

# The Invisible Bees of Maryland

And the Landscape You Create for  
Them....or not





Bees are Vegetarian Wasps



20,000 Named Species Worldwide



20,000 More to Describe



~4,000 Species in U.S.



~ 400 Undescribed in U.S.



Diversity Highest in the Southwest



100+ Species at Any Location



425+ Maryland



Honey Bees are from Mars



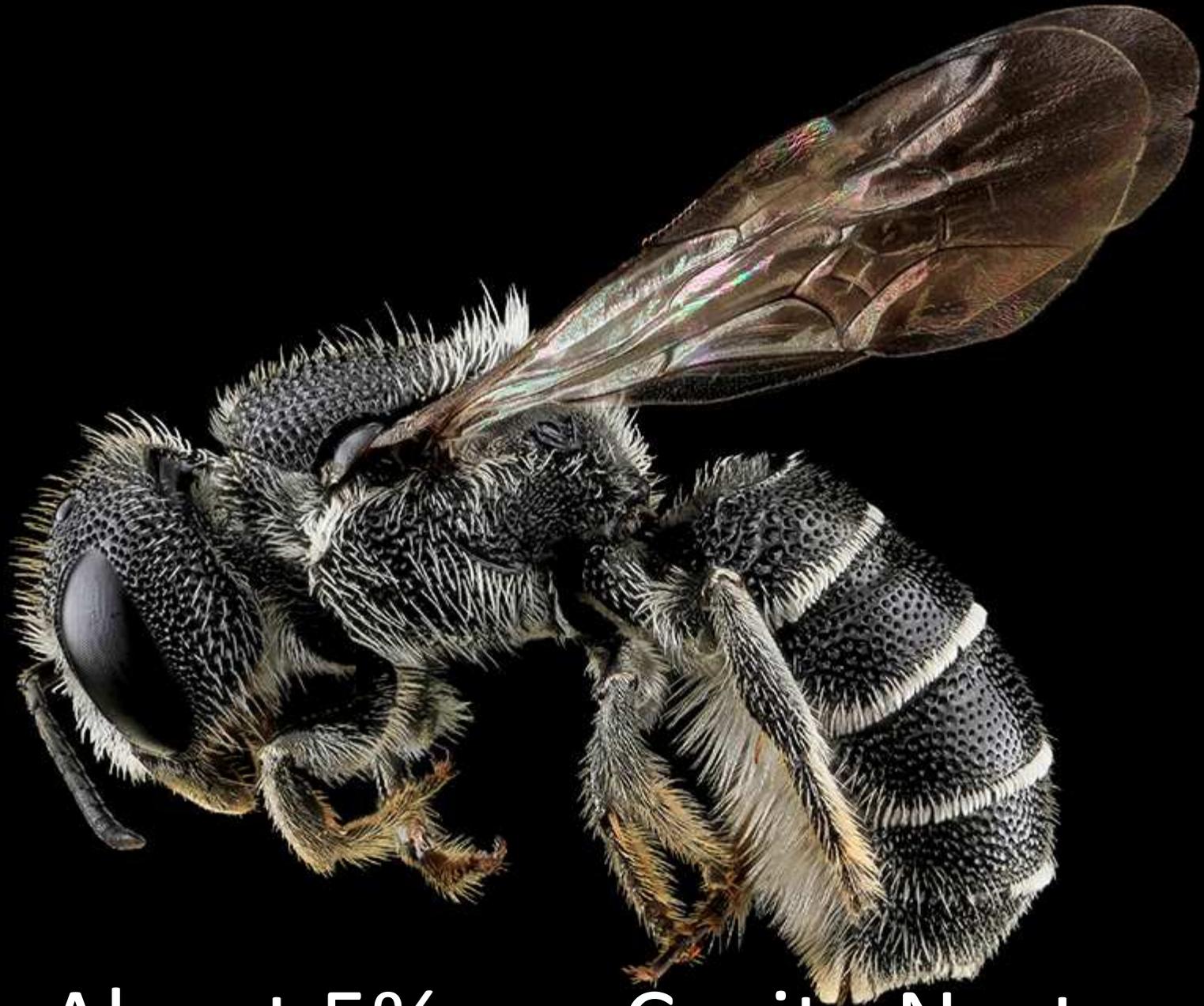
20% of Species are Nest Parasites



1% of Bees are Not Native



20-25% of Bees are Pollen Specialists

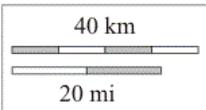
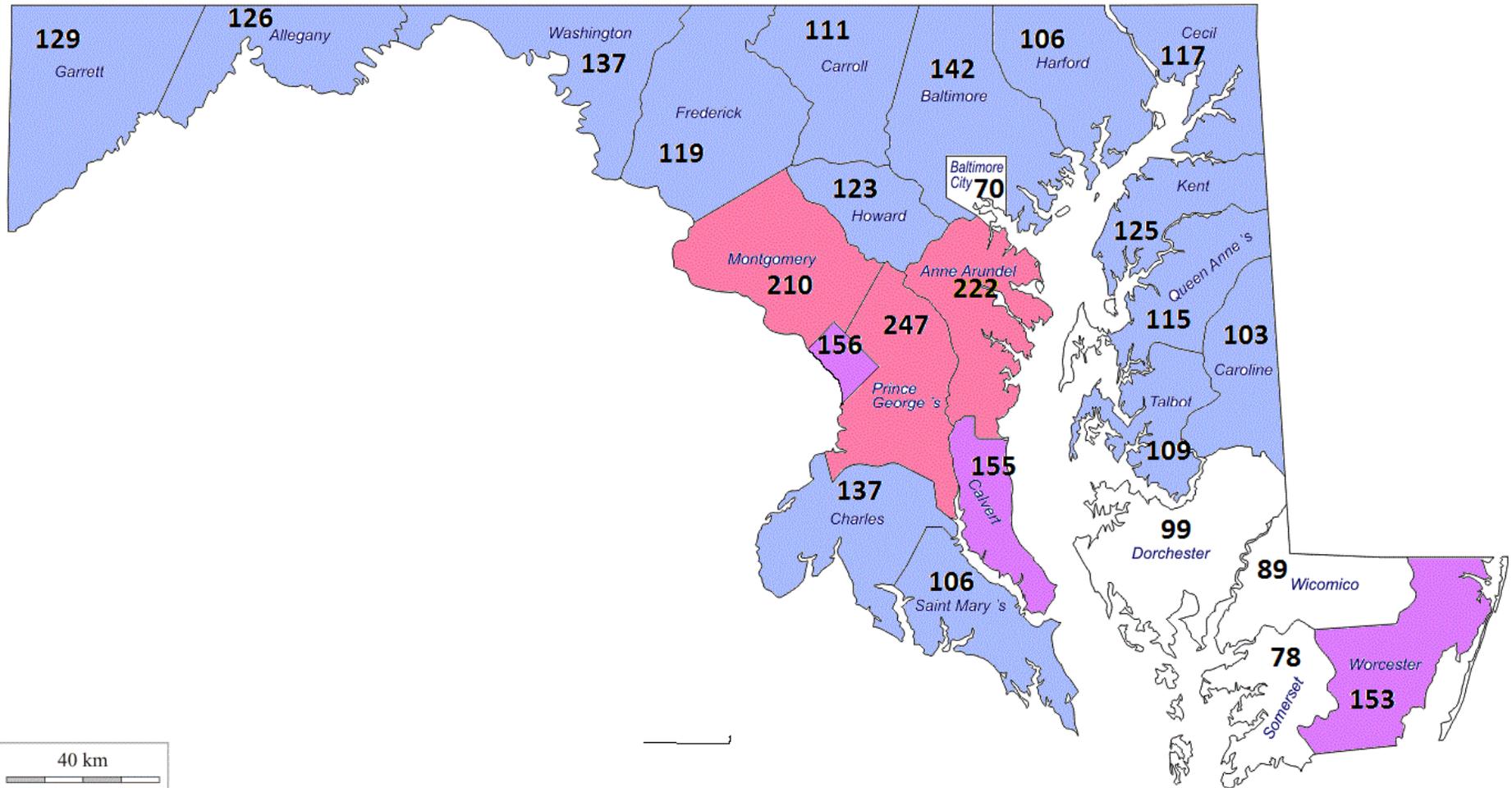


