

NATIVE BEE WATCH COMMUNITY SCIENCE – OUTREACH AND EDUCATION

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PROJECT INTRODUCTION

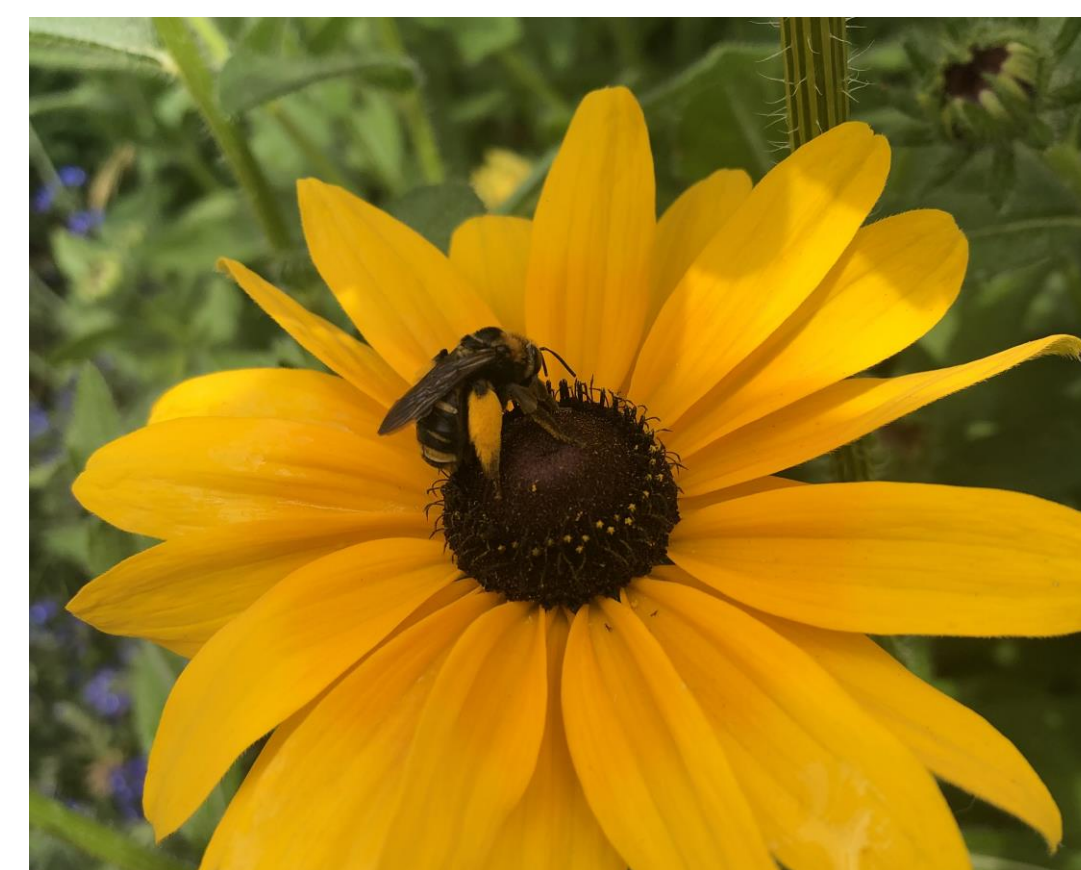
This summer, I had the opportunity to work with Native Bee Watch under the direction of Lisa Mason, Arapahoe County's Horticulture Extension Agent.

Pollinator populations are declining worldwide, partly due to urbanization and habitat loss. Bees, specifically, are crucial for sustainable ecosystems, necessitating the need to strengthen efforts in public awareness and engagement to mitigate continued declines. Native Bee Watch (NBW) is a community science program offered through CSU Extension that trains and supports volunteers to identify and monitor bees. As a multi-disciplinary collaboration, NBW's overarching goal is to create a ripple effect of engagement and education based on ecological and social science research.

During my internship, I provided volunteer support and coordination, collected data, and assisted with programmatic planning.



Fig. 1: Left, A honey bee on a daisy.
Fig. 2: Right, A Hairy Leg Bee on a Denver Daisy



INTERNSHIP GOALS

- Provide volunteer support and coordination through virtual methods and in informal group settings.
- Develop program planning and training methods for future program expansion and development.
- Participate in the data collection process for a community science program, including learning to identify morphological characteristics of bees.

HOW DOES THIS APPLY TO YOUR EDUCATION

I am a master's in public health and prospective veterinary student at CSU. This internship served as my practicum experience for my master's program. The goal of this experience was to work with one organization and perform a variety of tasks for them. Native Bee Watch provides a public health service through their education of communities about pollinators, an essential component of a healthy ecosystem. NBW educates volunteers on how human impacts, such as urbanization and habitat loss, relate to our larger ecosystem in a tangible way.

