



Pollinator Habitat

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Agriculture

Agenda

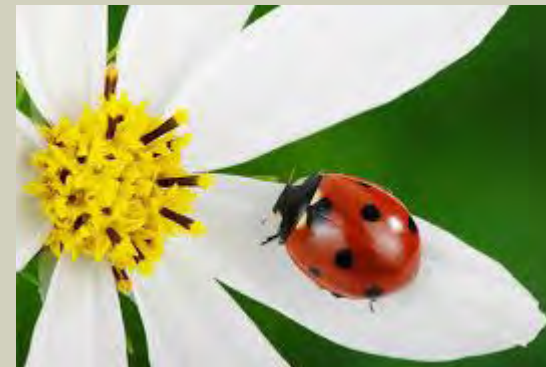
- Pollinators
- Pollinator Habitat
- Pollinator Bill
- Next Steps



Pollinators Are.....



- There are four major groups of insect pollinators: bees and wasps, beetles, butterflies and moths, and flies.
- Some are generalists, and visit many flowering plants, and others are specialists that concentrate on a single plant
- FYI.... Honey bees are not native!



Pollinators are Keystone Species:



- Their role is critical in plant reproduction.
- Over 75% of Flowering Plants need Pollination



Maryland is home to at least 450 species of native bees

By Alex Surcică

Digital Museum of Natural History

0.5 inch / 1.25 cm



larva

egg



European honey bee
Apis mellifera

pupa



varroa mite - *Varroa destructor* 2X



small hive beetle - *Aethina tumida* 2X



Bee Facts



**A single bee colony can pollinate
over 300 million flowers a day**

In order to produce 1 pound of honey, 2 million flowers must be visited.

A hive (60,000) of bees must fly 55,000 miles to produce a pound of honey.

One honey bee may visit 2,000 flowers per day.



What is threatening pollinators?



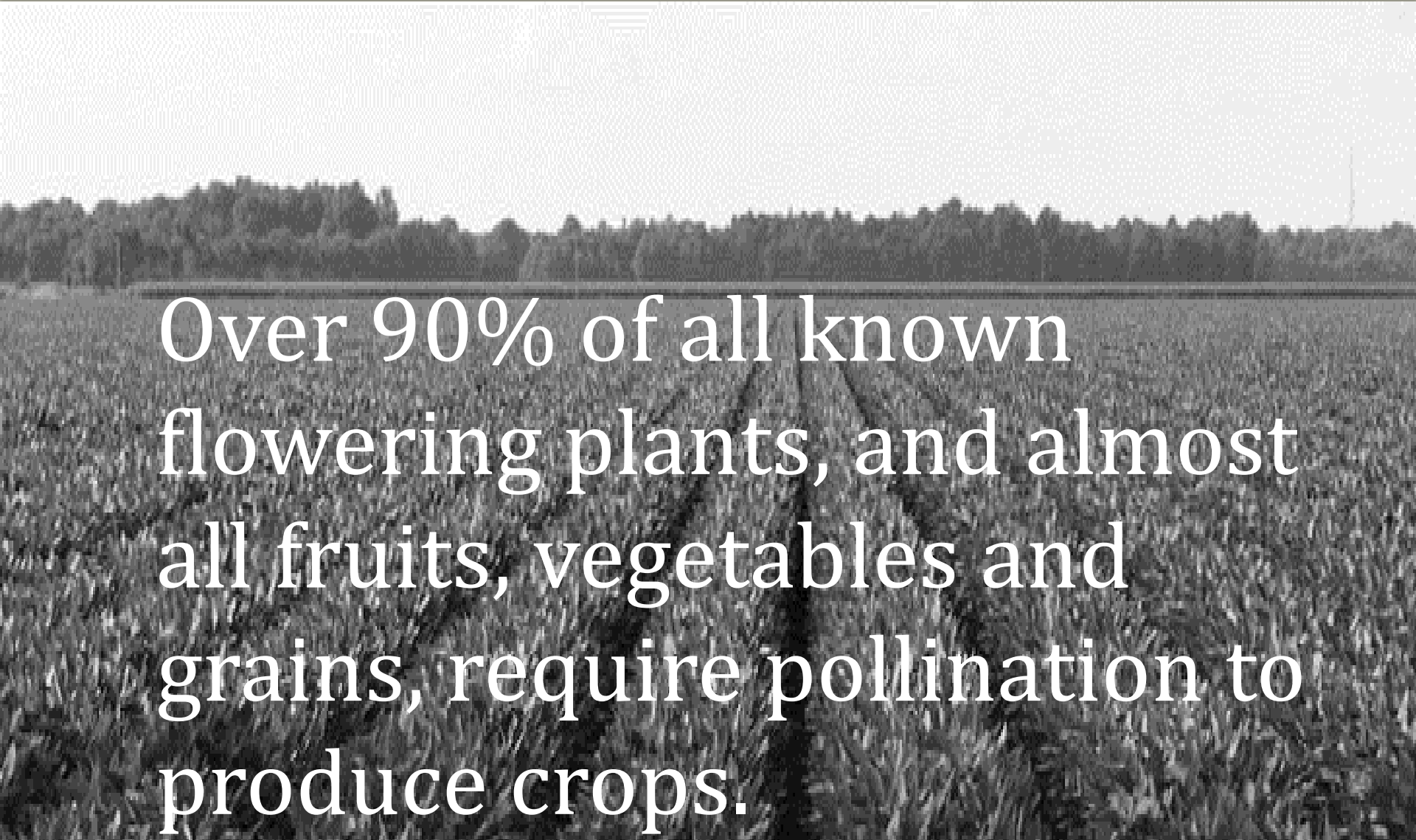
- **Habitat Loss and Habitat Fragmentation:**
 - Pollinators need flowering plants to provide nutrition
 - Fragmentation of habitats increases the distance pollinators must travel between areas providing food and shelter along their routes.



