



# Effects of Microhabitats on Insect Biodiversity in Northern Virginia

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# Objectives

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STUDY INSECT BIODIVERSITY ACROSS  
NORTHERN VIRGINIA



OBSERVE EFFECTS OF  
MICROHABITATS ON INSECT  
BIODIVERSITY



ANALYZE HOW THE ENVIRONMENT  
IS BEING IMPACTED BY  
URBANIZATION AND DEFORESTATION

# Project Approach

1. Located six different sites for sampling, 2 urban, 2 forested, and 2 grassfields
2. Used a 0.8m x 0.8m sampling area to survey for any insects in each site
3. Identified and counted insects with the iNaturalist app
4. Logged data weekly for each sampling site
5. Grouped the insects into conventional classifications

Under the guidance of Ms. Palmer, Conservation Education Specialist for Northern Virginia Soil & Water Conservation District



# Sampling Process

- Sampled between 6:30 – 8:30 AM every Wednesday or Thursday depending on weather conditions
- Sampled in each site for approximately 25 minutes
- All sites were within 2 miles of my house
- Visited each site weekly from the week of June 28<sup>th</sup> to week of July 19<sup>th</sup>
- Used a hoola-hoop to set sampling boundaries
- Counted colonies as a separate entity
- Sampling Sites: Nottoway Park Forest, W&OD Trail Forest, Nottoway Park Field, Backyard, Home Culdesac, Giants Parking Lot



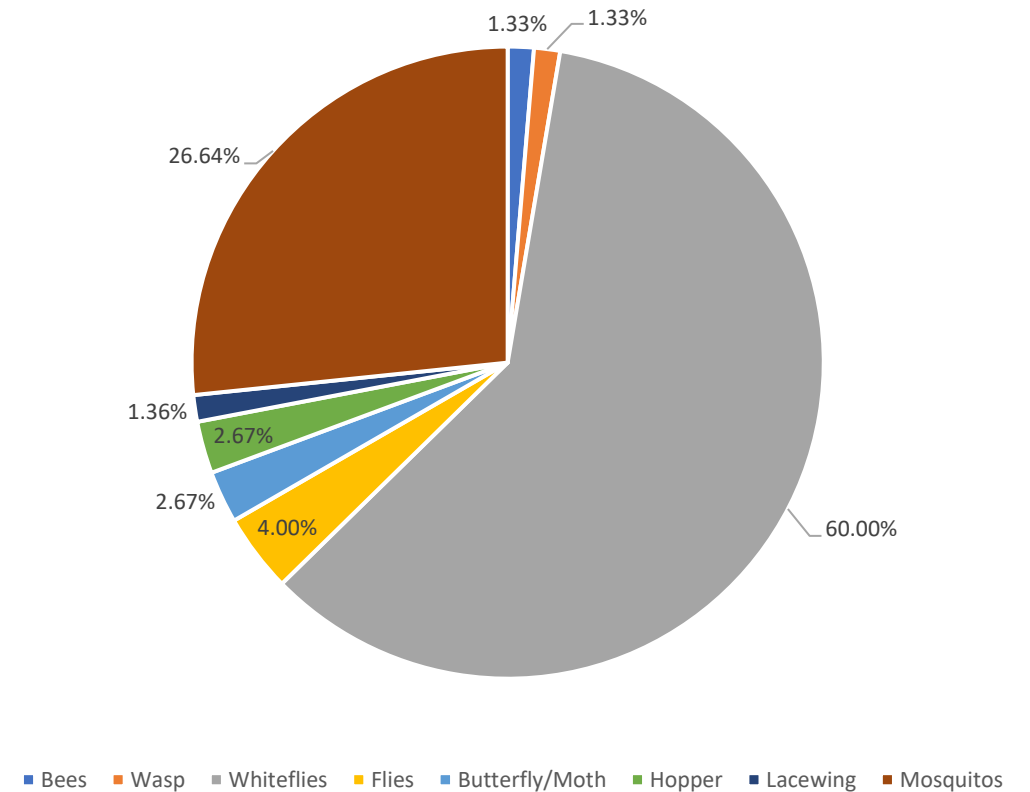
Pictures



# Grassfield Data Compilation

Sites	Week 1	Week 2	Week 3
Nottoway Park Field	<ul style="list-style-type: none"> <li>1 bee</li> </ul>	<ul style="list-style-type: none"> <li>2 squirrels</li> <li>1 wasp</li> <li>30 whiteflies</li> </ul>	<ul style="list-style-type: none"> <li>2 flies</li> <li>3 whiteflies</li> <li>1 butterfly</li> <li>1 hopper</li> <li>1 sparrow</li> </ul>
Backyard Field	<ul style="list-style-type: none"> <li>5 mosquitos</li> <li>1 moth</li> <li>1 fly</li> </ul>	<ul style="list-style-type: none"> <li>13 mosquitos</li> <li>1 moth</li> <li>1 hopper</li> <li>1 lacewing</li> </ul>	<ul style="list-style-type: none"> <li>2 mosquitos</li> <li>12 whiteflies</li> </ul>

