

# Solar Summit 2022



## Seed Mix Approval – Step by Step

Amanda Gentry  
Winona County SWCD





# Solar Landscape Plans Pollinator Review



## Habitat Friendly Solar Site Assessment Form for Project Planning

For solar companies and local governments to meet Habitat Friendly standards  
5-26-2020

**1) PLANNED % OF SITE DOMINATED BY NATIVE SPECIES COVER (wildflowers, grasses, sedges, shrubs, trees)**

26-50% +5 points  
 51-75% +10 points  
 76% and above +15 points

Total points

**2) PERCENT OF PROPOSED SITE VEGETATION COVER TO BE DOMINATED BY WILDFLOWERS (not grasses and sedges)**

10-20 % +5 points  
 21-30 % +10 points  
 31% and above +15 points

Total points

*Note: Projects may have "array" mixes and diverse border mixes; forb dominance should be averaged across the entire site. The dominance should be calculated from total numbers of forb seeds vs. grass seeds based on seeds per square foot (from all seed mixes to be planted).*

**3) PLANNED COVER DIVERSITY (# of species in seed mixes; numbers from upland and wetland mixes can be combined)**

10-19 species +5 points  
 20-25 species +10 points  
 26 or more species +15 points

Total points

**4) PLANNED SEASONS WITH AT LEAST 3 BLOOMING SPECIES PRESENT (check/add all that apply)**

Spring (April - May) +10 points  
 Summer (June - August) +5 points  
 Fall (September - October) +5 points

Total points

*See BWSR [Pollinator Toolbox](#) about bloom season.*

**5) AVAILABLE HABITAT COMPONENTS WITHIN SITE OR WITHIN .25 MILES (check/add all that apply)**

Native bunch grasses for nesting +3 points  
 Native flowering shrubs +4 points  
 Clean, perennial water sources +3 points  
 Created nesting feature/s (bee blocks, etc.) +4 points

Total points

**6) SITE PLANNING AND MANAGEMENT**

Detailed establishment and management plan (see notes) developed with funding/contract to implement. +15 points

Signage legible at forty or more feet stating pollinator friendly solar habitat (see notes for number of signs). +5 points

Total points

**7) SEED MIXES**

Mixes are composed of at least 40 seeds per square foot. +5 points  
 All seed genetic origin within 175 of site (see notes). +8 points  
 At least 1% milkweed cover to be established from seed/plants. +10 points

Total points

**8) INSECTICIDE RISK**

Planned on-site insecticide use or pre-planting seed/plant treatment (excluding buildings/electrical boxes, etc.). -40 points

Communication with local chemical applicators/neighbors about need to prevent drift from adjacent areas (see notes). +10 points

Total points

**Grand Total**

Gold Standard - Provides Exceptional Habitat 85+  
 Meets Pollinator Standards 70

Project Name: \_\_\_\_\_  
 Vegetation Consultant: \_\_\_\_\_  
 Project County: \_\_\_\_\_  
 Project Size: \_\_\_\_\_  
 Projected Seeding Date: \_\_\_\_\_

*See notes related to the question on the back side of this form.*

Pg. 1



## Winona Co. SWCD Solar Pollinator Site and Plan Report

(Winona Co. SWCD, 400 Wilson St., P.O. Box 39, Lewiston, MN 55952 507-523-2171 ext. 3)

Landowner:	Phone:
Address:	
Parcel(s):	
Solar Consultant	
Vegetation Consultant	

The purpose of this report is not to say if the project could or should be allowed, but to address whether the site and plan report meets the pollinator standards of the BWSR Solar Site Pollinator Habitat Assessment Form for Project Planning.

### 1. Planned % of site dominated by native species

Seed Mixes:	Mix 1:	Mix 2:	Mix 3:
_____ Ac total	_____ Ac	_____ Ac	_____ Ac
	_____ % of total planting	_____ % of total planting	_____ % of total planting
<b>% of Mix by Seeds/Sq Ft:</b>			
Native Forbcs			
Native Grasses/Sedges			
Clovers/Alfalfa/Non-native Forbcs			
Introduced Grasses			

Equation:  
 (((Mix 1 Native Forbcs % + Mix 1 Native Grasses %) X Mix 1 acres) + ((Mix 2 Native Forbcs % + Mix 2 Native Grasses %) X Mix 2 acres) + ((Mix 3 Native Forbcs % + Mix 3 Native Grasses %) X Mix 3 acres)) / Total Acres

( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 1 = \_\_\_\_\_  
 ( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 2 = \_\_\_\_\_  
 + ( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 3 = \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_ total acres = \_\_\_\_\_ % Native Species

\*Assessment Points. \_\_\_\_\_ pts obtained

26-50%	+5 points
51-75%	+10 points
76+%	+15 points

Note: \_\_\_\_\_

### 2. Percent of proposed site vegetation to be dominated by wildflowers

Seed Mixes:	Mix 1:	Mix 2:	Mix 3:
_____ Ac total	_____ Ac	_____ Ac	_____ Ac
	_____ % of total planting	_____ % of total planting	_____ % of total planting
<b>% of Mix by Seeds/Sq Ft:</b>			
Native Forbcs			
Native Grasses/Sedges			
Clovers/Alfalfa/Non-native Forbcs			
Introduced Grasses			



