

Prairie Pollinators: Good News and a Call for More News



Cheryl Fimbel

Formerly with
Center for Natural
Lands Management



Good News

Restoration Actions



Increased Floral
Resources



Pollinators Using Resource-Rich Habitats

Call for More News

Climate Change / Increased Drought

Investigate:

- Non-traditional Prairie Plantings
- 'Moist'-site plantings - Prairies
- Offsite neighbor plantings



Do our Restoration Actions Help Pollinators?

Low quality → High quality

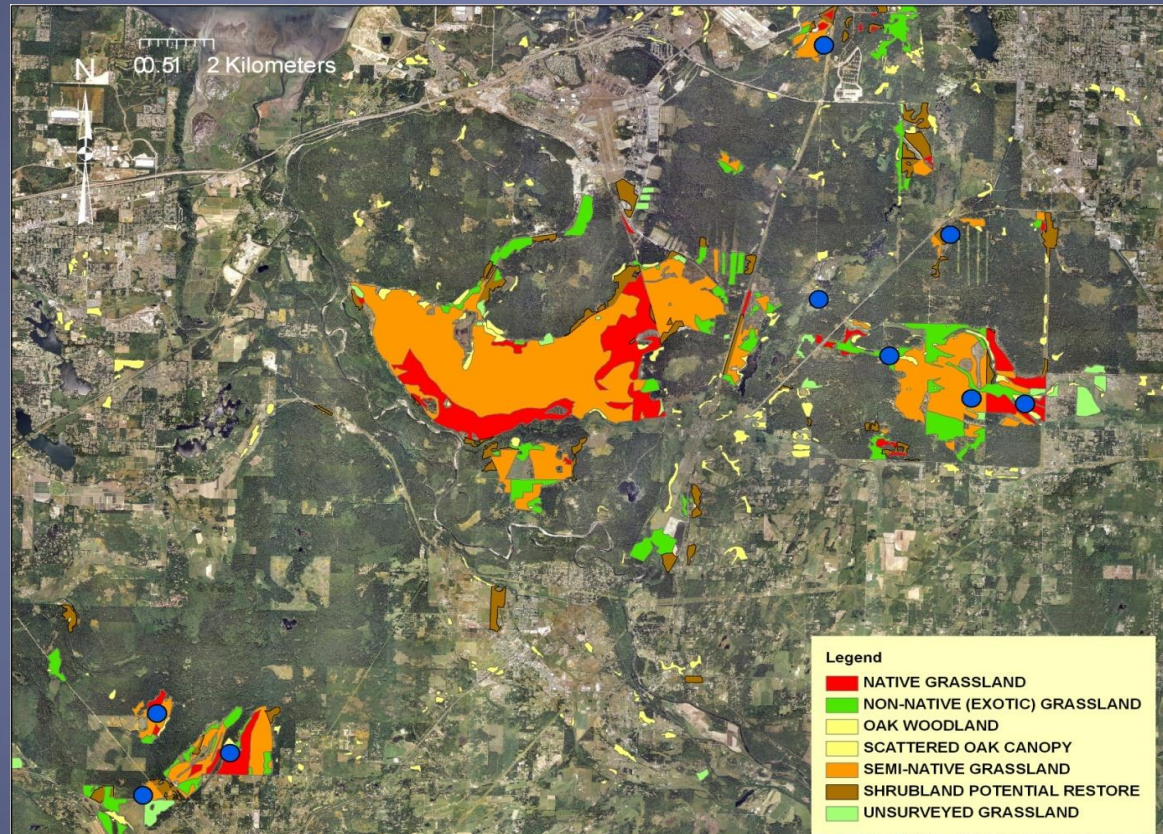
Low restoration
non-native vegetation



high restoration
native vegetation



Survey Sites



9 prairies - 1 ha 'bee plot' (●) at each prairie

Research Funded by JBLM

Emphasis on Bees - Great Pollinators

Obligate Flower Visitors

Actively collect & transport pollen for feeding young

Flower constancy

*Hairy bodies & legs
(branched hairs)*



Pollinator Surveys



Passive -> Bees

- pan traps contain water
- blue vane traps
- ~ 8 hours (9 am – 5 pm)
1 day / month April – August
- trap nests (bee nesting blocks)



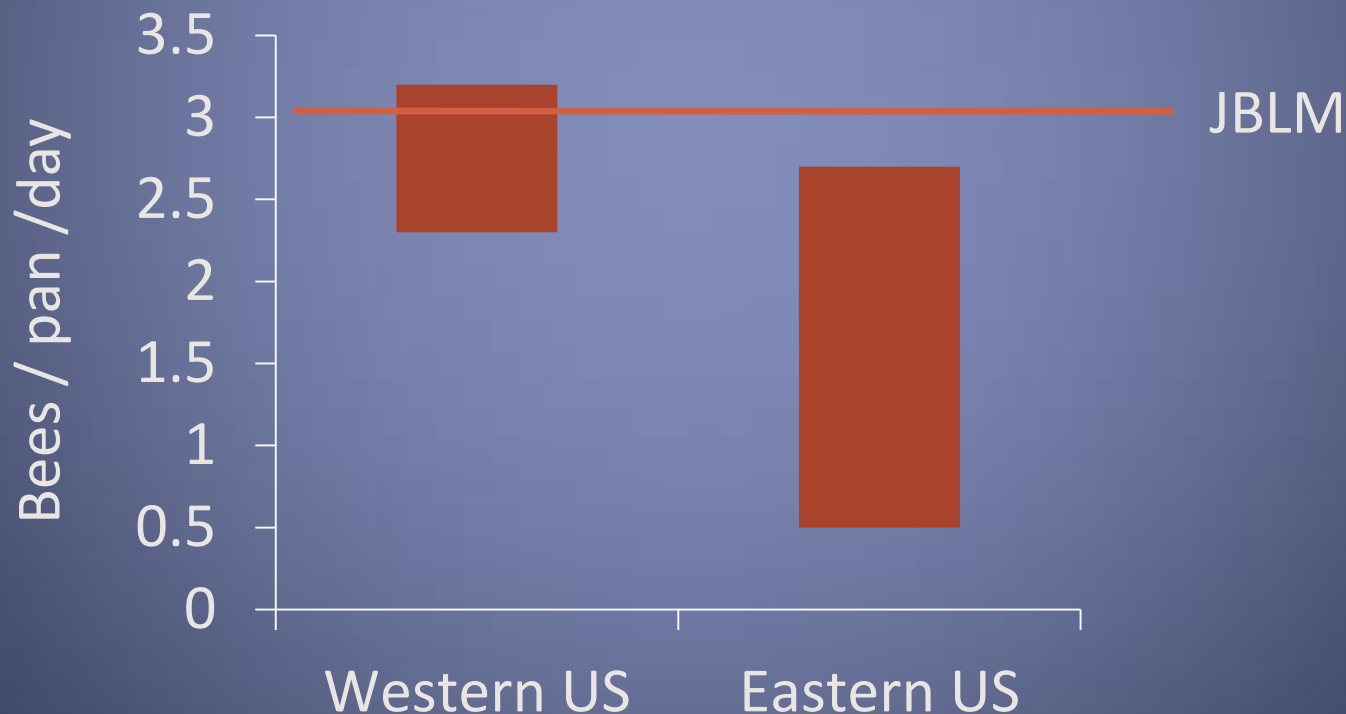
Active -> Flower Visiting Insects

- timed netting/vacuuming
- 60 minutes per site (between 10 am - 4 pm)
- 1 day / month May - August



