



# Pollinators in Vermont Blueberries

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# Crop pollination

- 70% of crops
- 100's of billions / year



# Pollen limitation





# Honey bees and native bees



# Pop Quiz

How many bee species are there in Vermont?

1. 57
2. 92
3. 129
4. 275

# Vermont blueberries

Who pollinates blueberries?

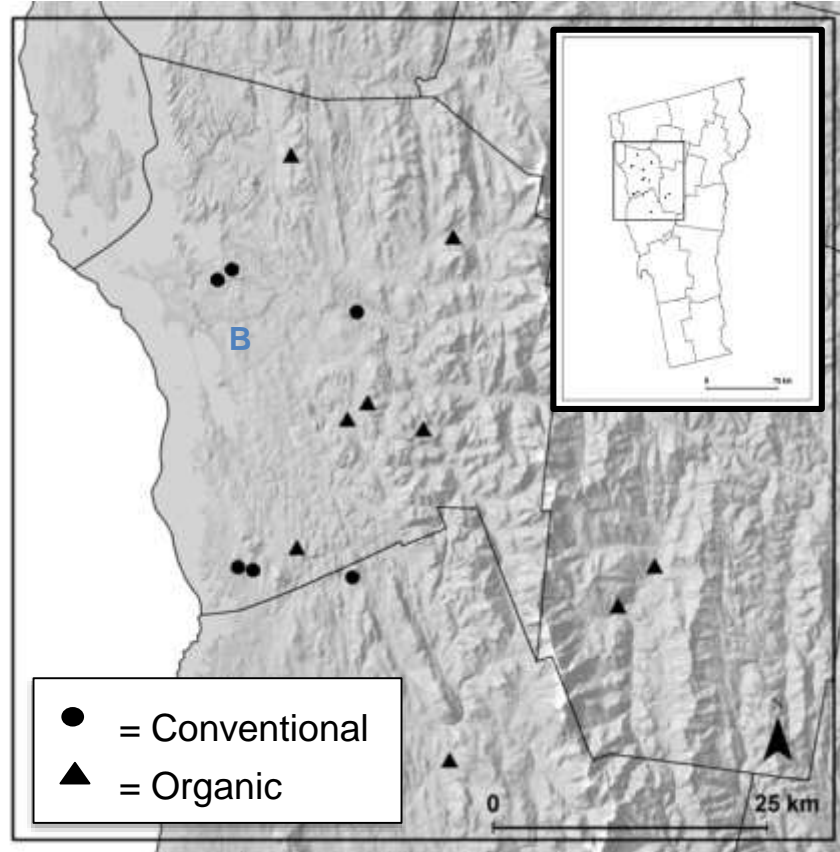
How valuable are they?

How can we manage them better?