# 1. Planned % of Site Dominated by Native Species Cover

## What I need:

- ✿ Seed mix breakdown
  - % weight of mix – NO!
  - % PLS/SF
- ✿ Multiple mixes
  - Upland vs Wetland
  - Under Array vs Fringe
  - Don't forget around fence & screening
- ✿ Acreage of each mix
  - Should add up to lease area

### 1. Planned % of site dominated by native species

Seed Mixes:	Mix 1: _____	Mix 2: _____	Mix 3: _____
_____ Ac total	_____ Ac	_____ Ac	_____ Ac
	_____ % of total planting	_____ % of total planting	_____ % of total planting
% of Mix by Seeds/Sq Ft:			
Native Forbs			
Native Grasses/Sedges			
Clovers/Alfalfa/Non-native Forbs			
Introduced Grasses			

#### Equation:

$$\frac{((\text{Mix 1 Native Forbs \%} + \text{Mix 1 Native Grasses \%}) \times \text{Mix 1 acres}) + ((\text{Mix 2 Native Forbs \%} + \text{Mix 2 Native Grasses \%}) \times \text{Mix 2 acres}) + ((\text{Mix 3 Native Forbs \%} + \text{Mix 3 Native Grasses \%}) \times \text{Mix 3 acres})}{\text{Total Acres}}$$

( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 1 = \_\_\_\_\_

( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 2 = \_\_\_\_\_

+ ( \_\_\_\_\_ % + \_\_\_\_\_ % ) X \_\_\_\_\_ ac Mix 3 = \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_ total acres = \_\_\_\_\_ % Native Species

#### \*Assessment Points. \_\_\_\_\_ pts obtained

26-50%	+5 points
51-75%	+10 points
76+%	+15 points

Note: \_\_\_\_\_

# Seed Mixes Provided in the Plan

## UPLAND MIX 7.69 ACRES

### Wildflowers, Upland Acreage

Common Name	Scientific Name	% of Mix
Anise Hyssop	Agastache foeniculum	0.12%
Western Yarrow	Achillea millefolium	0.75%
Nodding Onion	Allium cernuum	0.15%
Columbine	Aquilegia canadensis	0.07%
Common Milkweed	Asclepias syriaca	0.22%
Butterfly Milkweed	Asclepias tuberosa	0.19%
Canada Milk Vetch	Astragalus canadensis	1.05%
Calico Aster	Aster lateriflorus	0.15%
Partridge Pea	Chamaecrista fasciculata	3.00%
Cream Gentian	Gentiana flavida	0.37%
White Prairie Clover	Dalea candidum	5.99%
Purple Prairie Clover	Dalea purpurea	8.24%
Prairie Blazingstar	Liatris pycnostachya	0.12%
Wild Lupine	Lupinus perennis	0.24%
Monkey Flower	Mimulus ringens	0.09%
Large-flowered Beardtongue	Penstemon grandiflorus	0.12%
Solomon's Plume	Smilacina racemosa	0.12%
Mountain Mint	Pycnanthemum virginianum	0.15%
Black-eyed Susan	Rudbeckia hirta	2.20%
Spotted Bee Balm	Monarda punctata	0.07%
Ohio Spiderwort	Tradescantia ohiensis	0.13%
Hoary Vervain	Verbena stricta	0.75%
Golden Alexanders	Zizia aurea	3.75%

Seeding Rate: 12.12 lb/acre (82.8 seeds/square foot) with upland grass and sedge mix.

### Grasses and Sedges, Upland Acreage

Common Name	Scientific Name	% of Mix
Sideoats Grama	Bouteloua curtipendula	26.68%
Slender Wheatgrass	Agropyron trachycaulum	3.61%
Long-beaked Sedge	Carex sprengeii	2.16%
Brown Fox Sedge	Carex vulpinoidea	1.80%
Silky Wild Rye	Elymus villosus	14.42%
Little Bluestem	Schizachyrium scoparium	22.92%
Rough Dropseed	Sporobolus aspera	0.36%

## WETLAND MIX 0.13 ACRES

### Wildflowers, Wet Acreage

Common Name	Scientific Name	% of Mix
Bottlebrush Sedge	Carex comosa	6.00%
Fringed Sedge	Carex crinita	6.00%
Pointed-broom Sedge	Carex scoparia	3.00%
Fox Sedge	Carex stipata	3.00%
Brown Fox Sedge	Carex vulpinoidea	3.00%
Fowl Manna Grass	Glyceria striata	0.30%
Virginia Wild Rye	Elymus virginicus	17.70%
Little Bluestem	Schizachyrium scoparium	36.00%
ForbsCanada Anemone	Anemone canadensis	1.51%
Calico Aster	Aster lateriflorus	0.90%
Canada Milk Vetch	Astragalus canadensis	3.09%
Nodding Bur Marigold	Bidens cernua	0.75%
Southern Blue Flag Iris	Iris virginica shrevei	0.51%
Great Blue Lobelia	Lobelia siphilitica	1.20%
Monkey Flower	Mimulus ringens	0.60%
Mountain Mint	Pycnanthemum virginianum	1.51%
Black-eyed Susan	Rudbeckia hirta	4.14%
Ohio Spiderwort	Tradescantia ohiensis	3.77%
Golden Alexanders	Zizia aurea	6.02%