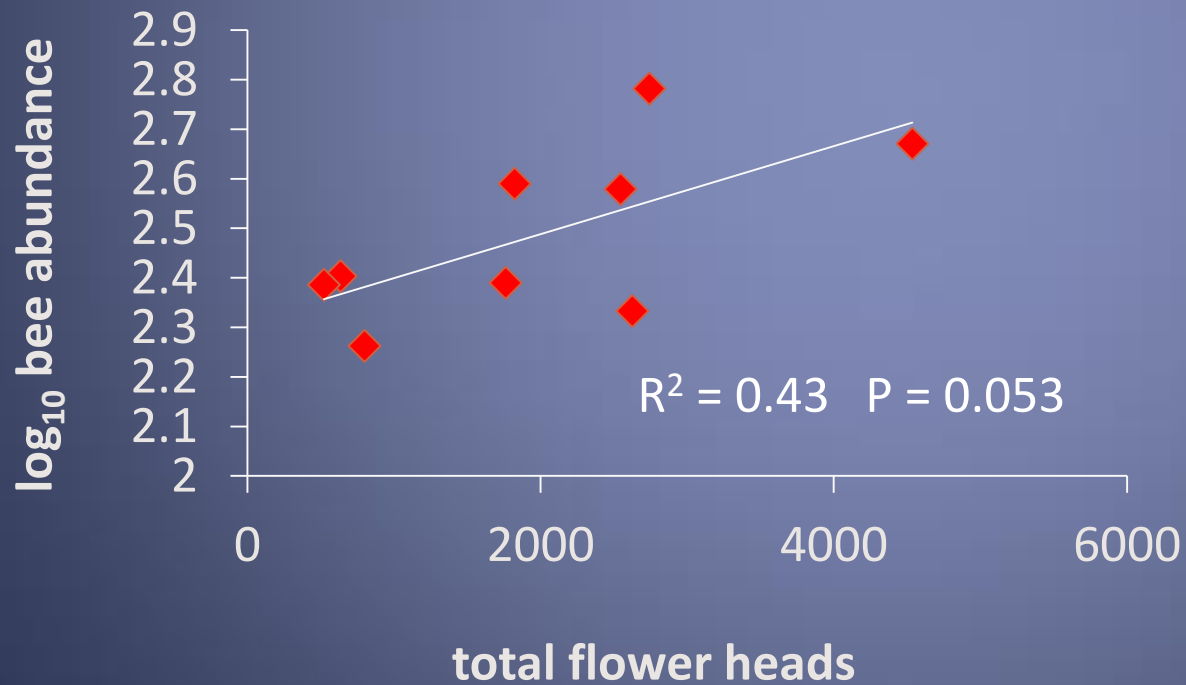
Results

1. ~ 180 species or genus morphos identified
2. Pan trap results: relatively high bee population



Results

Floral Abundance



Fire – Prairie Management Tool



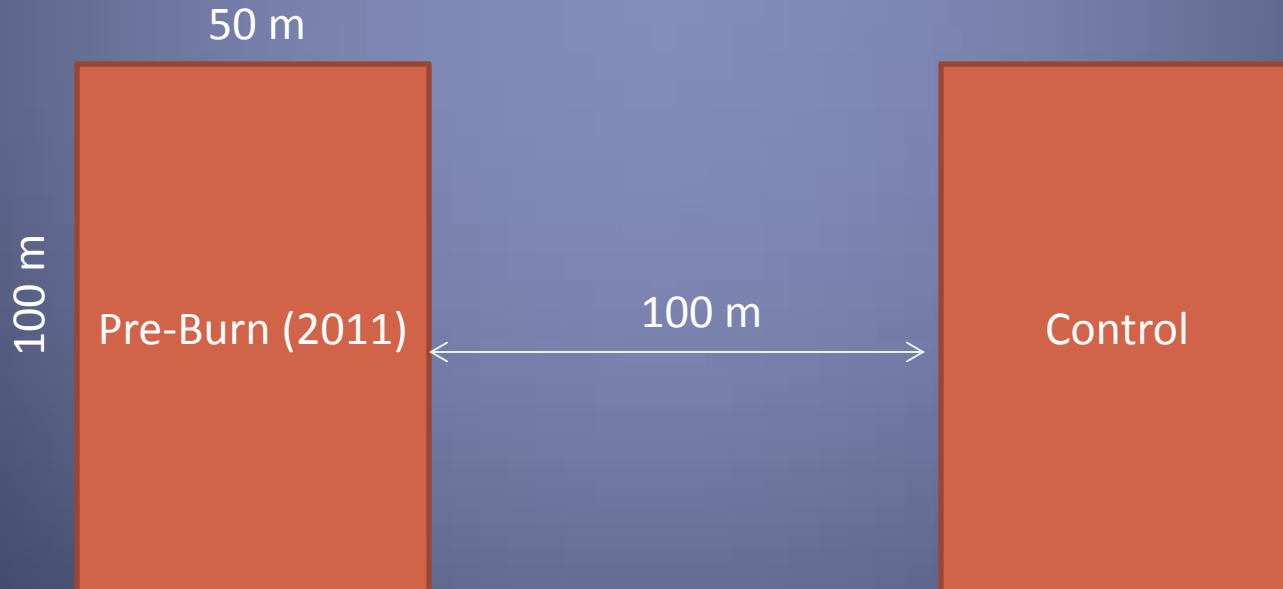
What are indirect impacts on pollinators ?