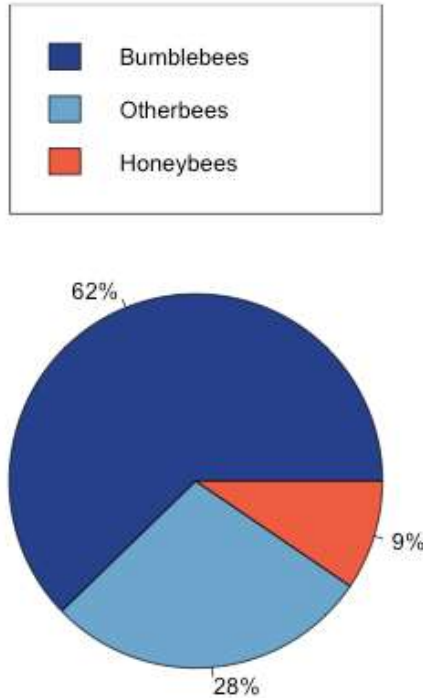


# Field research

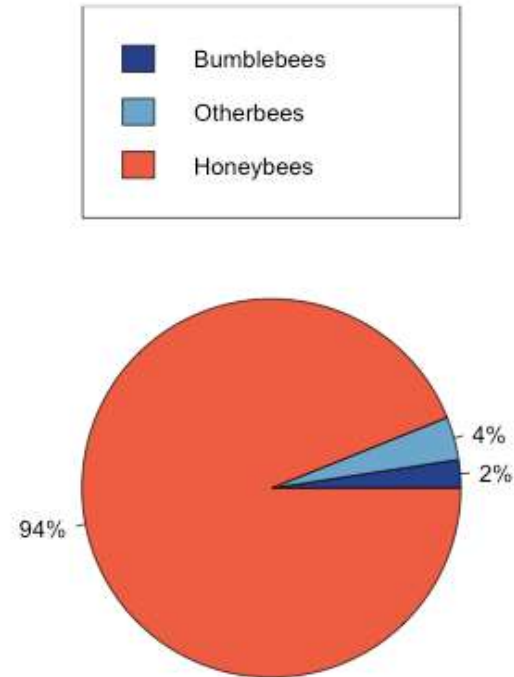


# Vermont blueberries rely on native bees

**Who visits  
Vermont blueberries?**



**Who visits  
Michigan blueberries?**



(84 species)



