ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

2015 *o8f*

Enhancing Restoration Techniques *and* *Citizen Engagement* for Pollinator Conservation

Photo: Sarah Foltz Jordan, Xerces Society

GREAT RIVER GREENING

Maplewood

XERCES SOCIETY for Invertebrate Conservation

Three Metro Sites

- Prairie sites within Metro Conservation Corridors
- Each varies on:
  - Restoration/mgmt. phase and activities
  - Pollinator monitoring program including community engagement

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Pilot Knob Hill

- 24 ac Prairie / Savanna site restored in four phases
- Forb rich site

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Pilot Knob Hill

- Conducted 3 of 9 bumble bee surveys
- Trained volunteers in bumble bee life history, conservation issues, and ID
- Collected species-level data on bumble bee population and floral visitation
- 423 bumble bees of 7 species
- One IUCN “Vulnerable” species (*Bombus fervidus*)
- Over 400 floral associations including high % of observations on native thistles in August
- Volunteers enhanced pollinator ‘mowed habitat’

Photo: Sarah Foltz Jordan, Xerces Society

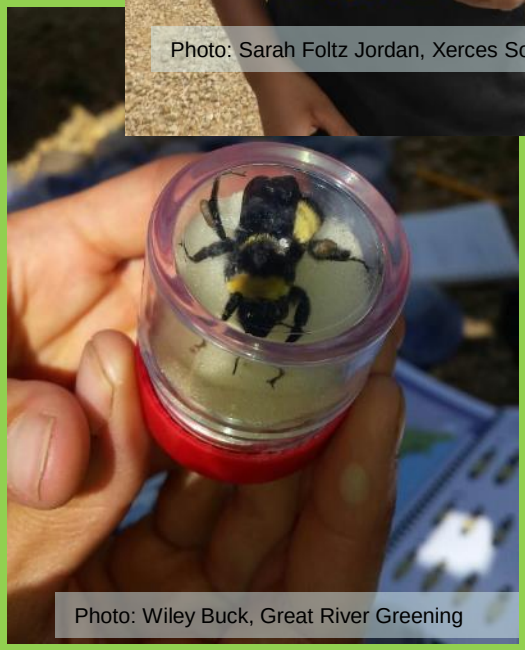
Photo: Wiley Buck, Great River Greening

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Fish Creek

- 70ac site with prairie, savanna, woodland restoration
- Small high quality prairie remnant as refugia

CLEAN WATER LAND & LEGACY AMENDMENT

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Fish Creek Restoration

- 20 acres prairie seeded in 2014-15
- Plant species diversity
  - Enhanced: 11 grasses, 37 forbs

- Trust Fund plugging
  - Focus on species that aren't in the seed mix
  - Planted by school volunteers
  - With plugs: 11 grasses, 49 forbs

Photos: Maplewood Nature Center

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Fish Creek School Groups: Goal 800 kids

- Fall 2015 we had 100+ 4th and 6th graders at the site, Spring
- Classroom session & field sessions on pollinators
- Kids engaged in restoration process by planting native plugs

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Fish Creek Adult Education

- Fall 2015 Xerces Society Staff led the first ‘Become a Bee Monitor’ program for 25 adults
  - Day 1: ID training included practice with photos, pinned specimens, and live bees
  - Day 2: Participants practiced monitoring transects and collecting data at Fish Creek

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Photos: The Xerces Society and Maplewood Nature Center

Native Bee Monitoring Guide

- Developed by Xerces Society under this grant
- Printed draft for first workshop
- Observation-based “group-level” ID
  - 10 bee morpho-groups (groups of related species that look alike)
  - No collection or curation
- Monitoring protocol
  - Adapted from bee monitoring protocol developed Xerces and UC-Berkley for citizen scientists
  - Data analysis showed this type of data is effective at detecting changes in bee abundance and richness

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https://www.youtube.com/watch?v=aXT1DZEHsMk

Why do we need pollinators?

We need pollinators to pollinate flowers so we can grow foods like:

chocolate, oranges, bananas, apples, cucumbers, vanilla, cashews, almonds, beans, tomatoes, pumpkins, tomatoes, avocadoes, blueberries, strawberries, mangos, raspberries. . . and many more!!!