Methods

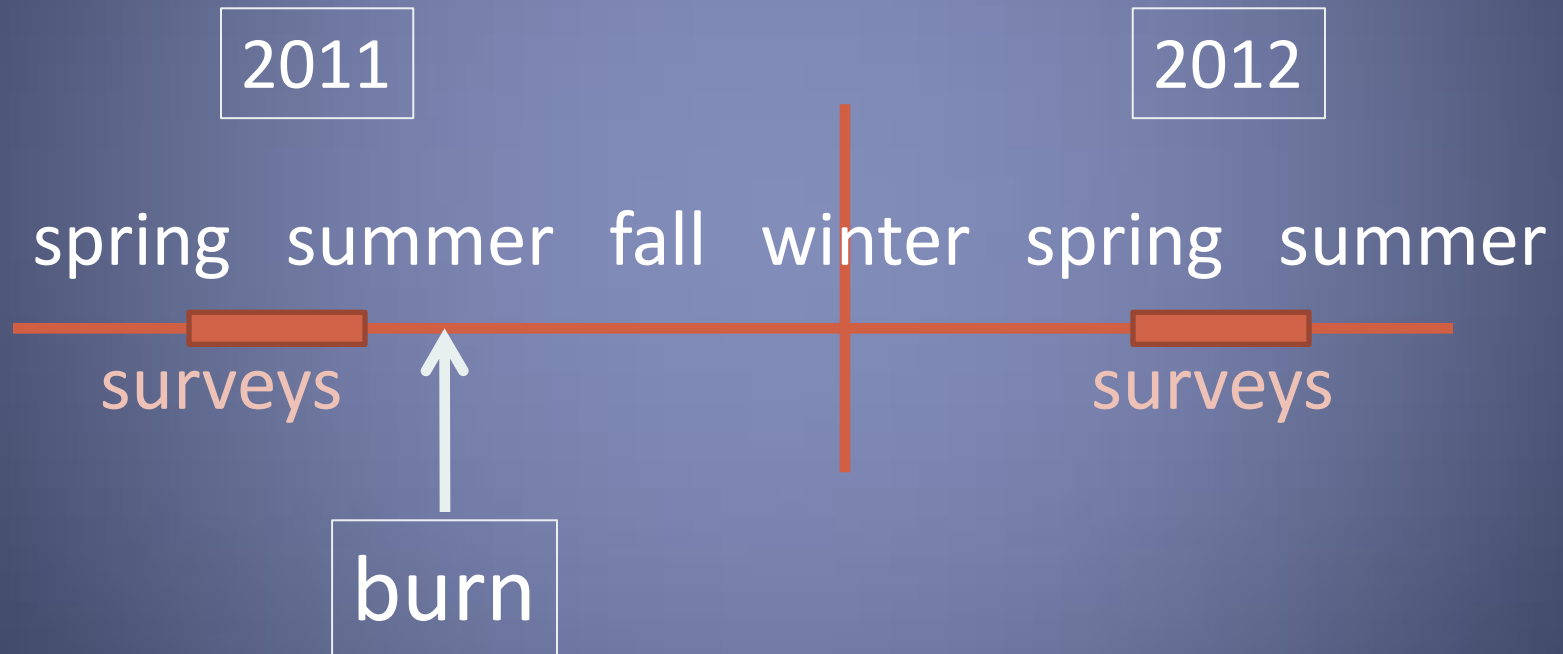
2 Prairies

Paired Plots

2011



Timeline

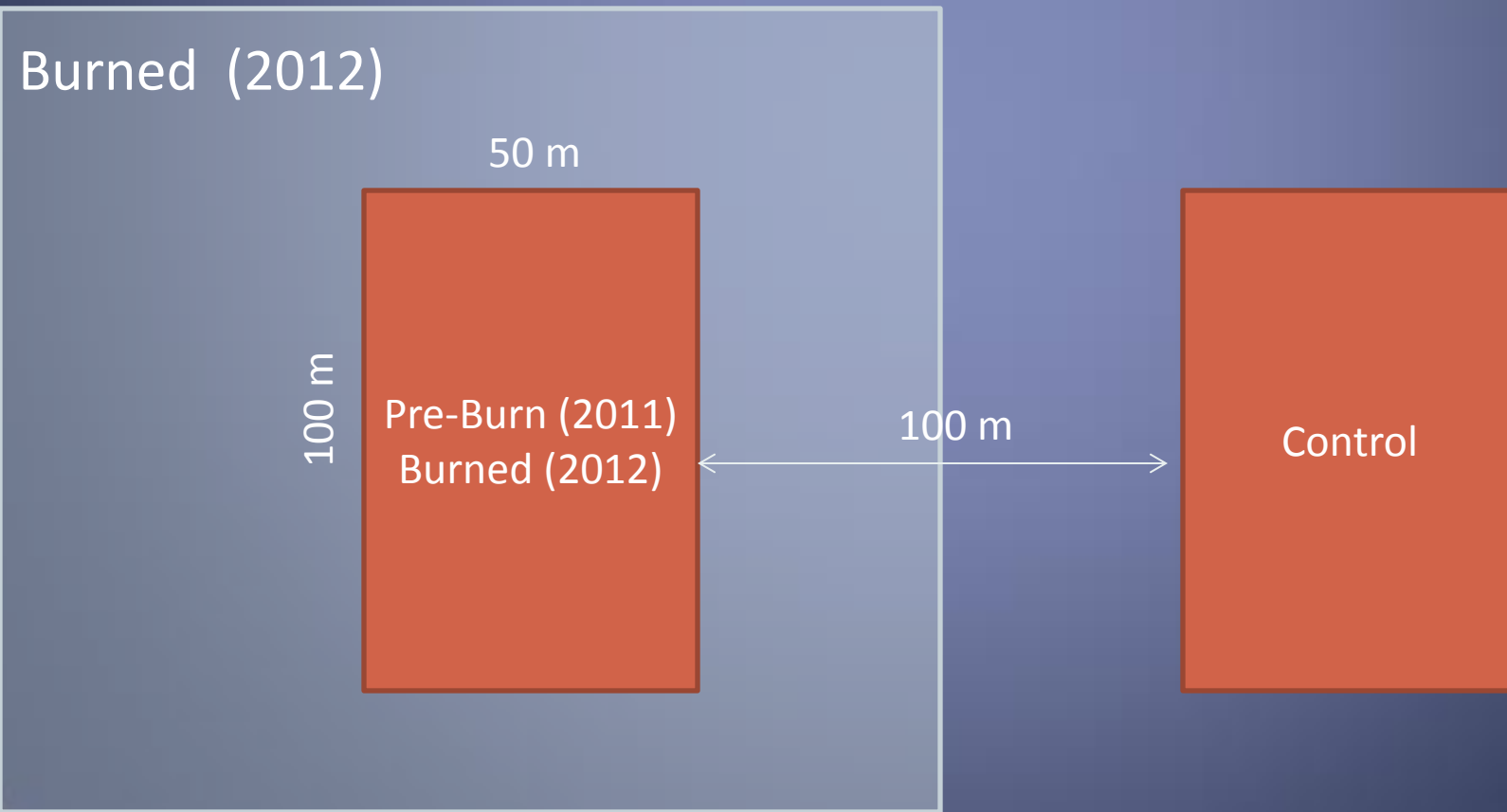


Methods

2 Prairies

Paired Plots

2012



Methods

Timed Random Walk Surveys

observations - no captures

30 – 45 minutes per plot
(alternating 15 min)

