

Supplementary Material

Title: If You Build It, Will They Come? Pollinator and Beneficial Insect Community Responses to Native Vegetation Establishment at Solar Energy Facilities in Minnesota

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Supplementary Material

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Table S-1: Solar-pollinator habitat seed mixes planted at the two solar sites in 2018. Species are listed in alphabetical order of scientific name. Seeds were planted at both sites in two rounds: an initial site-wide seeding application (General) and a second targeted seeding application within the test plots (Test Plot). See Methods for details.

Scientific Name	Common Name	Type	Atwater	Eastwood	Application
<i>Achillea millefolium</i>	Common Yarrow	Forb	x	x	Test Plot
<i>Agastache foeniculum</i>	Fragrant Giant Hyssop	Forb	x	x	General
<i>Agastache sp.</i>	Hyssop	Forb	x	x	Test Plot
<i>Alisma gramineum</i>	Water Plantain	Forb	x	x	Test Plot
<i>Alium stellatum</i>	Prairie Onion	Forb	x	x	General
<i>Allium canadense</i>	Wild Garlic	Forb	x	x	General, Test Plot
<i>Allium stellatum</i>	Prairie Onion	Forb	x	x	Test Plot
<i>Amorpha canescens</i>	Leadplant	Forb	x	x	General, Test Plot
<i>Andropogon gerardi</i>	Big Bluestem	Grass	x	x	General
<i>Anemone canadensis</i>	Canada Anemone	Forb	x	x	General
<i>Anemone patens</i>	Pasque Flower	Forb	x	x	Test Plot
<i>Aquilegia canadensis</i>	Columbine	Forb	x	x	General
<i>Asclepias incarnata</i>	Swamp Milkweed	Forb	x	x	General, Test Plot
<i>Asclepias syriaca</i>	Common Milkweed	Forb	x	x	General, Test Plot
<i>Asclepias tuberosa</i>	Butterfly Milkweed	Forb	x	x	General, Test Plot
<i>Asclepias verticillata</i>	Whorled Milkweed	Forb		x	General
<i>Aster novae-angliae</i>	New England Aster	Forb	x	x	General
<i>Aster oolentangiense</i>	Sky-Blue Aster	Forb	x	x	General
<i>Astragalus canadensis</i>	Canada Milkvetch	Forb	x	x	Test Plot
<i>Baptisia alba</i>	White Wild Indigo	Forb	x	x	Test Plot
<i>Baptisia bracteata</i>	Cream Wild Indigo	Forb	x	x	Test Plot
<i>Bouteloua curtipendula</i>	Side-Oats Grama	Grass	x	x	General, Test Plot
<i>Bouteloua gracilis</i>	Blue Grama	Grass	x	x	General
<i>Bouteloua gracilis</i>	Blue Grama	Grass	x	x	Test Plot
<i>Bromus ciliatus</i>	Fringed Brome	Grass	x	x	General, Test Plot
<i>Bromus kalmii</i>	Prairie Brome	Grass	x	x	Test Plot
<i>Buchloe dactyloides</i>	Buffalograss	Grass	x	x	Test Plot
<i>Calamagrostis canadensis</i>	Blue Joint Grass	Grass	x	x	Test Plot
<i>Carex bebbii</i>	Bebb's Oval Sedge	Grass	x	x	Test Plot
<i>Carex bicknellii</i>	Bicknell's Sedge	Grass	x	x	General, Test Plot
<i>Carex comosa</i>	Longhair Sedge	Grass	x	x	General, Test Plot
<i>Carex foenea</i>	Greater Straw Sedge	Grass	x	x	Test Plot
<i>Carex hystericina</i>	Porcupine Sedge	Grass	x	x	Test Plot
<i>Carex radiata</i>	Eastern Star Sedge	Grass	x	x	General, Test Plot
<i>Carex scoparia</i>	Pointed-broom Sedge	Grass	x	x	General, Test Plot
<i>Carex stipata</i>	Common Fox Sedge	Grass	x	x	General, Test Plot
<i>Carex vulpinoidea</i>	Fox Sedge	Grass	x	x	General, Test Plot
<i>Chamaecrista fasciculata</i>	Partridge Pea	Forb	x	x	General, Test Plot
<i>Chelone glabra</i>	Turtlehead	Forb	x	x	Test Plot