Benefits of Pollinator Habitat at Solar Facilities



- 1. Solar sites with vegetative cover operate at cooler temperatures**
- 2. May generate 1-3 percent more electricity.**
- 3. Reduces overall site construction costs**

A black and white photograph of a field of flowering plants, likely corn, with a path leading through the rows. The plants are in full bloom, and the path is a dark line cutting through the lighter-colored field. The background shows a line of trees under a bright sky.

Over 90% of all known
flowering plants, and almost
all fruits, vegetables and
grains, require pollination to
produce crops.

What is Pollinator Habitat?



Diverse Wildflower Habitat for pollinators provide the nectar that pollinators feed on.

Must be diverse and “year-round”



Components of Pollinator Habitat

- Feeding
- Nesting
- Overwintering Area



Commercial Farms

- Corn and soybean are wind pollinated



Transporting Bee Hives to Pollinate Crops



We would like to see: diverse
wildflowers, large tracts of land



Why Pollinator Habitat Creation



- Timing is Everything
- Two Initiatives
 - Federal -
 - State



Federal Pollinator Initiatives

In May 2015, the White House released a *National Strategy to Protect Pollinators and Their Habitat.*





NATIONAL STRATEGY TO PROMOTE THE HEALTH OF HONEY BEES AND OTHER POLLINATORS

Pollinator Health Task Force

MAY 19, 2015



State Initiatives: Pollinator Protection Bill of 2016



Maryland 1st in Nation to Ban
Neonicotinoids



Benefits of Pollinator Habitat



- Aesthetics
- Reduced air temperatures
- Water and soil Improvements

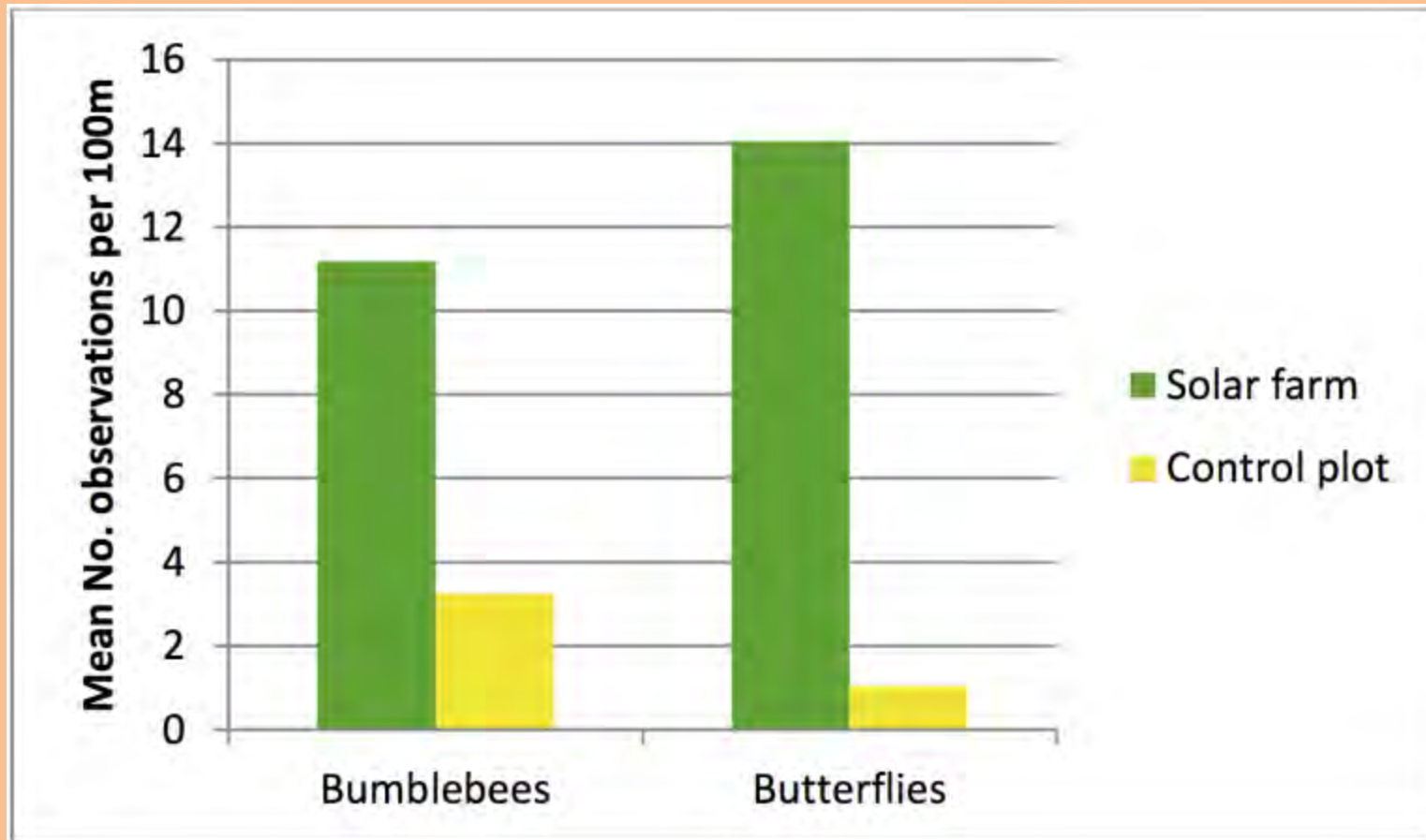


Less Mowing and Herbicides



Benefits of Pollinators, Cont'd