# Major players



- Bumblebees
- *Bombus* spp
- 9 spp in VT blueberry

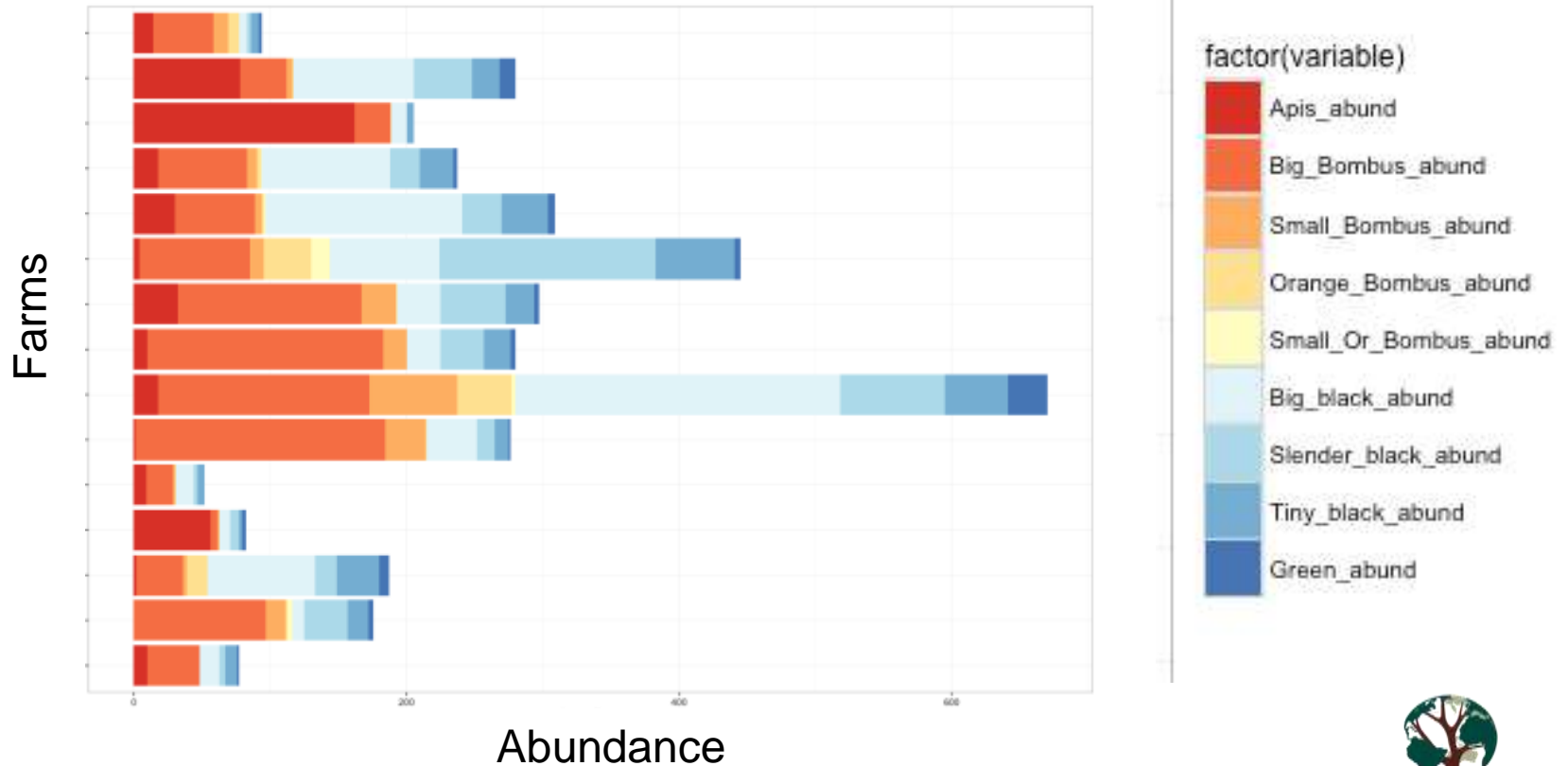


- Mining bees
- *Andrena* spp
- 25 spp in VT blueberry

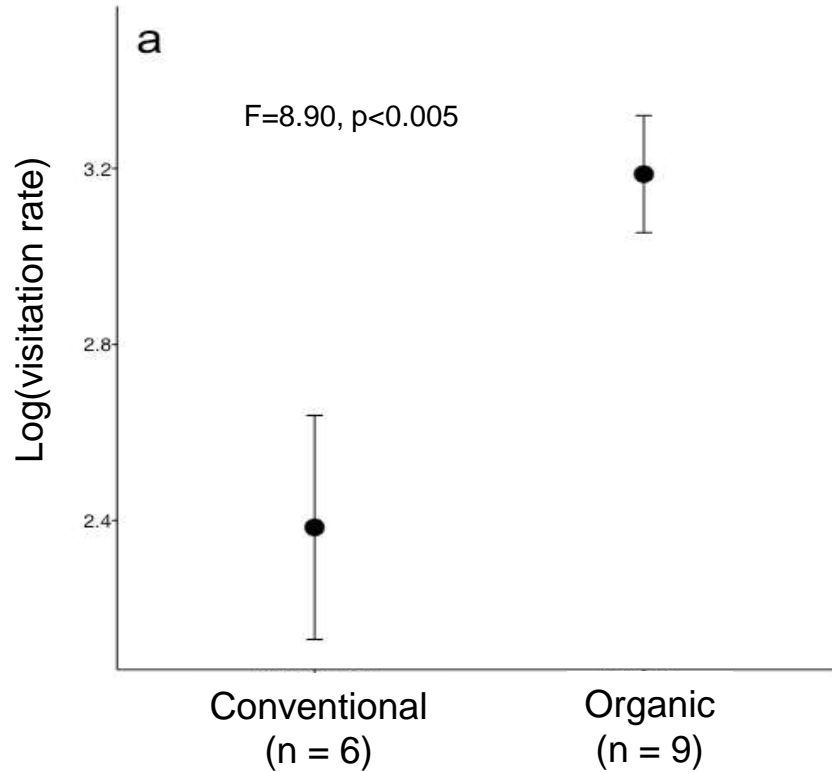


- Sweat bees
- Family Halictidae
- >30 spp in VT blueberry

