered (<i>Agrimonia parviflora</i>)	■	This plant loves very moist soils and is also called Swamp Agrimony; it has a host of medicinal uses
×	30"-48"	Aug-Sep	g	g	Aster, False (Boltonia asteroides)	■	Prolific flowers are great pollen & nectar source for many pollinators; ray petals range from white to pink
w	36"-60"	Sep-Oct	g	g	Aster, Frost (Aster pilosus)	■	The mass of flowers on this aster draws many pollinators, especially bees; palatable to cattle & deer
m	48"-60"	Sep-Oct	g	g	Aster, New England (<i>Aster novae-angliae</i>)	■	Great nectar source for migrating monarchs; for compact plants, cut back before July 4th
m	24"-36"	Sep-Oct	g	g	Aster, Sky Blue (<i>Aster oolentangiensis</i>)	■	Beautiful sky blue blooms; turkeys relish the blooms; very drought tolerant
m w	18"-32"	Sep-Oct	g	g	Aster, Smooth Blue (<i>Aster laevis</i>)	■	Loved by birds for the seeds & leaves, mammalian herbivores for the young leaves and bees for the flowers
■	10"-15"	May-Jun	g	g	Barbara's Button (<i>Marshallia caespitosa</i>)	■	Short wildflower with showy, fragrant blooms
■	24"-30"	Jun-Jul	g	g	Beardtongue, Prairie (<i>Penstemon tubaeflorus</i>)	□	Immaculate white flowers on dense spike; pleasing color contrast with poppy mallow
g	18"-24"	May-Jun	g	g	Beardtongue, Purple (<i>Penstemon cobaea</i>)	■	Bell-shaped flowers are fun for kids to wear on fingers; loves VERY dry sites
g	24"-30"	Jun-Jul	g	g	Beardtongue, White (<i>Penstemon digitalis</i>)	□	Grow almost anywhere & establish quickly; penstemon bee (<i>Osmia distincta</i>) relies on beardtongue for food
g	30"-48"	Jun-Jul	g	g	Bergamot, Wild (<i>Monarda fistulosa</i>)	■	Attracts a variety of pollinators; fibrous shallow root system is great for erosion control
m	12"-18"	May-Jun	g	g	Bergamot, Woodland (<i>Monarda bradburiana</i>)	■	Early bloomer with attractive bronze foliage; not invasive like some horticultural monardas
g	18"-24"	Jun-Aug	g	g	Black-eyed Susan, Common (<i>Rudbeckia hirta</i>)	■	Blooms 1st or 2nd year; reseeds itself; black-eyed susans are primary pollen source for 2 bee species
g	48"-60"	Aug-Sep	g	g	Black-eyed Susan, Sweet (<i>Rudbeckia subtomentosa</i>)	■	Big black-eyed Susan with beautiful form and lots of flowers; great for rain gardens
m	30"-36"	Aug-Sep	g	g	Blazing Star, Button (<i>Liatris aspera</i>)	■	Miniature purple and green cabbage-like buds; great nectar source for butterflies
m	18"-24"	Aug-Sep	g	g	Blazing Star, Glade (<i>Liatris mucronata</i>)	■	Thin, narrow leaves give the appearance of a graceful, young pine tree before it is crowded with purple flowers
m	24"-48"	Jul-Aug	g	g	Blazing Star, Marsh (<i>Liatris spicata</i>)	■	Small, purple flowers crowd together to make a striking purple wand; this Blazing Star like wet soils
m	36"-42"	Jul-Aug	g	g	Blazing Star, Prairie (<i>Liatris pycnostachya</i>)	■	Delightful purple spikes are an icon of the prairie; palatable to herbivores; nectar & pollen for pollinators
m	36"-54"	Aug-Sep	g	g	Brown-eyed Susan (<i>Rudbeckia triloba</i>)	■	Petals have ultraviolet reflecting patterns that are visual cues to pollinators; seeds heads smell like citrus
■	36"-48"	Jun-Jul	g	g	Bunchflower (<i>Melanthium virginicum</i>)	■	Beautiful creamy flowers on elongate candelabra-like spikes; one of our favorites
■	72"-120"	Jun-Aug	g	g	Buttonbush (<i>Cephalanthus occidentalis</i>)	■	Great shrub for wet soils or rain gardens; distinctive aromatic, ball-shaped flower attracts butterflies
■	30"-36"	Aug-Sep	g	g	Cardinal Flower (<i>Lobelia cardinalis</i>)	■	Great for grabbing attention and hummingbirds; find a home for this short-lived perennial
m w	24"-36"	May-Jul	g	g	Crinquefoil, Prairie (<i>Potentilla arguta</i>)	■	Flowers have special ultraviolet reflecting patterns that are visible to most pollinators
m w	48"-72"	Jul-Aug	g	g	Compass Plant (<i>Silphium laciniatum</i>)	■	Indian children chewed the dried sap as gum; dissected leaves are oriented north/south

    	30"-42" 	Jun-Jul		Coneflower, Gray-headed (<i>Ratibida pinnata</i>)	 Yellow flower petals of this easy to grow plant dance in summer breezes
    	24"-30" 	May-Jun		Coneflower, Pale Purple (<i>Echinacea pallida</i>)	 Emblem of the prairie; a primary pollen source for coneflower bee (<i>Andrena helianthiformis</i>)
    	24"-36" 	Jun-Sep		Coneflower, Purple (<i>Echinacea purpurea</i>)	 A butterfly favorite; goldfinches love the seeds; blooms mid-summer and again in early fall
    	18"-30" 	Jun-Aug		Coneflower, Upright Prairie (<i>Ratibida columnifera</i>)	 Similar to the taller Gray-headed Coneflower; this species establishes quickly but is often short lived
    	24"-48" 	Jun-Sep		Coreopsis, Plains (<i>Coreopsis tinctoria</i>)	 Annual with many bright flowers and inconspicuous leaves; blooms 1st year in plantings
    	36"-72" 	Jul-Aug		Coreopsis, Tall (<i>Coreopsis tripteris</i>)	 Flower and seed heads have anise or dill scent; good in tall raingardens
    	18"-24" 	May-Jun		Coreopsis, Tickseed (<i>Coreopsis lanceolata</i>)	 Blooms 2 nd year; ground cover on dry sites; primary pollen source for coreopsis bee (<i>Andrena beareri</i>)
    	48"-60" 	Jul-Sep		Culver's Root (<i>Veronicastrum virginicum</i>)	 Unique candelabra-shaped spikes and attractive foliage; a good rain garden plant
    	72"-96" 	Jul-Sep		Cup Plant (<i>Staphium perfoliatum</i>)	 Square stems with cupping leaves lend a verticality to this raingarden and wildlife plant
    	24"-30" 	May-Jul		Flag, Southern Blue (<i>Iris virginica</i>)	 Attractive sword-like leaves and blue flowers; great plant for pond edges and pools
    	48"-84" 	Sep-Oct		Gaura, Large-Flowered (<i>Gaura longiflora</i>)	 Seeds eaten by wildlife; leaves eaten by herbivores & turn red in fall; also called Butterfly Flower
    	8"-12" 	Jun		Goat's Rue (<i>Tephrosia virginiana</i>)	 Legume; silvery foliage with pink & cream flowers; <i>Tephrosia</i> is pollen source for Megachile addenda bees
    	18"-24" 	May-Jun		Golden Alexanders (<i>Zizia aurea</i>)	 Host plant for MO woodland swallowtail butterfly; long bloom time; a favorite of the ziziae bee (<i>Andrena ziziae</i>)
    	18"-24" 	Sep-Oct		Goldentrod, Gray (<i>Solidago nemoralis</i>)	 Late bloomers with dense yellow flowers; great nectar source for migrating butterflies
    	24"-40" 	Sep-Oct		Goldentrod, Rigid (<i>Solidago rigida</i>)	 Bright yellow flowers are delightful with blue sage; a favorite finch food
    	20"-40" 	Sep-Oct		Goldentrod, Showy (<i>Solidago speciosa</i>)	 This brave plant blooms in the hot, late-summer lull, and the flowers are loved by migrating Monarch butterflies
    	18"-30" 	May-Jun		Hyacinth, Prairie (<i>Camassia esculenta</i>)	 Early bloomer that grow between larger plants and fades from view as summer progresses
    	9"-12" 	Apr-May		Hyacinth, Wild (<i>Camassia scilloides</i>)	 Dry-loving, beautiful hyacinth remains short and blooms very early; it also has a edible bulb
    	24"-36" 	Jul		Illinois Bundleflower (<i>Desmanthus illinoensis</i>)	 Uniquely shaped seed pods of this legume are great wildlife food
    	12"-18" 	May		Indian Paintbrush (<i>Castilleja coccinea</i>)	 Spring wetness, summer dryness, and late-summer mowing favor this hard-to-grow species
    	W 	60"-100' May-Jun		Indigo Bush (<i>Amorpha fruticosa</i>)	 Quail use as covery headquarters; silver spotted skipper host plant; 2 bee species depend on <i>Amorpha</i> species
    	24"-36" 	May		Indigo, Blue (<i>Baptisia australis</i>)	 Ball-shaped plant can be used as a shrub; indigos host the wild indigo dusky wing butterflies
    	18"-30" 	Apr-Jun		Indigo, Creamy (<i>Baptisia bracteata</i>)	 Spring favorite of queen bumblebees; seeds dispersed by rolling plants; also called <i>Baptisia leucophaea</i>
    	48"-60" 	Jun-Jul		Indigo, White (<i>Baptisia alba</i>)	 The two foot spike blooms white then black seed pods add interest to winter landscape
    	48"-84" 	Aug-Sep		Ironweed, Giant (<i>Vernonia gigantea</i>)	 Very tall plant with showy blooms that attract a variety of bees and butterflies; also called <i>Vernonia altissima</i>
    	30"-54" 	Jul-Sep		Ironweed, Western (<i>Vernonia baldwinii</i>)	 The bright purple flowers attract butterflies, bumblebees, and other native bees; one of the shorter ironweeds
    	50"-100' 	Sep-Oct		Ironweed, Yellow (<i>Verbesina alternifolia</i>)	 More closely related to Y. Wingsstem than ironweeds (<i>Vernonia spp.</i>); loved by pollinators especially bumblebees
    	40"-75" 	Aug-Sep		Joe Pye Weed, Spotted (<i>Eutrochium maculatum</i>)	 Flowers attract native bees, honey bees, & butterflies; tolerates waterlogged soils; one of the shorter ironweeds
    	60"-84" 	Jul-Sep		Joe Pye Weed, Sweet (<i>Eutrochium purpureum</i>)	 Sweet-smelling flowers are scented of vanilla and loved by bees & butterflies; formerly <i>Eupatorium purpureum</i>
    	18"-24" 	Jun-Jul		Leadplant (<i>Amorpha canescens</i>)	 Purple flower spikes with bright orange stamens atop silvery foliage; 2 bee species depend on <i>Amorpha</i> species
    	24"-36" 	Aug-Sep		Lespedeza, Roundhead (<i>Lespedeza capitata</i>)	 Great wildlife plant; dark brown seed heads remain showy into winter and are good dried flowers
    	18"-24" 	Aug-Sep		Lespedeza, Slender (<i>Lespedeza virginica</i>)	 This legume retains its seed above snow making it a good wildlife survival food