### Grasses and Sedges, Wet Acreage

Common Name	Scientific Name	% of Mix
Bottlebrush Sedge	Carex comosa	6.00%
Fringed Sedge	Carex crinita	6.00%
Pointed-broom Sedge	Carex scoparia	3.00%
Fox Sedge	Carex stipata	3.00%
Brown Fox Sedge	Carex vulpinoidea	3.00%
Fowl Manna Grass	Glyceria striata	0.30%
Virginia Wild Rye	Elymus virginicus	17.70%
Little Bluestem	Schizachyrium scoparium	36.00%

Seeding Rate: 6 lbs/acre (104.4 seeds/square foot)



# Seed Mix Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Mix 1 - Upland Mix	7.81	12.12	lb/ac	72.7	seeds/sf										
2	Mix 2 - Wetland Mix	0.13	6	lb/ac	55.32	seeds/sf										
3	Mix 3 -	0														
	<b>Total Acres:</b>	<b>7.94</b>	<b>Total Lease Area:</b>	<b>9.33 ac</b>												
5				% of Mix by weight	PLS lb/ac	PLS oz/ac	Seeds/lb	Seeds/oz	Seeds/SF	% by component	% Seeds/SF	% Seeds/SF by component	Milkweed			
6	Mix 1 - Upland Mix	Grass	Side Oats Grama	26.7%	3.233616		96000	6,000	7.1	20.05%	8.87%					
7		7.81	Slender Whatgrass	3.6%	0.437532		16000	1,000	0.2	0.45%	0.20%					
8		ac	Long-beaked Sedge	2.2%	0.261792		160000	10,000	1.0	2.71%	1.20%					
9	30 species		Brown Fox Sedge	1.8%	0.21816		1600000	100,000	8.0	22.54%	9.98%					
10			Silky Wild Rye	14.4%	1.747704		88000	5,500	3.5	9.93%	4.40%					
11			Little Bluestem	22.9%	2.777904		240000	15,000	15.3	43.06%	19.06%					
12			Rough Dropseed	0.4%	0.043632		448000	28,000	0.4	1.26%	0.56%					
13				72.0%	8.72034				35.5	100%		44.26%		Bloom Season		
														Spring	Summer	Fall
14		Flowers	Anise Hyssop	0.1%	0.014544	0.2327	80,000	0.43	0.95%	0.53%						1
15			Yarrow	0.8%	0.0909	1.4544	178,000	5.94	13.27%	7.40%						1
16			Nodding Onion	0.2%	0.01818	0.29088	7,600	0.05	0.11%	0.06%						1
17			Columbine	0.1%	0.008484	0.13574	38,000	0.12	0.26%	0.15%				1		1
18			Common Milkweed *	0.2%	0.026664	0.42662	4,000	0.04	0.09%	0.049%			0.048%			1
19			Butterfly Milkweed *	0.2%	0.023028	0.36845	4,300	0.04	0.08%	0.045%			0.045%			1
20			Canada Milk Vetch	1.1%	0.12726	2.03616	17,000	0.79	1.77%	0.99%						1
21			Calico Aster	0.2%	0.01818	0.29088	160,000	1.07	2.39%	1.33%						1
22			Partidge Pea	3.0%	0.3636	5.8176	2,700	0.36	0.81%	0.45%						1
23			Cream Gentian	0.4%	0.044844	0.7175	200,000	3.29	7.36%	4.10%						1
24			White Prairie Clover	6.0%	0.725988	11.6158	19,000	5.07	11.32%	6.31%						1
25			Purple Prairie Clover	8.2%	0.998688	15.979	15,000	5.50	12.29%	6.85%						1
26			Prairie Blazingstar	0.1%	0.014544	0.2327	11,000	0.06	0.13%	0.07%						1
27			Wild Lupine	0.2%	0.029088	0.46541	1,100	0.01	0.03%	0.01%				1		1
28			Monkey Flower	0.1%	0.010908	0.17453	2,300,000	9.22	20.58%	11.47%						1
29			Large-Flowered Beardtong	0.1%	0.014544	0.2327	13,000	0.07	0.16%	0.09%				1		1
30			Solomon's Plume	0.1%	0.014544	0.2327	400	0.00	0.00%	0.00%				1		1
31			Mountain Mint	0.2%	0.01818	0.29088	220,000	1.47	3.28%	1.83%						1
32			Black Eyed Susan	2.2%	0.26664	4.26624	92,000	9.01	20.13%	11.22%						1
33			Spotted Bee Balm	0.1%	0.008484	0.13574	90,000	0.28	0.63%	0.35%						1
34			Ohio Spiderwort	0.1%	0.015756	0.2521	8,000	0.05	0.10%	0.06%				1		1
35			Hoary Vervain	0.8%	0.0909	1.4544	25,000	0.07	0.16%	0.09%						1
36			Golden Alexander	3.8%	0.4545	7.272	11,000	1.84	4.10%	2.29%				1		1
37				28.0%	3.398448	47.8207			44.8	100%	100%	55.74%		6	23	13
38									80.3							