About 5% are Cavity Nesters

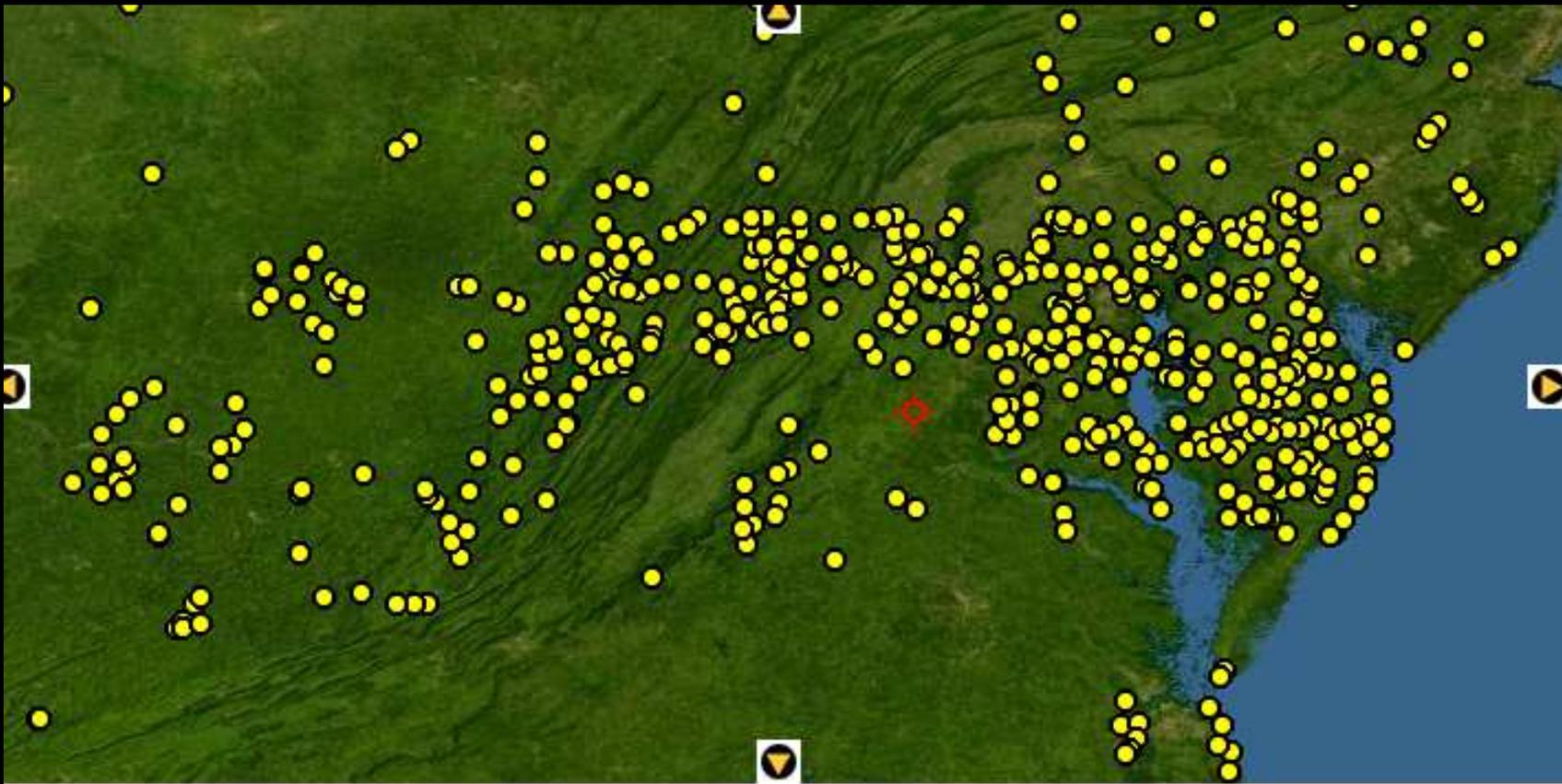


Most Nest in the Ground

# Bee Species Total By County



# Sampling Locations (179,725 Bees)



Males Do Transfer Pollen When  
Nectaring, Do Not Help at Nests





Most Native Bees Do Not/Can  
Not Sting



**Native Bees at Times can Provide  
the Bulk of Crop Pollination**



Soybean Yield Boost

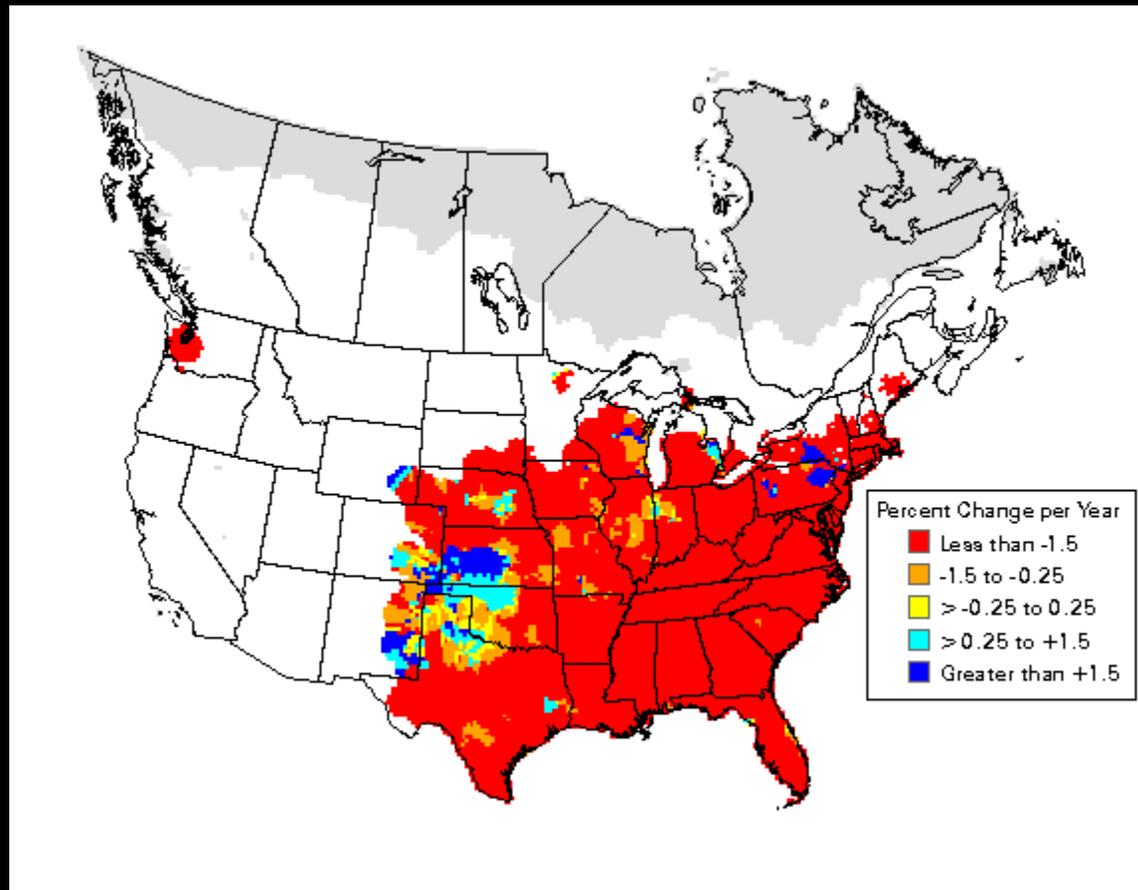


Bees Are Good at Finding  
Blooming Plants



Not a Mystery!  
Native Bee Decline = Habitat Loss

# The Current Pollinator Situation: Ask the Bobwhite



Native Bees  
Retained by  
Quality Native  
Habitat



# Staggerbush and Maleberry - *Lyonia*



# Cinquefoil - *Potentilla*



# Ragworts - *Packera*



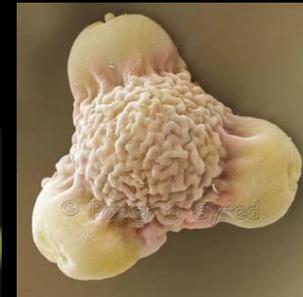
Bluets – *Houstonia* –  
*Pseudopanurginus virginicus*