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SYMBOL KEY	LIGHT			Full Sun			Full Sun to Part Shade			● Full to Part Shade		
	Soils	Soils	Soils	Soils	Soils	Soils	Soils	Soils	Soils	Soils	Soils	Soils
PALATABILITY	Good	Average	Dry	Moist	Wet							
Medicinal												
Tea												
Wildlife												
Landscaping												
Butterfly												
Hummingbird												
Cut Flower												
Edible												

WILDFLOWERS (CONTINUED)

Specialty Use	Height	Blooms	Light	Soils	WILDFLOWERS	Color	Comments
	30"-36"	Aug-Oct			Lobelia, Blue (<i>Lobelia siphilitica</i>)		Blue cousin to cardinal flower, they look good together; used by an Indian tribe as love medicine
	36"-72"	Jun-Jul			Meadow Rue, Waxy (<i>Thalictrum revolutum</i>)		A tall plant whose flowers have feathery stamens that dance in the wind
	36"-60"	Jun-Jul			Milk Vetch, Canada (<i>Astragalus canadensis</i>)		Bumblebees are the primary pollinator; foliage is highly palatable to deer, rabbits, livestock & other mammals
	18"-24"	Jun-Jul			Milkweed, Butterly (<i>Asclepias tuberosa</i>)		Host plant for monarch and other caterpillars; pretty partner with rattlesnake master
	48"-60"	Jun-Aug			Milkweed, Common (<i>Asclepias syriaca</i>)		Easy-to-establish milkweed; host plant for monarch caterpillars; fragrant blooms are pollinator magnets
	18"-30"	May-Jun			Milkweed, Spider (<i>Asclepias viridis</i>)		Early blooming milkweed; foliage consumed by monarch caterpillars; stem with pods used for dried bouquets
	48"-60"	Aug-Sep			Milkweed, Swamp (<i>Asclepias incarnata</i>)		A favorite host plant for monarch caterpillars; great nectar source; a widespread milkweed in wet soils
	24"-36"	May-Jun			Mint, Lemon (<i>Monarda citriodora</i>)		Plant has a lemon or oregano fragrance and is a natural insect repellent
	16"-30"	May-Jul			Mint, Ohio (<i>Blephilia ciliata</i>)		Interesting pagoda-like seed structures; blooms attract many pollinators including honey & bumble bees
	20"-30"	Jun-Jul			Mint, Spotted (<i>Monarda punctata</i>)		The leaf-like bracts in the flower head are showy, but to bees and butterflies the small flowers are attractive
	24"-40"	Jul-Sep			Monkey Flower, Allegheny (<i>Mimulus ringens</i>)		The name comes from the lilac-colored flowers that resemble a monkey's face, and this plant loves wet soils
	12"-36"	Jul-Sep			Monkey Flower, Winged (<i>Mimulus alatus</i>)		The name comes from the pale violet or pink-colored flowers that resemble a monkey's face, and this plant loves wet soils
	24"-48"	Jul-Sep			Mountain Mint, Hairy (<i>Pycnanthemum pilosum</i>)		Delightful minty smell; flowers loved by butterflies, honeybees, and native bees
	24"-30"	Jul-Aug			Mountain Mint, Slender (<i>Pycnanthemum tenuifolium</i>)		Pleasant mint smell; good in tea; slow spreading
	24"-36"	Jul-Aug			Mountain Mint, Virginia (<i>Pycnanthemum virginianum</i>)		The flowers are loved by pollinators including honeybees, and the leaves have a minty fragrance
	18"-24"	Jun			New Jersey Tea (<i>Ceanothus americanus</i>)		After Boston Tea Party, colonists used leaves for tea; deer & turkey eat leaves; plant "fixes" nitrogen
	36"-48"	Apr-May			New Jersey Tea, Red Root (<i>Ceanothus herbaceus</i>)		Also called Inland or Narrow-Leaved New Jersey Tea, the flowers attract pollinators & the leaves can be made into a tea
	30"-45"	Jun			Obedient Plant, Early (<i>Physostegia angustifolia</i>)		The flowers are "obedient" to the wind and blow around the stem to make an easier pollinator perch
	18"-24"	Aug-Sep			Obedient Plant, Fall (<i>Physostegia virginiana</i>)		The flowers are "obedient" to the wind making it an easier pollinator perch
	8"-18"	Aug			Partridge Pea (<i>Chamaecrista fasciata</i>)		Blooms the 1st year in plantings; great wildlife food; host for sulphur butterflies; fixes nitrogen
	30"-36"	Jul-Aug			Phlox, Summer (<i>Phlox paniculata</i>)		Likes shade; bright pink flowers in summer will provide nectar for butterflies; also called Garden Phlox
	15"-30"	Jun-Sep			Pickertel Weed (<i>Pontederia cordata</i>)		Water plant with beautiful leaves & blooms that are loved not only by people but also by bees including two rare bees
	6"-12"	Jun-Aug			Plantain, Large-Bracted (<i>Plantago aristata</i>)		Annual, low-growing plant with a taproot and grass-like leaves that loves disturbance or dry sites
	36"-48"	Jun-Aug			Poppy Mallow, Fringed (<i>Callirhoe digitata</i>)		Magenta flowers appear to float in the air because the leaves are basal
	12"-24"	Jun-Jul			Poppy Mallow, Purple (<i>Callirhoe involucrata</i>)		Plant in bunches for best effect; deadhead tickseed coreopsis for a striking combination
	18"-24"	Jun			Prarie Clover, Purple (<i>Dalea purpureum</i>)		Legume with attractive, fern-like foliage topped with unique purple flowers
	18"-24"	Jun-Jul			Prarie Clover, White (<i>Dalea candidum</i>)		White flowers, larger leaves, and taller plants distinguish this from purple prairie clover

		48"-72"	Aug-Sep	Prairie Dock (Silphium terebinthinaceum)	Enormous leaves can be used to shade garden transplants
		36"-72"	Jun-Sep	Primrose, Common Evening (Oenothera biennis)	Biennial plant with lemon colored & scented flowers pollinated mostly at night by moths; primroses are only pollen source for 2 bee species
		9"	May-Jul	Primrose, Missouri (Oenothera macrocarpa)	Flower opens at dusk & is pollinated by sphinx moths; primroses are only pollen source for 2 bee species
		18"-24"	Jun-Jul	Quinine, Wild (Parthenium integrifolium)	With a long bloom time, it is good paired with other June and July bloomers
		8-12"	Jul-Aug	Rattlebox (Crotalaria sagittalis)	Summer annual legume with yellow flowers that produce an inflated pod that rattles; doesn't like tall competition
		24"-36"	Jul-Aug	Rattlesnake Master (Eryngium yuccifolium)	Yucca-like leaves are reminiscent of the Southwest and can be used to make cordage
		40"-60"	Jul-Aug	Rosin Weed (Silphium integrifolium)	Sunflower-like flowers; one of nature's natural bird seed producers
		30"-42"	Aug-Sep	Sage, Blue (Salvia azurea)	Primary pollen source for salvia bee in Great Plains; pretty with rigid goldenrod & sweet black-eyed susan
		12"-16"	May-Jun	Sampson's Snakeroot (Orbexilum pendulculatum)	Legume; tolerates variety of shade & soils; psoraleae bee collects pollen only from this genus & <i>Psoralea/tilia</i>
		12"-36"	Jun-Aug	Seed Box (Ludwigia alternifolia)	Unique squatish seed pods, reddish foliage and four-petaled yellow flowers
		36"-48"	Jul-Aug	Senna, Wild (Senna marilandica)	Eaten by caterpillars of sleepy orange and silver-spotted skipper butterflies; seeds eaten by wildlife
		12"-16"	Jun-Jul	Sensitive Brier (Mimosa quadrivalvis)	Legume; tolerates variety of shade & soils; psoraleae bee collects pollen only from this genus & <i>Psoralea/tilia</i>
		36"-48"	Aug-Oct	Sneezeweed (Helenium autumnale)	A great kid plant because the leaves fold-up when touched; good quail and turkey food
		24"-36"	Jun-Jul	Spiderwort, Ohio (Tradescantia virginiana)	The yellow daisy-looking flowers don't cause sneezing rather the name comes from medicinal use as a stuff
		24"-36"	Jun-Aug	Spurge, Flowering (Euphorbia corollata)	Delightful addition to plantings and a wonderful attractant to honeybees; prolific in flower beds
		20"-30"	Jun-Jul	St. John's Wort, Round-Fruited (H. sphaerocarpum)	Small, white blooms throughout most of the summer
		30"-36"	Aug	Sunflower, Ashy (Helianthus mollis)	Vibrant yellow flowers on a plant with a variety of medicinal uses
		60"-108"	Aug-Sep	Sunflower, Maximilian (Helianthus maximiliani)	Spreads by underground stems making it good for erosion control; bird seed
		48"-96"	Aug-Oct	Sunflower, Narrow-Leaved (Helianthus angustifolius)	Great wildlife plant with large, nutritious seeds
		36"-48"	Jun-Sep	Sunflower, Maximillian (Helianthus maximiliani)	Sunflower that loves wet sites, has showy flowers, and produces seeds relished by birds
		40"-140"	Aug-Oct	Sunflower, Sawtooth (Helianthus grosseserratus)	Long bloom time; the yellow flowers are pretty with purple flowers; not as aggressive as true sunflowers
		36"-48"	Aug-Sep	Sunflower, Ox-eye (Helianthus heterothoides)	Pollen & nectar are a favorite of pollinators, birds eat the seeds, and foliage is palatable to herbivores
		48"-72"	Aug-Sep	Sunflower, Tickseed (Bidens aristosa)	Flowers as bright as the sun; moist habitats; quail, ducks, and songbirds eat seeds; rabbits eat plants
		25"-40"	Jul-Sep	Sunflower, Willowleaf (Helianthus salicifolius)	Graceful, willowy foliage looks best when planted on dry sites; bird seed
		48"-72"	Jul-Aug	Tick Trefoil, Pinnocle (Desmodium paniculatum)	Seeds of this nitrogen-fixing plant are eaten by wildlife; this Tick Trefoil loves some shade but also full sun
		36"-60"	Aug	Tick Trefoil, Showy (Desmodium canadense)	Foliage eaten by herbivores, seeds by small animals, and pollen & nectar by many pollinators
		6"-12"	Apr-Sep	Tick Trefoil, Smooth (Desmodium glabellum)	Seeds of this legume provide for birds like quail & turkey, mammals, including deer, rabbits, & livestock, dine on leaves
		60"-72"	Jul-Sep	Verbena, Rose (Glandularia canadensis)	Fragrant blooms in spring & fall attract butterflies; quickly covers a large area but is a short-lived perennial
		24"-36"	Jul-Sep	Verbena, Blue (Verbena hastata)	Tall plant suited best to moist sites in meadow plantings
		4"-6"	Apr-May	Venenaria, Hoary (Verbena stricta)	Birds eat seeds of this plant; mammals including livestock generally don't consume foliage because it is bitter
		45"-70"	Aug-Sep	Violet, Birdsfoot (Viola pedata)	Loves gravelly, dry soils; host plant for many of the fritillary butterflies
		36"-54"	May-Oct	Wingstem, White (Verbesina virginica)	Famous for "frostflowers" or "ice ribbons" in the winter, but the white flowers in late summer are loved by butterflies
		20"-30"	Jun-Aug	Wingstem, Yellow (Verbesina helianthoides)	Quail, songbirds, and small mammals eat seeds; pretty in plantings
		20"-30"	Jun-Aug	Yarrow (Achillea millefolium)	Fenny foliage; white flowers attract butterflies; considered to be highly medicinal