# 2. % of Site Vegetation to be Dominated by Wildflowers

**What I need:**  
 🌸 Break down of forbs component

## 2. Percent of proposed site vegetation to be dominated by wildflowers

Seed Mixes:	Mix 1: _____	Mix 2: _____	Mix 3: _____
_____ Ac total	_____ Ac	_____ Ac	_____ Ac
	_____ % of total planting	_____ % of total planting	_____ % of total planting
% of Mix by Seeds/Sq Ft:			
Native Forbes			
Native Grasses/Sedges			
Clovers/Alfalfa/Non-native Forbes			
Introduced Grasses			

**Equation:**

$$\frac{(((\text{Mix 1 Native Forbes \%} + \text{Mix 1 Clovers/Alfalfa \%}) \times \text{Mix 1 acres}) + ((\text{Mix 2 Native Forbes \%} + \text{Mix 2 Clovers/Alfalfa \%}) \times \text{Mix 2 acres}) + ((\text{Mix 3 Native Forbes \%} + \text{Mix 3 Clovers/Alfalfa \%}) \times \text{Mix 3 acres}))}{\text{Total Acres}}$$

$$\frac{(\text{_____ \%} + \text{_____ \%}) \times \text{_____ ac Mix 1} + (\text{_____ \%} + \text{_____ \%}) \times \text{_____ ac Mix 2} + (\text{_____ \%} + \text{_____ \%}) \times \text{_____ ac Mix 3}}{\text{_____} / \text{_____ total acres} = \text{_____ \% wildflowers}}$$

**\*Assessment Points. \_\_\_\_\_ pts obtained**

10-20%	+5 points
21-30%	+10 points
31+%	+15 points

Note: \_\_\_\_\_



# Seed Mix Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Mix 1 - Upland Mix	7.81	12.12	lb/ac	72.7	seeds/sf										
2	Mix 2 - Wetland Mix	0.13	6	lb/ac	55.32	seeds/sf										
3	Mix 3 -	0														
4	Total Acres:	7.94	<b>Total Lease Area:</b>	<b>9.33 ac</b>												
5																
6	Mix 1 - Upland Mix	Grass	Side Oats Grama	26.7%	3.233616		96000	6,000	7.1	20.05%	8.87%					
7		7.81	Slender Whatgrass	3.6%	0.437532		16000	1,000	0.2	0.45%	0.20%					
8		ac	Long-beaked Sedge	2.2%	0.261792		160000	10,000	1.0	2.71%	1.20%					
9	30 species		Brown Fox Sedge	1.8%	0.21816		1600000	100,000	8.0	22.54%	9.98%					
10			Silky Wild Rye	14.4%	1.747704		88000	5,500	3.5	9.93%	4.40%					
11			Little Bluestem	22.9%	2.777904		240000	15,000	15.3	43.06%	19.06%					
12			Rough Dropseed	0.4%	0.043632		448000	28,000	0.4	1.26%	0.56%					
13				72.0%	8.72034				35.5	100%		44.26%		Bloom Season		
														Spring	Summer	Fall
14		Flowers	Anise Hyssop	0.1%	0.014544	0.2327	80,000	0.43	0.95%	0.53%						1
15			Yarrow	0.8%	0.0909	1.4544	178,000	5.94	13.27%	7.40%						1
16			Nodding Onion	0.2%	0.01818	0.29088	7,600	0.05	0.11%	0.06%						1
17			Columbine	0.1%	0.008484	0.13574	38,000	0.12	0.26%	0.15%				1		1
18			Common Milkweed *	0.2%	0.026664	0.42662	4,000	0.04	0.09%	0.049%			0.048%			1
19			Butterfly Milkweed *	0.2%	0.023028	0.36845	4,300	0.04	0.08%	0.045%			0.045%			1
20			Canada Milk Vetch	1.1%	0.12726	2.03616	17,000	0.79	1.77%	0.99%						1
21			Calico Aster	0.2%	0.01818	0.29088	160,000	1.07	2.39%	1.33%						1
22			Partidge Pea	3.0%	0.3636	5.8176	2,700	0.36	0.81%	0.45%						1
23			Cream Gentian	0.4%	0.044844	0.7175	200,000	3.29	7.36%	4.10%						1
24			White Prairie Clover	6.0%	0.725988	11.6158	19,000	5.07	11.32%	6.31%						1
25			Purple Prairie Clover	8.2%	0.998688	15.979	15,000	5.50	12.29%	6.85%						1
26			Prairie Blazingstar	0.1%	0.014544	0.2327	11,000	0.06	0.13%	0.07%						1
27			Wild Lupine	0.2%	0.029088	0.46541	1,100	0.01	0.03%	0.01%				1		1
28			Monkey Flower	0.1%	0.010908	0.17453	2,300,000	9.22	20.58%	11.47%						1
29			Large-Flowered Beardtong	0.1%	0.014544	0.2327	13,000	0.07	0.16%	0.09%				1		1
30			Solomon's Plume	0.1%	0.014544	0.2327	400	0.00	0.00%	0.00%				1		1
31			Mountain Mint	0.2%	0.01818	0.29088	220,000	1.47	3.28%	1.83%						1
32			Black Eyed Susan	2.2%	0.26664	4.26624	92,000	9.01	20.13%	11.22%						1
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34			Ohio Spiderwort	0.1%	0.015756	0.2521	8,000	0.05	0.10%	0.06%				1		1
35			Hoary Vervain	0.8%	0.0909	1.4544	25,000	0.07	0.16%	0.09%						1
36			Golden Alexander	3.8%	0.4545	7.272	11,000	1.84	4.10%	2.29%				1		1
37				28.0%	3.398448	47.8207			44.8	100%	100%	55.74%		6	23	13
38									80.3							