1 km/hr

Insect flight conditions

- 11:00 – 16:00
- temp $\geq 15^{\circ}$ C
- wind ≤ 15 km/hr
- enough sun to cast a shadow

Methods



bees

Potential
Pollinators



butterflies

Flower Visiting Insects



Species – Morphotypes Identifications



species



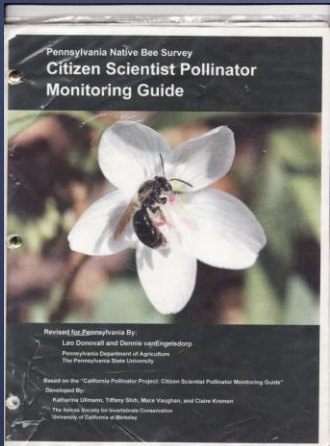
genus



family

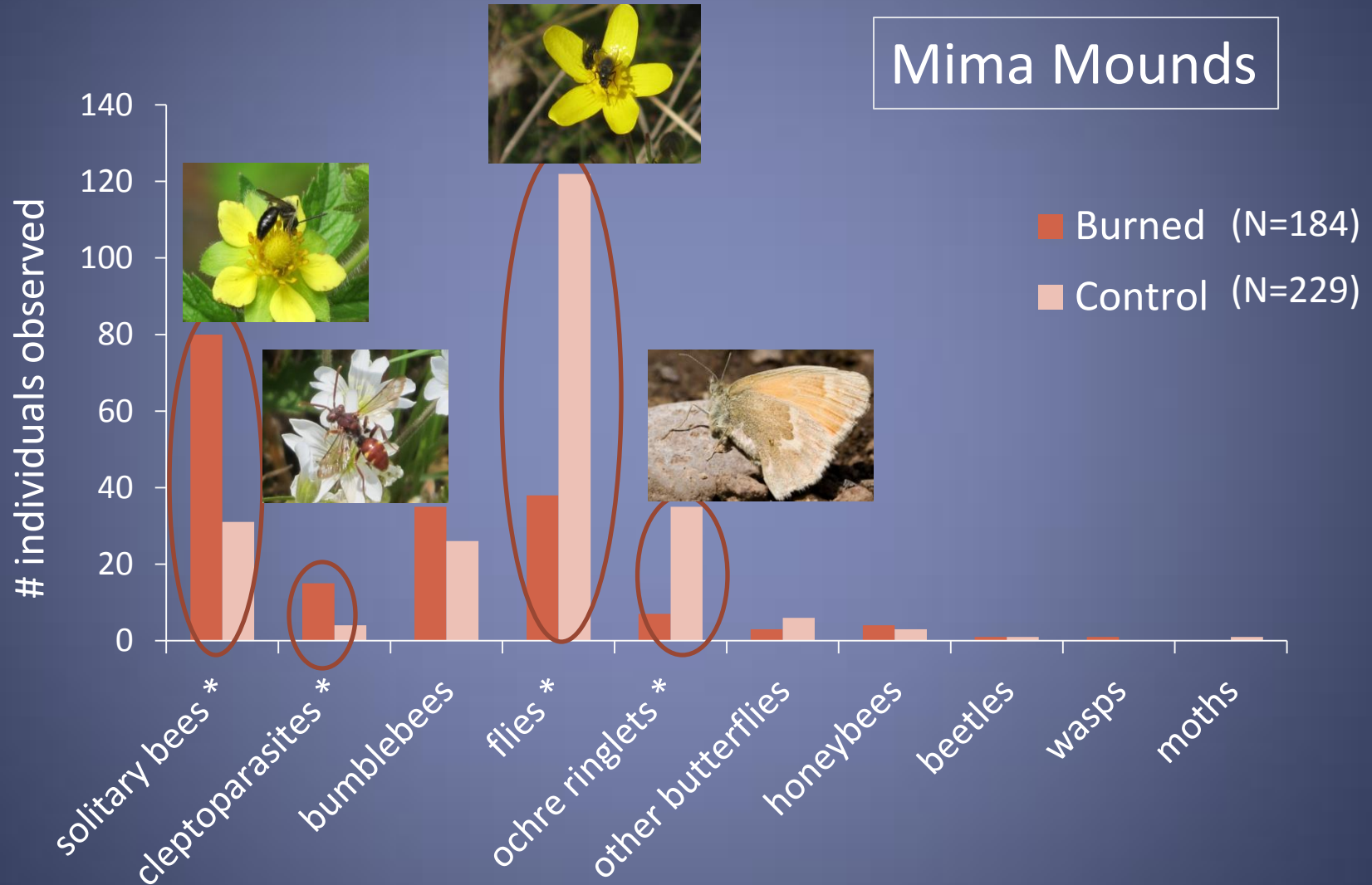
Other Categories

- Beetles
- Wasps
- Moths
- Small dark bees etc.