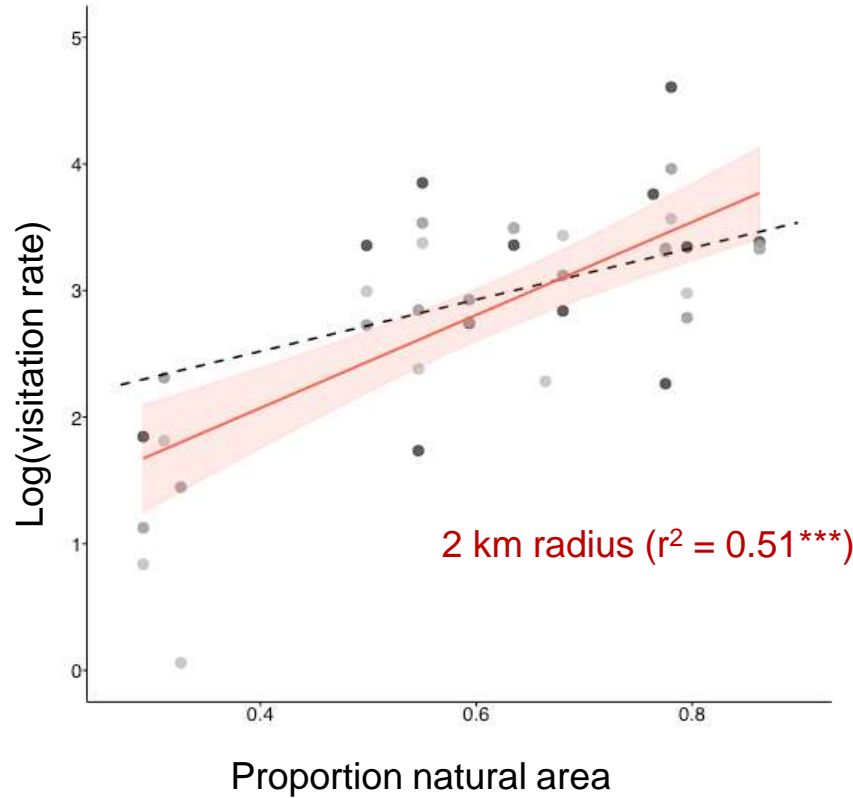
# Big differences among farms



# Management matters...



# ...so does the neighborhood

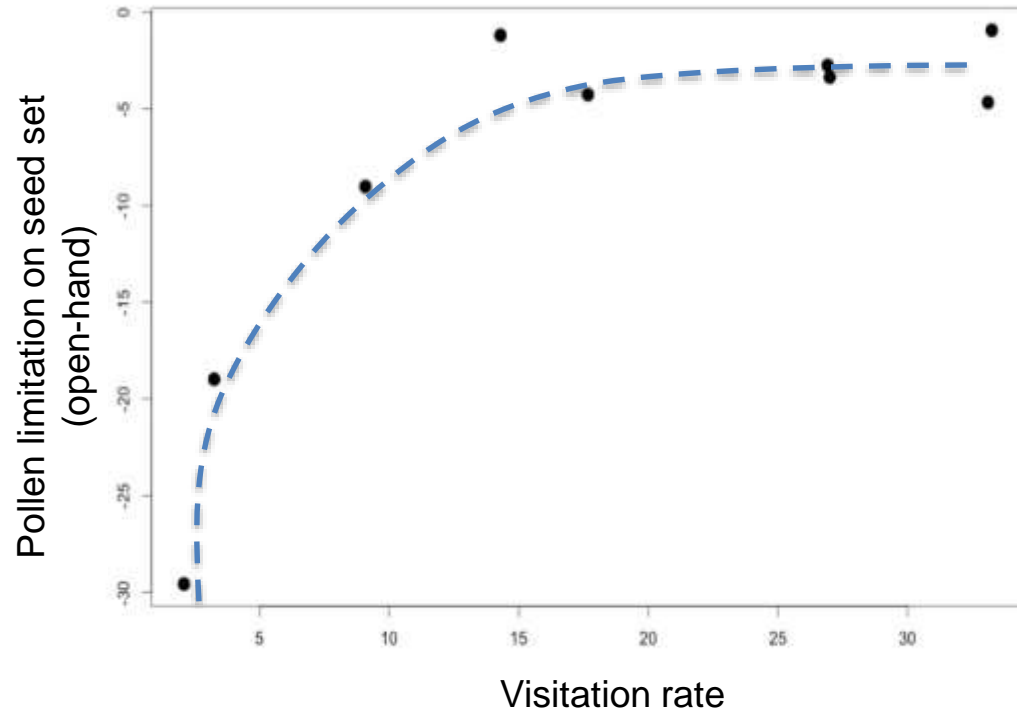




# Yield response from blueberries?



# Pollen limitation



Ricketts, et al. (way too slow to write up)