# 3. Planned Cover Diversity

## What I need:

- ✿ # species in each mix
- ✿ Subtract species repeated in multiple mixes

## What I watch for:

- ✿ Individual forb species <20% of forb component
  - Ensure that a handful species do not comprise a majority of mix
- ✿ Little Bluestem is <20% of grass component
  - NRCS and State standards allow up to 50% of grass component
  - Winona County has heavier soils, Little Bluestem does not thrive

3. Planned cover diversity (# of species in seed mixes; numbers from upland and wetland mixes can be combined)

Seed Mixes:	Mix 1: _____	Mix 2: _____	Mix 3: _____
# of Species (do not count repeated species between mixes)			

Equation:  
 # species Mix 1 + # species Mix 2 + # species Mix 3 = Total # of Species

\_\_\_\_\_ sps Mix 1 + \_\_\_\_\_ sps Mix 2 + \_\_\_\_\_ sps Mix 3 = \_\_\_\_\_ Total Species Diversity

*\*Assessment Points. \_\_\_\_\_ pts obtained*

10-19	+5 points
20-25%	+10 points
26+%	+15 points

Note:





# Seed Mix Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Mix 1 - Upland Mix	7.81		12.12 lb/ac		72.7 seeds/sf										
2	Mix 2 - Wetland Mix	0.13		6 lb/ac		55.32 seeds/sf										
3	Mix 3 -	0														
4	Total Acres:	7.94	<b>Total Lease Area:</b>	<b>9.33 ac</b>												
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15			Yarrow	0.8%	0.0909	1.4544		178,000	5.94	13.27%	7.40%					1
16			Nodding Onion	0.2%	0.01818	0.29088		7,600	0.05	0.11%	0.06%					1
17			Columbine	0.1%	0.008484	0.13574		38,000	0.12	0.26%	0.15%			1		1
18			Common Milkweed *	0.2%	0.026664	0.42662		4,000	0.04	0.09%	0.049%		0.048%			1
19			Butterfly Milkweed *	0.2%	0.023028	0.36845		4,300	0.04	0.08%	0.045%		0.045%			1
20			Canada Milk Vetch	1.1%	0.12726	2.03616		17,000	0.79	1.77%	0.95%					1
21			Calico Aster	0.2%	0.01818	0.29088		160,000	1.07	2.39%	1.33%					1
22			Partidge Pea	3.0%	0.3636	5.8176		2,700	0.36	0.81%	0.43%					1
23			Cream Gentian	0.4%	0.044844	0.7175		200,000	3.29	7.36%	4.11%					1
24			White Prairie Clover	6.0%	0.725988	11.6158		19,000	5.07	11.32%	6.33%					1
25			Purple Prairie Clover	8.2%	0.998688	15.979		15,000	5.50	12.29%	6.83%					1
26			Prairie Blazingstar	0.1%	0.014544	0.2327		11,000	0.06	0.13%	0.07%					1
27			Wild Lupine	0.2%	0.029088	0.46541		1,100	0.01	0.03%	0.01%					1
28			Monkey Flower	0.1%	0.010908	0.17453		2,300,000	9.22	20.58%	11.47%					1
29			Large-Flowered Beardtong	0.1%	0.014544	0.2327		13,000	0.07	0.16%	0.09%					1
30			Solomon's Plume	0.1%	0.014544	0.2327		400	0.00	0.00%	0.00%					1
31			Mountain Mint	0.2%	0.01818	0.29088		220,000	1.47	3.28%	1.83%					1
32			Black Eyed Susan	2.2%	0.26664	4.26624		92,000	9.01	20.13%	11.22%					1
33			Spotted Bee Balm	0.1%	0.008484	0.13574		90,000	0.28	0.63%	0.35%					1
34			Ohio Spiderwort	0.1%	0.015756	0.2521		8,000	0.05	0.10%	0.06%					1
35			Hoary Vervain	0.8%	0.0909	1.4544		25,000	0.07	0.16%	0.09%					1
36			Golden Alexander	3.8%	0.4545	7.272		11,000	1.84	4.10%	2.29%					1
37				28.0%	3.398448	47.8207			44.8	100%	100%	55.74%		6	23	13
38									80.3							

5 Species =  
77.59% of Forb  
Component



# 4. Planned Seasons with at Least 3 Blooming Species

## 4. Planned seasons with at least 3 blooming species present (check all that apply)

a. Some species will span two bloom seasons.