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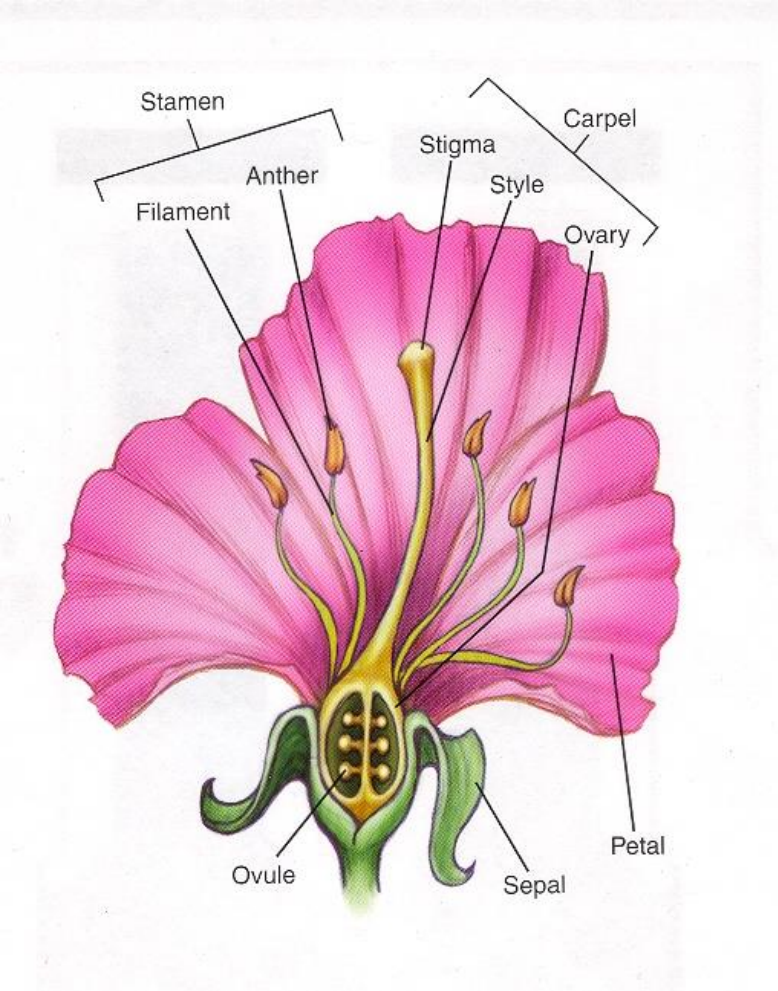
What is Pollination?



Moving of pollen from the male flower parts to the female flower parts of the same kind of plant.

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Honey bee: our most famous bee from Europe!

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Meet some Minnesota Native Bees

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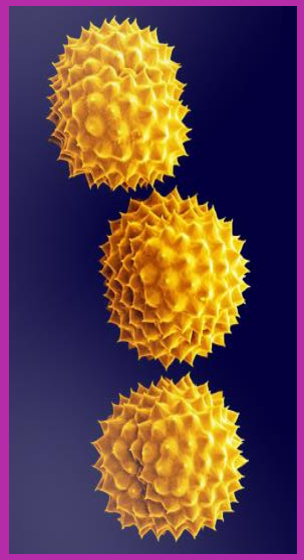

Bumble bees collect pollen and nectar for their colony.

- Nectar = Energy
- Pollen = protein, fats, vitamins

In the Process they transport pollen for plants.

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Green Sweat Bee

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Photo by Sarah Foltz Jordan- Xerces Society

Striped Hairy Belly Bee

This group includes
- Leaf Cutter bees,
- Small Resin bees,
- Carder bees,
- Mason bees

They carry pollen on the underside of their abdomen.

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Leaf Cutter Bee

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- Females cut out circles and oval shapes from tree leaves to line their tunnels that are rolled up like tunnels and tucked into the cavity.
- They carry pollen on thick hairs on the underside of their abdomen.

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Leaf Cutter Bee (*Megachile spp.*)

A Minnesota native bee…

Solitary females work on their own to build a nest in cavities (holes) in trees, logs, rocks, etc., or some species nest in the ground.

- They leave a ball of pollen for the larva to eat after it hatches.
- The female does not guard the nest, and dies soon after laying her eggs.