Post-Burn Pollinators

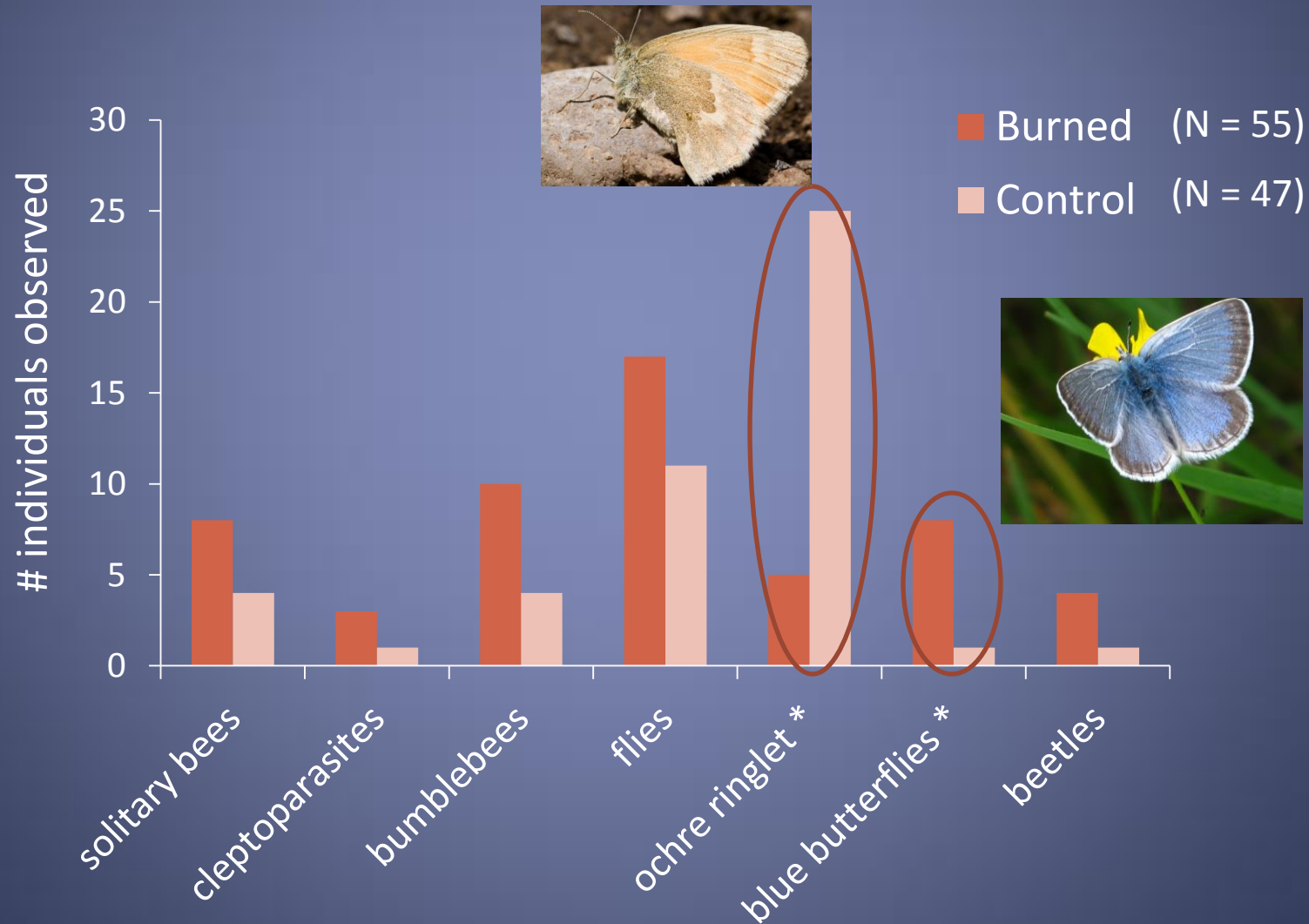
Mima Mounds



(* and circles indicate significant difference $P \leq 0.05$)