Seed Mixes:	Mix 1: _____	Mix 2: _____	Mix 3: _____
# Blooms/Season:			
Spring Blooms (April – May)			
Summer Blooms (June – August)			
Fall Blooms (September - October)			

Equation:

Spring Mix 1 + Spring Mix 2 + Spring Mix 3 = Total Spring Blooms

Summer Mix 1 + Summer Mix 2 + Summer Mix 3 = Total Summer Blooms

Fall Mix 1 + Fall Mix 2 + Fall Mix 3 = Total Fall Blooms

_____ Blooms Mix 1 + _____ Blooms Mix 2 + _____ Blooms Mix 3 = _____ Total Spring Blooms
_____ Blooms Mix 1 + _____ Blooms Mix 2 + _____ Blooms Mix 3 = _____ Total Summer Blooms
_____ Blooms Mix 1 + _____ Blooms Mix 2 + _____ Blooms Mix 3 = _____ Total Fall Blooms

\*Assessment Points. \_\_\_\_\_ pts obtained

Spring Blooms 3+	+5 points
Summer Blooms 3+	+5 points
Fall Blooms 3+	+5 points

Note:

### What I need:

🌸 # forb species in each bloom period

🌸 Subtract species repeated in multiple mixes

### What I watch for:

🌸 Bloom periods separated by Spring, Summer, Fall

- may not line up with traditional early, mid, late bloom time



# 5. Available Habitat Components within Site or w/in 1/4 miles

## What I need:

- ✿ Review maps of surrounding area
- ✿ Knowledge of the area
- ✿ Go for a drive

## What I watch for:

- ✿ Erosion control ponds may not qualify for "Clean, perennial water sources"

<b>5. Available habitat components within 1/4 mile (Check all that apply)</b>	
<i>*Assessment Points. _____ pts obtained (attach map of applicable components)</i>	
Native Bunch Grasses for Nesting	+3 points
Native Trees/Shrubs for Nesting	+4 points
Clean, Perennial Water Source	+3 points
Created Nesting Feature(s)	+4 points
Note:	

# 6. Site Planning and Management

## What I need:

- ✿ Lease area covered by acreage of planned seed mixes?
- ✿ Planting plan with timeline
- ✿ Maintenance plan with timeline
- ✿ STATE THAT FUNDING IS PROVIDED FOR ESTABLISHMENT & MAINTENANCE

## What I watch for:

- ✿ Statement of funding/contract is almost always missing

6. Site planning and management		Check if included
<b><u>Detailed Establishment/Management Plan with funding/contract to implement – must have all components to claim points:</u></b>		
Seed mixes provided for all areas		
Establishment/maintenance guidelines for each seed mix type outlined		
Funding/contract addressed		
<b><u>Signage Legible at forty or more feet stating pollinator friendly solar habitat (at least 1 every 20 ac) - must have both components to claim points:</u></b>		
Signage addressed in plan		
Signage location noted on site map		
<b>*Assessment Points. _____ pts obtained</b>		
Detailed plan	+15 points	
Signage	+5 points	
Note:		

# 7. Seed Mix

## What I need:

- ✿ 40+ Seeds/SF for each mix
- ✿ Genetic origin stated in plan to require origin within 175 miles of site
- ✿ Compute milkweed %

## What I watch for:

- ✿ Genetic origin often missed in the plan

**7. Seed mixes**

<u>Seed Mixes:</u>	Mix 1: _____	Mix 2: _____	Mix 3: _____
Seeds/sq ft			
Genetic Origin distance (miles)			
% milkweeds by seeds/sq ft			

**Equation:**  

$$\frac{((\text{Mix 1 Milkweed \%} \times \text{Mix 1 acres}) + (\text{Mix 2 Milkweed \%} \times \text{Mix 2 acres}) + (\text{Mix 3 Milkweed \%} \times \text{Mix 3 acres}))}{\text{Total Acres}}$$

\_\_\_\_\_ % X \_\_\_\_\_ ac Mix 1 = \_\_\_\_\_  
 \_\_\_\_\_ % X \_\_\_\_\_ ac Mix 2 = \_\_\_\_\_  
 + \_\_\_\_\_ % X \_\_\_\_\_ ac Mix 3 = \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_ total acres = \_\_\_\_\_ % Milkweed