# Shrubby Dogwoods - *Cornus* - *Swida*

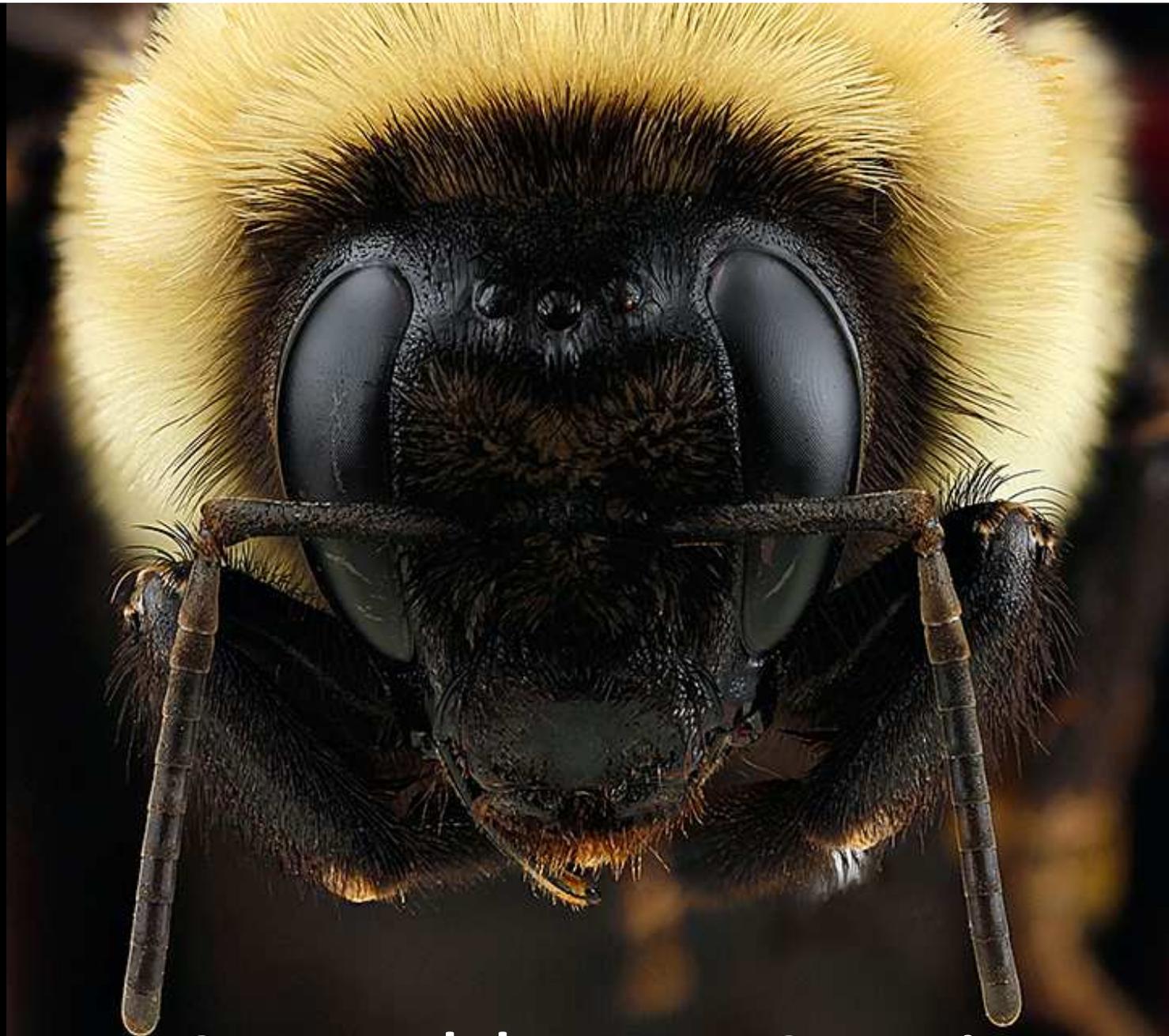


# *Oenothera* – Evening Primrose



# *Pontedaria cordata* – Pickerelweed





49 Bumble Bee Species



Loss of Bumble Bees due to  
Introduced European Parasites

# Plant Meadows not Trees



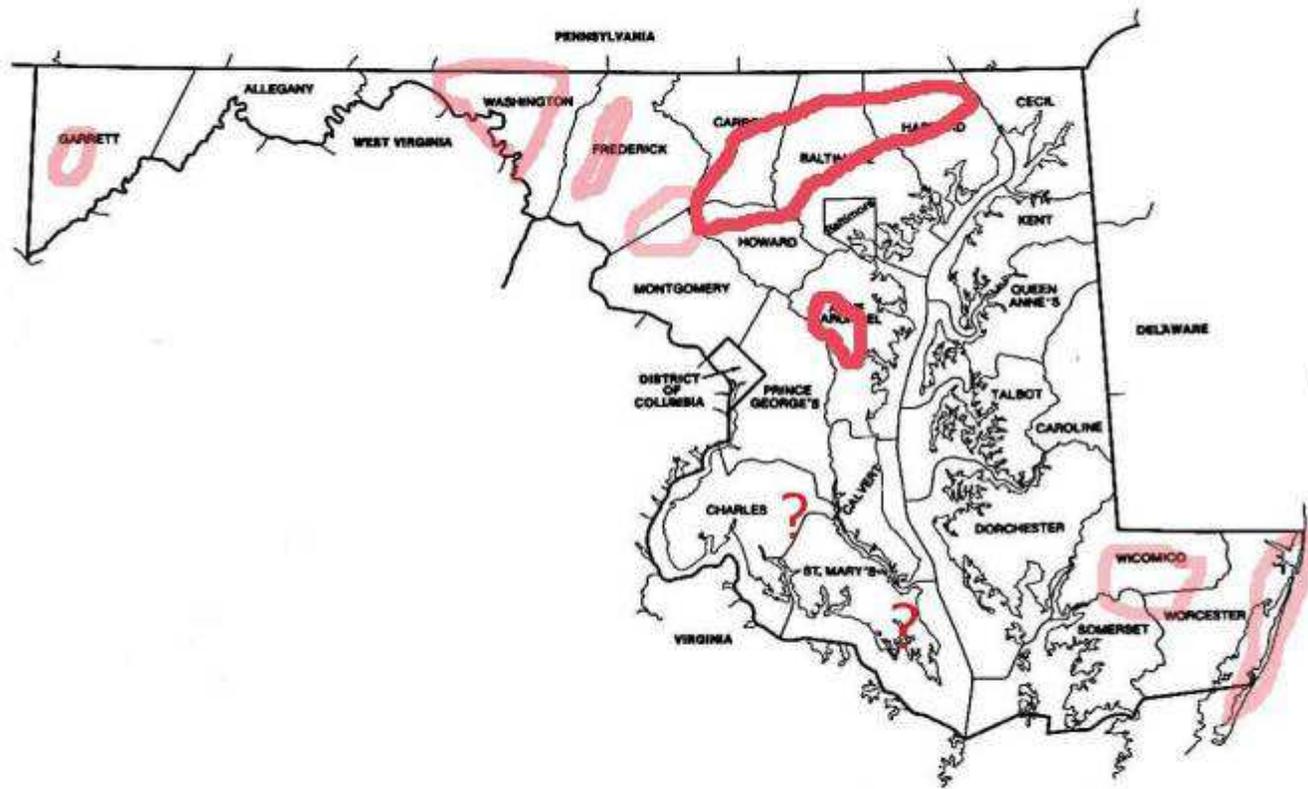


Herbiciding and Mowing of  
Roadsides/ ROW