Scientific Name	Common Name	Type	Atwater	Eastwood	Application
<i>Coreopsis lanceolata</i>	Lance-leaved Coreopsis	Forb	x	x	Test Plot
<i>Coreopsis palmata</i>	Prairie Coreopsis	Forb	x	x	General, Test Plot
<i>Dalea candida</i>	White Prairie Clover	Forb	x	x	General, Test Plot
<i>Dalea purpurea</i>	Purple Prairie Clover	Forb	x	x	General, Test Plot
<i>Danthonia spicata</i>	Poverty Oat Grass	Grass	x	x	Test Plot
<i>Desmodium canadense</i>	Showy Tick-Trefoil	Forb	x	x	General, Test Plot
<i>Doellingeria umbellata</i>	Flat-topped Aster	Forb	x	x	Test Plot
<i>Dryocallis arguta</i>	Prairie Cinquefoil	Forb	x	x	Test Plot
<i>Echinacea angustifolia</i>	Narrow-leaved Coneflower	Forb	x	x	Test Plot
<i>Echinacea pallida</i>	Pale Purple Coneflower	Forb	x	x	General
<i>Echinacea purpurea</i>	Purple coneflower	Forb	x	x	Test Plot
<i>Elymus canadensis</i>	Canada Wild Rye	Grass	x	x	General, Test Plot
<i>Elymus hystrix</i>	Bottlebrush Grass	Grass	x	x	General, Test Plot
<i>Elymus trachycaulus</i>	Slender Wheat-grass	Grass	x	x	General, Test Plot
<i>Elymus villosus</i>	Silky Wild Rye	Grass	x	x	General, Test Plot
<i>Elymus virginicus</i>	Virginia Wild Rye	Grass	x	x	General, Test Plot
<i>Eryngium yuccifolium</i>	Rattlesnake Master	Forb	x	x	Test Plot
<i>Eupatorium perfoliatum</i>	Boneset	Forb	x	x	General, Test Plot
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	Forb	x	x	Test Plot
<i>Eutrochium maculatum</i>	Joe Pye Weed	Forb	x	x	Test Plot
<i>Festuca subverticillata</i>	Nodding Fescue	Grass	x	x	General
<i>Gentiana andrewsii</i>	Bottle Gentian	Forb	x	x	Test Plot
<i>Geum triflorum</i>	Prairie Smoke	Forb	x	x	Test Plot
<i>Glyceria grandis</i>	Reed Manna Grass	Grass	x	x	Test Plot
<i>Glyceria striata</i>	Fowl Manna Grass	Grass	x	x	Test Plot
<i>Glycyrrhiza lepidota</i>	Wild Licorice	Forb	x	x	Test Plot
<i>Helenium autumnale</i>	Sneezeweed	Forb	x	x	Test Plot
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	Forb	x	x	Test Plot
<i>Helianthus pauciflorus</i>	Stiff Sunflower	Forb	x	x	Test Plot
<i>Heliopsis helianthoides</i>	Common Ox-Eye	Forb	x	x	General, Test Plot
<i>Heuchera richardsonii</i>	Prairie Alumroot	Forb	x	x	Test Plot
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	Forb	x	x	Test Plot
<i>Iris versicolor</i>	Northern Blue Flag Iris	Forb	x		General
<i>Juncus tenuis</i>	Path Rush	Grass	x	x	General, Test Plot
<i>Juncus torreyi</i>	Torrey's Rush	Grass	x	x	Test Plot
<i>Koeleria macrantha</i>	Junegrass	Grass	x	x	General, Test Plot
<i>Leersia oryzoides</i>	Rice Cut Grass	Grass	x		General
<i>Lespedeza capitata</i>	Round-headed Bushclover	Forb	x	x	Test Plot
<i>Liatris aspera</i>	Rough Blazingstar	Forb	x	x	Test Plot
<i>Liatris ligulistylis</i>	Meadow Blazing Star	Forb	x	x	Test Plot
<i>Liatris punctata</i>	Dotted Blazing Star	Forb	x	x	Test Plot
<i>Liatris pycnostachya</i>	Prairie Blazing Star	Forb	x	x	General, Test Plot
<i>Liatris spicata</i>	Marsh Blazing Star	Forb	x	x	Test Plot

