

Seed Mixes for the Pollinator Sanctuary

February 7th, 2024

Seed mixes for the 47-acre pollinator sanctuary installed at the South Wellfield site were acquired from two sources: 1) The Bee and Butterfly Habitat Fund and 2) Spence Native Plant Nursery. This document contains all species mixes and the full species list in each mix. Any difference in table content is due to the information available from each source.

Seeds were sewn between the weeks of January 15th to February 5th in 2024.

1. The Bee and Butterfly Habitat Fund:

a. The Monarch Mix: Primarily for native bees and butterfly

Species	Scientific Name	PLS lbs/acre	Bloom Period	Pollinator Value
Big Bluestem, Pawnee	<i>Andropogon gerardii</i>	0.2	Sept-Oct	--
Canada Wildrye	<i>Elymus canadensis</i>	0.4	Sept-Oct	--
Little Bluestem, VNS	<i>Schizachyrium scoparium</i>	0.3	Sept-Oct	--
Plains Oval Sedge, Native Source	<i>Carex brevior</i>	0.04	Sept-Oct	--
Prairie Junegrass	<i>Koeleria pyramidata</i>	0.02	Sept-Oct	--
Sideoats Grama, Butte	<i>Bouteloua curtipendula</i>	0.3	Sept-Oct	--
American Germander	<i>Teucrium canadense</i>	0.008	June-Sept	4
Anise Hyssop	<i>Agastache foeniculum</i>	0.03	June-Sept	5
Aromatic Aster	<i>Aster oblongifolius</i>	0.008	Aug-Oct	5
Ashy Sunflower, Native Source	<i>Helianthus mollis</i>	0.024	July-Sept	5
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.035	July-Aug	1
Blanketflower	<i>Gaillardia aristata</i>	0.2	July-Sept	4
Blue Vervain, Native Source	<i>Verbena hastata</i>	0.03	July-Sept	5
Butterfly Milkweed	<i>Asclepias tuberosa</i>	0.02	July-Sept	5
Canada Goldenrod, Native Source	<i>Solidago canadensis</i>	0.004	July-Sept	5
Canada Milkvetch	<i>Astragalus canadensis</i>	0.05	July-Sept	4
Canada Tick-trefoil	<i>Desmodium canadense</i>	0.08	July-Sept	5
Clasping Coneflower	<i>Rudbeckia amplexicaulis</i> or <i>Dracopis amplexicaulis</i>	0.04	May-July	2
Common Evening Primrose	<i>Oenothera biennis</i> or <i>Gaura biennis</i>	0.035	June-Sept	4
Common Milkweed, Native Source	<i>Asclepias syriaca</i>	0.05	May-July	5
Compass Plant	<i>Silphium laciniatum</i>	0.03	July-Aug	5
Culver's Root	<i>Veronicastrum virginicum</i>	0.004	May-July	4
Cup Plant, Native Source	<i>Silphium perfoliatum</i>	0.02	July-Sept	5
Deer Vetch, Native Source	<i>Acmispon americanus</i> or <i>Lotus unifoliolatus</i>	0.02	May-Aug	4
Dotted Mint	<i>Monarda punctata</i>	0.03	June-Aug	4

