



# Enhancing hedgerow systems in citrus to improve beneficial insect diversity and abundance

## YOUNG SCHOLAR ENHANCEMENT GRANT PROGRAM

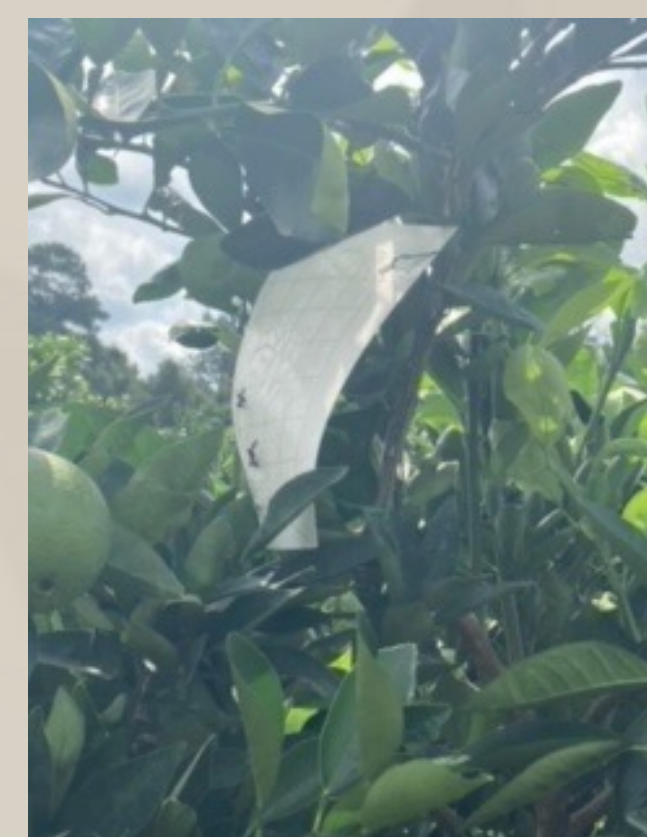
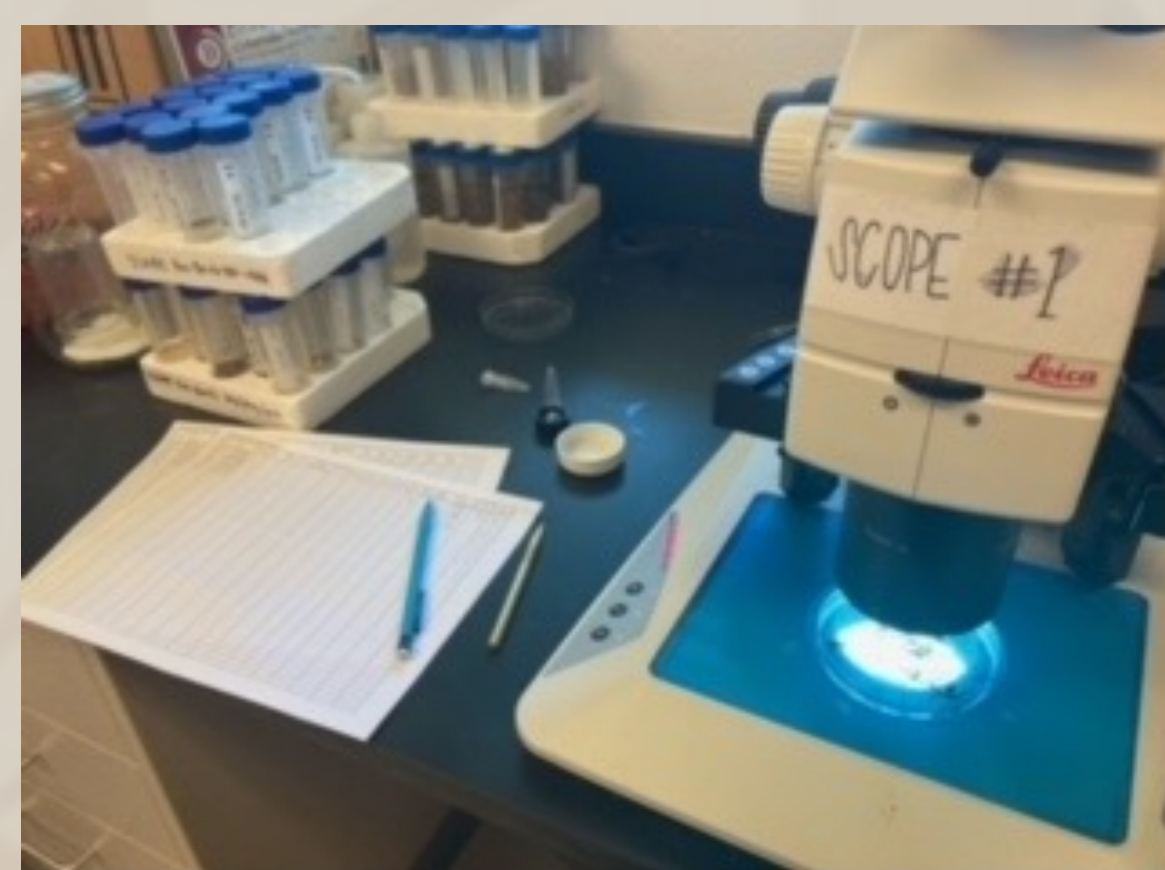
Jacquez Daniels ([danielsjacquez@ufl.edu](mailto:danielsjacquez@ufl.edu)), Xavier Martini  
North Florida Research and Education Center, University of Florida, Florida A&M University