Scientific Name	Common Name	Type	Atwater	Eastwood	Application
<i>Lobelia cardinalis</i>	Cardinal Flower	Forb	x	x	Test Plot
<i>Lobelia siphilitica</i>	Great Blue Lobelia	Forb	x	x	General, Test Plot
<i>Lupinus perennis</i>	Wild Lupine	Forb	x	x	Test Plot
<i>Lysimachia ciliata</i>	Fringed Loosestrife	Forb	x	x	Test Plot
<i>Mimulus ringens</i>	Monkey Flower	Forb	x	x	General, Test Plot
<i>Mitella diphylla</i>	Bishop's Cap	Forb	x	x	Test Plot
<i>Monarda fistulosa</i>	Wild Bergamot	Forb	x	x	General, Test Plot
<i>Monarda punctata</i>	Spotted Bee Balm	Forb	x	x	General, Test Plot
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	Forb	x	x	Test Plot
<i>Pedicularis canadensis</i>	Wood Betony	Forb	x	x	Test Plot
<i>Penstemon digitalis</i>	Foxglove Beardtongue	Forb	x	x	Test Plot
<i>Penstemon gracilis</i>	Slender Beardtongue	Forb	x	x	General, Test Plot
<i>Penstemon grandiflorus</i>	Large-flowered Beardtongue	Forb	x	x	Test Plot
<i>Poa palustris</i>	Fowl Bluegrass	Grass	x	x	General, Test Plot
<i>Potentilla arguta</i>	Prairie Cinquefoil	Forb	x	x	General
<i>Pycnanthemum virginianum</i>	Mountain Mint	Forb	x	x	General, Test Plot
<i>Ratibida columnifera</i>	Long-Headed Coneflower	Forb	x	x	General, Test Plot
<i>Ratibida pinnata</i>	Yellow Coneflower	Forb	x	x	General, Test Plot
<i>Rosa arkansana</i>	Prairie Rose	Forb	x	x	Test Plot
<i>Rudbeckia hirta</i>	Black-eyed Susan	Forb	x	x	General, Test Plot
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	x	x	General, Test Plot
<i>Scirpus atrovirens</i>	Green Bulrush	Grass	x	x	General, Test Plot
<i>Scirpus cyperinus</i>	Wool Grass	Forb	x	x	Test Plot
<i>Solidago nemoralis</i>	Old Field Goldenrod	Forb	x	x	General, Test Plot
<i>Solidago riddellii</i>	Riddell's Goldenrod	Forb	x	x	Test Plot
<i>Solidago rigida</i>	Stiff Goldenrod	Forb	x	x	General
<i>Solidago speciosa</i>	Showy Goldenrod	Forb	x	x	General, Test Plot
<i>Sorghastrum nutans</i>	Indian Grass	Grass	x	x	General
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	x	x	General, Test Plot
<i>Sporobolus heterolepis</i>	Prairie Dropseed	Grass	x	x	General, Test Plot
<i>Symphyotrichum ericoides</i>	Heath Aster	Forb	x	x	Test Plot
<i>Symphyotrichum laeve</i>	Smooth Aster	Forb	x	x	General, Test Plot
<i>Symphyotrichum lateriflorum</i>	Calico Aster	Forb	x	x	Test Plot
<i>Symphyotrichum puniceum</i>	Swamp Aster	Forb	x	x	Test Plot
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	Forb	x	x	Test Plot
<i>Thalictrum dioicum</i>	Early Meadow Rue	Forb	x	x	General
<i>Tradescantia bracteata</i>	Prairie Spiderwort	Forb	x	x	Test Plot
<i>Tradescantia ohimensis</i>	Ohio Spiderwort	Forb	x	x	Test Plot
<i>Verbena hastata</i>	Blue Vervain	Forb	x	x	General, Test Plot
<i>Verbena stricta</i>	Hoary Vervain	Forb	x	x	General, Test Plot
<i>Vernonia fasciculata</i>	Ironweed	Forb	x	x	Test Plot
<i>Veronicastrum virginicum</i>	Culver's Root	Forb	x	x	General, Test Plot
<i>Zizia aurea</i>	Golden Alexanders	Forb	x	x	General, Test Plot



Figure S1. Agricultural transect locations near the Atwater Solar Site. Imagery Source: Google Earth 2021, CNES / Airbus.