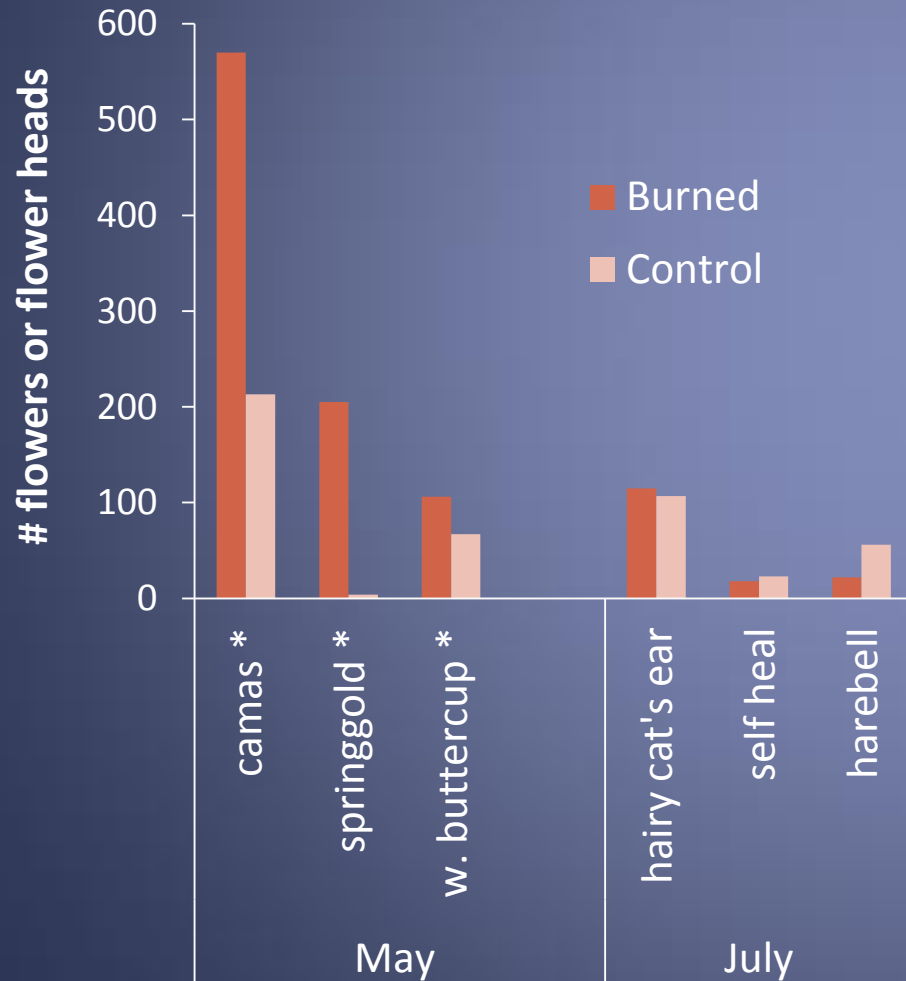
Post-Burn Pollinators

Scatter Creek

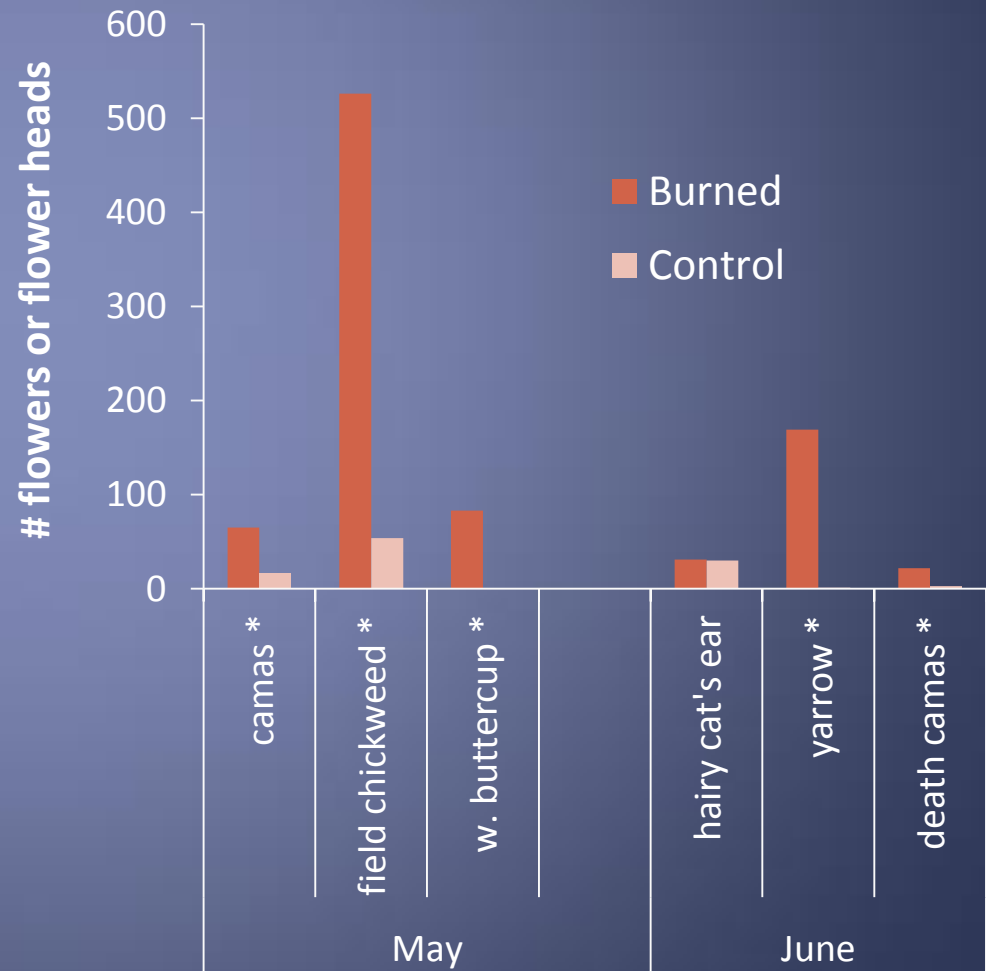


Post – Burn Floral Resources

Mima Mounds



Scatter Creek



Floral Resources

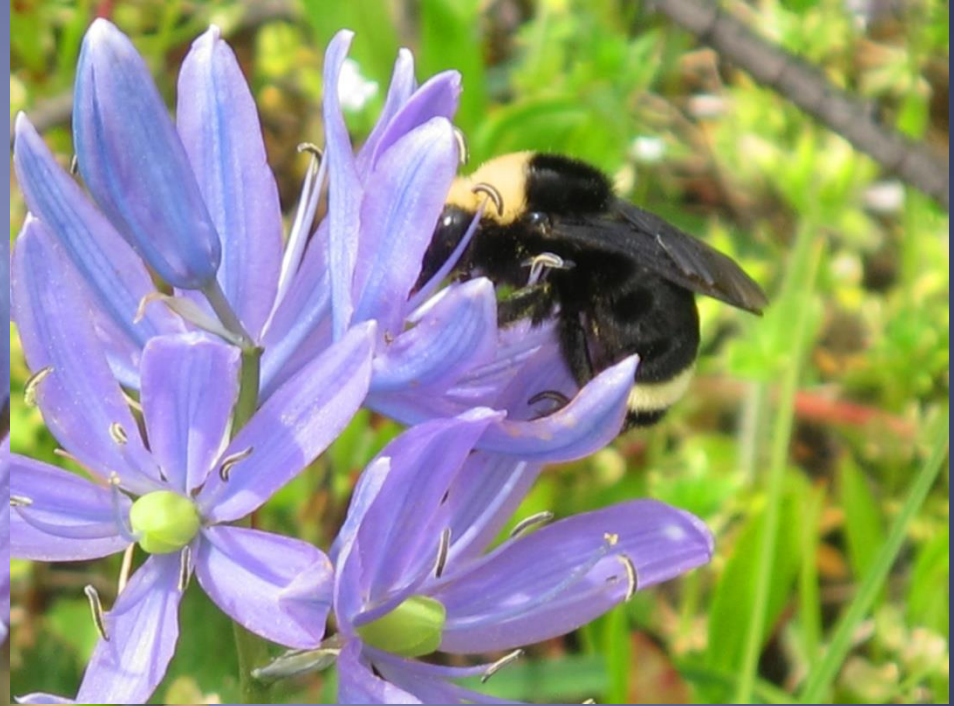


burned



control

Bumblebees Love Camas



Insects Love Camas



Syrphid fly



mining bee



blue butterfly



sweat bee

Conclusions

Fire

- Greater floral resource availability -> higher use by some taxa spring following burn

Conclusions

Fire

- Greater floral resource availability -> higher use by some taxa in spring following burn
- Some taxa responded to other unmeasured habitat characteristics

Call for More News

Climate Change/
Increased Summer
Drought?

Call for More News

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Increased Summer
Drought?



- Plantings across moisture gradients, riparian areas?
- Non-Traditional Prairie plantings

Call for More News

Climate Change/
Increased Drought?



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- Non-Traditional Prairie plantings

Fragmented Prairies

Call for More News

Climate Change/
Increased Drought?



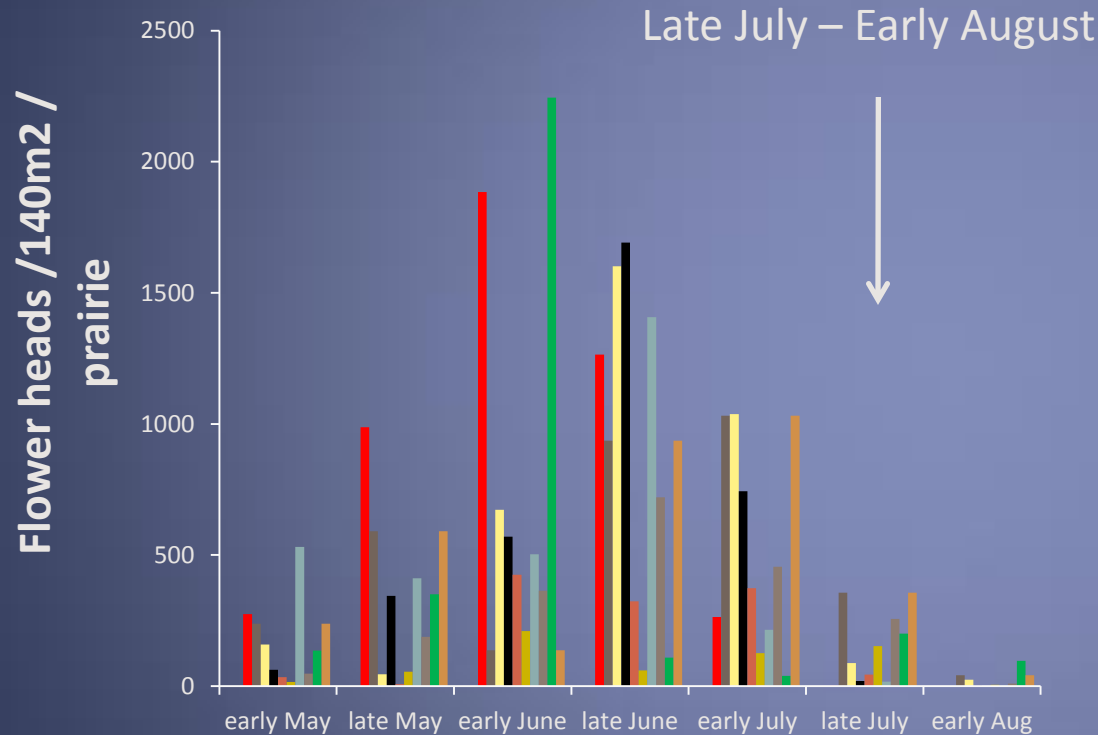
- Plantings across moisture gradients, riparian areas?
- Non-Traditional Prairie plantings