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PLANT GUIDE

SYMBOL KEY	LIGHT			Full Sun			Full Sun to Part Shade			● Full to Part Shade			SPECIALTY USES				
	SOILS			Wet			Moist			Dry				Butterfly	Hummingbird	Cut Flower	
	PALATABILITY			Poor			Fair			Good				Medicinal	Tea	Wildlife	Landscaping

GRASSES & GRASS-LIKE

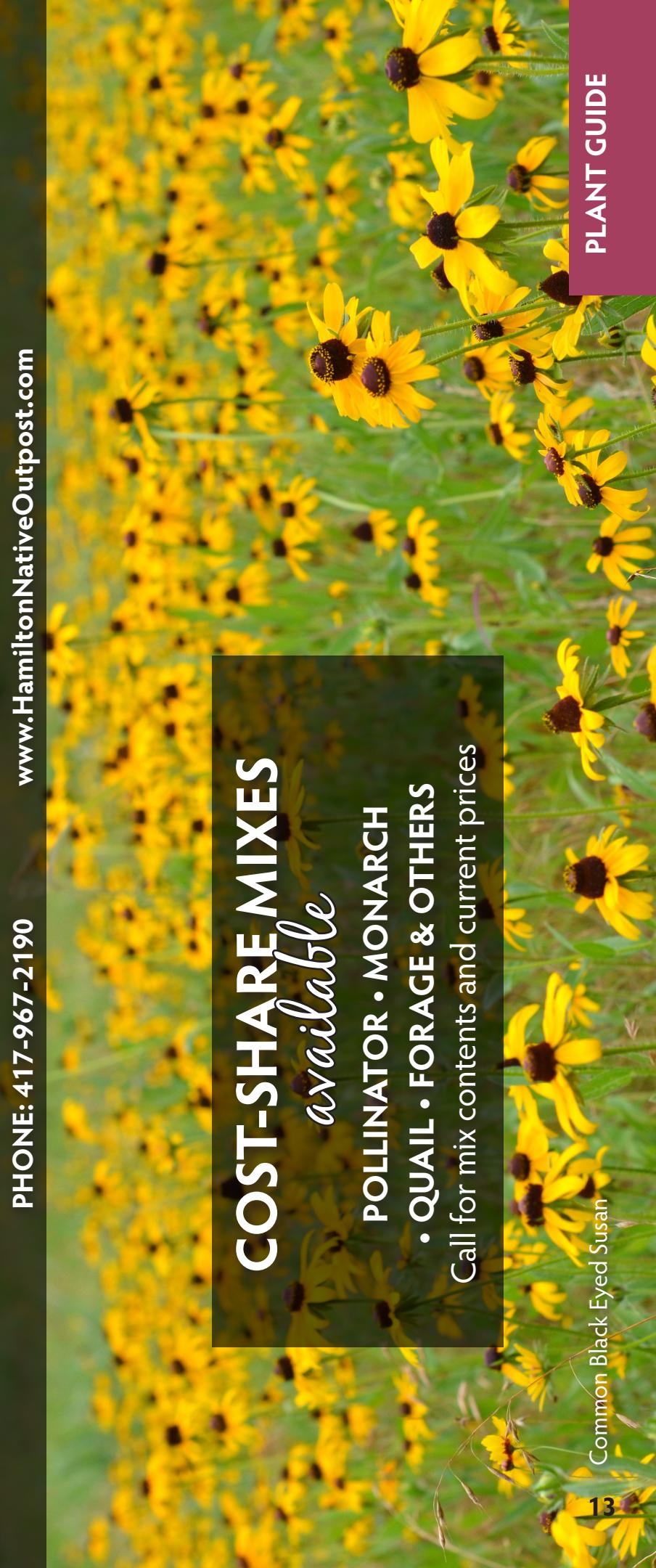
Specialty Use	Height	Blooms	Light	Soils	GRASSES & GRASS-LIKE	Winter Color	Comments
	30"-40"	Jun	●		Beakgrain (<i>Diarrhena obovata</i>)		Likes more shade than most grasses with dark green leaf blades
	16"-22"	Apr-May			Bentgrass, Winter (<i>Agrostis hyemalis</i>)		Airy pink seed heads are most attractive in dense stands; seedheads break off & roll along the ground to spread seed
	60"-72"	Jul-Aug			Big Bluestem (<i>Andropogon gerardii</i>) PLS		Missouri's state grass; good wildlife habitat and food for 3 caterpillars & excellent warm season forage for livestock
	36"-48"	Jun-Jul			Bottlebrush Grass (<i>Elymus hystrix</i>)		Cool season grass with unique, pale-green seed heads; perfect for savannas and edges of woods
	24"-36"	Aug-Sep			Broomsedge (<i>Andropogon virginicus</i>)		Beautiful orange winter color; short companion grass tolerating a wide variety of soils
	4"-8"	Jul-Aug			Buffalograss (<i>Buchloe dactyloides</i>)		Low-growing grass that loves dry sites and foot traffic; often planted in lawns
	W	May-Jun			Bulrush, Dark Green (<i>Scirpus atrovirens</i>)		Leaves are eaten by everything from trumpeter swans to livestock; seeds eaten by voles and birds
	W	May-Jun			Bulrush, Nodding (<i>Scirpus pendulus</i>)		Elegant drooping seed heads; seeds & heads eaten by waterfowl & voles; culms & rootstocks eaten by muskrats
	W	Aug-Sep			Cutgrass, Rice (<i>Leersia oryzoides</i>)		A native cool season grass; forage is palatable and seeds are excellent for mammals, waterfowl & other birds
	12"-18"	Aug-Sep			Dropseed, Prairie (<i>Sporobolus heterolepis</i>)		Attractive, fine, fountain-like foliage; great plant for formal borders
	24"-36"	Aug			Dropseed, Tall (<i>Sporobolus compositus</i>)		Spike-like, erect plants with tan winter color; drought-resistant, warm-season grass
	48"-60"	Jun-Jul			Eastern Gamagrass (<i>Tripsacum dactyloides</i>) PLS		Large grass suitable for wildlife cover and forage; host of the golden bryssus butterfly
	18"-30"	Jun-Jul			Fescue, Cluster (<i>Festuca paradoxa</i>)		Native, short, cool-season fescue is green when many other natives are dormant; biennial life cycle
	36"-60"	May			Fescue, Texas (<i>Festuca versuta</i>)		At tall, lanky native fescue with a perennial life cycle; little known but it may be more common than once realized
	24"-42"	May-Jun			Fowl Manna Grass (<i>Glyceria striata</i>)		Palatable to livestock and geese; this grass requires more moisture in sunnier areas
	48"-60"	Aug-Sep			Indiangrass (<i>Sorghastrum nutans</i>) PLS		Establishes quickly in plantings; golden plume-like seed head
	16"-24"	May-Jun			June Grass (<i>Koeleria macrantha</i>)		Compact, cool-season grass; adds diversity to wildlife plantings; common in high-quality prairies
	24"-36"	Aug-Sep			Little Bluestem (<i>Schizachyrium scoparium</i>) PLS		Bronze-orange winter color with silvery seeds; great for wildlife plantings
	10"-40"	May-Jun			May Grass (<i>Phalaris caroliniana</i>)		Annual, cool season grass that was historically an important foodsource for the Native Americans
	24"-36"	Jul			Panicgrass, Beaked (<i>Panicum anceps</i>)		Relatively short grass typically inhabiting moist areas
	W	24"-40"	Jun; Sep		Panicgrass, Deer Tongue (<i>Panicum clandestinum</i>)		Seed is food for many birds and small mammals; foliage palatable to larger mammals, caterpillars, & other insects
	W	24"-36"	May-Jun		Porcupine Grass (<i>Stipa spartea</i>)		A cool season grass with a most unique seed - it has a 3-8 inch "tail" that twists and drives the seed into the soil
	3"-6"	Jun			Poverty Grass (<i>Danthonia spicata</i>)		Short grass grows well on dry, rocky, poor soils; great in dry lawns with full sun or partial shade
	30"-48"	Aug-Sep			Purple Top (<i>Tridens flavus</i>)		Fine, purple seed heads; establishes quickly in plantings; seeds are wildlife food
	18"-24"	Jul-Aug			River Oats (<i>Chasmanthium latifolium</i>)		Flattened, arching seed heads are pretty dried; seeds are wildlife food; good soil stabilizer
	12"-18"	May-Aug			Rush, Beaked (<i>Rhynchospora globularis</i>)		Plant in the sedge family is a desirable component of wet prairie meadows
	W	25"-36"	May-Jun		Sedge, Fox (<i>Carex vulpinoidea</i>)		Forms attractive tuft of narrow leaves; leaves eaten by herbivores & insects; seeds eaten by wetland birds