### Introduction

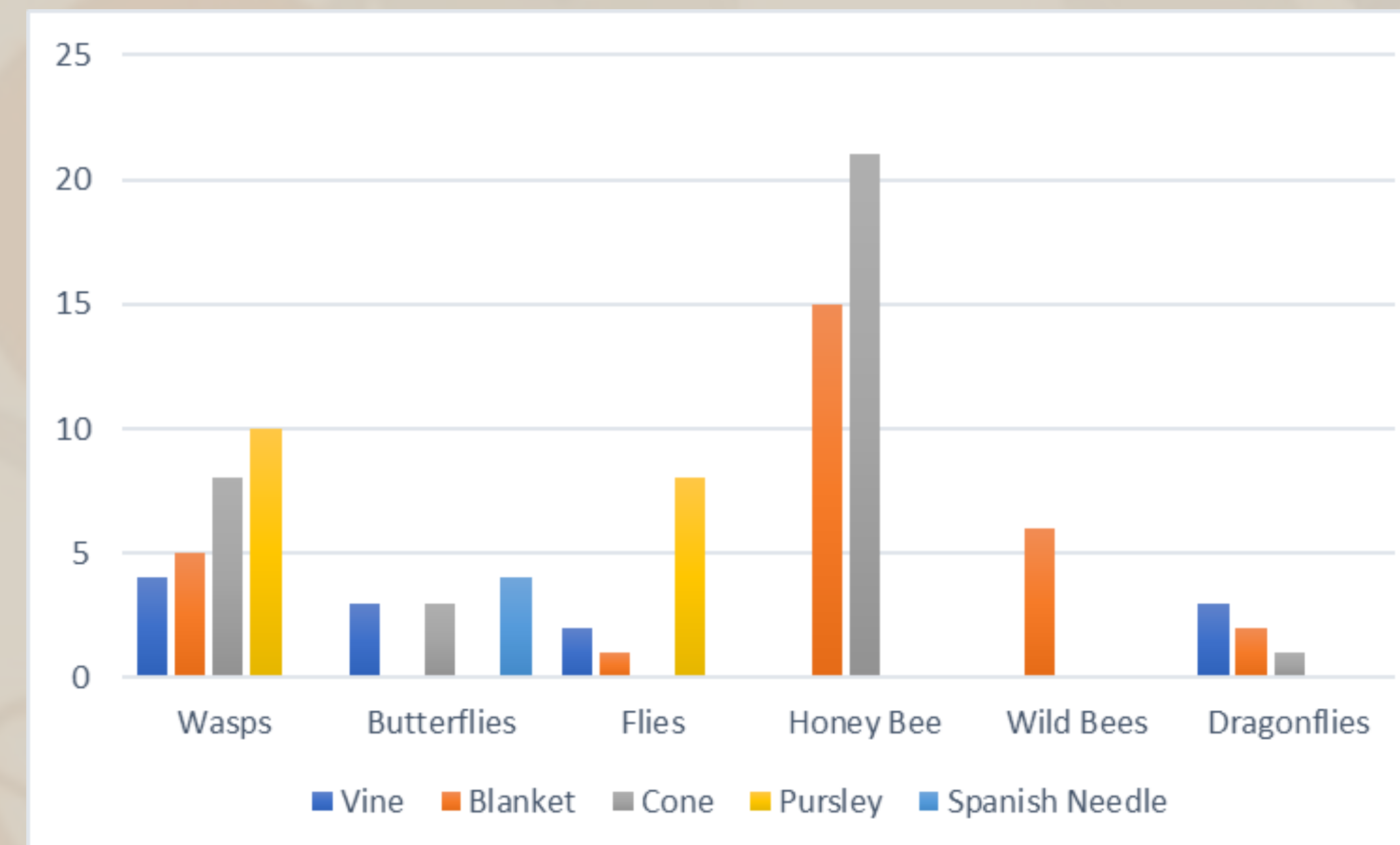
I am Jacquez Daniels, a sophomore student at Florida A&M University where I am pursuing my B.S. in entomology. As an undergraduate student, I wanted to acquire as much experience as possible to determine exactly what area of entomology I would like to work in. I am currently enjoying learning about insect morphology as well as taxonomy. I am wanting to investigate specific pests in agriculture as well as urban pests and possibly finding a career involving both of those sides of entomology.

