



The Bee & Butterfly Habitat Fund

Indiana Monarch Mixture

Fall 2022

Species	Scientific Name	PLS lbs per acre	Seeds per sq ft	% of Mixture	Bloom Period	Pollinator Value
Big Bluestem, Pawnee	<i>Andropogon gerardii</i>	0.200	0.66	1.82%	--	--
Canada Wildrye	<i>Elymus canadensis</i>	0.400	1.05	2.87%	--	--
Little Bluestem, VNS	<i>Schizachyrium scoparium</i>	0.300	1.66	4.54%	--	--
Plains Oval Sedge, Native Source	<i>Carex brevior</i>	0.040	0.60	1.63%	--	--
Prairie Junegrass	<i>Koeleria pyramidata</i>	0.020	1.06	2.91%	--	--
Sideoats Grama, Butte	<i>Bouteloua curtipendula</i>	0.300	1.10	3.01%	--	--
Anise Hyssop	<i>Agastache foeniculum</i>	0.030	0.99	2.72%	3	5
Aromatic Aster	<i>Aster oblongifolius</i>	0.008	0.95	2.60%	3	5
Ashy Sunflower, Native Source	<i>Helianthus mollis</i>	0.024	0.11	0.30%	3	5
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.035	1.27	3.47%	2	1
Blanketflower	<i>Gaillardia aristata</i>	0.200	0.86	2.35%	1	4
Blue Vervain, Native Source	<i>Verbena hastata</i>	0.030	1.04	2.84%	2	5
Butterfly Milkweed	<i>Asclepias tuberosa</i>	0.020	0.03	0.09%	2	5
Canada Goldenrod, Native Source	<i>Solidago canadensis</i>	0.004	0.65	1.78%	2	5
Canada Milkvetch	<i>Astragalus canadensis</i>	0.050	0.31	0.85%	2	4
Canada Tick-trefoil	<i>Desmodium canadense</i>	0.080	0.16	0.44%	2	5
Clasping Coneflower	<i>Rudbeckia amplexicaulis</i> or <i>Dracopis amplexicaulis</i>	0.040	1.47	4.03%	1	2
Common Evening Primrose	<i>Oenothera biennis</i>	0.035	1.11	3.03%	2	4
Common Milkweed, Native Source	<i>Asclepias syriaca</i>	0.050	0.09	0.26%	2	5
Compass Plant	<i>Silphium laciniatum</i>	0.030	0.01	0.02%	2	5
Culver's Root	<i>Veronicastrum virginicum</i>	0.004	1.10	3.02%	3	4
Cup Plant, Native Source	<i>Silphium perfoliatum</i>	0.020	0.03	0.08%	2	5
Deer Vetch, Native Source	<i>Acmispon americanus</i> or <i>Lotus unifoliolatus</i>	0.020	0.03	0.09%	3	4
Dotted Mint	<i>Monarda punctata</i>	0.030	1.01	2.78%	2	4
Entire-leaved Rosinweed, Native Source	<i>Silphium integrifolium</i>	0.020	0.02	0.04%	2	5
False Boneset	<i>Brickellia eupatorioides</i>	0.015	0.18	0.49%	3	3
False or Oxeye Sunflower	<i>Heliopsis helianthoides</i>	0.100	0.24	0.65%	2	5
Foxglove Beardstongue, Native Source	<i>Penstemon digitalis</i>	0.020	0.18	0.50%	1	5
Golden Alexander	<i>Zizia aurea</i>	0.100	0.40	1.11%	1	5
Gray Goldenrod	<i>Solidago nemoralis</i>	0.006	0.14	0.38%	3	4
Grayhead Coneflower	<i>Ratibida pinnata</i>	0.045	0.44	1.21%	2	4
Hairy Beardstongue	<i>Penstemon hirsutus</i>	0.008	0.73	2.00%	1	5
Heath Aster	<i>Symphotrichum ericoides</i>	0.006	0.69	1.90%	3	5
Hoary Vervain, Native Source	<i>Verbena stricta</i>	0.025	0.34	0.92%	2	5
Illinois Bundleflower	<i>Desmanthus illinoensis</i>	0.300	0.59	1.60%	2	5
Ironweed	<i>Vernonia fasciculata</i>	0.020	0.18	0.48%	2	5
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>	0.200	1.01	2.78%	2	4
Late or Giant Goldenrod, Native Source	<i>Solidago gigantea</i>	0.006	1.04	2.86%	3	5
Maximilian Sunflower	<i>Helianthus maximiliani</i>	0.040	0.18	0.49%	3	5
Missouri Goldenrod, Native Source	<i>Solidago missouriensis</i>	0.006	0.87	2.38%	2	5
New England Aster	<i>Symphotrichum novae-angliae</i>	0.012	0.29	0.80%	3	5
Pale Purple Coneflower	<i>Echinacea pallida</i>	0.100	0.24	0.67%	2	5
Plains Coreopsis	<i>Coreopsis tinctoria</i>	0.015	1.11	3.04%	2	2
Plains Sunflower, Native Source	<i>Helianthus petiolaris</i>	0.030	0.08	0.22%	3	5
Purple Coneflower	<i>Echinacea purpurea</i>	0.200	0.53	1.46%	2	5
Purple Prairieclover	<i>Dalea purpurea</i>	0.040	0.29	0.80%	2	5
Rough Gayfeather, Native Source	<i>Liatris aspera</i>	0.016	0.10	0.28%	3	5
Rough Purple Gerardia, Native Source	<i>Agalinis aspera</i>	0.005	0.24	0.67%	2	4
Roundhead Lespedeza, Native Source	<i>Lespedeza capitata</i>	0.020	0.08	0.22%	3	4
Sawtooth Sunflower, Native Source	<i>Helianthus grosseserratus</i>	0.010	0.14	0.40%	3	5
Seed Box	<i>Ludwigia alternifolia</i>	0.003	1.43	3.93%	3	3
Shell-leaf Penstemon, Native Source	<i>Penstemon grandiflorus</i>	0.020	0.10	0.27%	1	5
Showy Goldenrod	<i>Solidago speciosa</i>	0.008	0.79	2.16%	3	5
Showy Partridgepea	<i>Chamaecrista fasciculata</i>	0.400	0.60	1.64%	2	5
Skyblue Aster	<i>Symphotrichum oolentangiense</i>	0.007	0.21	0.56%	3	5
Smooth Blue Aster	<i>Aster laevis</i>	0.018	0.42	1.15%	3	5
Stiff Goldenrod, Native Source	<i>Solidago rigida</i>	0.020	0.31	0.85%	3	5
Stiff Sunflower, Native Source	<i>Helianthus pauciflorus</i>	0.020	0.34	0.93%	2	4
Swamp Milkweed, Native Source	<i>Asclepias incarnata</i>	0.010	0.04	0.10%	2	5
Tall Boneset, Native Source	<i>Eupatorium altissimum</i>	0.008	0.15	0.40%	3	4
Tall Coreopsis	<i>Coreopsis tripteris</i>	0.010	0.38	1.04%	2	3
Thickspike Gayfeather	<i>Liatris pycnostachya</i>	0.010	0.03	0.08%	3	5
Tube Penstemon, Native Source	<i>Penstemon tubaeformis</i>	0.020	0.59	1.61%	2	5
Upright Coneflower	<i>Ratibida columnifera</i>	0.035	0.59	1.62%	2	2
Western Yarrow	<i>Achillea millefolium</i>	0.025	1.64	4.49%	1	2
Wild Bergamot	<i>Monarda fistulosa</i>	0.035	1.02	2.80%	2	5
Wild Quinine	<i>Parthenium integrifolium</i>	0.050	0.13	0.35%	2	2