Entire-leaf Rosinweed	<i>Silphium integrifolium</i>	0.02	July-Sept	5
False Boneset	<i>Brickellia eupatorioides</i>	0.015	July-Sept	3
False or Oxeye Sunflower	<i>Heliopsis helianthoides</i>	0.1	June-Oct	5
Foxglove Beardstongue, Native Source	<i>Penstemon digitalis</i>	0.02	May-June	5
Golden Alexander	<i>Zizia aurea</i>	0.1	May-June	5
Gray Goldenrod	<i>Solidago nemoralis</i>	0.006	Aug-Oct	4
Grayhead Coneflower	<i>Ratibida pinnata</i>	0.045	June-Aug	4
Hairy Beardstongue	<i>Penstemon hirsutus</i>	0.008	May-June	5
Heath Aster	<i>Symphyotrichum ericoides</i>	0.006	May-Sept	5
Hoary Vervain, Native Source	<i>Verbena stricta</i>	0.025	May-Sept	5
Illinois Bundleflower	<i>Desmanthus illinoensis</i>	0.3	June-Aug	5
Ironweed	<i>Vernonia fasciculata</i>	0.02	Aug-Sept	5
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>	0.2	May-July	4
Late or Giant Goldenrod, Native Source	<i>Solidago gigantea</i>	0.006	Aug-Oct	5
Maximillian Sunflower	<i>Helianthus maximiliani</i>	0.04	Aug-Sept	5
Missouri Goldenrod, Native Source	<i>Solidago missouriensis</i>	0.006	June-Oct	5
New England Aster	<i>Symphyotrichum novae-angliae</i>	0.012	Aug-Sept	5
Pale Purple Coneflower	<i>Echinacea pallida</i>	0.1	June-July	5
Plains Coreopsis	<i>Coreopsis tinctoria</i>	0.015	June-Sept	2
Plains Sunflower, Native Source	<i>Helianthus petiolaris</i>	0.03	July-Oct	5
Purple Coneflower	<i>Echinacea purpurea</i>	0.2	June-Oct	5
Purple Poppymallow	<i>Callirhoe involucrata</i>	0.01	May-Aug	4
Purple Prairieclover	<i>Dalea purpurea</i>	0.04	June-Aug	5
Rough Blazing Star	<i>Liatris aspera</i>	0.016	Aug-Sept	5
Rough Purple Gerardia, Native Source	<i>Agalinis aspera</i>	0.005	Aug-Sept	4
Roundhead Lespedeza, Native Source	<i>Lespedeza capitata</i>	0.02	Aug-Sept	4
Sawtooth Sunflower, Native Source	<i>Helianthus grosseserratus</i>	0.01	Aug-Sept	5
Seed Box	<i>Ludwigia alternifolia</i>	0.003	June-Aug	3
Shell-leaf Penstemon, Native Source	<i>Penstemon grandiflorus</i>	0.02	May-July	5
Showy Goldenrod	<i>Solidago speciosa</i>	0.008	Aug-Oct	5
Showy Partridgepea	<i>Chamaecrista fasciculata</i>	0.4	July-Sept	5
Skyblue Aster	<i>Symphyotrichum oolentangiense</i>	0.007	July-Oct	5
Smooth Blue Aster	<i>Aster laevis</i>	0.018	Sept-Oct	5
Stiff Goldenrod, Native Source	<i>Solidago rigida</i>	0.02	July-Aug	5
Stiff Sunflower, Native Source	<i>Helianthus pauciflorus</i>	0.02	June-Aug	4

Swamp Milkweed, Native Source	<i>Asclepias incarnata</i>	0.01	July-Aug	5
Tall Boneset, Native Source	<i>Eupatorium altissimum</i>	0.008	July-Sept	4
Tall Coreopsis	<i>Coreopsis tripteris</i>	0.01	June-Aug	3
Prairie Blazing Star	<i>Liatris pycnostachya</i>	0.01	July-Aug	5
Tube Penstemon, Native Source	<i>Penstemon tubaefflorus</i>	0.02	May-July	5
Upright Coneflower	<i>Ratibida columnifera</i>	0.035	July-Oct	2
Velvety Gaura, Native Source	<i>Oenothera curtiflora</i>	0.01	May-Sept	2
Western Yarrow	<i>Achillea millefolium</i>	0.025	May-Sept	2
Wild Bergamot	<i>Monarda fistulosa</i>	0.035	June-Aug	5
Wild Quinine	<i>Parthenium integrifolium</i>	0.05	June-Sept	2
Wild Senna	<i>Senna hebecarpa</i>	0.1	June-Aug	2
Rice Hulls - Filler for low planting rate mixtures	0	2.5	--	--

- b. **The Pollinator Mix:** A temporary mix primarily for honeybees. Primarily introduced species.