### Tasks in the Citrus Fields and in the Lab

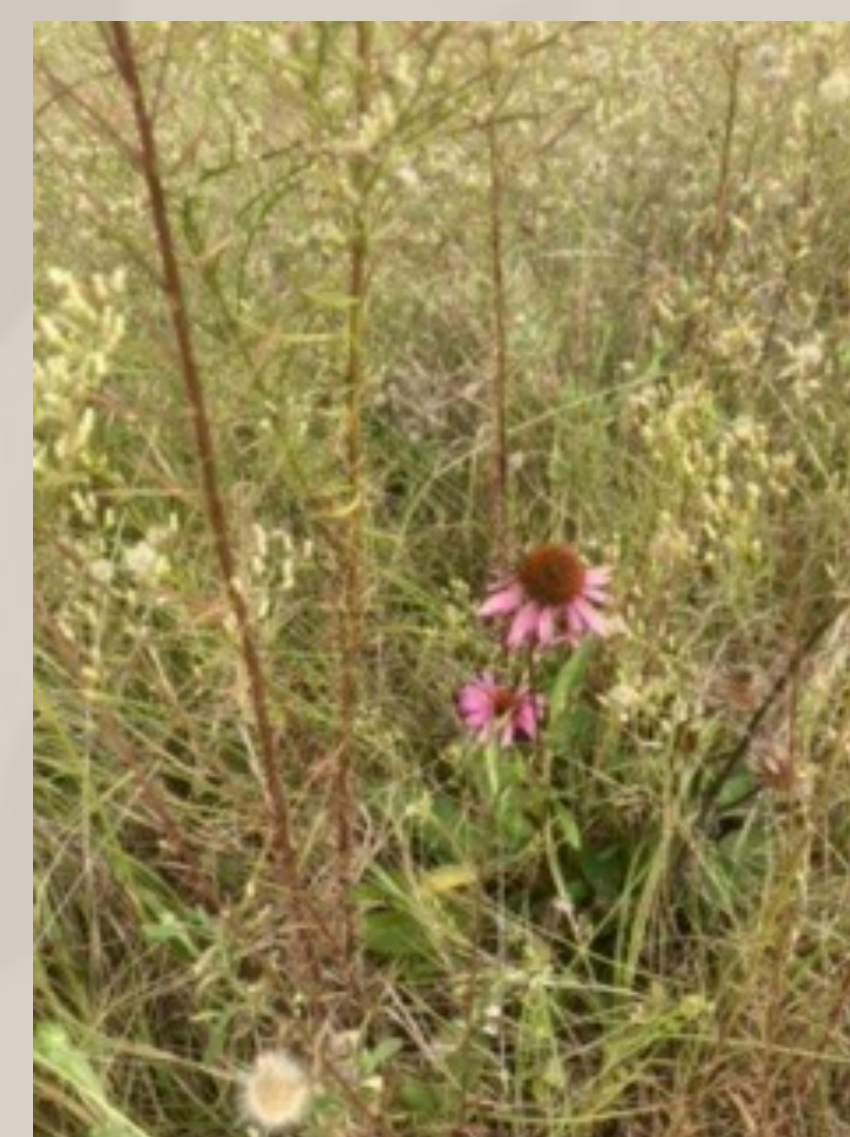
- Collecting bloom duration and floral density data.
- Nectar collecting
- Collecting insects using a D- VAC.
- Placing bee bowl and sticky traps.
- Counting the floral visitors.
- Identifying the insects from the different traps with a microscope.
- Checking for Psyllid damage on the citrus plants.
- Assisting the graduate students and the technician with any citrus related tasks that arise.



### Floral Visitor Results



The data for the floral visitors was recorded for the enhanced grove side of the citrus field. The control side was not included because it had little to no floral visitors. This is done to keep track of the pollinators within the grove as well as to keep track of the predators on the flowers. This helps us determine the type of flowers that should be planted to attract various pollinators.