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Wild Senna	<i>Senna hebecarpa</i>	0.100	0.05	0.14%	2	2
Rice Hulls - Filler for low planting rate mixtures		2.500	0.00	0.00%	--	--
Grasses Total:		1.260	6.121	16.78%		
Wildflower/Forb/Legume Total:		2.874	30.355	83.22%		
Filler Total:		2.500	0.000	0.00%		
Total Mixture:		6.634	36.477	100.00%		

Bloom Period	Wildflowers Used in Mixture	% PLS Seeding Rate of Mix
1 = April to May	7	14.74%
2 = June to July	33	42.59%
3 = August to October	22	25.89%
Total :	62	

4.34	Pollinator Value (0-5)
<i>The Pollinator value score is determined based on a combination of factors described below. A score greater than 4.0 indicates the mixture is designed for great pollinator value.</i>	

The Pollinator Value Score is determined based on a combination of factors that include:

The pollen and/or nectar value of the plant species.
The ability of the plant species to establish and persist in pollinator seeding mixtures.
Bee Integrated Program research results of pollinator pollen analysis.
Unique pollinator biological life histories of the plant species.
The total bloom period length of the plant species.
The occurrence in early bloom periods (Bloom Period 1) that are hard to challenging to provide resources for.
The commercial availability of the species for use in seeding mixtures.
Value of the plant species pollen and nectar to commercial beekeepers.
USGS Pollinator Library tool: <https://www.npwrc.usgs.gov/pollinator/home>
The Ecoregional Revegetation Application tool: <http://www.nativerevegetation.org/era/>
Botanical and beekeeping reference materials that list the pollinator value of species.
Field observations of floral resource use by pollinator species.