# What do they need?



1. Nesting sites



2. Flowers for food



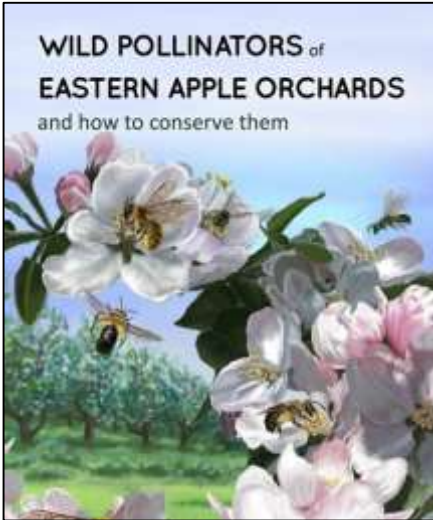
3. Protection from  
Pesticides

# Take homes

- Vermont blueberry visited mostly by native bees
- On-farm and landscape factors both affect visitation
- Increasing visitors can improve yields
- Bee needs are pretty straightforward



# Resources



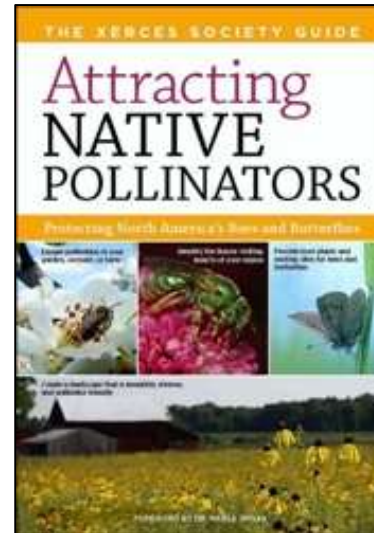
## *Native Bees and Your Crops*

Native bees are valuable crop pollinators. These wild bees help increase crop yields, and may serve as important insurance when honey bees are hard to come by.

There are simple and inexpensive things you can do to increase the number of native bees living on your land. Any work you do on behalf of pollinators will support other beneficial insects and wildlife. In addition, improvements to pollinator habitat may be eligible for financial support from government programs.

Inside you'll find more information, along with a visual guide to identifying and enhancing habitat for native bees on your farm.

Xerces Society – bee info  
NRCS – plant lists, funds  
UVM – information, studies



# Thanks



## **Most of all:**

Charlie Nicholson  
16 Blueberry growers

## **Expertise:**

Toby Alexander  
Alison Brody  
Vern Grubinger  
Insu Koh  
Leif Richardson  
Katharina Ullmann  
Mace Vaughn