WHAT YOU DID

Volunteer Support

- Posted educational content biweekly within the private NBW Facebook group
- Organized volunteers to monitor at four public gardens
- Created educational resources for our data entry tool, Survey123, and a resource for volunteers to directly compare bee types
- Organized volunteers by region so they had the opportunity to meet up and have in-person experiences with each other

Data Collection

- Monitored bees at the CSU Trial Garden and the CSU Pollinator Garden throughout the summer and entered all the data
- Designed infographic template to display annual bee data collected at public gardens, and created the 2020 CSU Pollinator Garden infographic (See Fig. 4)

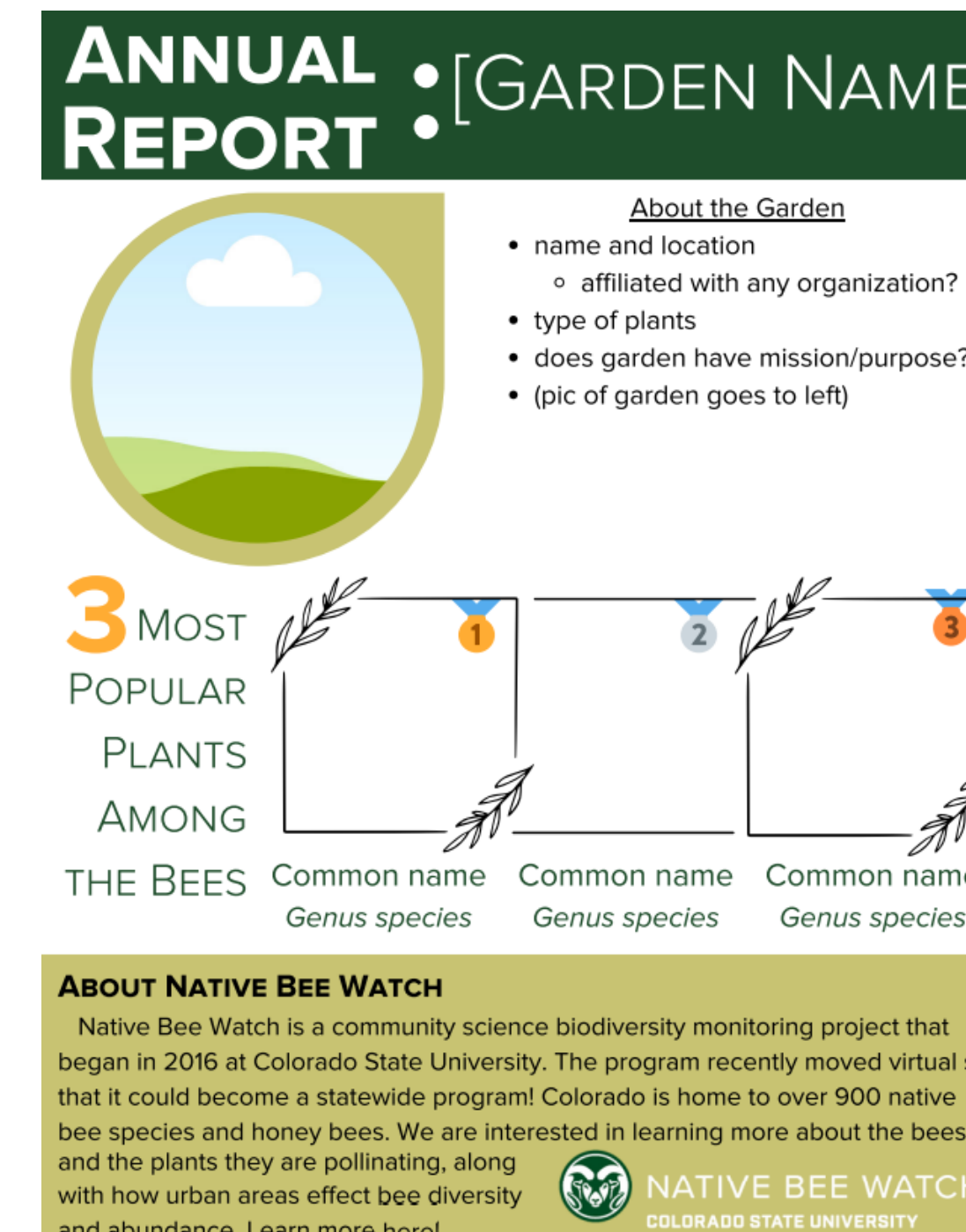
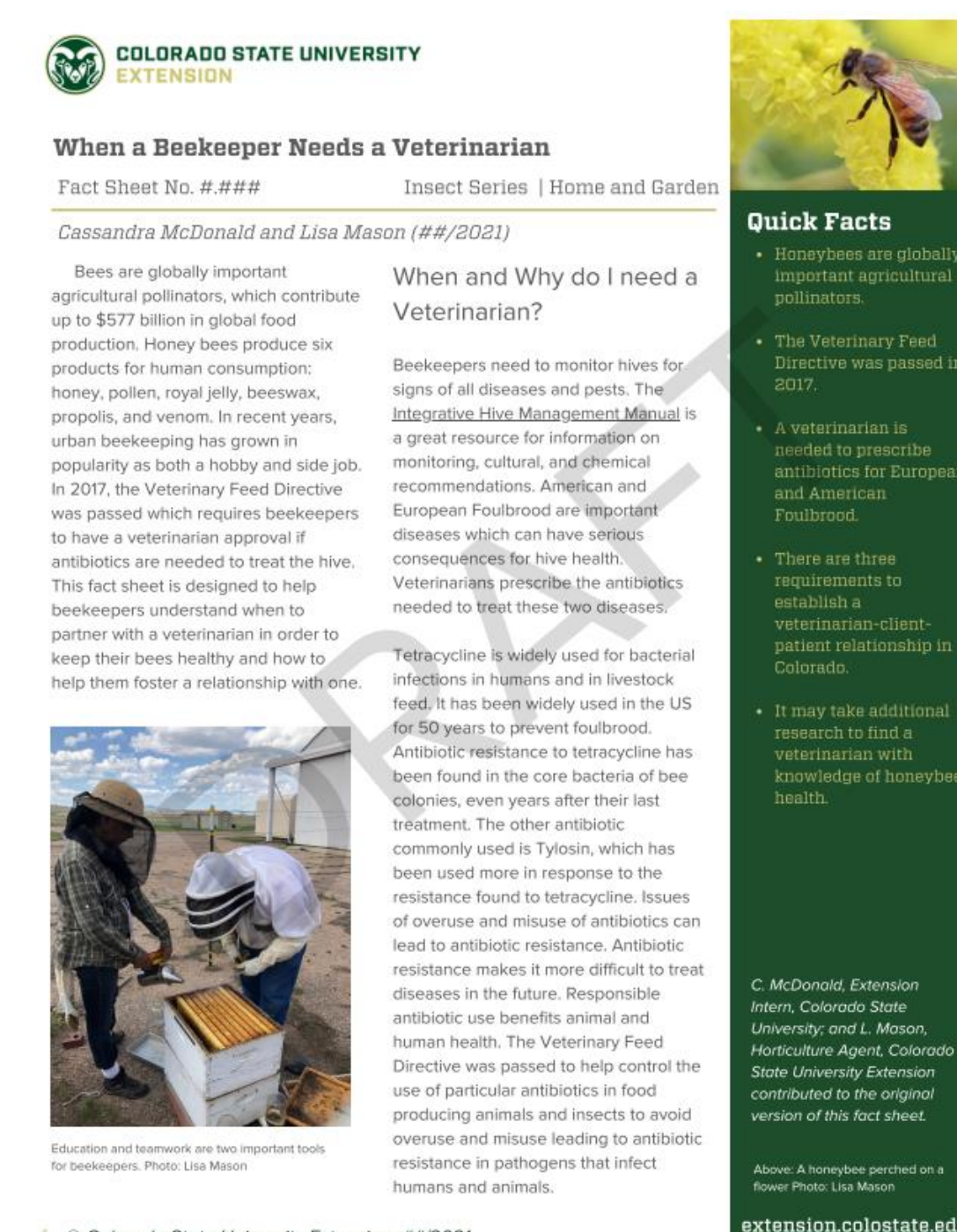
Program Planning