Fragmented Prairies



- Partner with Neighbors:
Off-Site Gardens

Late Season Floral Resources Lacking



goldenrods

45% of August insect visits
on native plants (n=140)



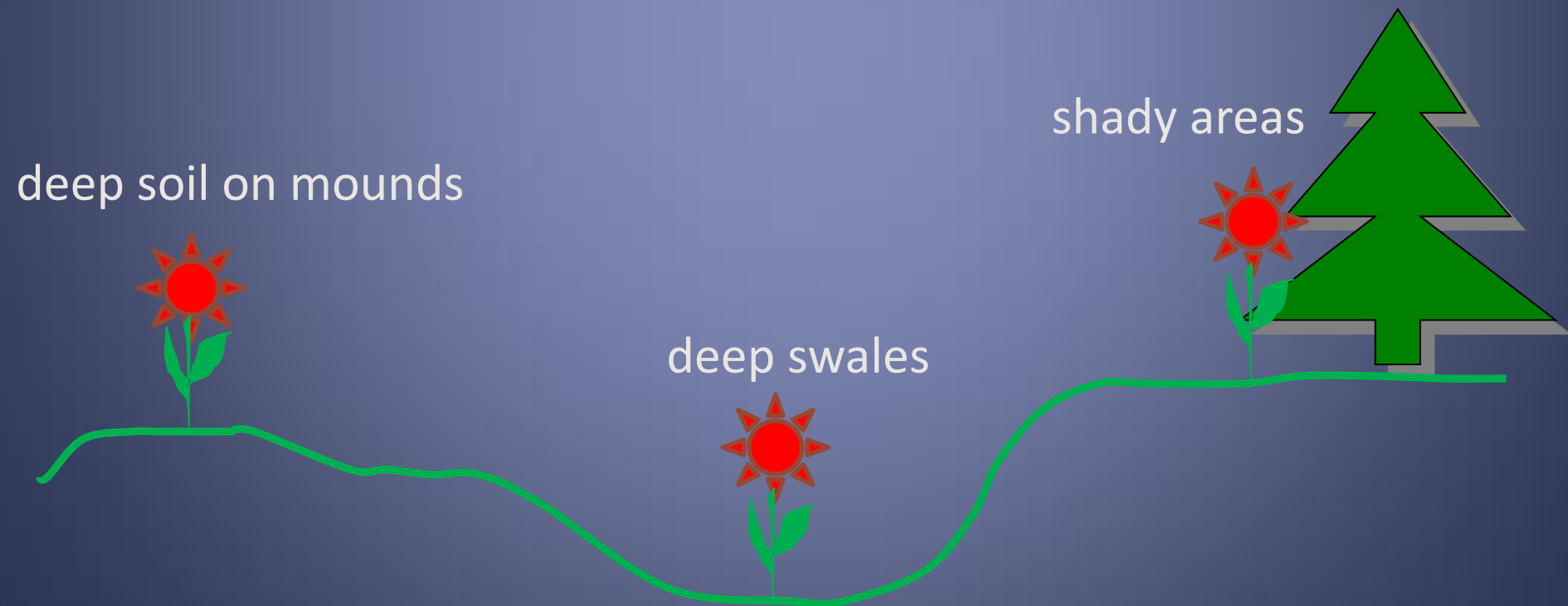
Spreading dogbane 10%



Snowberry 43%

Plantings Across Moisture Gradients

microsite
diversity = ↑ resource
availability



Riparian Areas

LEARN MORE about Pollinator Plants
In Riparian Areas

(eg. Willows)

Non-Traditional Prairie Plantings

LEARN MORE

about
Shrubs
and
Trees

(All are Popular with Pollinators)



Pacific Madrone



Oceanspray



Willow
Trees

Popular Shrubs



Oregon grape
Kinnikinnick
Nootka Rose
Snowberry

Tree & Shrub resources may be important :

- in habitats lacking native forbs,
- during drought conditions ,
- early and late in the flight season

Non-Traditional Prairie Plantings

LEARN MORE about Non-Native Plants

Tolerate in 'sacrifice' Areas on Prairies



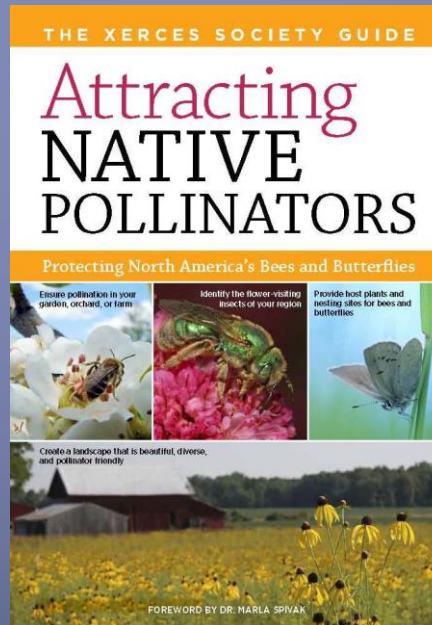
Neighbor Gardens

Review by Hernandez et al. (2009) Urban bee populations:

- high densities (esp. cavity nesters),
- low species richness

EARLY SEASON

(March, April)



LATE SEASON

(July, August)

Avoid Competition for May & June Native Resources on Prairie

Neighbor Gardens

LEARN MORE about *Spillover*

(Movement Between Habitats – Resource Availability*)

Blitzer et al. 2012



The 'Bright Side' of Fragmentation

nesting resources

water

nectar

Nests - Soil



70%
species



Dennis Briggs



Dennis Briggs

Cavity Nesters



SUMMARY

Good News : Pollinators Using
Restored Prairies
(mixed - Fire

More News: Opportunities to Learn More

- Moist Sites – Riparian Areas
- Non-Traditional Plantings
- Neighbor Gardens

QUIZ

Bee, Fly, Wasp, or Moth?