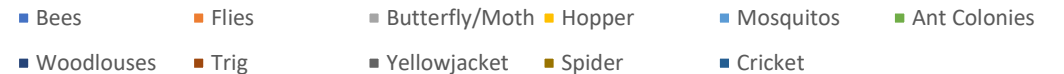
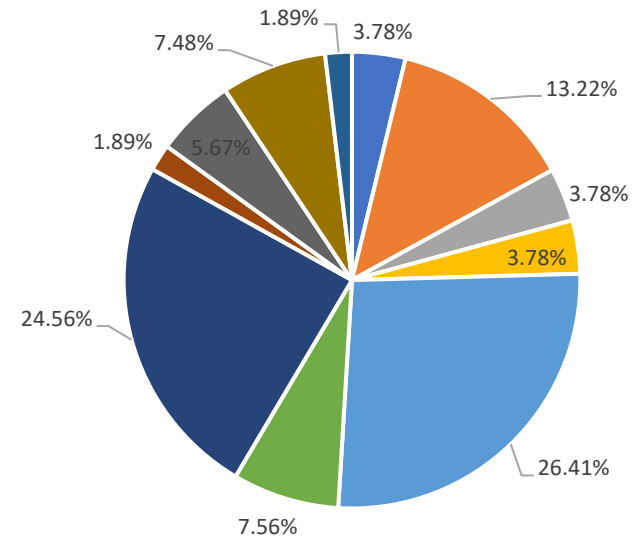
Grassfield Area Species Composition



# Forested Data Compilation

Sites	Week 1	Week 2	Week 3
Nottoway Park Forest	<ul style="list-style-type: none"> <li>• 2 ant colonies</li> <li>• 1 fly</li> <li>• 1 bee</li> </ul>	<ul style="list-style-type: none"> <li>• 11 woodlouse</li> <li>• 1 trig</li> <li>• 2 yellowjackets</li> <li>• 2 moths/butter fly</li> <li>• 5 mosquitos</li> </ul>	<ul style="list-style-type: none"> <li>• 2 ant colonies</li> <li>• 2 woodlouse</li> <li>• 2 spiders</li> <li>• 1 hopper</li> <li>• 1 sharpshooter</li> <li>• 3 flies</li> <li>• 1 cicada</li> </ul>
W&OD Trail Forest	<ul style="list-style-type: none"> <li>• 1 lace bug</li> <li>• 1 fly</li> <li>• 1 bee</li> </ul>	<ul style="list-style-type: none"> <li>• 1 squirrel</li> <li>• 1 fly</li> <li>• 4 mosquitos</li> <li>• 1 hopper</li> <li>• 1 yellowjacket</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cricket</li> <li>• 5 mosquitos</li> <li>• 1 fly</li> <li>• 1 mealybug</li> </ul>

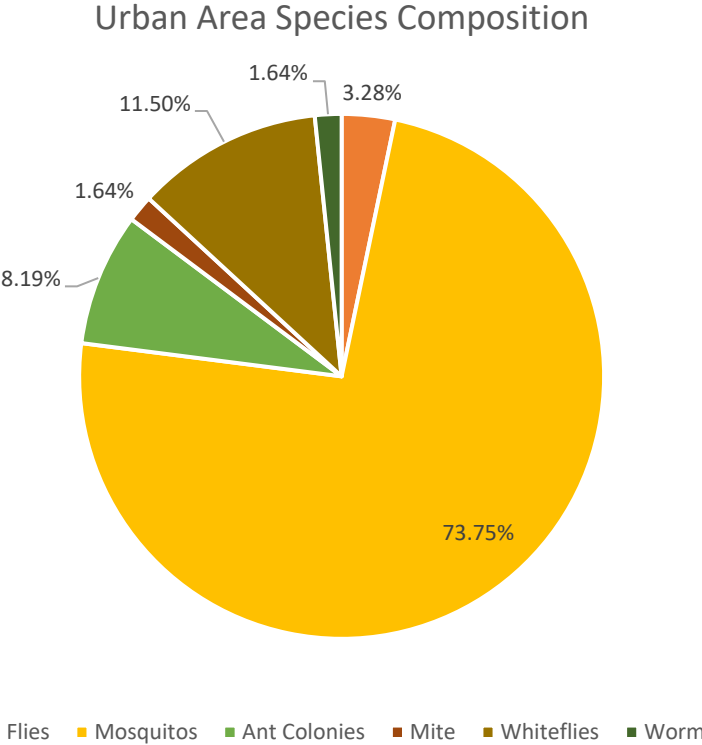
Forested Area Species Composition





# Urban Data Compilation

Sites	Week 1	Week 2	Week 3
Home Culdesac	<ul style="list-style-type: none"> <li>1 ant colony</li> </ul>	<ul style="list-style-type: none"> <li>1 ant colony</li> <li>15 mosquitos</li> <li>1 worm</li> <li>2 flies</li> <li>1 mite</li> <li>7 whiteflies</li> </ul>	<ul style="list-style-type: none"> <li>&gt;30 mosquitos</li> </ul>
Giants Parking Lot	<ul style="list-style-type: none"> <li>1 ant colony</li> </ul>	<ul style="list-style-type: none"> <li>1 ant colony</li> </ul>	<ul style="list-style-type: none"> <li>1 ant colony</li> </ul>



# Conclusion

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- The forested sites had the greatest biodiversity followed by grassfield and urban sites respectively
- As the shade cover at the site increased, the biodiversity and number of species increased
- The forested sites had the best biological data as it had more cover, which allowed for less foot traffic, lower temperatures, more nutrients and food sources, and more places to hide from predators and other threats
- The constructions and urbanizations of Northern Virginia is making the environment less suitable for a plethora of insect species, driving them away and harming the ecosystem's health

