

[Date]

Living Lab Program for Climate Change and Conservation - Final Report



Project title: Plant-insect networks in Stone Mountain Provincial Park

Lead researcher(s): Jasmine Janes

Research findings

In the summer of 2024, flowering plants and insects were surveyed to begin compiling a network of known species and associations. In total, 22 insect and 19 plant families (in flower) were observed during a one-week period in June. A total of 87 flower-insect and flower-spider associations were observed, with *Dasiphora fruticosa* (syn. *Potentilla fruticosa*) having the highest number of insect and spider visits (N=17). Insects in the Diptera, Lepidoptera and Hymenoptera orders were frequently recorded. This information serves as an important starting point for developing a greater understanding of the biodiversity present, how they interact, and which species may contribute ecosystem services of pollination.

- Insects
 - 6 orders
 - 22 families
 - 21 genera
 - 14 species identified – noting that many insects are only identified to family or genus
 - Flies (Muscidae) and butterflies (Nymphalidae) were very common
- Plants
 - 19 families
 - 42 genera
 - 61 species
 - *Dasiphora fruticosa* and *Dryas integrifolia* were very common
- Associations
 - 87 unique associations in total
 - Flies were common on cinquefoil and avens (yellow flowers)
 - Butterflies and moths were common on peas (white, pink and purple flowers)
 - Bees and wasps were common on rhododendron (purple flower)

Methods summary

Each of the following trails were walked within Stone Mountain Provincial Park – The Cut, The Summit Trail, Baba Canyon, The Ridge, Flower Springs. Every 2 km, a systematic assessment of flowering plant species was conducted, and any insects on the flowers photographed and collected. Plants were identified to species level. Insects were identified to the lowest taxonomic resolution possible.

Key outcomes for BC Parks

A more complete picture of the biodiversity present and plant-insect associations supported at Stone Mountain has been acquired. This information will prove valuable in future and historical biodiversity comparisons to assess the 'health', integrity and function of the ecosystems present in the park. Likely, the plant-insect associations are new information that BC Parks did not have before.

Relevance to BC Parks management

This information can be used in future planning to ensure that a full complement of species is supported by the park. An understanding of the interactions among plants and insects will assist in ensuring that adequate pollination opportunities and communities are maintained in the future.

Project's challenges/opportunities

Weather. This is always a problem at Stone Mountain. There are typically daily thunderstorms at this time of year that hinder work – insects do not like to fly in the rain.

Funding timeline. Unfortunately, the delay in receiving confirmation of the funding, and the transfer of initial funds, delayed the commencement of the project. I then had to juggle other research commitments and this impacted the duration in which I could conduct the work. Consequently, 7 days was spent in the field instead of the anticipated 14.

Conclusions/next steps

Being able to conduct more detailed studies, systematically would be helpful. For example, monthly surveys would provide greater insight into species diversity and temporal changes. Motion detection cameras would also increase the amount of observation time possible.

References and links

[Optional - Provide any other links or information related to the project, including existing blogs, related publications, or other media]

Checklist

- Have you filled out the separate Living Lab Story Form? If not, this is due no later than 30 days after the end of the term of your agreement.
- Have you added any relevant Living Lab project data or reports to the BC Data warehouse and/or EcoCat? Please contact Stephen Ban (Stephen.ban@gov.bc.ca) or Jeanine Bond (Jeanine.bond@gov.bc.ca) for assistance.
- Invoice submitted? An invoice is required to receive the final instalment of your Living Lab transfer agreement funds. The invoice should include:
 - the university address,
 - the Transfer Payment number (as per your agreement),
 - a one-line description of what the project is about,

- the amount due (you may need to send this via your financial arm) and indicate that this is the final instalment. The invoice should follow or accompany the completion of this final report template of which both are due on or before March 17th, 2025. **If we do not receive an invoice from you by this date, we will not be able to issue your final payment.**