Pollination Biology of Alaska Bog Blueberry, *Vaccinium Uliginosum*

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**Objectives**

- **Pollen Transfer**
  - Is transfer necessary?
  - What is pollinating?
  - Management practices?

- **Flower Biology**
  - How long is bloom?
  - How is pollen released?
  - Length of stigma receptivity?
  - Floral nectar and how much?

**Insect Capture & 24-hour Video Observation**

<table>
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<tr>
<th>Average Temperature</th>
<th>Average Relative Humidity</th>
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<tr>
<td>15-20°C</td>
<td>40-70%</td>
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*Multiple observations from midnight to dawn, with activity at dawn and dusk.*

**Bloom Progression Under Greenhouse Conditions**

1. Tight bud stage
2. Pink bud stage
3. White bud stage
4. Near opens
5. Post-anthesis stage

**Attracting Bumble Bees: Year 1**

- **Methods:**
  - Placement with and without UV-view traps
  - Field tests conducted
  - Habitat, climate, and environmental conditions varied

**Attracting Bumble Bees: Year 2**

- **Results/Discussion:**
  - Significant variation between locations

**Fruit Set Under Open and Restrained Pollination Conditions**

**Nectar Observed Under Greenhouse Conditions**

**Vibration and Pollen Release Under Greenhouse Conditions**

**Overall Conclusions**

- In the field:
  - Bumble bees and honey bees (Apis mellifera) visit blueberry bushes.
  - Bumble bees cover higher pollen loads.
  - Most visits between spring and fall species.
  - Can set fruit without pollinators.
  - Peak visit rate under open pollination.
  - No success in attracting bumble bees (Bombus spp.) in the greenhouse.
  - Will bloom for ~3 weeks.
  - Peak bloom ~13-14th day.
  - Stigma receptive for average of three days.
  - Produces floral nectar.
  - Pollen released from flowers by vibration.

**Recommendations: Management and Future Experimentation**

- Ensure adequate natural habitat close to blueberry field.
- Natural attractant properties of the blueberry plant for more efficient.
- Apis mellifera could be used to ensure fruit set.
- Further study on nectar quantity.
- Improved methodology and technique.
- Replication with plants grown under field conditions.
- Restoration of bloom progression and stigma receptivity experiment under field conditions.