**\*Assessment Points. \_\_\_\_\_ pts obtained**

40+ seeds/sq ft	+5 points
Genetic Origin w/in 175 miles	+8 points
1+% milkweed cover	+10 points

Note: \_\_\_\_\_



# Seed Mix Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Mix 1 - Upland Mix	7.81	12.12	lb/ac	72.7	seeds/sf										
2	Mix 2 - Wetland Mix	0.13	6	lb/ac	55.32	seeds/sf										
3	Mix 3 -	0														
4	Total Acres:	7.94	<b>Total Lease Area:</b>	<b>9.33 ac</b>												
5																
				% of Mix by			% by			% Seeds/SF by						
			Species	weight	PLS lb/ac	PLS oz/ac	Seeds/lb	Seeds/oz	Seeds/SF	component	% Seeds/SF	component	Milkweed			
6	Mix 1 - Upland Mix	Grass	Side Oats Grama	26.7%	3.233616		96000	6,000	7.1	20.05%	8.87%					
7		7.81	Slender Whatgrass	3.6%	0.437532		16000	1,000	0.2	0.45%	0.20%					
8		ac	Long-beaked Sedge	2.2%	0.261792		160000	10,000	1.0	2.71%	1.20%					
9	30 species		Brown Fox Sedge	1.8%	0.21816		1600000	100,000	8.0	22.54%	9.98%					
10			Silky Wild Rye	14.4%	1.747704		88000	5,500	3.5	9.93%	4.40%					
11			Little Bluestem	22.9%	2.777904		240000	15,000	15.3	43.06%	19.06%					
12			Rough Dropseed	0.4%	0.043632		448000	28,000	0.4	1.26%	0.56%					
13				72.0%	8.72034				35.5	100%		44.26%		Bloom Season		
														Spring	Summer	Fall
14		Flowers	Anise Hyssop	0.1%	0.014544	0.2327		80,000	0.43	0.95%	0.53%					1
15			Yarrow	0.8%	0.0909	1.4544		178,000	5.94	13.27%	7.40%					1
16			Nodding Onion	0.2%	0.01818	0.29088		7,600	0.05	0.11%	0.06%					1
17			Columbine	0.1%	0.008484	0.13574		38,000	0.12	0.26%	0.15%			1		1
18			Common Milkweed *	0.2%	0.026664	0.42662		4,000	0.04	0.09%	0.049%		0.048%			1
19			Butterfly Milkweed *	0.2%	0.023028	0.36845		4,300	0.04	0.08%	0.045%		0.045%			1
20			Canada Milk Vetch	1.1%	0.12726	2.03616		17,000	0.79	1.77%	0.99%					1
21			Calico Aster	0.2%	0.01818	0.29088		160,000	1.07	2.39%	1.33%					1
22			Partidge Pea	3.0%	0.3636	5.8176		2,700	0.36	0.81%	0.45%					1
23			Cream Gentian	0.4%	0.044844	0.7175		200,000	3.29	7.36%	4.10%					1
24			White Prairie Clover	6.0%	0.725988	11.6158		19,000	5.07	11.32%	6.31%					1
25			Purple Prairie Clover	8.2%	0.998688	15.979		15,000	5.50	12.29%	6.85%					1
26			Prairie Blazingstar	0.1%	0.014544	0.2327		11,000	0.06	0.13%	0.07%					1
27			Wild Lupine	0.2%	0.029088	0.46541		1,100	0.01	0.03%	0.01%			1		1
28			Monkey Flower	0.1%	0.010908	0.17453		2,300,000	9.22	20.58%	11.47%					1
29			Large-Flowered Beardtong	0.1%	0.014544	0.2327		13,000	0.07	0.16%	0.09%			1		1
30			Solomon's Plume	0.1%	0.014544	0.2327		400	0.00	0.00%	0.00%			1		1
31			Mountain Mint	0.2%	0.01818	0.29088		220,000	1.47	3.28%	1.83%					1
32			Black Eyed Susan	2.2%	0.26664	4.26624		92,000	9.01	20.13%	11.22%					1
33			Spotted Bee Balm	0.1%	0.008484	0.13574		90,000	0.28	0.63%	0.35%					1
34			Ohio Spiderwort	0.1%	0.015756	0.2521		8,000	0.05	0.10%	0.06%			1		1
35			Hoary Vervain	0.8%	0.0909	1.4544		25,000	0.07	0.16%	0.09%					1
36			Golden Alexander	3.8%	0.4545	7.272		11,000	1.84	4.10%	2.29%			1		1
37				28.0%	3.398448	47.8207			44.8	100%	100%	55.74%		6	23	13
38									80.3							

# 8. Insecticide Risk

**What I need:**

- ✿ If insecticide use is mentioned in the plan, then points are subtracted
  - This includes insecticide use on the screening trees

8. Insecticide Risk		Check if applicable
<b><u>Planned on-site insecticide use or pre-planting seed/plant treatment (excluding buildings/electrical boxes, etc.):</u></b>		
Seeds/plants are treated with neonicotinoids		
Insecticides are planned to be used within the planting areas		
<b><u>Communication/registration with local chemical applicators about need to prevent drift from adjacent areas:</u></b>		
Plan addresses contacting local chemical applicators		
<b>*Assessment Points. _____ pts obtained</b>		
Insecticide use	-40 points	
Local applicators contacted	+10 points	
Note:		



# Total Assessment Points

Total Assessment Points: \_\_\_\_\_

Pollinator standards met: \_\_\_\_\_ Yes \_\_\_\_\_ No

Gold Standard Exceptional Habitat	85+ points
Meets Pollinator Standards	70-84 points
Below Standards	<69 points

I find that most plans I review fall below standards.