- Healthy Pollinators - Better and consistent food source



Increased bird populations



Male Bobolink – photo by John Parke

SB 1158

- **SB1158 (Department of Natural Resources - Solar Generation Facilities - Pollinator-Friendly Designation)**

- *This bill expands the activities of the Power Plant Research Program (PPRP) within the Department of Natural Resources (DNR) to include an evaluation of the pollinator benefits that would occur under a pollinator-friendly vegetation management standard or pollinator habitat plan implemented on land on which a proposed or an existing ground-mounted solar generation facility is located. DNR, in consultation with the Maryland Department of Agriculture (MDA), must designate a solar generation facility as pollinator-friendly if it meets specified requirements, and may charge a reasonable fee to cover costs associated with the designation. The owner of a solar generation facility is prohibited from making specified claims regarding the pollinator benefits of the facility unless it has been designated as pollinator-friendly by DNR. DNR must adopt implementing regulations. The bill takes effect June 1, 2017.*



Pollinator Bill Requirements for Solar Facilities



- Evaluation of the potential pollinator benefits through a scorecard
- Requiring long-term maintenance of the pollinator habitat
- Department may charge a reasonable fee
- Takes effect June 1, 2017
- First, we need a working group to create a scorecard



“Honey Do” List for the Working Group



DRAFT



Solar Site Pollinator Habitat Planning and Assessment Form

To be used in the process of site and seed mix planning/designing or site evaluation.

