



Pollinator Friendly Solar Prairie Establishment and Maintenance Technical Guidance

Megan Benage | Regional Ecologist

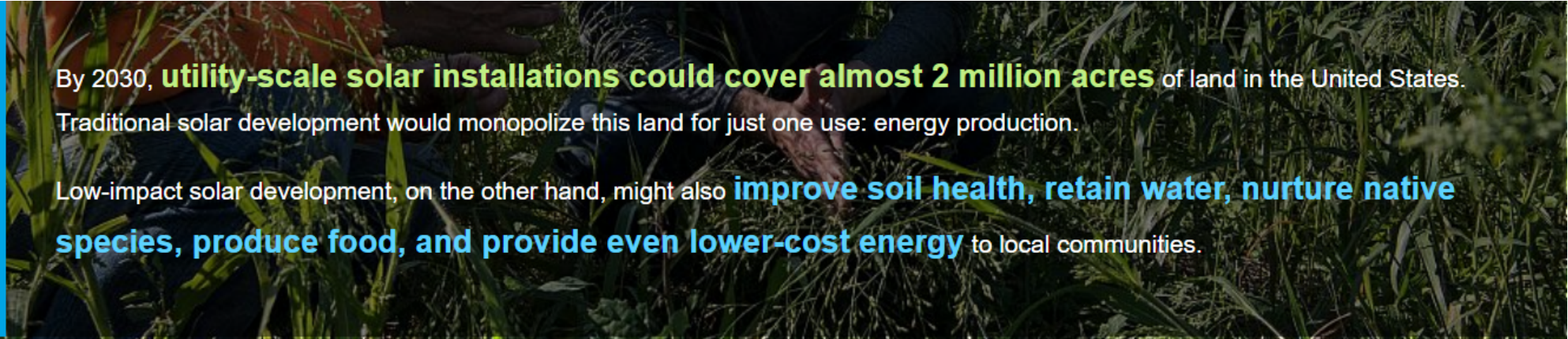
Overview

- Why Pollinator-Friendly
- Establishment
 - Site Considerations
 - Seed Mix Development
- Maintenance
 - Establishment Phase
 - Long-term



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Why Pollinator-Friendly?



By 2030, **utility-scale solar installations could cover almost 2 million acres** of land in the United States. Traditional solar development would monopolize this land for just one use: energy production.

Low-impact solar development, on the other hand, might also **improve soil health, retain water, nurture native species, produce food, and provide even lower-cost energy** to local communities.

Source: ©National Renewable Energy Lab (NREL)

<https://www.nrel.gov/news/features/2019/beneath-solar-panels-the-seeds-of-opportunity-sprout.html>

Why Pollinator-Friendly? Diversity makes the world go round

Diversity in your seed mix increases:

- overall biodiversity and functionality for wildlife
- water interception/infiltration
- Reduce wind and surface water erosion
- Reduce fertilizer, herbicide, and pesticide applications
- resistance to plant invasion
- drought tolerance
- stand longevity



Photo Credit: © Dave Williams
<https://mndnr.gov/prairiepod> | <https://xerces.org/>

Why Pollinator-Friendly? “A world without pollinators is a world without color”