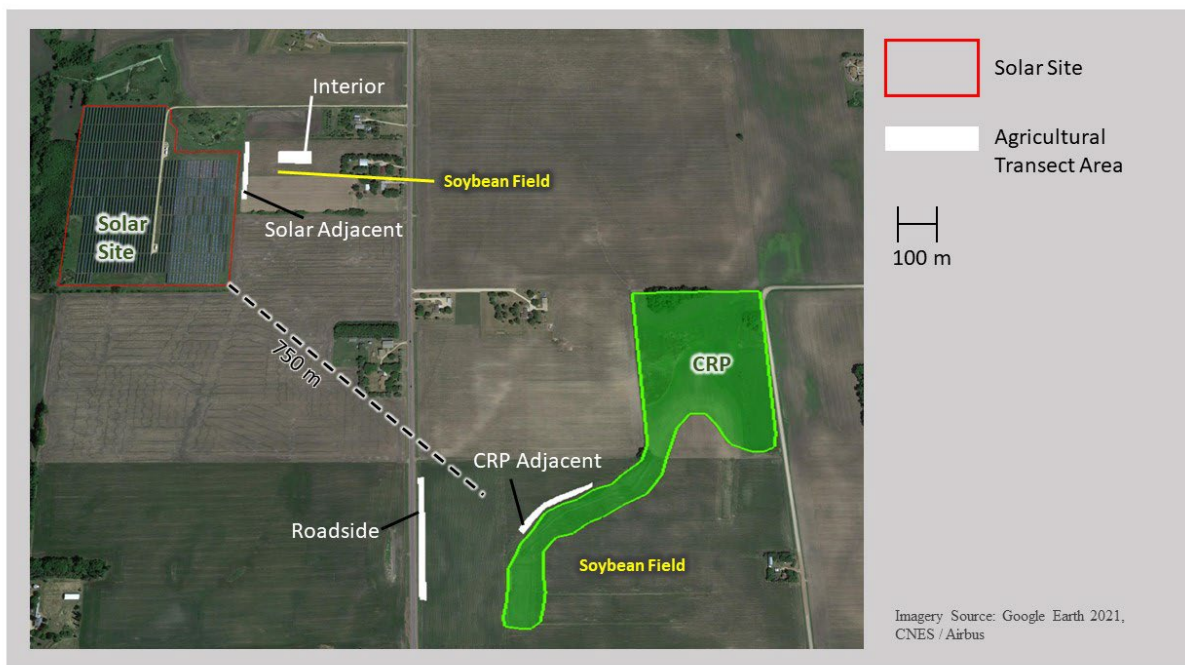


Figure S2. Agricultural transect locations near the Eastwood Solar Site. Imagery Source: Google Earth 2021, CNES / Airbus.

Table S2. Flowering plant species observed in the solar-pollinator habitat transects from 2018-2022, combined across both sites. Also noted is whether the species occurred in the habitat seed mix.

