A Survey of the Native Pollinators on Allegheny College Campus

Hillary Krill, Environmental Studies '15 and

Beth Choate, Ph.D., Environmental Science Department

Background:

- Economic value of insect pollination benefits is between $18 and 27 billion and 75% of total crop production the U.S.
- Honey bees are common pollinators but face declining populations and colony collapse disorder
- Native bees occur naturally in their environments and provide 15% of the total pollination in the U.S.
- Native bees face population decline due to use of pesticides and lack of crop diversity
- Urban environments can be suitable habitats for native bees due to plant diversity and the less common use of pesticide
- Allegheny College has a commitment to organic management of grounds so Allegheny has the opportunity to attract native bees

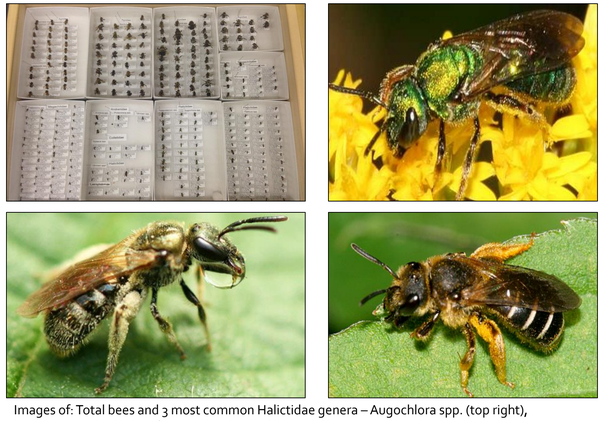
Objective:

- Identify the abundance and diversity of native bee populations on the Allegheny College campus in Meadville, PA.

Methods:

- 3 weeks of sampling – June, July, and August (Week 1,2,3 correspondingly)
- 5 garden sites, 4 flower sites across campus
- 3 Trap types – 3 yellow bee bowls, 3 blue bee bowls,1 vane trap at each site

Results:



Images of: Total bees and 3 most common Halictidae genera – Augochlora spp. (top right), Lasioglossum (bottom left), and Halictus (bottom right)

- 710 total bees collected
- 5 families: Andrenidae, Apidae, Colletidae, Halictidae, Megachilidae
- 14 genera

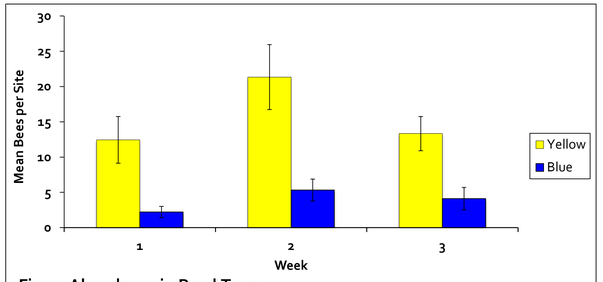


Fig. 1: Abundance in Bowl Traps

- More individuals collected in July and August than in June in bowl and vane traps (Fig. 1)
- Yellow bowls trapped significantly more individuals
- Greatest mean individuals collected = 21.33 in July
- Fewest mean individuals collected = 4.11 in June

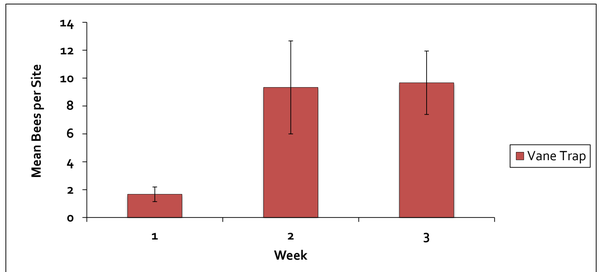


Fig. 2: Abundance in Vane Traps

- Significantly more individuals collected in vane traps in July and August than in June (Fig. 2)
- More Apidae (bumblebee) individuals collected in July and August than in June in vane traps

For more information, contact: Hillary Krill at krillh@allegheny.edu

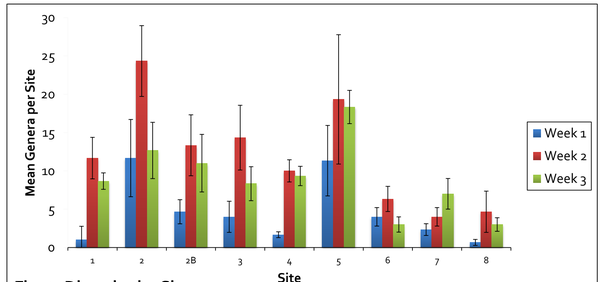


Fig. 3: Diversity by Site

- Greater diversity in July and August than in June
- Greatest mean genera collected = 24.33 in July
- Fewest mean genera collected = 0.66 in June
- Same number of genera may reflect different types of genera