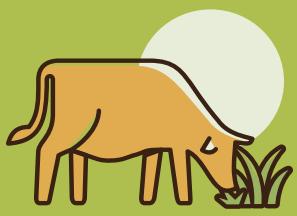
	W	24"-36"	Jun-Jul		Sedge, Frank's (Carex frankii)		Provides food for waterfowl, songbirds & muskrats; wide-bladed leaves are palatable to livestock
	W	24"-36"	May-Jun		Sedge, Hop (Carex lupulina)		Ornamental, spiky seed heads; seeds eaten by many birds and foliage by insects, water turtles, and deer
	W	18"-30"	May-Jun		Sedge, Porcupine (Carex hystericina)		Drooping seed heads and arching leaves; seeds eaten by many birds and foliage by livestock and muskrats
	W	18"-24"	Jul-Sep		Sideoats Grama (Bouteloua curtipendula) PLS		Establishes quickly in plantings and, being short, it shows off wildflowers
	W	24"-30"	Sep-Oct		Split Beard (Andropogon ternarius)		Silvery-white seed heads impart superb fall and winter color; great in dried bouquets
	W	48"-60"	Jul-Aug		Switchgrass (Panicum virgatum) PLS		Rusty-red winter color and fine seed heads that attractively collect frost in winter
	W	24"-36"	May-Jun		Wedge Grass, Prairie (Sphenopholis obtusata)		Easily overlooked species except when it has a seed head; palatable to horses, cattle & other livestock
	W	36"-48"	Jun-Jul		Wild Rye, Canada (Elymus canadensis) PLS		Nodding head with recurved awns persist into winter; leaves are good winter wildlife food
	W	24"-30"	May-Jun		Wild Rye, Early (Elymus macgregorii)		Blooms about a month earlier than other wild ryes; often in bottomland soils; foliage eaten by livestock
	W	36"-48"	Jun-Jul		Wild Rye, P. (Elymus glaberrimus) PLS		Green leaves are a good winter wildlife food; establishes quickly in plantings
	W	36"-48"	Jun-Jul		Wild Rye, Southeast (E. virginicus var glaberrimus) PLS		Green leaves are a good winter wildlife food; establishes quickly in plantings
	W	12"-36"	Aug-Oct		Witch Grass (Panicum capillare)		Annual grass forms tumbleweed in fall; upland gamebirds & songbirds eat seeds; herbivores eat foliage
	W	36"-60"	Aug		Wood Reed, Sweet (Cinna arundinacea)		An excellent plant in a woodland with wet soils; it keeps the green color well in the dormant season

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FORAGE

WARM SEASON GRASSES *and*
DIVERSE NATIVE GRASSLANDS

DIVERSE NATIVE
GRASSLANDS CAN
PRODUCE *twice* AS
MUCH FORAGE...
WHICH IS LIKE
doubling THE SIZE
OF A RANCH!

FORAGE & GRAZING

Native grasslands provide excellent benefits to the rancher, wildlife, and soil. Modern cattle and livestock love the nutrient-rich grasses that sustained the bison for centuries.

TWO APPROACHES

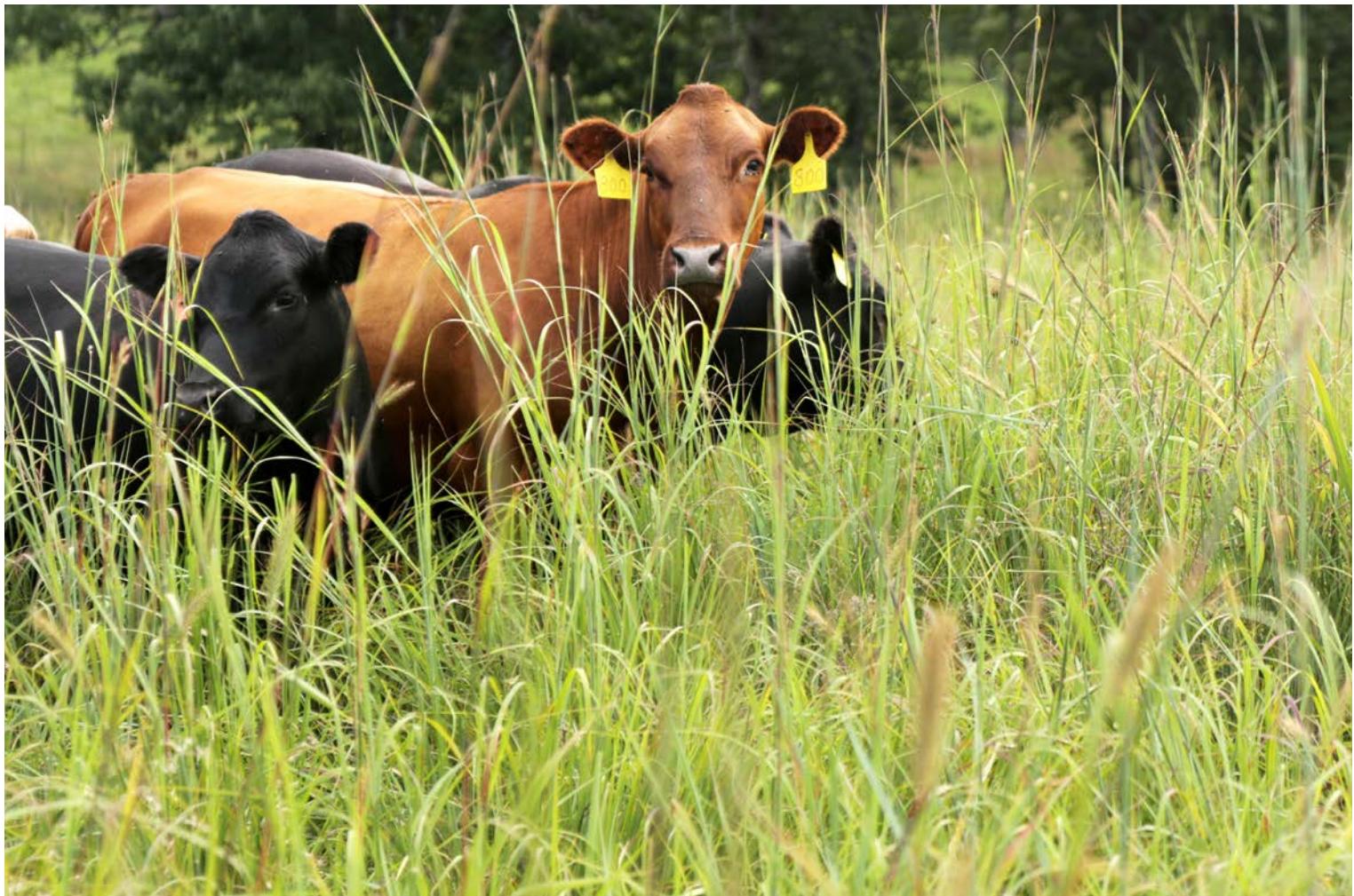
There are two approaches to planting natives for grazing. The **High Diversity Option** consists of planting an assortment of native species including warm season grasses, cool season grasses, legumes, and other forbs. The **Low Diversity Option** involves planting one or two species of the native warm season grasses in a pasture.

We believe that the **High Diversity Option** maximizes the benefits of native planting. However, a few added challenges in establishment and management of the diversity lead some to prefer the **Low Diversity Option**.

Learn more about the two options on the following pages.

GRAZING NATIVE GRASSLANDS

Native grasslands must be grazed with care, but this does not mean that they are weak or unproductive – because truth be told, they are neither. The issue is simply that native warm season grasses are built differently than other forage plants. The growth point is higher. Simply put, taller plants must be managed taller. Various grazing methods exist, with managed grazing systems (regenerative, adaptive, management-intensive, cell, etc.) being the best, but even some continuous grazing systems with monitoring can work. Mostly, it is just important to remember that when planting a new forage, you must manage that forage in a way that is good for it, and in the end, better for you.



HIGH DIVERSITY OPTION:

HIGH-QUALITY FORAGE YEAR-ROUND

BENEFITS OF DIVERSITY

Diverse native grasslands offer many benefits to the rancher, wildlife, and soil health.

FOR THE RANCHER

Diverse native grasslands can produce twice as much forage (Read the study published in Science Volume 314, 2006.) which is like doubling the size of a ranch! It can also offer high quality forage that is free of toxic endophytes, put good gains on grazing animals, and offer flexibility in grazing dates.

FOR THE WILDLIFE

Diverse native grasslands that are properly grazed provide the same habitat wildlife were accustomed to prior to colonization of the West. The native plants provide excellent food and shelter. Grazing keeps the plants vegetative for the wildlife and creates variation in the plant structure.