# Soft Edges Around Mown Fields



# Historic Maryland Barrens/Open Lands



# 2014 Survey Sites

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## Grace Savoy



# Methods





# 2014 Preliminary Results:

Bees Collected	8386
Species	160
Genera	21



*Andrena perplexa*

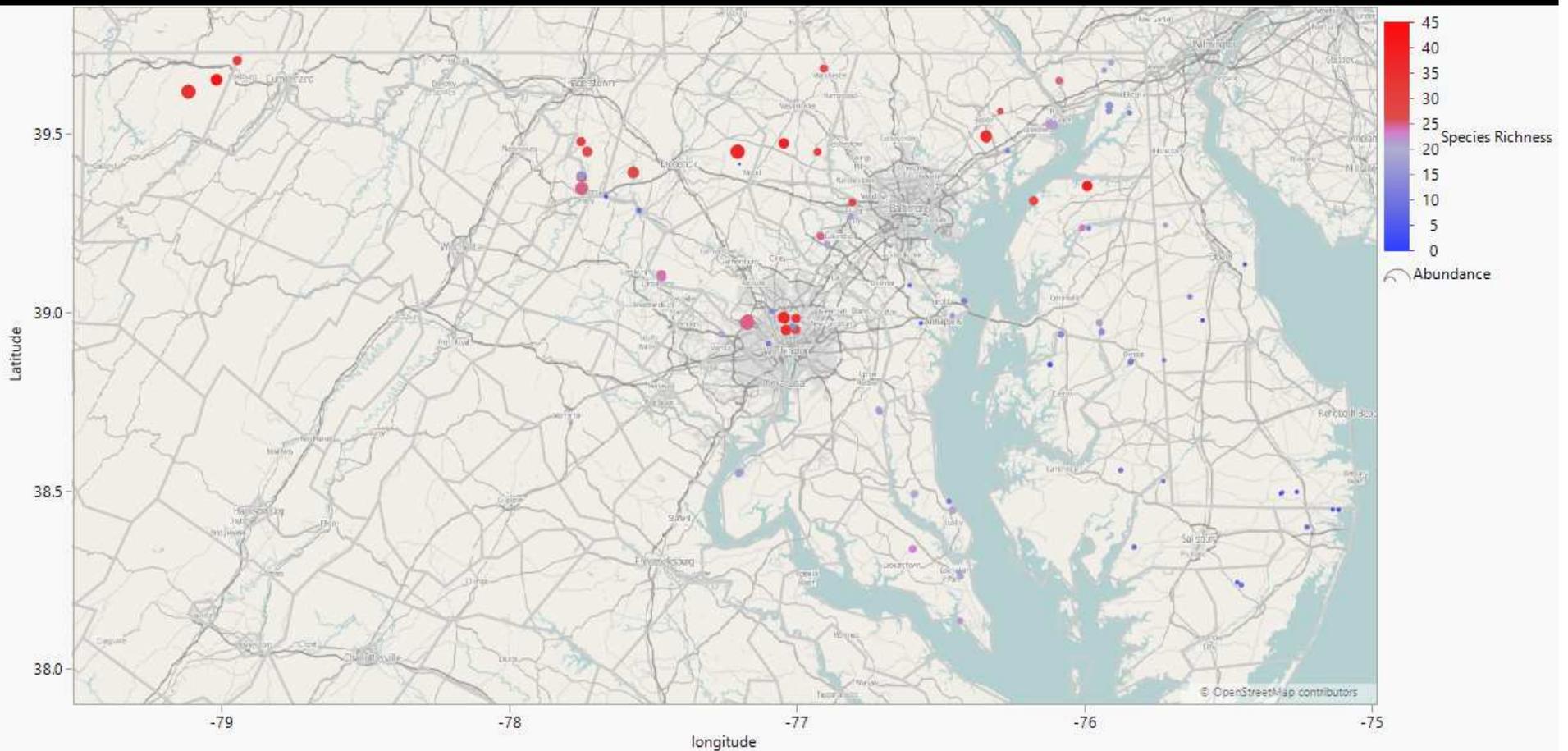


*Osmia taurus*

## Most common species

<i>Andrena carlini</i>	1755
<i>Andrena perplexa</i>	806
<i>Osmia taurus</i>	524
<i>Andrena erigeniae</i>	495