It often takes a few revisions of the plan to meet pollinator standards.

- Most common revisions include:

- ✿ Reducing Little Bluestem below 20% of grass component
- ✿ Reducing individual forb species below 20% of forb component
- ✿ Altering mixes so that a handful of species do not dominate the mix
- ✿ Incorporating seed mixes to cover all acreage within a lease area
- ✿ Addressing funding for establishment/maintenance in the plan
- ✿ Addressing Genetic Origin in the plan
- ✿ Removing insecticide use from the plan



# Revised Seed Mix to Meet Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	Mix 1 - Upland Mix	7.81		12.12 lb/ac		72.7 seeds/sf											
2	Mix 2 - Wetland Mix	0.13		6 lb/ac		56.23 seeds/sf											
3	Mix 3 -	0															
4	<b>Total Acres:</b>	<b>7.94</b>	<b>Total Lease Area:</b>	<b>9.33 ac</b>													
5				% of Mix by weight	PLS lb/ac	PLS oz/ac	Seeds/lb	Seeds/oz	Seeds/SF	% by component	% Seeds/SF	% Seeds/SF component	Milkweed				
6	Mix 1 - Upland Mix	Grass	Side Oats Grama		3		96000	6,000	6.6	18.27%	9.19%						
7		7.81	Slender Whatgrass		10		16000	1,000	3.7	10.15%	5.11%						
8		ac	Long-beaked Sedge		1.5		160000	10,000	5.5	15.23%	7.66%						
9	30 species		Brown Fox Sedge		0.1		1600000	100,000	3.7	10.15%	5.11%						
10			Silky Wild Rye		3		88000	5,500	6.1	16.75%	8.43%						
11			Little Bluestem		1		240000	15,000	5.5	15.23%	7.66%						
12			Rough Dropseed		0.5		448000	28,000	5.1	14.21%	7.15%						
13				0.0%	19.1				36.2	100%		50.31%		Bloom Season			
14		Flowers	Anise Hyssop			0.5		80,000	0.92	2.57%	1.28%					1	1
15			Yarrow			1		178,000	4.09	11.44%	5.68%					1	1
16			Nodding Onion			1		7,600	0.17	0.49%	0.24%					1	
17			Columbine			2.5		38,000	2.18	6.10%	3.03%				1	1	
18			Common Milkweed *			5		4,000	0.46	1.28%	0.638%		0.628%			1	
19			Butterfly Milkweed *			7.5		4,300	0.74	2.07%	1.030%		1.012%			1	
20			Canada Milk Vetch			1.25		17,000	0.49	1.37%	0.68%					1	
21			Calico Aster			0.25		160,000	0.92	2.57%	1.28%					1	1
22			Partidge Pea			8		2,700	0.50	1.39%	0.69%					1	1
23			Cream Gentian			0.75		200,000	3.44	9.64%	4.79%					1	1
24			White Prairie Clover			11.75		19,000	5.13	14.34%	7.13%					1	1
25			Purple Prairie Clover			15.5		15,000	5.34	14.94%	7.42%					1	1
26			Prairie Blazingstar			1		11,000	0.25	0.71%	0.35%					1	1
27			Wild Lupine			4		1,100	0.10	0.28%	0.14%				1	1	
28			Monkey Flower			0.05		2,300,000	2.64	7.39%	3.67%					1	1
29			Large-Flowered Beardtongue			0.25		13,000	0.07	0.21%	0.10%				1	1	
30			Solomon's Plume			6		400	0.06	0.15%	0.08%				1	1	
31			Mountain Mint			0.3		220,000	1.52	4.24%	2.11%					1	1
32			Black Eyed Susan			2		92,000	4.22	11.82%	5.87%					1	1
33			Spotted Bee Balm			0.2		90,000	0.41	1.16%	0.57%					1	1
34			Ohio Spiderwort			1		8,000	0.18	0.51%	0.26%				1	1	
35			Hoary Vervain			1.5		25,000	0.07	0.21%	0.10%					1	1
36			Golden Alexander			7.25		11,000	1.83	5.12%	2.55%				1	1	
37				0.0%	0	68.5			35.7	100%	100%	49.69%		6	23	13	
38									71.9								

Statement in plan – Remaining 1.39 ac will not be disturbed. If disturbed, it will be seeded to the Upland Mix.



# Questions?

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