Species	Scientific Name	PLS lbs/acre	Bloom Period	Pollinator Value
Alsike Clover	<i>Trifolium hybridum</i>	0.35	May-Sept	5
Anise Hyssop	<i>Agastache foeniculum</i>	0.035	July-Sept	5
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.06	July-Aug	1
Clasping Coneflower	<i>Rudbeckia amplexicaulis</i> or <i>Dracopis amplexicaulis</i>	0.15	May-July	2
Crimson Clover	<i>Trifolium incarnatum</i>	1.8	May-July	5
Gray Goldenrod	<i>Solidago nemoralis</i>	0.008	Sept-Oct	4
Ladino or White Clover	<i>Trifolium repens</i>	0.35	May-June	5
Lemon Mint or Lemon Bee Balm	<i>Monarda citriodora</i>	0.07	May-July	3
Missouri Goldenrod	<i>Solidago missouriensis</i>	0.006	June-Oct	5
Phacelia	<i>Phacelia spp.</i>	0.5	June-Aug	5
Red Clover	<i>Trifolium pratense</i>	0.4	May-Oct	4
Sainfoin	<i>Onobrychis viciifolia</i>	1.5	May-July	5
White Dutch Clover	<i>Trifolium repens</i>	0.28	May-Sept	5
Rice Hulls - Filler for low planting rate mixtures		2.0	--	--

Non-native introduced species are highlighted in blue.

2. Spence Native Plant Nursery:

- a. Overseeded Basic mix: this mix was included with the Bee and Butterfly mixes to increase grass frequency and encourage long-term ecosystem health.

PLS oz/acre	Grasses	Blooming Period
16	<i>Andropogon gerardii</i> (Big Bluestem)	Sept-Oct
16	<i>Bouteloua curtipendula</i> (Side-Oats Grama)	Sept-Oct
32	<i>Elymus canadensis</i> (Canada Wild Rye)	Sept-Oct
16	<i>Elymus virginicus</i> (Virginia Wild Rye)	Sept-Oct
16	<i>Schizachyrium scoparium</i> (Little Bluestem)	Sept-Oct
16	<i>Sorghastrum nutans</i> (Indian Grass)	Sept-Oct
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PLS oz/acre	Forbs	
0.5	<i>Asclepias syriaca</i> (Common Milkweed)	May-July
3	<i>Echinacea purpurea</i> (Purple Coneflower)	June-Oct
0.5	<i>Eryngium yuccifolium</i> (Rattlesnake Master)	July-Sept
3	<i>Heliopsis helianthoides</i> (False Sunflower)	June-Oct
0.5	<i>Monarda fistulosa</i> (Bergamot)	June-Sept
1	<i>Oligoneuron rigidum</i> (Stiff Goldenrod)	June-Sept
1	<i>Penstemon digitalis</i> (Foxglove Beardtongue)	May-June
4	<i>Ratibida pinnata</i> (Yellow Coneflower)	June-Aug
3	<i>Rudbeckia hirta</i> (Black-Eyed Susan)	July-Aug
3	<i>Senna hebecarpa</i> (Wild Senna)	July-Aug
2	<i>Silphium integrifolium</i> (Rosinweed)	July-Sept
2	<i>Silphium terebinthinaceum</i> (Prairie Dock)	Aug-Sept
0.5	<i>Symphyotrichum novae-angliae</i> (New England Aster)	July-Sept
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- b. **Custom Basic mix:** This mix is like the basic mix, with a few additional flowering species. The additional species are listed below.