# Abundance and Species Richness



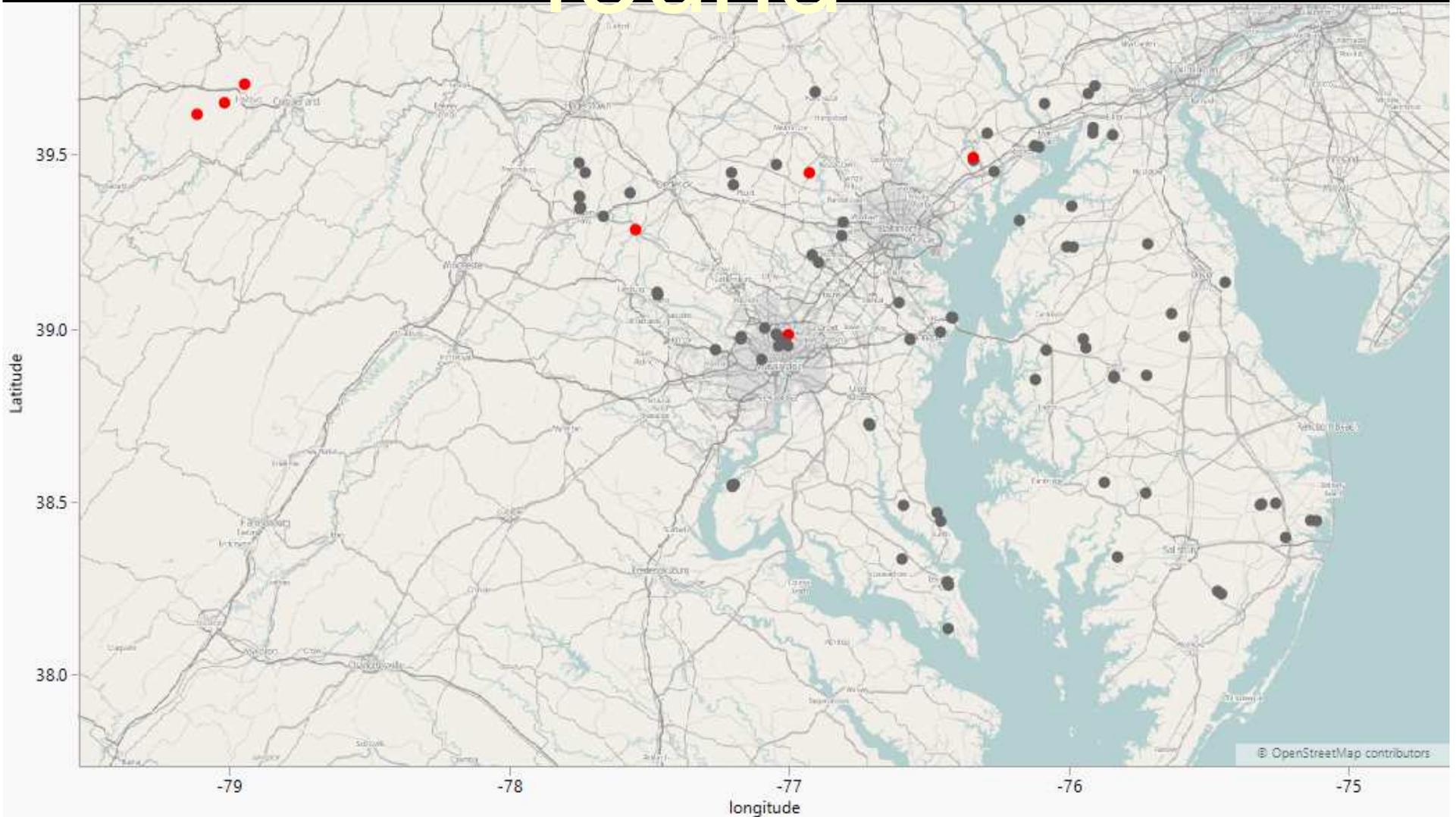
# New Bee Records

*Andrena  
rufosignata*  
A new state  
record for  
Maryland



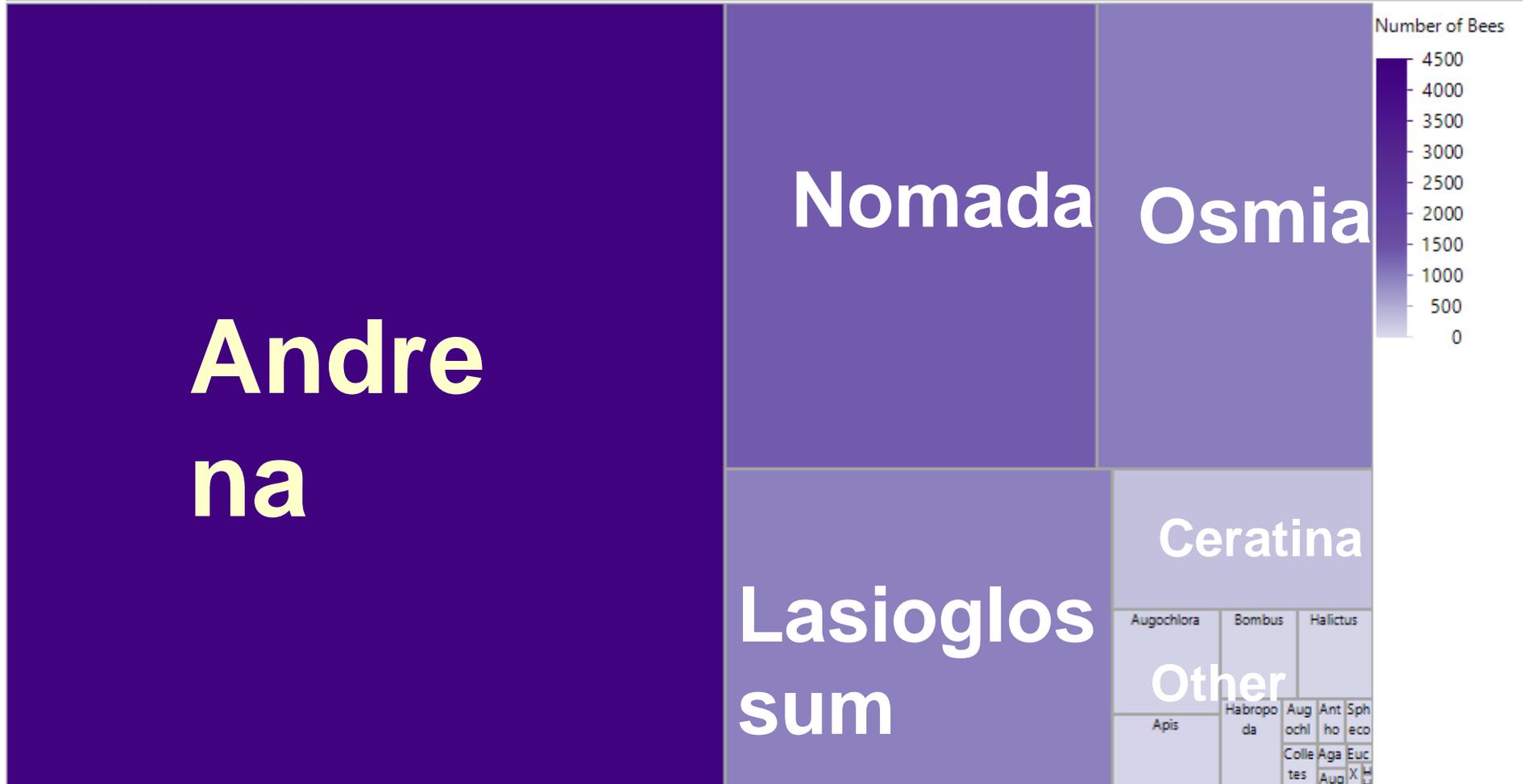
