

## New submission from ARC Award Final Report

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To: Scholarly Activity <scholarlyactivity@langara.ca>

### **Name of Researcher**

Aldona Czajewska / Ji Yong Yang

### **Department/Faculty**

Office for Student Engagement / Biology

### **Position in Department/Faculty**

Student Volunteer Program Coordinator / Biology Faculty

### **Project Title**

Project Pollinator Count: A Student Citizen Science Research Initiative at Langara College

### **Term of Project**

Spring 2022-Fall 2022

### **Please introduce yourself – include pertinent background information relating to the topic of your research project.**

Aldona: is an entomologist with significant experience in applied biology research and teaching, particularly related to pollinators and student engagement

Ji: is a botanist and Langara Biology faculty member with significant experience in plant and pollinator research

The combination together inspired the creation of the project, which created research opportunities for students to engage in essential environmental research to support and conserve on-campus pollinator biodiversity.

### **Please discuss your educational background and your work experience that led you to taking on this research project. If possible, include a quote that helps define your interest in this project.**

Aldona: Bachelors in Science in Applied Biology (Animal Biology) with emphasis on entomology, animal welfare and Integrated Pest Management (University of British Columbia). Aldona has significant work experience in insect identification, field work, research design, teaching and student engagement through experience as a Research and Teaching Assistant at UBC.

Ji: Ph.D Plant Evolutionary Biology (University of California) teaches the botany courses at Langara College. He has significant experience in pollination biology having published several papers in this field. He also does research on hops at Langara College.

**Please summarize your project in plain language that others not in your field could understand.**

Langara College is located within an urban green space with a number of pollinator gardens on site, but a survey of pollinator diversity and number is needed to understand how urban green spaces affect pollinators and how to best enhance on-campus pollinator diversity and abundance.

This project will help determine Langara College's baseline pollinator status through targeted site sampling of on-campus gardens to support the development of a strategic plan for long-term pollinator monitoring, education, appreciation, and protection.

**Identify the project goals and objectives. Explain how the results may be used to solve a problem or inform further research in the field.**

1) To conduct baseline pollinator data collection at Langara College through pollinator surveys to gain insight into on-campus biodiversity and abundance. This was achieved by targeting three garden sites (Community Garden, Library Garden and the Student Union Garden). In addition, we collected data about preferred host plants and pollinator visitation.

2) To design new pollinator gardens at Langara College to create more green space for biodiversity and future pollinator research.

The results of our research may be used to gain insight into what flowers pollinators prefer (i.e., colour, shape, species) which would inform on-campus strategic garden design to promote pollinator conservation and increase biodiversity number. Our extensive dataset can also be used for further pollinator studies on campus with the intent to conduct research on specific questions.

**Briefly explain the steps taken (methods used) to conduct the research, and describe the key findings.**

Students and student volunteers conducted weekly 25min surveys between May 2022-September 2022 using a detailed methodology and specific procedures put in place.

Data about pollinator observational counts, pollinator types, plant hosts, garden shading and temperature were collected in Google Sheets.

The key findings are still in process as we finalize our statistics in preparation for the publication of our study.

**Who was involved in this project (eg. faculty, students, community partners)? How did their involvement contribute to the project's success? Were there any challenges to overcome?**

The researchers, students and student volunteers. Researchers provided continual guidance and support; students and volunteers conducted pollinator surveys across campus all summer. Without student help, this project would not have been possible and, hence, students were essential to the contribution of the project's success.

Students had some challenges with working as an efficient team for data collection, but they learnt to how to communicate better with each other to conduct the best research possible. Students were also not certain how to analyze data, but were able to collaborate with other stakeholders (such as faculty within Langara,

the researchers) in order to understand how to move forward and which statistical tests to perform. Students were proactive with engaging in problem solving and ensuring the success of the project.

The Sunset Pollinator Pathway Program generously donated funds to purchase soil for the five new pollinator gardens.

**Please share any personal stories that made this research experience memorable/valuable.**

Students loved the fieldwork and observing bees and plants. They worked great as a team to conduct surveys and learnt a lot about performing scientific research. They want to continue working on future pollinator studies on campus.

We also participated in Applied Research Day in March 2022 and promoted our research to the Langara College community.

**What are the next steps for this project and for you as a researcher?**

Publishing our results in a scientific journal (We are aiming to get it published in PLOS One)

**Please upload any images that will help to showcase your project.**

- [bumblebee.JPG](#)
- [hoverfly.JPG](#)
- [greenbee.JPG](#)

**Langara Institutional Repository Consent**

By submitting, I consent to uploading my ARC Fund final report to the Langara Institutional Repository (The LaIR).