Common Name	Scientific name	Plant Type	Seed Mix	2018	2019	2020	2021	2022
Black-Eyed Susan	<i>Rudbeckia hirta</i>	Perennial	Yes	✿	✿	✿	✿	✿
Partridge Pea	<i>Chamaecrista fasciculata</i>	Annual	Yes	✿	✿	✿	✿	✿
Common Dandelion	<i>Taraxacum officinale</i>	Perennial	No	✿	✿	✿	✿	✿
Prairie Coreopsis	<i>Coreopsis palmata</i>	Perennial	Yes	✿	✿	✿		✿
Smartweed	<i>Persicaria</i> sp.	Annual	No	✿	✿	✿		✿
Clover	<i>Trifolium</i> sp.	Perennial	No	✿	✿	✿	✿	✿
Purple Coneflower	<i>Echinacea pallida</i>	Perennial	Yes		✿	✿	✿	✿
Great Blue Lobelia	<i>Lobelia siphilitica</i>	Perennial	Yes		✿	✿	✿	✿
Swamp Milkweed	<i>Asclepias incarnata</i>	Perennial	No		✿	✿	✿	✿
Canada Thistle	<i>Cirsium arvense</i>	Perennial	No		✿	✿	✿	✿
False Aster	<i>Boltonia asteroides</i>	Perennial	No		✿		✿	✿
Goldenrod	<i>Solidago</i> sp.	Perennial	Yes		✿	✿	✿	✿
Common Milkweed	<i>Asclepias syriaca</i>	Perennial	Yes		✿	✿		✿
Purple Prairie Clover	<i>Dalea purpureum</i>	Perennial	Yes		✿		✿	✿
Spotted Bee Balm	<i>Monarda punctata</i>	Perennial	Yes		✿	✿	✿	✿
Butterfly Milkweed	<i>Asclepias tuberosa</i>	Perennial	Yes		✿		✿	✿
Blue Vervain	<i>Verbena hastata</i>	Perennial	Yes		✿	✿	✿	✿
Monkey Flower	<i>Mimulus</i> sp.	Annual	No		✿			
Gumplant	<i>Grindelia hirsutula</i>	Perennial	No		✿			
Cardinal Flower	<i>Lobelia cardinalis</i>	Perennial	Yes			✿	✿	✿
Prairie Onion	<i>Alium stellatum</i>	Perennial	Yes			✿	✿	✿
Common Yarrow	<i>Achillea millefolium</i>	Perennial	No			✿	✿	✿
False Sunflower	<i>Heliopsis helianthoides</i>	Perennial	No			✿	✿	✿
Showy Tick-Trefoil	<i>Desmodium canadense</i>	Perennial	Yes			✿	✿	✿
Sow Thistle	<i>Sonchus oleraceus</i>	Annual	No			✿	✿	✿
Aster	<i>Aster</i> sp.	Perennial	Yes			✿	✿	✿
Fleabane	<i>Erigeron</i> sp.	Perennial	No				✿	✿
Ironweed	<i>Vernonia fasciculata</i>	Perennial	No				✿	✿
Curly Dock	<i>Rumex crispus</i>	Perennial	No				✿	✿
Cinquefoil	<i>Potentilla arguta</i>	Perennial	Yes				✿	✿
Anise Hyssop	<i>Agastache foeniculum</i>	Perennial	Yes					✿
Mountain Mint	<i>Pycnanthemum virginianum</i>	Perennial	Yes					✿
Canadian Milkvetch	<i>Astragalus canadensis</i>	Perennial	No					✿
Golden Alexander	<i>Zizia aurea</i>	Perennial	Yes					✿
Large-Flowered Beardtongue	<i>Penstemon grandiflorus</i>	Perennial	No					✿

Common Name	Scientific name	Plant Type	Seed Mix	2018	2019	2020	2021	2022
Cinnamon Willow Herb	<i>Epilobium coloratum</i>	Perennial	No					✿
Common Boneset	<i>Eupatorium perfoliatum</i>	Perennial	No					✿

Table S3. Generalized Additive Model (GAM) results for Floral Rank. The selected model (with the lowest ΔAICc score) is in bold.

Model Number / Name	Factors	df	ΔAICc	Weight
1 – null model	gam(Floral.Abandance ~ 1+ s(SolarSite, bs='re'), family=nb(), method="REML"))	2	17.0	<0.001
2 – simple linear model	gam(Floral.Abandance ~ Year + s(SolarSite, bs='re'), family=nb(), method="REML"))	3	0.0	0.340
3 – Single smoothed predictor (Year) & one Random Effect (Solar Site)	gam(Floral.Abandance ~ s(Year, k=5) + s(SolarSite, bs='re') , family=nb(), method="REML"))	3.1	0.1	0.330
4 – Single smoothed predictor (Year) and one nested effects (Transect) within one random effect (Solar Site)	gam(Floral.Abandance ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re'), family=nb(), method="REML"))	3.1	0.1	0.330

Table S4. Generalized Additive Model (GAM) results for Flowering Species Richness. The selected model (with the lowest ΔAICc score) is in bold.

Model Number / Name	Factors	df	ΔAICc	Weight
1 – null model	gam(Species.Abandance ~ 1+ s(SolarSite, bs='re'), family=nb(), method="REML"))	2.6	115.6	<0.001
2 – simple linear model	gam(Species.Abandance ~ Year + s(SolarSite, bs='re'), family=nb(), method="REML"))	3.9	8.4	0.008
3 – Single smoothed predictor (Year) & one Random Effect (Solar Site)	gam(Total.Pollinators ~ s(Year, k=5) +s(SolarSite, bs='re'), family=nb(), method="REML"))	6.4	0.0	0.496
4 – Single smoothed predictor (Year) and one nested effects (Transect) within one random effect (Solar Site)	gam(Species.Abandance ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re'), family=nb(), method="REML"))	6.4	0.0	0.496

Table S5. Generalized Additive Model (GAM) results for Pollinator Diversity (H'). The selected model (with the lowest ΔAICc score) is in bold.