## **Field Crews:**

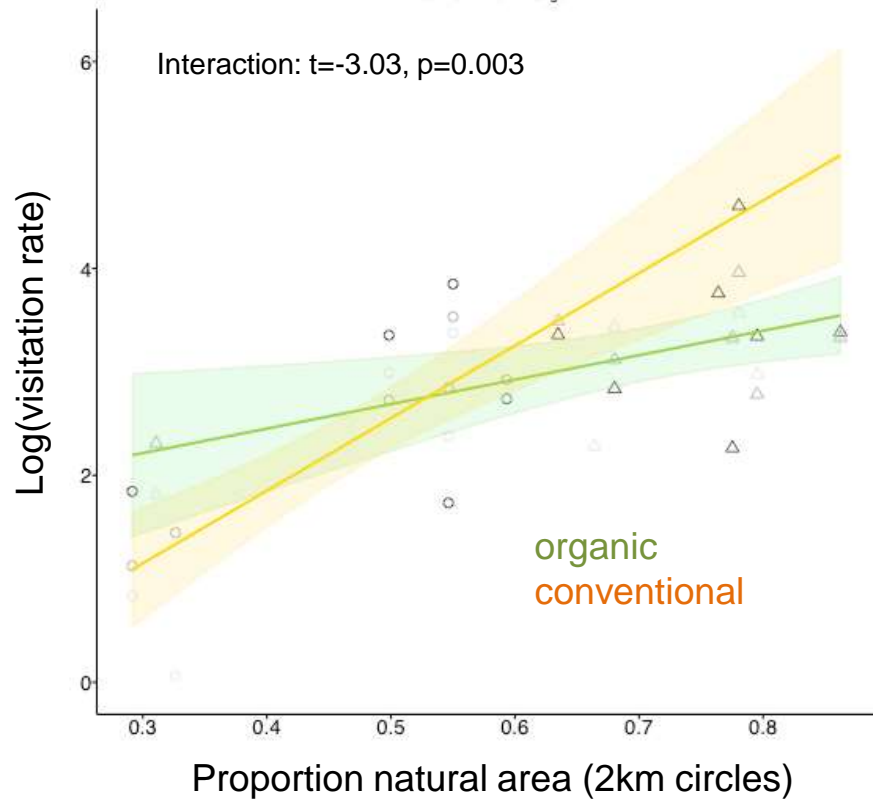
Anna Beauchemin  
Katie Burns  
Paige Carncross  
Erin Cain  
Elizabeth Gribkoff  
Jen Hayes  
Melissa Moldovan  
Kristian Moore  
Ashlin Treadway  
Liana Vitousek  
Rose Watts

## **Funds:**

National Science Foundation  
USDA NIFA

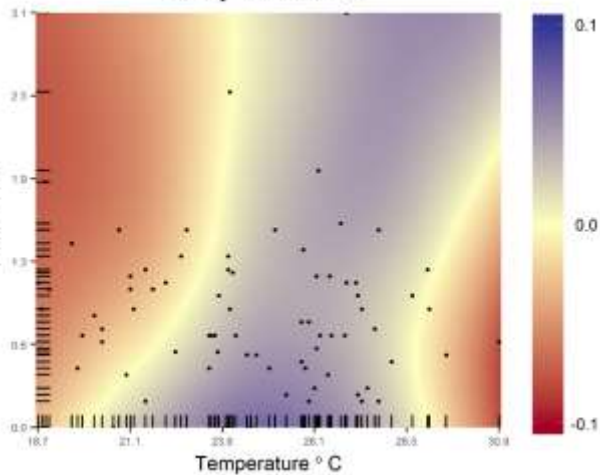


# Farm and landscape factors interact

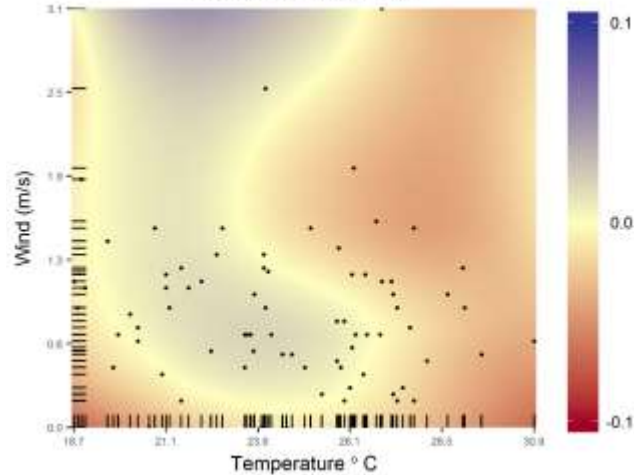




Honey bee 2014 VT



Bumble bee 2014 VT



Other bee 2014 VT

