COLORADO STATE UNIVERSITY
EXTENSION

NATIVE BEE WATCH COMMUNITY SCIENCE – OUTREACH AND EDUCATION

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PROJECT INTRODUCTION

Through CSU Extension, I assisted Lisa Mason in the coordination of the Native Bee Watch program and educated the public on the importance of pollinators in our communities.

The Native Bee Watch (NBW) program aims to understand bee behavior and help understand the scope of the biodiversity of species in the area. Due to rapidly declining pollinator numbers worldwide, the NBW program was created by founder Lisa Mason to better understand bee species via community science. Through the work of volunteers, we are able to observe and interpret what species of bees prefer what species of flowers, as well as what species are more abundant in certain areas.

During my internship, I assisted volunteers in identification as well as worked toward assessing the accuracy of volunteer data,

Figure 1. (Left) A bumble bee (*Bombus* sp.). (Right) a leafcutter bee (*Megachile* sp.). Note the pollen underside her abdomen.

INTERNSHIP GOALS

- Learn about native bee species present along the front range as well as their impact on our natural environments
- Expand my public education and public speaking skills
- Develop my community outreach skills to provide useful assistance for volunteers and help teach about the world of entomology

HOW DOES THIS APPLY TO YOUR EDUCATION

As an undergraduate student majoring in Zoology and minoring in Entomology at CSU, this internship allowed me to further my understanding of community science application as well as the specifics of bees as pollinators. Before my internship, I knew general information on bees, however I did not know the scope of the impact bees have on our natural communities. This helped me develop what my future in Entomology might look like, especially when it involves the conservation of endangered pollinator species.

WHAT YOU DID

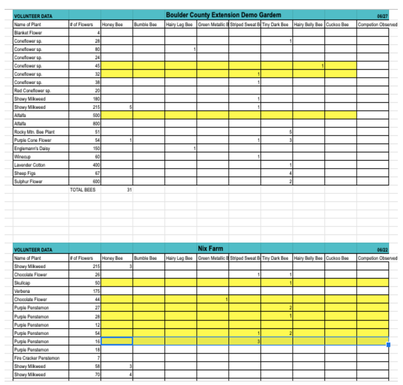
<u>Volunteer Assistance</u>
- Posted and engaged volunteers in the NBW Facebook group
- Assisted in identification of bees that volunteers were struggling to identify
- Taught in-person trainings for volunteers to help strengthen identification skills
- Reached out via email to help volunteers with NBW questions and inquiries

<u>Data Collection</u>
- Monitored bees at the Lima Plaza Pollinator Garden and the Denver Audubon when needed and input data into survey tool
- Compiled 2021 data from CSU Clark Pollinator Garden into infographic for easy display

<u>Data Assessment</u>
- Conducted and organized in-person data feedback sessions available to all volunteers to develop identification skills
- Compiled data from sessions and compared my data to volunteers
- Identified common mistakes made by volunteers when collecting data
- Analyzed photo-data to determine volunteer accuracy when identifying bee species

<u>Public Outreach</u>
- Attended Botanic Gardens and the Gardens on Spring Creek pollinator celebrations to teach about the importance of pollinators
- Assisted in leading a children's Entomology course at the Denver Audubon

Figure 2: Data from Feedback Sessions



VOLUNTEER DATA	Boulder County Extension Demo Gardem								06/07
Name of Plant	# of Flowers	Honey Bee	Bumble Bee	Hairy Leg Bee	Green Metallic Bee	Striped Sweat Bee	Tiny Dark Bee	Hairy Belly Bee	Cuckoo Bee	Corruption Observed
Blanket Flower	40									
Coneflower sp.	20						1			
Coneflower sp.	80		1							
Coneflower sp.	24									
Coneflower sp.	40							1		
Coneflower sp.	32					1				
Coneflower sp.	36					1				
Red Coneflower sp.	20									
Showy Milkweed	180					1				
Showy Milkweed	215	4								
Alfalfa	600									
Alfalfa	800									
Rocky Mtn. Bee Plant	61						1			
Purple Cone Flower	54	1				1	3			
Englemann's Daisy	100		1							
Wheatgrass	40					1				
Lavender Cotton	400						1			
Sheep Figs	67						4			
Sulphur Flower	600						2			
	TOTAL BEES	31								

VOLUNTEER DATA	Nix Farm								06/22
Name of Plant	# of Flowers	Honey Bee	Bumble Bee	Hairy Leg Bee	Green Metallic Bee	Striped Sweat Bee	Tiny Dark Bee	Hairy Belly Bee	Cuckoo Bee	Corruption Observed
Showy Milkweed	215	3					1			
Chocolate Flower	24									
Skullcap	50						5			
Verbena	115									
Chocolate Flower	44				1					
Purple Pendamon	27						2			
Purple Pendamon	24						1			
Purple Pendamon	12						1			
Purple Pendamon	54					1	2			
Purple Pendamon	18					2				
Purple Pendamon	16									
Pink Cracker Pendamon	7									
Showy Milkweed	98	2								
Showy Milkweed	70	4								

Within these feedback sessions, I focused on observing the methodology of how volunteers went about collecting and recording data. A common finding I observed with all volunteers was a lack of confidence when identifying specimens. Individuals often believed that they were misidentifying bee species, when often they were correct in identification. These tables were of volunteer data collected at Nix Farm and Boulder County Extension. The highlighted sections are to record where the differences were between the volunteer and my data. Some volunteers had different findings with quantity of bees, and others were misidentifications.

WHAT YOU LEARNED

This internship helped me develop and expand my skills within the sector of outreach as well as understand the diversity of the bee populations. Through my work with data assessment as well as education at public events, I was able to understand how to communicate effectively with a variety of individuals to maintain a clear message. Public outreach allowed me to observe the impact learning has on communities and takeaways people receive from these conversations. I was able to develop and understand the tools needed for proper data collection and the importance of accuracy when reporting and collecting data. Along with outreach, I learned the specifics of how bees impact our natural spaces and how intertwined pollination is with our daily lives. Through this internship, I was able to understand how important pollinators are and what our world would look like in the absence of bees.

Figures 3 & 4: Teaching at Botanic Gardens and Beekeeping

NEXT STEPS

Working alongside the dedicated staff of the Native Bee Watch team allowed me to experience the passion that others also share for pollinators. I will continue my entomology degree at CSU and utilize the skills I have learned in my internship to help teach others the importance of pollinators. I hope to pursue a career where I can have a positive impact on the future for all pollinators and other important biodiversity that are at risk for extinction today.

Experiencing how community science program's function and progress has been insightful. I plan to use this knowledge to partake in future community science programs. I am grateful for this opportunity to work alongside the Native Bee Watch team and committed volunteers and will take the knowledge I have gained to future careers within the field of conservation.