Model Number / Name	Factors	df	ΔAICc	Weight
1 – null model	gam(Diversity ~ 1 + s(SolarSite, bs='re'), family=nb(), method="REML"))	2	1.7	0.083
2 – simple linear model	gam(Diversity ~ Year + s(SolarSite, bs='re'), family=nb(), method="REML"))	3	0.0	0.197
3 – Single smoothed predictor (Year) & one Random Effect (Solar Site)	gam(Diversity ~ s(Year, k=5) + s(SolarSite, bs='re') , family=nb(), method="REML"))	3	0.0	0.197
4 – Single smoothed predictor (Year) & three Random Effects (Solar Site, Floral Abundance, Flowering Species)	gam(Diversity ~ s(Year, k=5) + s(SolarSite, bs='re') + s(FloralRank, bs='re') , family=nb(), method="REML"))	3.7	0.4	0.164
5 – Single smoothed predictor (Year) and one nested effect (Transect) within one random effect (Solar Site)	gam(Diversity ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re'), family=nb(), method="REML"))	3	0.0	0.197
6 – Single smoothed predictor (Year) and three nested effects (Transect, Floral Abundance, Flowering Species) within one random effect (Solar Site)	gam(Diversity ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re') + s(SolarSite, FloralRank, bs='re') + s(SolarSite, Flowering.Species, bs='re'), family=nb(), method="REML"))	3.4	0.4	0.162

Table S6. Generalized Additive Model (GAM) results for Total Pollinator Abundance. The selected model (with the lowest $\Delta AICc$ score) is in bold.

Model Number / Name	Factors	df	$\Delta AICc$	Weight
1 – null model	gam(Total.Pollinators ~ 1+ s(SolarSite, bs='re'), family=nb(), method="REML"))	2.8	63.1	<0.001
2 – simple linear model	gam(Total.Pollinators ~ Year + s(SolarSite, bs='re'), family=nb(), method="REML"))	3.9	46.3	<0.001
3 – Single smoothed predictor (Year)	gam(Total.Pollinators ~ s(Year, k=5) , family=nb(), method="REML"))	5.9	6.1	0.039
4 – Single smoothed predictor (Year) & one Random Effect (Solar Site)	gam(Total.Pollinators ~ s(Year, k=5) + s(SolarSite, bs='re') , family=nb(), method="REML"))	6.5	6.8	0.028
5 – Single smoothed predictor (Year) & three Random Effects (Solar Site, Floral Abundance, Flowering Species)	gam(Total.Pollinators ~ s(Year, k=5) + s(SolarSite, bs='re') + s(FloralRank, bs='re') , family=nb(), method="REML"))	7.9	0.0	0.828
6 – Single smoothed predictor (Year) and three nested effects (Transect, Floral Abundance, Flowering Species) within one random effect (Solar Site)	gam(Total.Pollinators ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re') + s(SolarSite, FloralRank, bs='re') + s(SolarSite, Flowering.Species, bs='re'), family=nb(), method="REML"))	8.6	4.1	0.106

Table S7. Generalized Additive Model (GAM) results for Native Bee Abundance. The selected model (with the lowest ΔAICc score) is in bold.

Model Number / Name	Factors	df	ΔAICc	Weight
1 – null model	<code>gam(Bees ~ 1+ s(SolarSite, bs='re'), family=nb(), method="REML")</code>	2.4	72.0	<0.001
2 – simple linear model	<code>gam(Bees ~ Year + s(SolarSite, bs='re'), family=nb(), method="REML")</code>	3.0	9.8	0.007
3 – Single smoothed predictor (Year)	<code>gam(Bees ~ s(Year, k=5) , family=nb(), method="REML")</code>	4.4	9.0	0.010
4 – Single smoothed predictor (Year) & one Random Effect (Solar Site)	<code>gam(Bees ~ s(Year, k=5) + s(SolarSite, bs='re') , family=nb(), method="REML")</code>	5.1	9.6	0.008
5 – Single smoothed predictor (Year) & three Random Effects (Solar Site, Floral Abundance, Flowering Species)	<code>gam(Bees ~ s(Year, k=5) + s(SolarSite, bs='re') + s(FloralRank, bs='re') , family=nb(), method="REML")</code>	6.3	0.0	0.936
6 – Single smoothed predictor (Year) and one nested effect (Transect) within one random effect (Solar Site)	<code>gam(Bees ~ s(Year, k=5) + s(SolarSite, bs='re') + s(SolarSite, TRANSECT, bs='re'), family=nb(), method="REML")</code>	5.5	6.3	0.039