Purple Coneflower



Swamp Sunflower

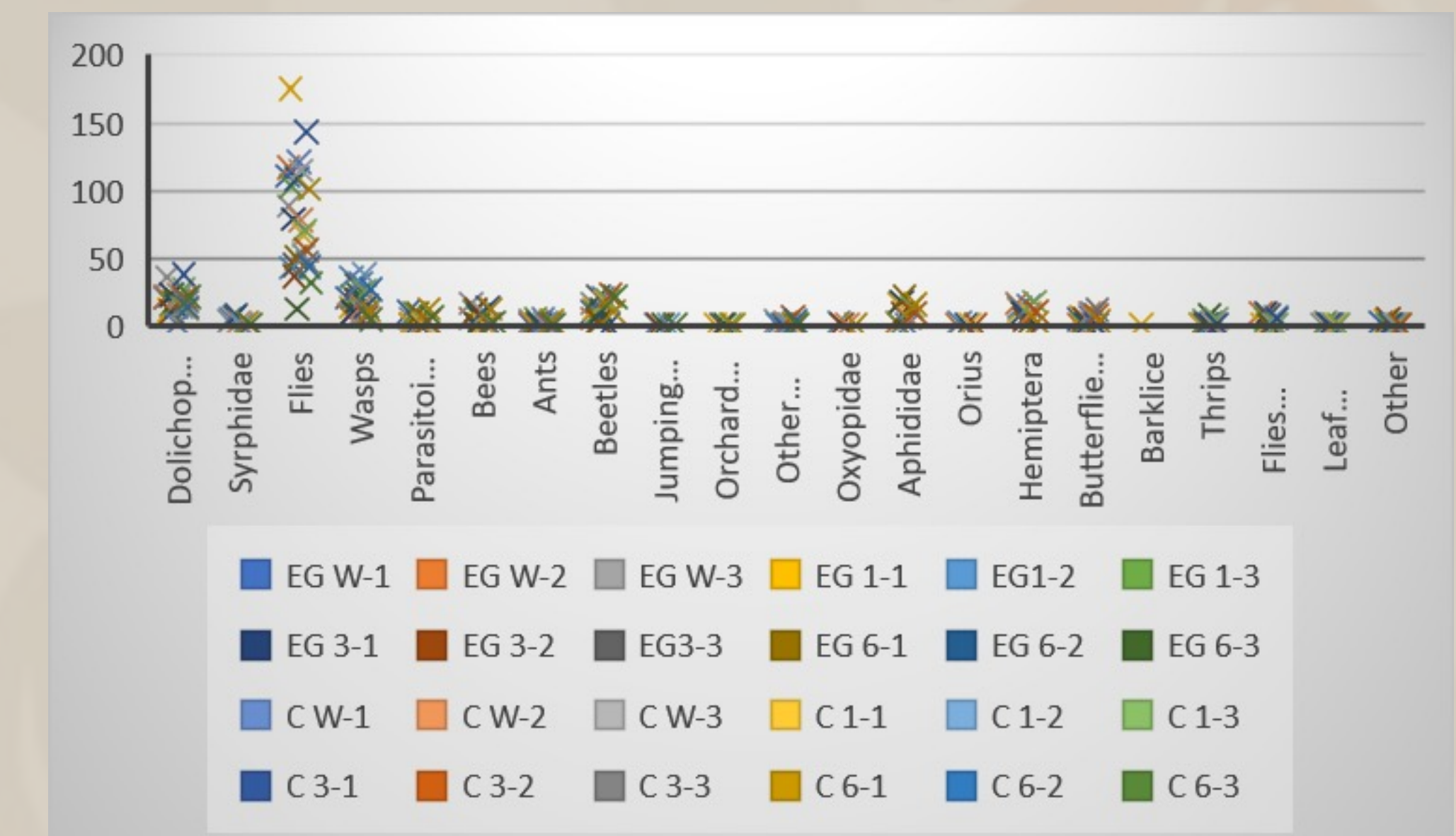


Largeflower Pusley

### Gained Knowledge and Experience

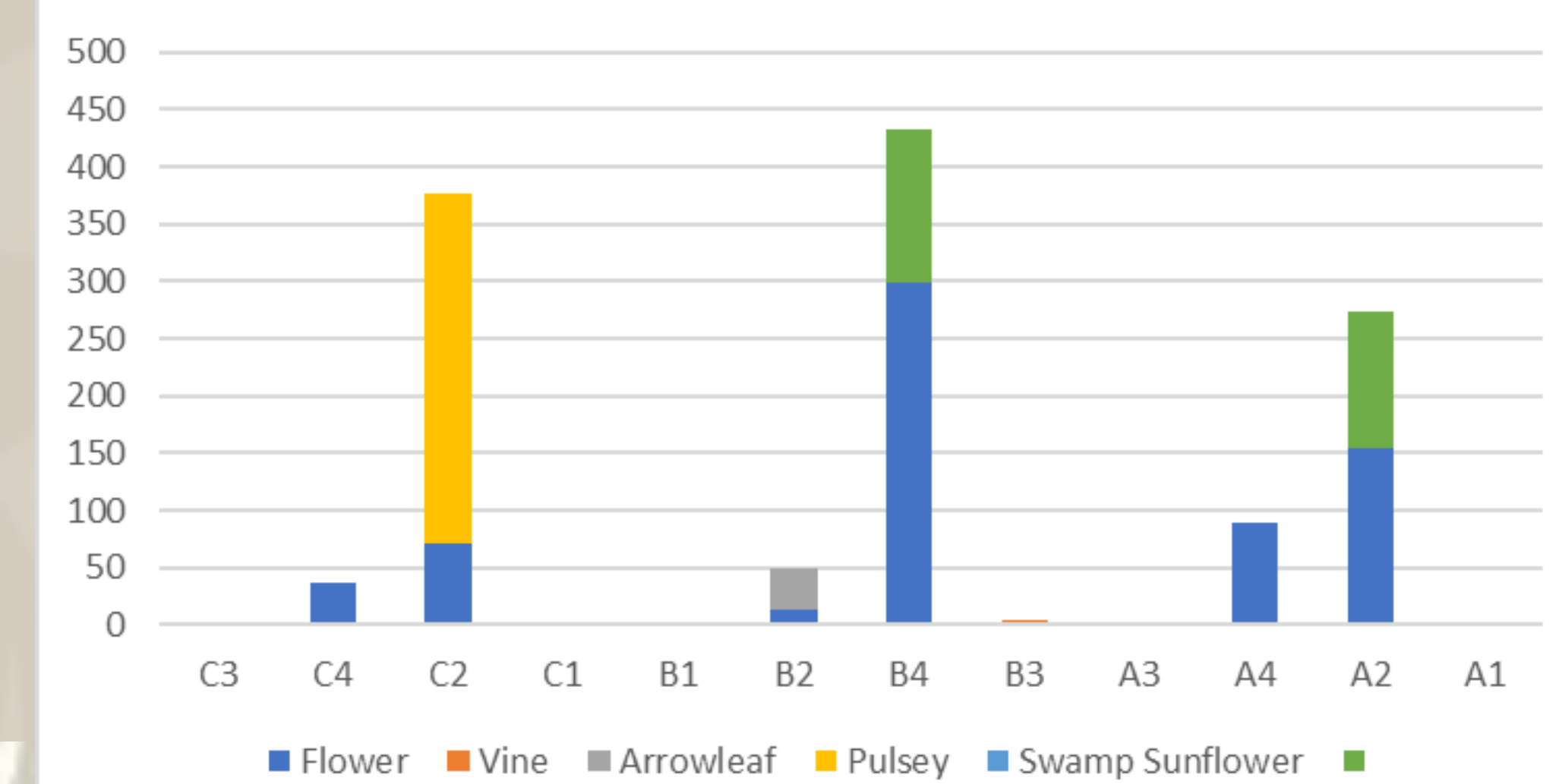
This was my first internship and I'm not sure if I will be able to experience one quite as well organized and established as this one. The amount of hand on experience was fantastic for any undergraduate and I am hoping someone else will be able to experience what I did in this internship. As I stated in the introduction, I enjoy taxonomy which falls right in line with identification. This Internship included a lot of microscope work which is vital in my field as well as expanding my knowledge when it comes to insect identification. The citrus field work was a great experience as well. It allowed me to determine whether I wanted to choose a career path in this specific work. Both the technician and the graduate students were a pleasure to work with and willing to assist me with anything I needed.

### Bee Bowl Results



The data for the bee bowl was collected 1-2 weeks after they have placed depending on the weather. Majority of the insects collected from these traps were arial. Flies, Dolichopodidae, wasps and beetles had the highest presence. Some of the terrestrial insects such as ants had little to no presence due to the design of the bee bowl trap. EG: grove with enhanced flower patch, C: control grove, W: windbreak. EG1-2 should be read: Enhanced grove, row 1 replicate 2 .

### Floral Density



### Acknowledgements

Dr. Xavier Martini and his graduate students and technician including Romain Exilien, Kathi Malfa, Iris Strzyzewski, Benjamin Reimer, and Jessica Griesheimer. Special thanks too Anamika Sharma for informing me about this internship. This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number LS20-342 through the Southern Sustainable Agriculture Research and Education program, under sub-award number LS20-342 (SUB00002293) . USDA is an equal opportunity employer and service provider. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.