Photo by Laurence Packer

# *rufosignata* was found



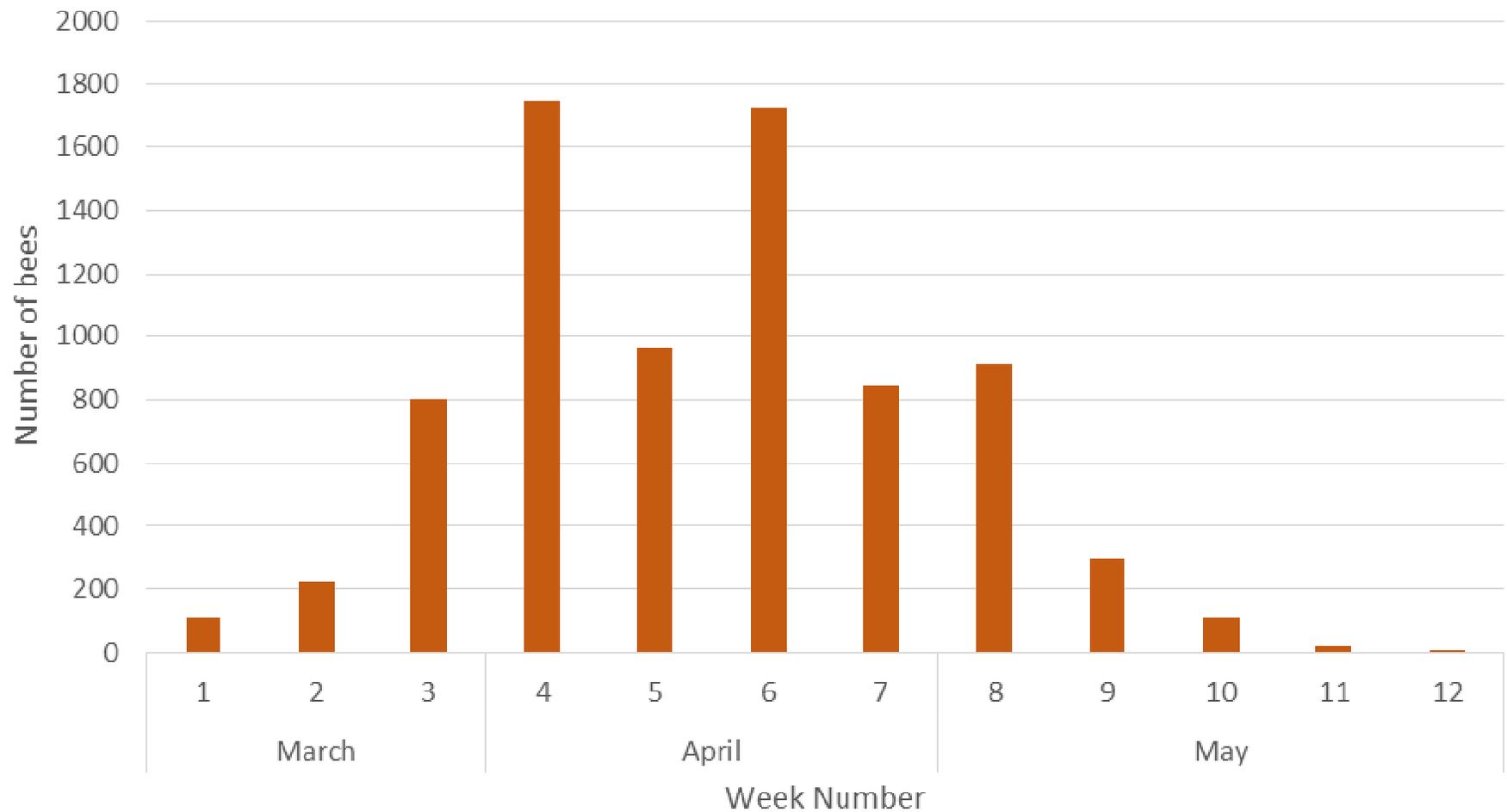
# Overall Composition of Genera

Treemap of Species Sized by Number of Bees Colored by Number of Bees