1a. Percent of site with flowering plant species (select one)

<input type="checkbox"/> 1-15 percent	5 points
<input type="checkbox"/> 16-30 percent	10 points
<input type="checkbox"/> 31-45 percent	15 points
<input type="checkbox"/> 46-60 percent	20 points
<input type="checkbox"/> 61+ percent	25 points

1b. Flowering plant seed mix to be used
(Points only for seed mix planning; add all that apply)

Includes five or more plant species appropriate for the region or local habitat identified by USDA as beneficial to pollinators 5 points

Amount of seed to be planted (lbs/acre) is determined according to seed provider's recommended application rate and/or planting density for planted species in the target area 5 points

2. Percent of site to be planted with native plant species (select one)

<input type="checkbox"/> 26-50 percent	5 points
<input type="checkbox"/> 51-75 percent	10 points
<input type="checkbox"/> 76-100 percent	15 points

3. Planned cover diversity within the ground cover area (# of flowering plant species that will constitute >2 percent cover each; select one)

<input type="checkbox"/> 1-9 species	5 points
<input type="checkbox"/> 10-19 species	10 points
<input type="checkbox"/> 20 or more species	15 points

4. Seasons that will have at least 3 blooming species with >2 percent cover each (add all that apply)

<input type="checkbox"/> Spring	10 points
<input type="checkbox"/> Early summer	5 points
<input type="checkbox"/> Late summer	5 points
<input type="checkbox"/> Fall	5 points

Total:

5. Observed nesting habitat within 0.25 miles (add all that apply)

<input type="checkbox"/> Bare ground with undisturbed, and/or well-drained soil	5 points
<input type="checkbox"/> Forest edge habitat	2 points
<input type="checkbox"/> Cavity nesting sites (e.g., dead trees, snags, fallen logs, shrubs)	2 points

Total:

6. Planned/existing management practices (add all that apply)

<input type="checkbox"/> Mowing occurs no more than once per year	5 points
<input type="checkbox"/> Detailed establishment plan	10 points
<input type="checkbox"/> Detailed monitoring plan	10 points
<input type="checkbox"/> Creation of nesting habitat features (e.g. boxes, tunnels)	0.2 points per

Total:

7. Vegetation "screen" adjacent to the solar site (add all that apply)

<input type="checkbox"/> At least 50% of screen area planted with flowering plant species	5 points
<input type="checkbox"/> At least 50% of screen area planted with native plant species	5 points

Total:

8. Signage/Education (add all that apply)

<input type="checkbox"/> Three or more signs legible at 40 feet stating pollinator habitat	10 points
<input type="checkbox"/> Bench and educational display suitable to outdoor conditions regarding the pollinator habitat	5 points

Total:

9. Pesticide risk

<input type="checkbox"/> Planned on-site insecticide use	-40 points
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Grand Total:

Meets Standard 70-84
Provides Exceptional Habitat >85

Developer: _____
Project Location: _____
Project Size: _____
Target Seeding Date: _____

Send completed forms to: MD Dept. of Agriculture, MD Dept. of Natural Resources PPRP

DRAFT

- Scorecard
- Fee structure
 - Annual
 - Dependent on acreage
- Inspections
- Presented to our Stakeholders

Working Group Participants



MDA - Matt Tefteau

UMD – Dennis vanEngelsdorp and
Karen Rennich (Bee Lab) & Bee Informed Partnership

WHS – Jennifer Selfridge

SunEast Development. LLC - Marcia Hass

HB Solutions - Dane Bauer

MD Farm Bureau - Colby Ferguson



Questions / Comments?

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Power Plant Research Program