FOR SOIL HEALTH

A properly grazed diverse native grassland restores the soil health and productivity that was in our grassland soils before settlers plowed and overgrazed the grasslands. By planting with diversity, you can increase soil organic matter and healthy microbe populations, and create an armor on the soil with plant material.

WHAT TO PLANT

In a grassland, each plant species has a unique niche. For instance, each plant has a distinctive season of growth. Some are green and growing in the cool weather of spring and fall, while others prefer the hot weather of summer. So, you want to choose a mix of plants—some that grow in the cool seasons and others that grow in the warm season of the year. You want plants growing and collecting sunlight as much of the year as possible.

Not only do plants differ in their season of growth, but each also has a unique root system. Some plants are deep rooted while others are shallow rooted. Some have fibrous roots while others are tap rooted. Choosing plants with varied root systems means that the soil moisture can be utilized as efficiently as possible to produce forage whether or not the rains come.

What's in a Diverse Native Grassland Mix?

% of Stand	Functional Diversity	Species (Example)
50% *	Native Warm Season Grass (NWSG)	Big Bluestem Indiangrass Switchgrass Eastern Gama Grass Little Bluestem Sideoats Grama Beaked Panic Grass Purple Top ...and others!
30% *	Native Cool Season Grass & Grass-like (NCSG)	Virginia Wild Rye Southeast Wild Rye Jejunus Wild Rye Early Wild Rye Canada Wild Rye Cluster Fescue Prairie Wedge Grass Bulrushes Fowl Manna Grass River Oats ...and others!
20%	Native Forbs & Legumes (NF+L)	At least 15 species Common species include: Tickseed and other Coreopsis, Grayheaded and other Coneflowers, Illinois Bundleflower, Purple & White Prairie Clover, White Beardtongue, Rattlesnake Master, and Sawtooth and other Sunflowers

Make the mix match your site:

Not all of the above species are suited to a given site. Choose based on **soil type** (dry, mesic, or moist) and also the **amount of shade** (full sun or part shade). Choosing a mix that has species adapted to the site is very important in the success of the planting.

The **ratio of the functional diversity groups** can be varied. For instance if more broadleaf plants are desired for small ruminants, increase the percent of NF+L, or if more focus on fall, winter and spring forage is desired, increase the NCSG component.

There are other differences in plants that should also be considered and included. For instance, native legumes provide “free” nitrogen fertilizer to the pasture.

By including a mix of tall and short plants, those with fat leaves and skinny leaves, plants that stand upright and others that trail across the ground, and plants with other differences, you will capture more sunlight and water and grow more forage than with a fescue monoculture.

ESTABLISHMENT TIMELINES
for high & low diversity plantings



LOW DIVERSITY OPTION: HIGH-QUALITY FORAGE IN SUMMER

In areas such as the Fescue Belt, where most forage is fescue grass, summer means low forage production. However, warm season native grasses such as Big Bluestem, Indiangrass, Eastern Gama Grass, and Switchgrass produce large quantities of high-quality forage in the summer.

For farms and ranches that put up hay, the warm season grasses are ready to be baled while the weather is good for baling (warm and dry), as opposed to cool season grasses which need to be baled when the weather is typically rainy and cooler.

The native warm season grasses thrive under low fertility and do not require large fertility inputs compared to introduced grasses like Bermuda Grass or Caucasian Bluestem. Note: If you are removing significant amount of nutrients as happens when baling and removing hay from a field, the removed fertility should be replaced.

WHAT TO PLANT

Switchgrass and Eastern Gama Grass produce large quantities of forage earlier than other warm season grasses. Choose one of these if the grazing system has a good balance of warm and cool season grasses.

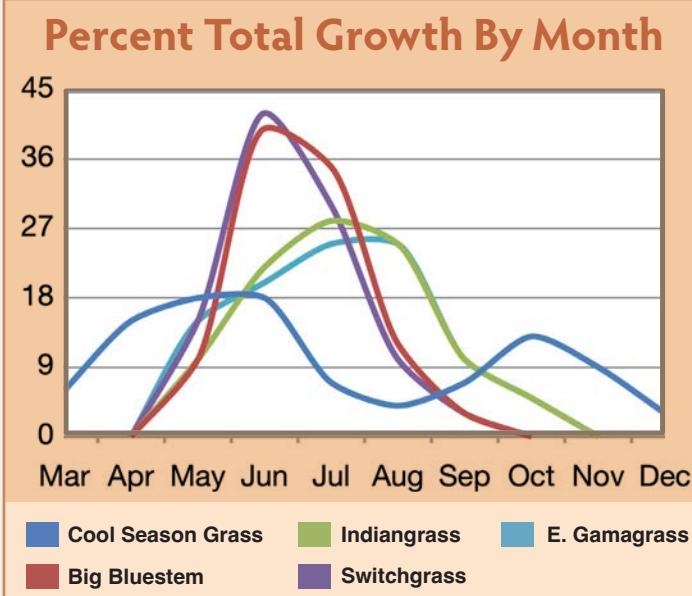
Although they may produce slightly less tonnage, Big Bluestem and Indiangrass peak in production later. They are ideal for cool season grass dominated operations, and they also work well mixed together.

Little Bluestem will produce a smaller quantity of forage, but it can be a great part of a mix on drier areas of the field.

Even in these low diversity plantings of native warm season grass, you can add some native cool season plants. Among other things, the cool seasons and warm seasons mixed together make better use of the ground as a solar collector because the sunlight is being used to produce forage in cool and warm weather. The blend is better for soil health, creates better wildlife habitat, and expedites nutrient recycling.

Each grass has its season of growth. This graph illustrates the percent of the plant's growth that occurs in each month. Cool season grasses begin their growth early in the spring. Warm season grasses wait for the warm temperatures of summer to produce. There are differences in timing of production even among the warm season grasses.

When choosing which to plant in a grazing system, consider the growth curve of the forages already in place and the curve of the forage to be planted. Make sure they complement each other and that quality forage is being produced throughout the growing season.



Go online to read our **Establishment Plan Overview Guide** or use our interactive **Planting Timeline Selector**.



ESTABLISHMENT
PLAN
OVERVIEW
guide



interactive
PLANTING
TIMELINE
SELECTOR

THE 4 HORSEMEN of the PRAIRIE

These native warm season grasses are the stars of the show for native forage



BIG BLUESTEM



EASTERN GAMAGRASS



SWITCHGRASS



INDIANGRASS

WHERE
TO GO
from here?

Don't know a River Oat from a Wild Rye or how to establish natives? No worries! Check out our extensive resources online to learn more or contact us and a real, live person will walk you through the process of choosing or customizing a mix to meet your goals.

We have grazing and haying mixes for diverse native grasslands, native warm season grasses, and overseeding.



THERE'S SO MUCH MORE ONLINE!

WEB LINKS

Planting Timeline Selector Tool:

<https://hamiltonnativeoutpost.com/planting-timeline-selector/>

Planting Method Selector Tool:

<https://hamiltonnativeoutpost.com/planting-method-selector/>

How to Guides for Planting Seeding and Maintenance:

<https://hamiltonnativeoutpost.com/how-to-guides/>

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VIDEOS & ARTICLES

<https://hamiltonnativeoutpost.com/category/forage-livestock/>

Using natives for forage is one of our passions, so be sure to check out more thoughts and experiences with grazing Diverse Native Grasslands on our blog.



HERE'S A SELECTION:



Haying Native Warm Season Grasses



Running a Micro-Dairy On Native Grasses



Grazing New Plantings of Native Warm Season Grass



Success at Overseeding Natives without Herbicides!



HABITAT

Wildlife & Pollinators

HABITAT

ESTABLISH A WILDLIFE HABITAT

A diverse mix of native grasses and wildflowers provides an excellent habitat for wildlife and pollinators. However, each species has different preferences. Use the listings below to find the requirements for the wildlife you want to encourage.

Bobwhite Quail

Quail populations have experienced a dramatic decline. In some states, the whistle of the Bobwhite can no longer be heard. Native grasses and forbs (wildflowers) with a little brushy cover make ideal quail habitat. The grasses provide structure and cover, and the forbs provide food by making seeds and attracting insects.



Eastern Wild Turkey

Nesting hens love a good grassland, as does a strutting tom. Like quail, turkeys recognize native grasses and forbs (wildflowers) as prime habitat. The native grasses provide structure and cover for turkeys while the native forbs contribute by making seeds that help sustain the turkeys through the winter and attract insects that serve as food during the summer, which allows the young poult to grow very fast during this season.



Whitetail Deer

Native plantings provide excellent habitat for whitetails, and the best part is that these perennial native plants do not need to be planted each year. Once established, the native plants will serve as a perennial food plot and provide bedding and cover.



Elk

Elk love grasslands. The elk that have been reintroduced into Missouri choose to spend the evening and morning hours foraging in grassland openings, and they bed down there at night. Elk eat grasses, and this makes it important to include a variety of forage-producing native grasses in a mix, including both warm and cool season natives.



Native WILDLIFE THRIVE IN diverse native ECOSYSTEMS

HABITAT



Fish & Aquatic Species

There might not be an obvious connection between native plants growing on land and providing habitat for fish and other aquatic species such as crayfish and mussels—the two most endangered animals in Missouri—but we believe that there is a connection. In order to improve streams as habitats, landscape-scale changes must be made, and native plants are an important part of that change.





ESTABLISH A POLLINATOR HABITAT

Flowers are the centerpiece of the habitat for these critters. A constant supply of flowers from spring through fall is important for many pollinators, and establishing a large diversity of plants means something is always blooming. However, each pollinator group has other important habitat considerations as well.

Butterflies, Moths & Sphinx Moths

In general, habitat requirements are similar among the butterflies, moths, and sphinx moths. As a caterpillar, most of these pollinators have a certain species of plant or narrow group of plants that they consume. For the Monarch, it is the milkweed leaves. After metamorphosing into a butterfly, moth, or sphinx moth, these winged critters are much less discriminating about the flowers from which they collect nectar.