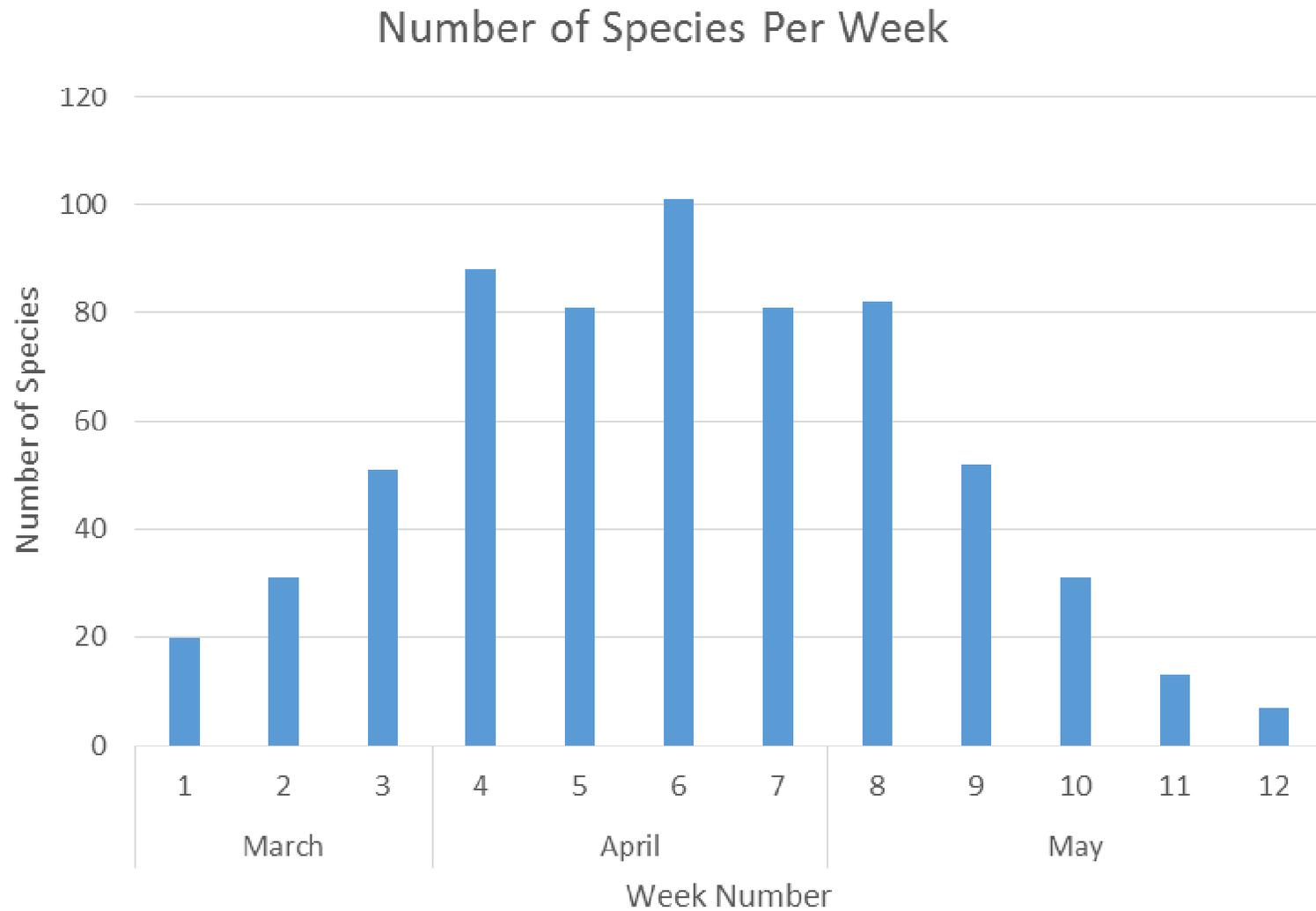


# Phenology

Number of Bees Collected Per Week



# Phenology





Flickr: USGSBIML: All CC

# No Boundaries



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