Bee, Fly, Wasp, or Moth?



Bee, Fly, Wasp, or Moth?



Bee, Fly, Wasp, or Moth?



Bee, Fly, Wasp, or Moth?



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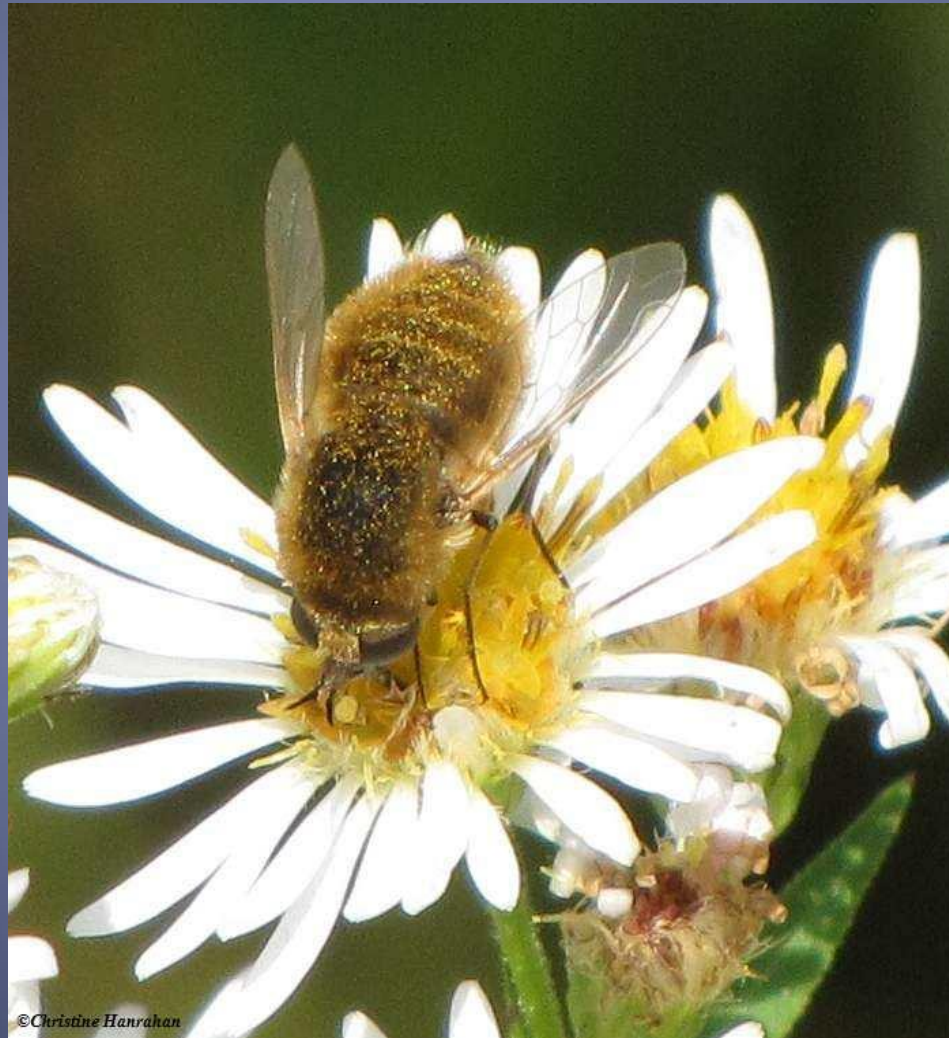
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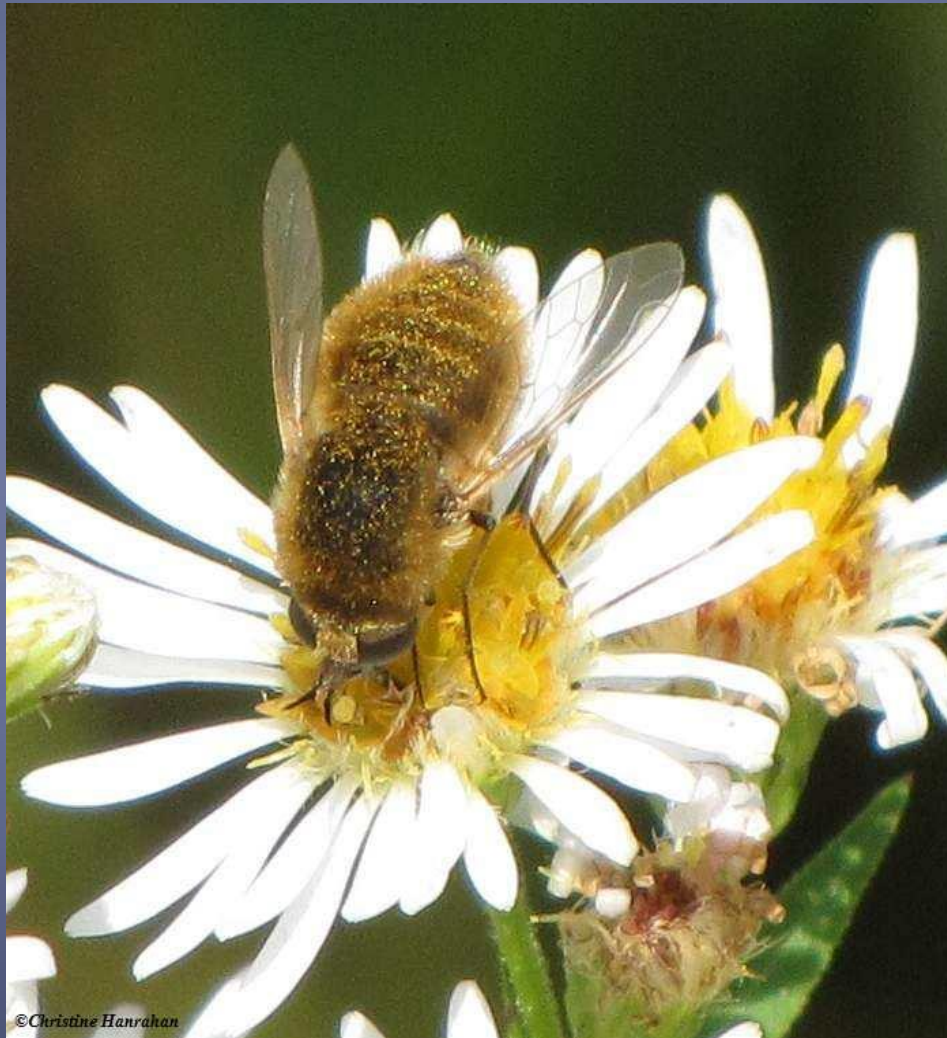
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