Ruby-throated Hummingbirds

Hummingbirds migrate from their southern winter hideaway to spend the summer here zipping between flowers at lightning speed. A hummingbird may seem drawn to red flowers, but they happily sip nectar from flowers of other colors as well. They prefer flowers that are tubular in shape and flowers that are easy to approach while hovering. Soft-bodied insects are also part of the hummingbird's diet.



Honeybees

Honeybees are much loved for the sweet honey they produce. Since they are not native, a honeybee has no special need for native plants, but they do love many of the native plants. To produce honey throughout the season, it is important to keep flowers blooming from spring through fall.



Native Bees

Bumble bees, sweat bees, leafcutter bees, carpenter bees, and many more are all native and have strong affinities for native plants and ecosystems. The diversity of bees that exists is surprising, with more than 400 species living in the state of Missouri alone! They all share a common need of food from flowers—pollen and nectar.



**READ MORE IN-DEPTH ABOUT HOW NATIVES CAN
BENEFIT EACH SPECIES ON OUR HABITAT WEBSITE PAGE**
<https://hamiltonnativeoutpost.com/native-plants/wildlife-pollinator-habitat/>



Diverse Natives, Thriving Wildlife

Diversity is key for wildlife,
but these natives are favorites



Swamp Milkweed: Monarch butterflies need milkweeds



Compass Plant:
Seeds nourish small
mammals & birds,
stems are sturdy
perch for birds



Tickseed Coreopsis: Loved by
deer, rabbits, birds, & pollinators



Cup Plant:
Provides food for
birds & pollinators
but also water for
birds



Switchgrass: Cover for rabbits
and deer and seeds for birds



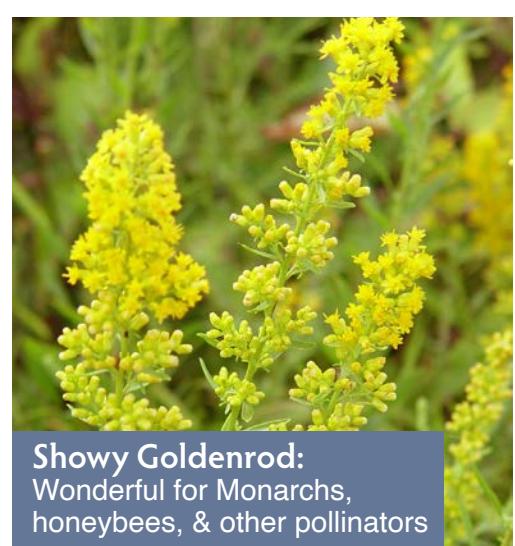
Partridge Pea: Annual
plant with seeds for
quail & prairie chickens,
flowers for pollinators,
and browse for deer



Wild Bergamot: Pollinator magnet
including hummingbirds



Slender Lespedeza:
Flowers for pollinators,
seeds for quail & turkey,
leaves for deer & rabbits



Showy Goldenrod:
Wonderful for Monarchs,
honeybees, & other pollinators

WHERE TO GO from here?

Read more in-depth on our wildlife page (see link at bottom of facing page) or reach out to us with specific questions.

We also have a lot of videos about natives and wildlife to dig deeper with. Check out some of the wildlife videos below.



How Native Plants Improve Rabbit Habitat



Creating Native Grassland Ecosystems for Ground-Nesting Birds



Super Sedge Diversity for Wildlife, Forage, and Landscaping



Why Fescue is Bad for Quail and Why Natives Aren't!

WILDLIFE MIXES

Wildlife Chuckwagon

This mix provides great food, bugging, and cover for quail, turkey, other game birds, and song birds. It also provides great habitat for small and large mammals. These widely adapted species thrive in most areas except extremely wet or dry soils. Plant with Companion Grass Mix. Contains 20+ species of wildflowers (also called forbs).

Butterfly & Hummingbird

Native pollinators including butterflies, hummingbirds, and bees need nectar and pollen sources throughout the growing season. This mix is designed to provide those flowers spring through fall as well as milkweeds for monarch caterpillars. Plant alone or in drifts with other mixes. This is our most diverse mix. Use with Companion Grass Mix. Contains 30+ species of wildflowers.

Buck's Hangout

The buck stops here. That is, he stops to grab a bite to eat. This mix focuses on the fall favorites of whitetails. Contains 15+ species of native grasses and wildflowers.

Hide & Sneak

Wildlife finds safety in tall, dense cover, and this mix is designed to provide that security. The perennial grasses in this mix are 4 to 8 foot tall. Plant it near any other wildlife mix to provide food and shelter all in one location. Contains 5+ species of native grasses.

Companion Grass

This shortgrass mix is ideal for inclusion with the Wildlife Chuckwagon or Butterfly & Hummingbird Mixes; 25-75% of the planting should be grasses. Adding grasses creates better structure for wildlife and provides fuel for controlled burns. Contains 4+ species of native grasses. *Different mixes designed for different soil types.*

Firebreak Mix

Plan ahead for controlled burns and plant this mix along the edges or in other locations where a firebreak is desired. After establishment, mow it in August to create a green line to burn against in the winter. Contains 8+ species of native grasses and wildflowers.

See more articles and videos about wildlife. Use QR code or visit
<https://hamiltonnativeoutpost.com/category/wildlife-pollinators/>



LANDSCAPING *with* WILDFLOWER MEADOWS



Landscaping with native plants brings back nature's original design. Wildflower meadows create healthy soils. Native plants create a beautiful wildflower meadow from spring through fall. Not only is a wildflower meadow pleasing to the eye, but it also is of great benefit to pollinators and other wildlife.

WILDFLOWERS FOR FORMAL & INFORMAL LANDSCAPING

There are two approaches to using native plants in landscaping: formal and informal. In a formal use, often referred to as a flowerbed, the plants are widely spaced and mulched in between. The informal approach is to create a wildflower meadow akin to a field of wildflowers. The wildflower meadow is a more natural approach, and is basically recreating the native glade, prairie, savanna, and wetland ecosystems with all the ecosystem's functions and benefits. There are pros and cons to each approach.

FLOWERBED VS. WILDFLOWER MEADOW

A flowerbed has a more formal look that is very pleasing to the eye, making it an appropriate choice for, say, a front yard. Using native plants to achieve this formal look is not only beautiful, but also a great chance to increase biodiversity, provide for pollinators, manage storm water, and create a more sustainable landscape.

To achieve this look, certain design elements such as borders, focal points, and large masses of a few plants are often used. You can best achieve exact plant positioning and spacing with



Wildflower Meadow

potted plants. Also, potted plants give instant results, which is advantageous in a highly visible area. Note: If you choose to use potted plants, purchase them from a local provider who understands plant genetics.

Wildflower meadows, on the other hand, are a great choice in larger spaces where the cost and labor to plant potted plants becomes prohibitive or where the work of mulching is not desired. The plants touch and the weed control is achieved by the close spacing of the plants, which shades the soil, rather than mulch.

Seeds are the most effective way to establish a wildflower meadow. The wait for a wildflower meadow is longer, often taking three years before many of the wildflowers bloom, but the results are worth the wait. Also, the inclusion of annual or biennial species that bloom the first year or two can help add some color while other seeds establish.

Seeds and potted plants can also be used together. Establish a formal flowerbed on the most highly visible side of a wildflower meadow. Or, plant a few potted plants in strategic locations in a wildflower meadow so that there are some flowers that bloom sooner.

LEARN NATURE'S LANDSCAPING SECRETS

The native prairies, glades, savannas, and wetlands have many secrets that every landscaper should learn. And, since a wildflower meadow is basically a re-creation of one of these ecosystems, let's learn their secrets:

1

Choose plants based upon soil.

There is a sweet spot for each plant as far as soil moisture, from wet to dry. Obviously, a water lily and a cactus grow in very different sites and neither would do well if their sites were swapped.

Characteristics such as rocky soil, clay soil (e.g. after topsoil has been removed), ridgeline or side slope landscape positions, and rooting restrictions (e.g. bedrock or fragipan) all lend dry characteristics.

Wet soils are often evident because they are the places that your shoes sink into the soil at time other than just after a rain. These locations are often where water comes to the surface from within the soil.

Mesic soils (those that are not too wet nor too dry) are deep with good organic matter content and few rocks. Keep in mind that if the slope of the land is facing west or south, the site will be drier than the same site that faces north or east due to sun intensity.

It's possible to alter a site to make it match the requirements of the desired plants. Remove topsoil to make a site drier. This has the added benefit of removing weed seeds. Add organic matter (e.g. compost) to make more moist. But remember that growing plants where they are not adapted will either create a high maintenance landscape or the plants will not thrive.

2

Choose a diversity of wildflowers.

Since native wildflowers do not bloom all season long, the secret to continuous color is a diversity of wildflowers. This also provides season-long pollen and nectar sources for butterflies, hummingbirds, honeybees, and other pollinators.

3

Choose plants based upon sun and shade.

Just as different plants prefer different soil moisture, each plant has a certain amount of sun or shade in which it thrives. The amount of shade is a range with full sun on one end, full shade on the other, and varying amounts of sun and shade in between. Understand the site to be planted. Is it evenly sunny or shady, or is the shade only in certain areas? What percent of the day does a given area get direct sunlight?

4

Include grass and grass-like plants.