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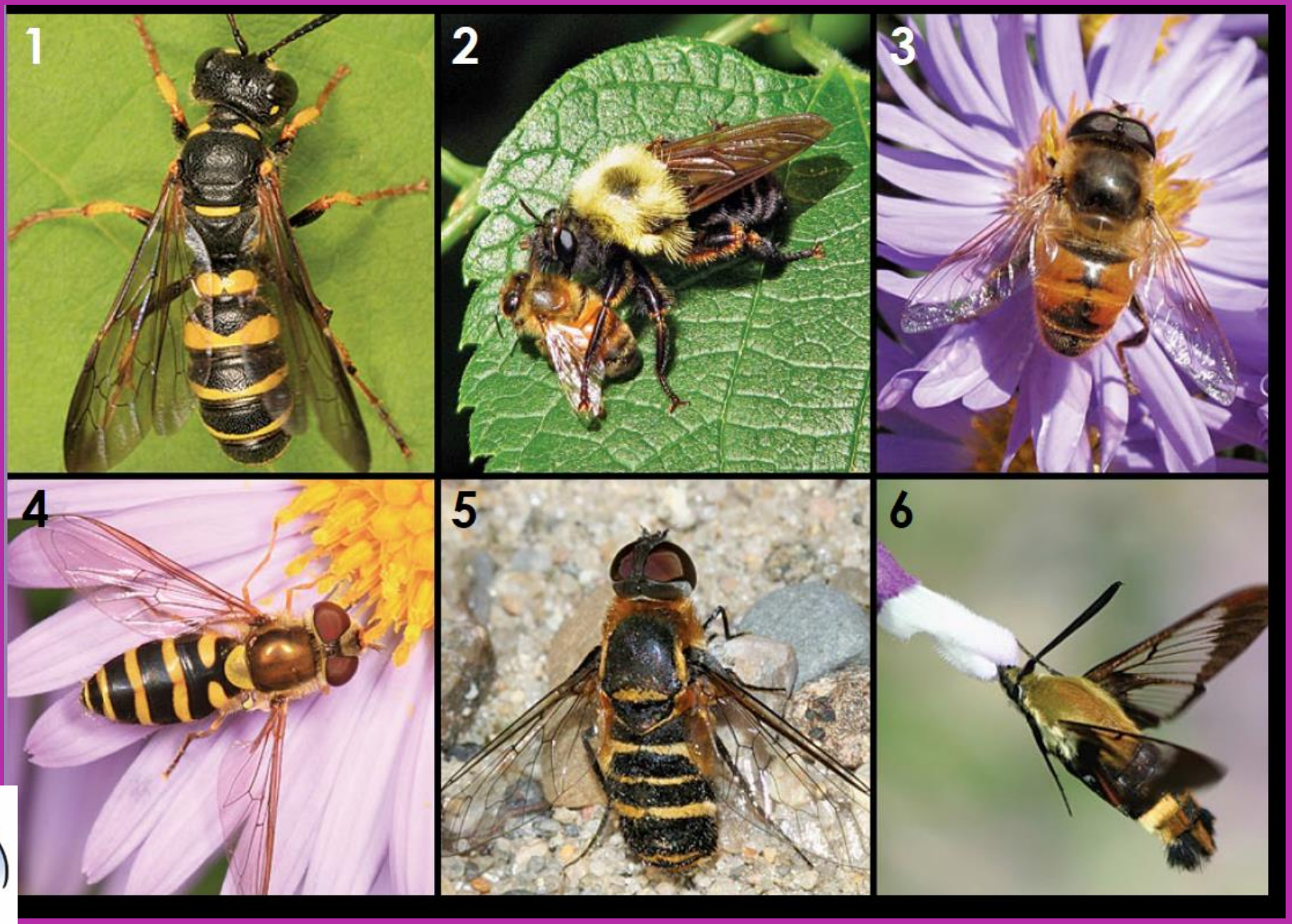
Ceratina, or yellow-faced bee