- Researched best practices for data quality assurance in citizen science programs
- Created a Data Quality Plan and Volunteer Management Plan to be implemented over the next five years
- Created a Partnership Toolkit which consists of a list of potential partners, a partnership development plan, social media graphics for partner use, and email templates to reach out to various organizations

Product Development

- Researched the veterinarian and beekeeper relationship
- Developed a fact sheet to better educate beekeepers on when and how to work with a veterinarian (See Fig. 3)

Figure 3 (Left): Picture of fact sheet
Figure 4 (Right): Picture of infographic



WHAT YOU LEARNED

This internship allowed me to step outside of my comfort zone and learn what it means to organize, run, and expand a community science program. I learned to manage an email account, advertise events, and organize volunteers to monitor bees. These activities taught me how to interact with volunteers on an administrative level and provide educational support. I also had the opportunity to create multiple program plans as NBW looks to grow over the next few years. This process was a challenge for me as I had to first learn about the field of community science. I have since gained an appreciation for all it has to offer the scientific field and the complexities that go into assuring its quality for research. Finally, I was able to personally participate in the data collection process. I learned about many bee species, and gained a genuine appreciation for their behavior, flower preferences, and importance to our ecosystem.

Figures 5 & 6: Social Media Graphics for Partners and Volunteers



NEXT STEPS

Working with the Native Bee Watch Team allowed me to step out of my comfort zone into the world of adult education and social science. Veterinarians often receive training in client communication, but not client education. This internship has allowed me to explore the differences between the two and become more confident in aspects of adult education. As a veterinarian, I may have to educate clients before I am able to communicate the health conditions of their animals in a way they can understand.

I am grateful for this opportunity to work on an interdisciplinary team, interact with a variety of Native Bee Watch volunteers, and learn more about bee diversity first-hand through monitoring.

For more information about Native Bee Watch, visit NativeBeeWatch.org.