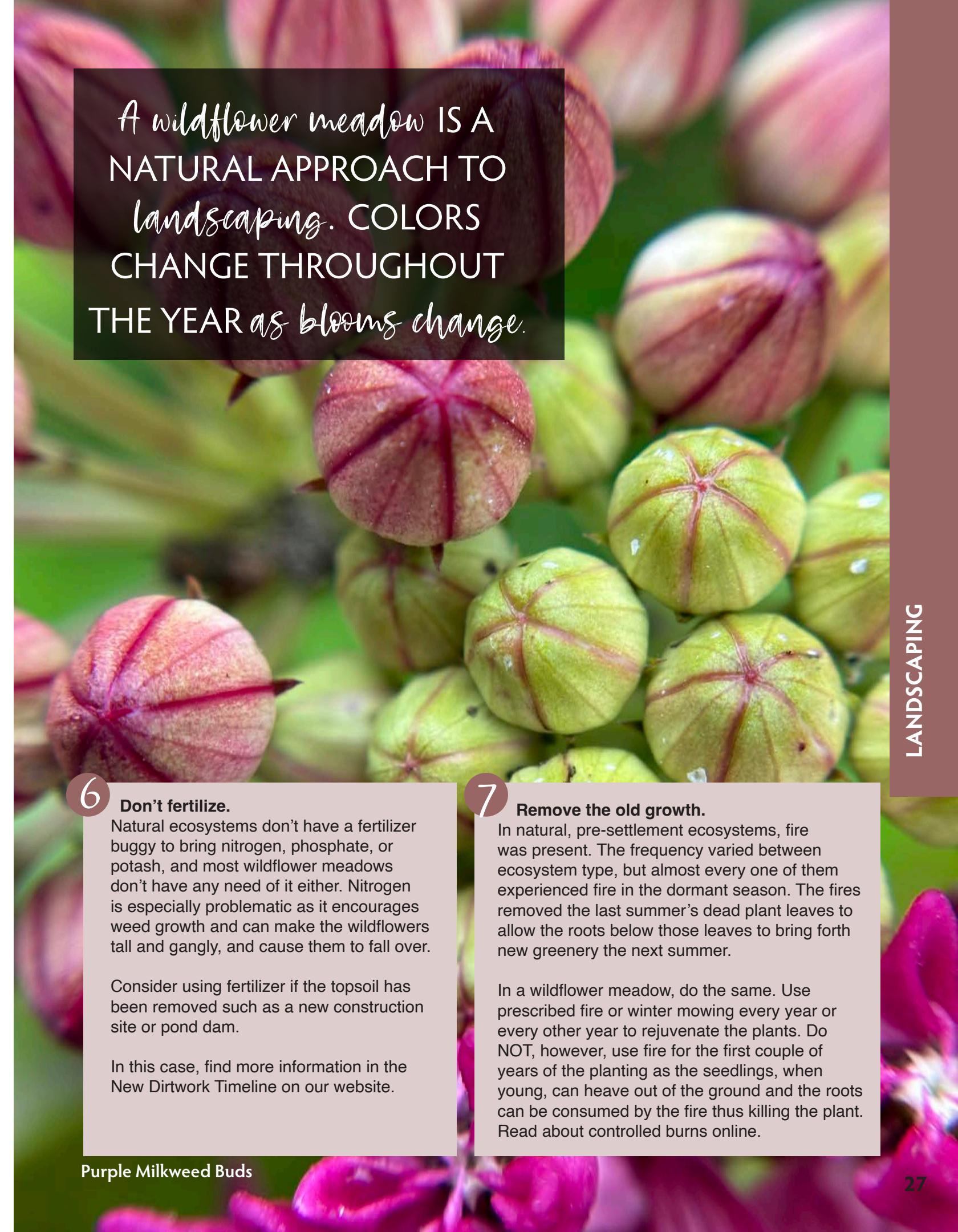
Native ecosystems contain a component of native grasses and grass-like plants. A mix of both warm and cool season grasses is part of nature's design and is beneficial for a wildflower meadow.

The grasses help shade the ground between wildflower plants, which discourages weeds. Visually, they provide beautiful hues of rusty red, muted browns, bright orange, and silver in the late fall and winter. Additionally, the grasses offer support to tall blooming wildflowers and carry a fire if a controlled burn is desired to renew the earth for next year's flowers. At least 25% of a meadow planting should be grasses.

5

Seed in winter.

By design, many seeds—especially wildflowers but also some grasses—will not germinate until they have been through winter. This is a protective mechanism to ensure that the seed does not germinate in fall when the temperatures and soil moisture are favorable only to find the plant is too small to live through the winter. So, built into the seed is the knowledge that after winter comes spring, and spring is the time to start growing. Therefore, plant wildflowers in winter or cold-moist stratify the seed (guide on website).



A wildflower meadow IS A NATURAL APPROACH TO *landscaping*. COLORS CHANGE THROUGHOUT THE YEAR as *blooms change*.

6

Don't fertilize.

Natural ecosystems don't have a fertilizer buggy to bring nitrogen, phosphate, or potash, and most wildflower meadows don't have any need of it either. Nitrogen is especially problematic as it encourages weed growth and can make the wildflowers tall and gangly, and cause them to fall over.

Consider using fertilizer if the topsoil has been removed such as a new construction site or pond dam.

In this case, find more information in the New Dirtwork Timeline on our website.

7

Remove the old growth.

In natural, pre-settlement ecosystems, fire was present. The frequency varied between ecosystem type, but almost every one of them experienced fire in the dormant season. The fires removed the last summer's dead plant leaves to allow the roots below those leaves to bring forth new greenery the next summer.

In a wildflower meadow, do the same. Use prescribed fire or winter mowing every year or every other year to rejuvenate the plants. Do NOT, however, use fire for the first couple of years of the planting as the seedlings, when young, can heave out of the ground and the roots can be consumed by the fire thus killing the plant. Read about controlled burns online.

Native Plants We Love For Landscaping

LANDSCAPING



Prairie Hyacinth:
Early bloomer that
fades from view
later in the season



**Missouri
Primrose:**
Gorgeous
lemon-yellow
flowers for
dry soils



Sensitive Brier: Leaves that fold up when
touched and beautiful blooms



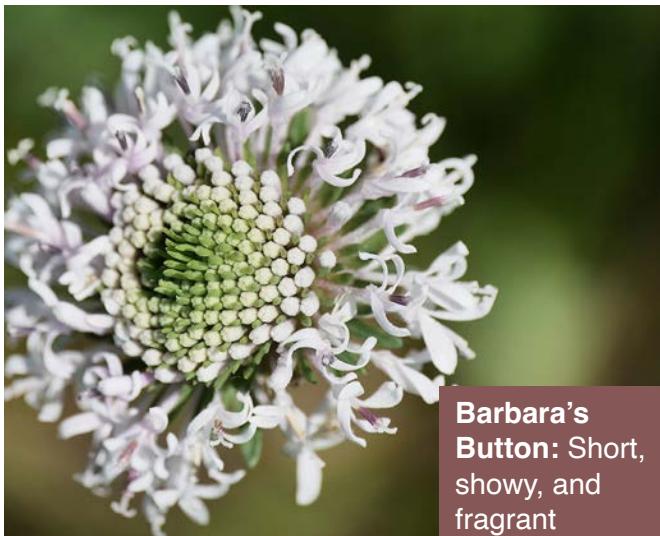
**Bottlebrush
Grass:** Unique
seedheads to
compliment the
wildflowers



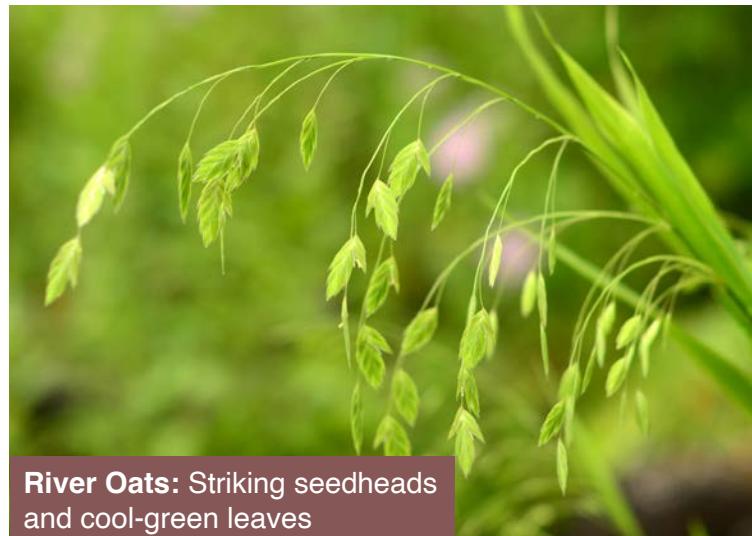
Sampson's Snakeroot: Pretty 'n
purple in part shade or full sun



Prairie Blazing Star: Delightful purple spikes are loved by pollinators



Barbara's Button: Short, showy, and fragrant



River Oats: Striking seedheads and cool-green leaves



Tickseed Coreopsis:
Happy yellow flowers
that grace a dry soil

WHERE TO GO from here?

Go online to learn more about establishment and check out our getting started guides. Call if you have specific questions about landscaping with wildflower meadows.

VIDEOS & ARTICLES ABOUT LANDSCAPING



Native Woodland Wildflowers



Button Blazing Star & Friends



Prairie Patchwork



Prairie Blazing Star



DIG DEEPER WITH
ARTICLES & VIDEOS
ON OUR WEBSITE!

[https://hamiltonnativeoutpost.com/
category/landscaping/](https://hamiltonnativeoutpost.com/category/landscaping/)

Wildflower Meadow LANDSCAPING MIXES

CHOOSE A MIX ACCORDING TO SOIL TYPE & AMOUNT OF SHADE



DRY



AVERAGE



MOIST



WET



PART TO FULL SHADE



FULL SUN TO PART SHADE



FULL SUN

Dry'n Rocky

A very showy combination; ideal for dry, rocky areas including sites with little to no topsoil, such as dams, road cuts, and construction sites. To make a site drier, scrape off 3"-6" of topsoil; this will also remove many competing weed seeds. Plant with Companion Grass Mix. Contains 20+ species of wildflowers.

Prairie Patchwork

These plants thrive in average soils; not too dry or too wet. This mix lends color to a landscape from May to October just as these same plants once added color to the vast expanses of prairie covering the Midwest. Use with Companion Grass Mix. Contains 20+ species of wildflowers.

Shadows & Sunbeams

Large park-like trees and an understory of native grasses and wildflowers define a savanna. This wildflower mix enjoys the paradox of sun and shade found in savannas and will do best in areas with at least 50% sunshine. Plant with Companion Grass Mix. Contains 20+ species of wildflowers.

Wet Meadow

Chosen for their ability to grow in damp and seepy areas that dry out only in the driest weather, these beautiful wetland plants can be a great addition to wet parts of a rain garden or a naturally wet area. Plant with Companion Grass Mix. Contains 20+ species of wildflowers.