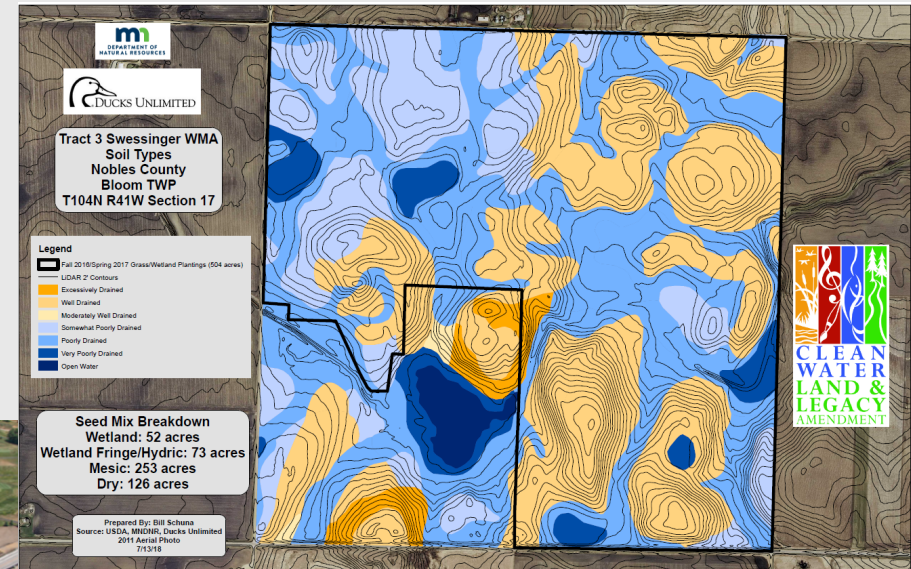
- Increase organic matter
- Increase solar panel efficiency
- It's real pretty



Photo Credits: © Jim Richardson Photography; Megan Benage, MN Dept. of Natural Resources

Solar Siting

- Soil types
- Soil Drainage
- Natural Areas nearby?
- High value habitat within the project area?
- Design the Array for the End Maintenance
- Coordinate early, coordinate often



https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html | https://www.dnr.state.mn.us/eco/ereview/additional_resources.html

Seed Mix Development

- Seed Source
 - MN Native seed that's regionally appropriate
- Seed Mix Cost
- Seed Mix Design
 - Pollinator seed mixes
 - Under the panel seed mixes
 - Grass-only
 - Pollinator Lawn