Table S8. Generalized Linear Mixed Model (GLMM) results for (A) total bee visitation and (B) native bee visitation to soybean fields near the solar facilities. The selected model (with the lowest ΔAICc score) is in bold.

(A) Bee Visitation (Native Bees and Honeybees)

Model	Factors	df	ΔAICc	Weight
1	glmer.nb(bees ~ 0+Location+(1 Site))	6	0.0	0.847
2	glmer.nb(bees ~ 0+Location+(1 Site)+(1 Year))	7	3.7	0.134
3	glmer.nb(bees ~ 0+Location+(1 Site)+(1 Site/Transect))	8	7.8	0.017
4	glmer.nb(bees ~ 0+Location+(1 Site)+(1 Site/Transect)+(1 Year))	9	12.4	0.002

(B) All Pollinators and Beneficial Insects

Model	Factors	df	ΔAICc	Weight
1	glmer.nb(all.insects ~ 0+Location+(1 Site))	6	30.4	<0.001
2	glmer.nb(all.insects ~ 0+Location+(1 Site)+(1 Year))	7	0.0	0.987
3	glmer.nb(all.insects ~ 0+Location+(1 Site)+(1 Site/Transect))	8	38.2	<0.001
4	glmer.nb(all.insects ~ 0+Location+(1 Site)+(1 Site/Transect)+(1 Year))	9	8.7	0.013

Supplemental Appendix: Photographs

2018

A.



2022

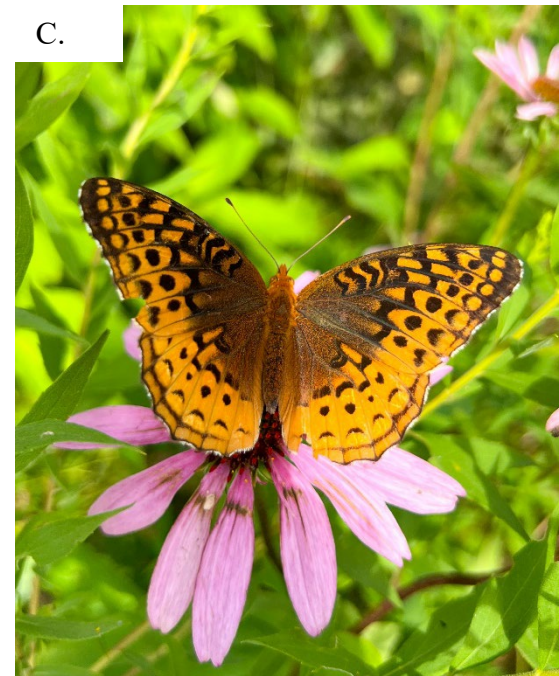
B.



Photographs #1: Vegetation change within one transect at Eastwood Solar facility after the planting of solar-pollinator habitat. A) Transect vegetation shortly after planting in 2018. B) Transect vegetation in 2022, 4 years after planting of solar-pollinator habitat. Photo credit: L. Walston.



Photographs #2: Example solar-pollinator habitat established at (A) Atwater Solar Facility and (B) Eastwood Solar Facility. The images were taken in 2022. Photo credit: L. Walston.



Photographs #3: Pollinator insects observed in the solar-pollinator habitat transects on the solar facilities. (A) Monarch butterfly (*Danaus plexippus*) on wild bergamot (*Monarda* sp.). (B) Bumblebee (*Bombus* sp.) on purple coneflower (*Echinacea purpurea*). (C) Great spangled fritillary (*Speyeria cybele*) on purple coneflower (*Echinacea purpurea*). Photo credit: L. Walston and L. Fox.