Companion Grass

/ / /

Different mixes for dry, mesic, wet and shade sites

This is an essential part of any planting because these non-aggressive prairie grasses discourage weeds by filling voids and provide support for the wildflowers. Because they are relatively short, these grasses don't detract from the flowers and also provide color in the winter landscape. For easy care, 25% to 50% of any planting should be grasses. Contains 4+ species of native grass.

Firebreak Mix

Plan ahead for controlled burns and plant this mix along the edges or in other locations where a firebreak is desired. After establishment, mow it in August to create a green line to burn against in the winter. Contains 8+ species of native grasses and wildflowers.



To see the contents of our mixes see our website

These Landscaping Mixes are designed with informal landscaping projects, like a wildflower meadow, in mind. They are showy and, being generally less than waist high, are relatively short. While they are not designed with wildlife in mind, wildlife will find that these mixes provide excellent habitat.

RESTORATION

Prairies, Savannas & Glades



RESTORATION OF TALLGRASS PRAIRIES, GLADES AND SAVANNAS

Many factors have deteriorated native ecosystems. However, it is possible to re-create tallgrass prairies, glades, and savannas and bring back their benefits for wildlife and soil health.

RESTORING THE SYSTEM

When the settlers arrived on the shores of America, they brought the plants that they knew and used in the old country. This invasion of new plant species, along with plowing the grasslands to grow crops, overgrazing, and other factors have dramatically changed the appearance of the landscape. However, it is possible to bring back or recreate these ecosystems and the benefits that they have for wildlife, pollinators, herbivores, and soil health.

THE OLDEST TASK IN
HUMAN HISTORY: TO
LIVE ON A PIECE OF LAND
WITHOUT SPOILING IT.

- Aldo Leopold

RESTORATION

NATIVE GRASSLANDS *then & now*

Many of the early explorers left written record of the land's appearance when they settled or traveled through. They encountered many different grassland types. Today, the temperate grasslands of the world, which are so valuable for raising crops and livestock, are the most endangered and least protected habitats on earth. Counted among these grasslands are our own native grasslands:

TALLGRASS PRAIRIES

A tallgrass prairie is a treeless or nearly treeless grassland that is filled with native grasses and wildflowers. The mixed-grass and shortgrass prairies were the tallgrass prairie's counterpart in drier climates. The prairies formed the rich, deep soils that are now considered America's breadbasket because such an abundance of food is produced upon them. Today, the tallgrass prairie ecosystem remains at less than one half of 1% of its original extent.



GLADES

Glades are grasslands without much soil. Due to bedrock being close to the soil's surface and the fact that they usually have a south- or west-facing aspect, these ecosystems are the home of dry-loving plants and animals. Today, many glades have been overrun by cedar trees or other brush and trees.

SAVANNAS AND WOODLANDS

Both savannas and woodlands are grasslands with the incorporation of trees. (Technically, a woodland has more trees than a savanna.) These ecosystems were the meeting ground of the tallgrass prairie and the forest. In these savannas and woodlands, trees and herbaceous plants (grasses and wildflowers) coexisted.

Fire and herbivores were the mediator in this uneasy relationship between very different plant types. Today, most of the land that would have historically been savanna and woodland bears no resemblance to Henry Rowe Schoolcraft's description of "a tall, thick and rank growth of wild grass...in which the oaks are standing interspersed like fruit trees in some well cultivated orchard, and giving the scenery the most novel, pleasing and picturesque appearance."

Now, for the most part, we see forest or there is open land. The two do not intermingle, due in large part to the removal of fire from the ecosystems.



RESTORATION PROTECTS THE PLANTS

Because many of our native ecosystems are endangered, so are the plants that are associated with them. Each ecosystem has a unique array of plants associated with it. Some plants may inhabit more than one grassland ecosystem, but others may be obligates of specific ecosystems. Pale Purple Coneflower, for example, can be found growing on glades, savannas, and prairies while its close relative, Yellow Coneflower, is found only on the glades. By re-creating or restoring these ecosystems, the plant species allied with them are also protected.

RESTORATION PROTECTS THE WILDLIFE & POLLINATORS

Native ecosystems once lent shelter to abundant populations of wildlife ranging from large mammals to smaller mammals, amphibians, and insects. Today, some of these animals still roam across the countryside, but many, such as the bison and elk, are a memory of yesteryear.

Some species of wildlife depend on certain ecosystems. For example, glades are the much-preferred habitat of the Eastern Collared Lizard, Lichen Grasshopper, and Greater Roadrunner. Restoring our imperiled native plant communities creates habitat for species of wildlife that are adapted to the ecosystems.

Many native pollinator species cannot exist without native plants. In some cases, this dependency is so strong that dependent pollinators and plants cannot exist independently. In fact, about one-third of Missouri's native bee species need a certain plant species or narrow group of plants to carry out their life. Another third of these bees require a certain ecosystem. Planting a diverse palette of natives provides necessary habitat requirements for pollinators.

To learn more about the habitat needs of specific wildlife and pollinators see pg 22.

RESTORATION PROTECTS LIVESTOCK FORAGE

Native herbivores, including bison and elk, once roamed free through the tallgrass prairie, savannas and woodlands, and glades. Today, these ecosystems can be re-established to provide high-quality forage for domestic livestock.

Learn more about establishing native ecosystems for forage on pages 14-19.



WHERE TO GO from here?

Seed mixes for restoring rare and declining habitat should be chosen with care. Plants should be adapted to the site and to the ecosystem to be restored. Learn more about restoration online (see some places to start below) or contact us to design a custom mix or see what is available to meet your needs.



VIDEOS & ARTICLES ABOUT RESTORATION



How To Control Invasive Sericea Lespedeza With Steve Clubine



Are There Good Thistles? Native vs. Non-native Thistles



**Save Your Stream!
Introducing the
Streambank Mix**



**Silvopasture Forage in the
Summer Heat**

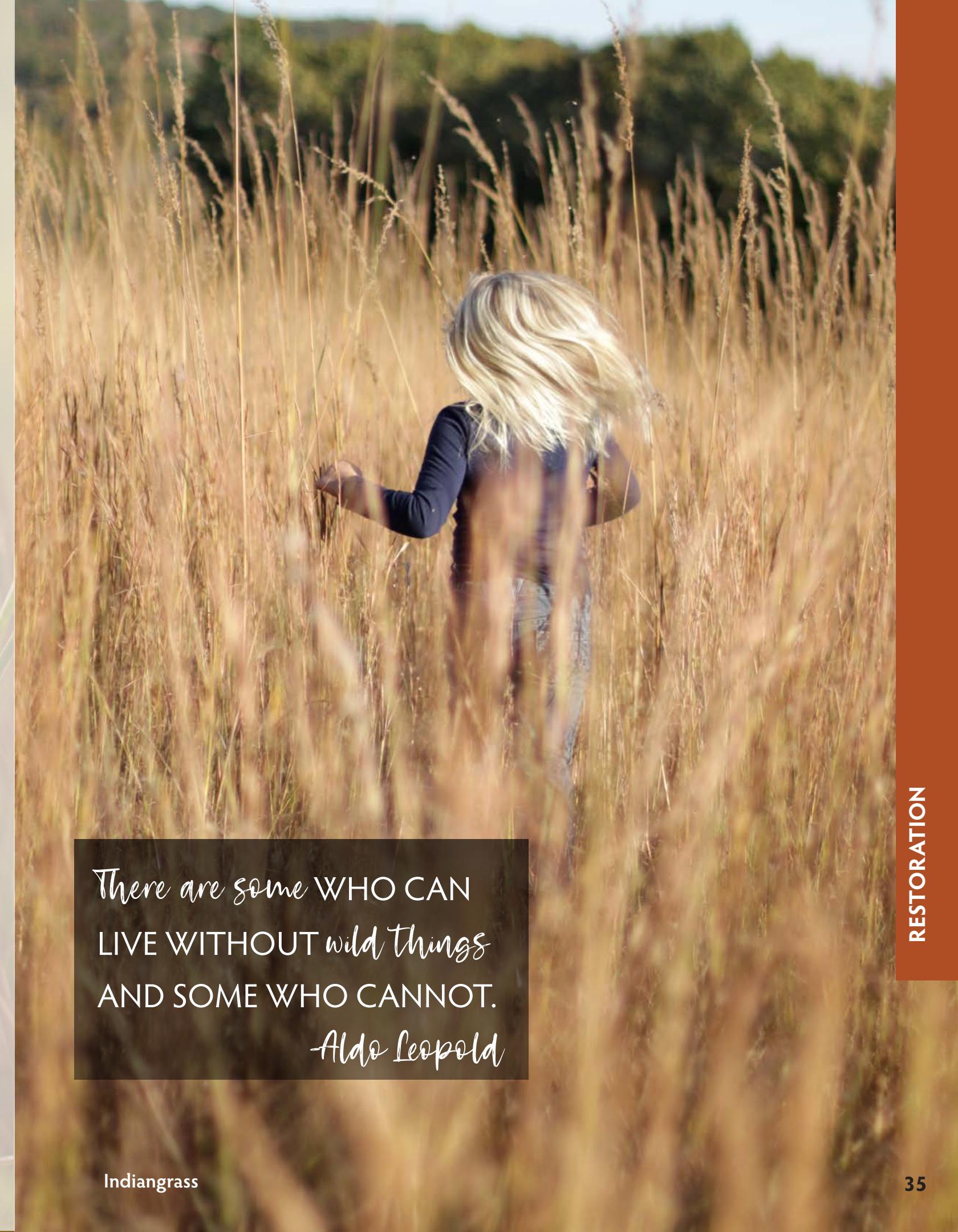


**This Savanna Restoration
Paid For Itself**



**DIG DEEPER
WITH ARTICLES
& VIDEOS ON
OUR WEBSITE!**

[https://hamiltonnativeoutpost.com/
category/restoration-ecosystems/](https://hamiltonnativeoutpost.com/category/restoration-ecosystems/)



There are some WHO CAN
LIVE WITHOUT *wild things*
AND SOME WHO CANNOT.

Aldo Leopold



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DIRECTIONS