Photo by Sarah Foltz Jordan- Xerces Society

“Wanna-Bees” Bee Look-alikes



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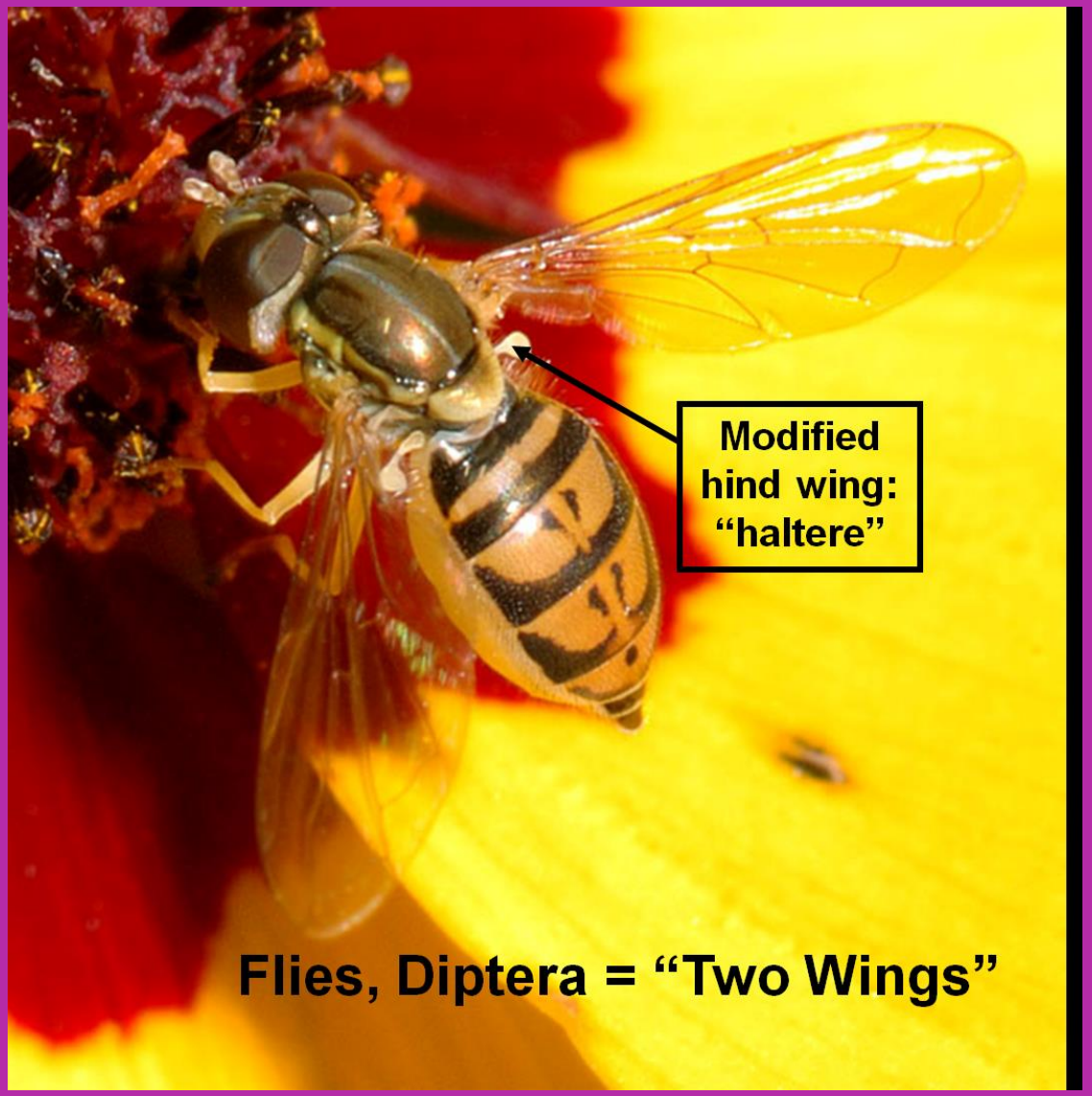

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Other Pollinators- Beetle

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Mosquito

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Clear-Wing Moth

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Pollinators are in Trouble

- There are fewer natural spaces and these spaces are broken into smaller areas
- Invasive species out-compete
- Pesticides
- Diseases

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Rusty-patched Bumble Bee

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How Can We Help Pollinators?

Provide Habitat!

- Plant more sources of food for pollinators
- Provide places for pollinators to nest in
- Don’t use pesticides.

Plant flowers with different colors, shapes, sizes and bloom times.

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