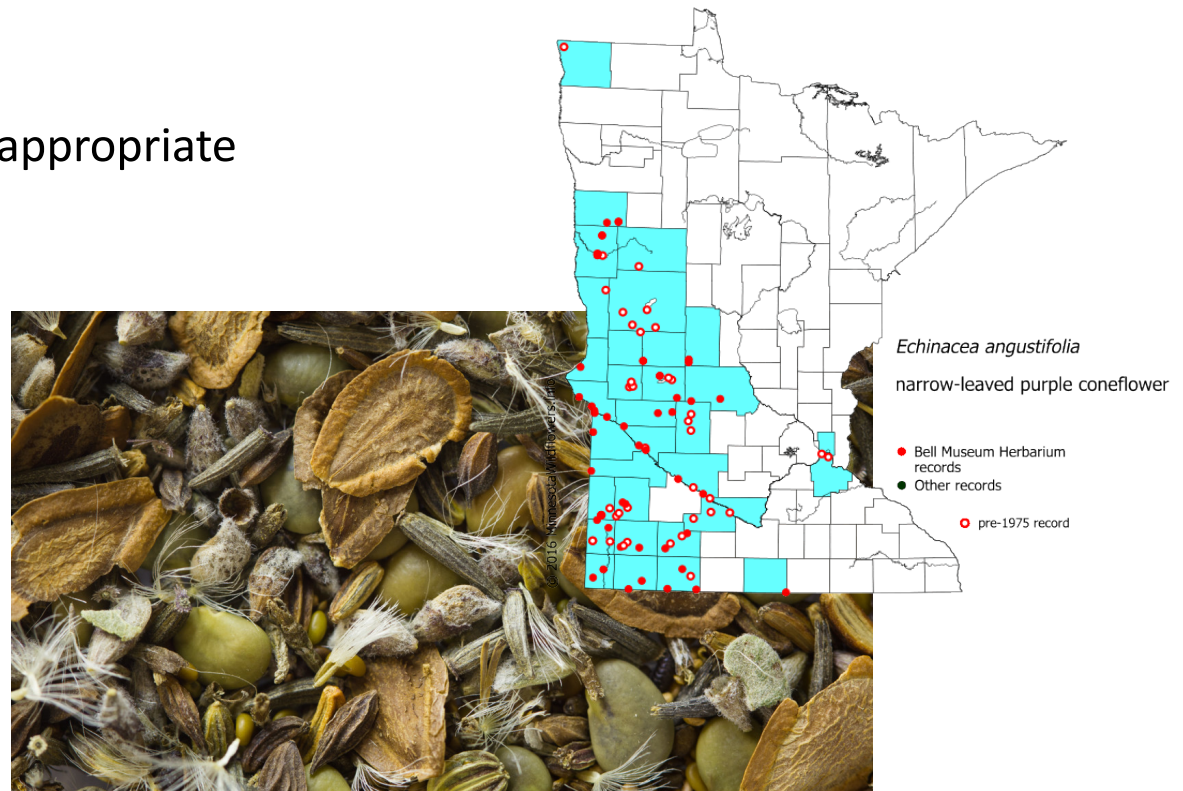


Photo Credit: ©Justin Meissen; ©MN Wildflowers
<https://mndnr.gov/prairiepod>

Seed Mix Development: Minimums for success

- Minimum seeding rate of 40 seeds/sq. ft.*
- At least 40% of the total seeding rate (in seeds per sq. ft.) composed of perennial forbs
- 7 native grass/sedge species with at least 2 species of bunchgrass.
- Fulfill the Guilds
Warm-season and cool season grass species, sedges or rushes, legume and non-legume forbs
- Include species from different families
- 20 or more native forbs with at least 5 species in each bloom period:
Early (April-May), Mid (June-August), and Late (August-October)
- Consider temporary cover
- Avoid tallgrasses



Photo Credit: ©Megan Benage, MN Dept. of Natural Resources

<https://mndnr.gov/prairiepod>

Maintenance

Establishment Phase

- Periodic Mowing
 - Mowing periodically in Year 1
 - Mow the planting once a month
 - Mow when vegetation reaches knee high
 - Mow to a height of 4-8 inches
- Spot Mow
- Spot Spray

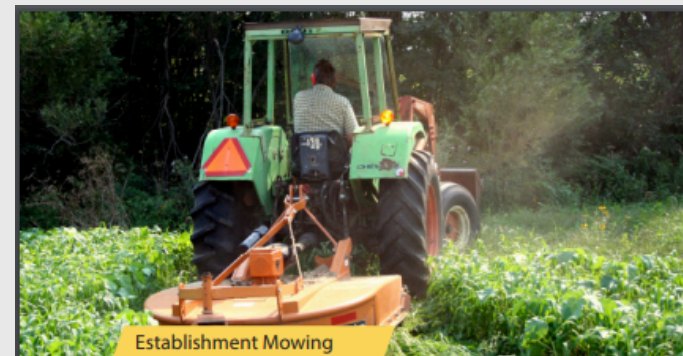


Photo Credits: ©Tallgrass Prairie Center; Google Images

https://files.dnr.state.mn.us/publications/ewr/prairie_solar_tech_guidance.pdf
https://files.dnr.state.mn.us/publications/ewr/commercial_solar_siting_guidance.pdf

Maintenance

Long-term Phase

- Haying/Mowing
 - Once annually
 - >5"
 - Remove cut vegetation
- Prescribed Grazing
- Spot Spray
 - Noxious weeds
 - Persistent woody plants
 - Use species specific herbicide
 - Spray at optimal growth stage
- Monitoring
 - Photo
 - Species Establishment

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Photo Credits: ©MN Native Landscapes

https://files.dnr.state.mn.us/publications/ewr/prairie_solar_tech_guidance.pdf¹⁰
https://tallgrassprairiecenter.org/sites/default/files/techguide9_initialpostseeding_2015_web.pdf

How to make sure your project is a success



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Photo Credit: ©Nathan Mullendore, MN Dept. of Natural Resources; ©Rob Davis, Fresh Energy
<https://www.dnr.state.mn.us/gardens/nativeplants/suppliers.html>

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“I think we forget that everything in this world is connected and that something as small as a bee could be responsible for whether we get our morning coffee or not.”



Questions?