Scientific Name (Common Name)	PLS oz/acre	Blooming Period
<i>Amorpha canescens</i> (Leadplant)	0.25	June-Aug
<i>Coreopsis tripteris</i> (Tall Coreopsis)	0.25	June-Aug
<i>Doellingeria umbellata</i> (Flat-topped Aster)	0.25	July-Sept
<i>Liatris pycnostachya</i> (Prairie Blazing Star)	0.25	July-Sept
<i>Helianthus grosseserratus</i> (Sawtooth Sunflower)	0.25	Aug-Sept
<i>Pycnanthemum virginianum</i> (Common Mountain Mint)	0.25	July-Sept
<i>Symphyotrichum oolentangiense</i> (Sky Blue Aster)	0.25	Aug-Oct

- c. **Wet Mesic Prairie Mix:** This was planted on two acres in a wetter section of the land.

Grasses and Sedges	PLS oz/acre	Blooming Period
<i>Andropogon gerardii</i> (Big Bluestem)	16	Aug-Oct
<i>Carex annectans xanthocarpa</i> (Yellow Fox Sedge)	2	May-June
<i>Carex frankii</i> (Frank's Sedge)	2	May-June
<i>Carex vulpinoidea</i> (Fox Sedge)	6	May-June
<i>Elymus canadensis</i> (Canada Wild Rye)	32	Aug-Oct
<i>Elymus virginicus</i> (Virginia Wild Rye)	32	Aug-Oct
<i>Glyceria striata</i> (Fowl Manna Grass)	2	Aug-Oct
<i>Panicum virgatum</i> (Switchgrass)	4	Aug-Oct
<i>Sorghastrum nutans</i> (Indian Grass)	16	Aug-Oct
Total:	112	
Forbs	PLS oz/acre	
<i>Asclepias syriaca</i> (Common Milkweed)	1	May-July
<i>Baptisia alba</i> (White False Indigo)	1	May-June
<i>Coreopsis tripteris</i> (Tall Coreopsis)	3	June-Aug
<i>Echinacea purpurea</i> (Purple Coneflower)	3	June-Oct
<i>Eryngium yuccifolium</i> (Rattlesnake Master)	2	July-Sept
<i>Euthamia graminifolia</i> (Grass-Leaved Goldenrod)	0.5	Aug-Sept
<i>Helianthus grosseserratus</i> (Sawtooth Sunflower)	1	Aug-Sept
<i>Heliopsis helianthoides</i> (False Sunflower)	4	June-Oct
<i>Liatris spicata</i> (Dense Blazing Star)	2	July-Aug
<i>Monarda fistulosa</i> (Bergamot)	0.5	June-July
<i>Oligoneuron riddellii</i> (Riddell's Goldenrod)	1	Aug-Sept
<i>Oligoneuron rigidum</i> (Stiff Goldenrod)	2	June-Sept
<i>Penstemon digitalis</i> (Foxglove Beardtongue)	0.5	May-June
<i>Pycnanthemum virginianum</i> (Mountain Mint)	0.5	July-Sept
<i>Ratibida pinnata</i> (Yellow Coneflower)	4	July-Oct
<i>Rudbeckia fulgida speciosa</i> (Showy Black-Eyed Susan)	3	July-Oct
<i>Rudbeckia hirta</i> (Black-Eyed Susan)	3	July-Oct
<i>Rudbeckia subtomentosa</i> (Sweet Black-Eyed Susan)	3	July-Oct
<i>Senna hebecarpa</i> (Wild Senna)	3	July-Aug
<i>Silphium integrifolium</i> (Rosinweed)	2	July-Sept
<i>Silphium terebinthinaceum</i> (Prairie Dock)	4	Aug-Sept
<i>Symphyotrichum firmum</i> (Shining Aster)	0.5	Aug-Oct
<i>Symphyotrichum novae-angliae</i> (New England Aster)	1	July-Sept
<i>Vernonia fasciculata</i> (Smooth Ironweed)	2	July-Sept
<i>Veronicastrum virginicum</i> (Culver's Root)	0.5	May-July
Total:	48	