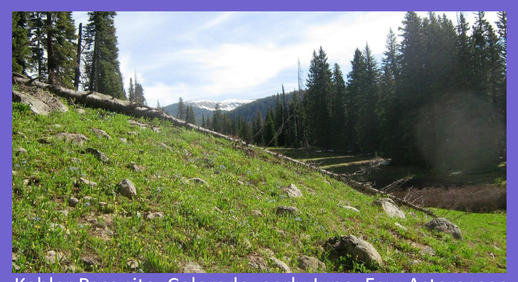
How are bees responding to an invasive plant species?

Charlotte Cahill, Dr. Jessica Forrest
University of Ottawa, Faculty of Science

Introduction

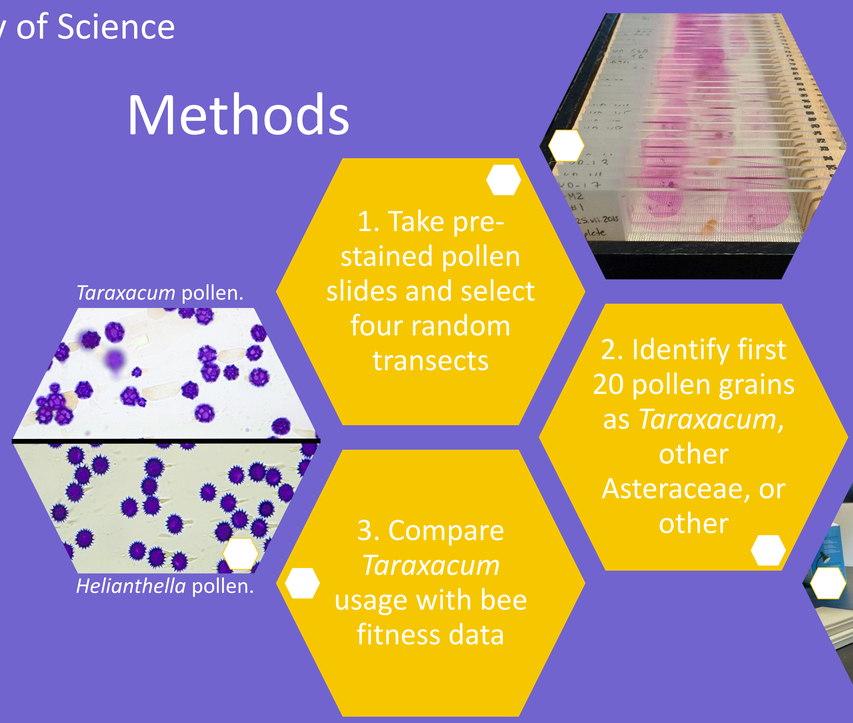
- Many bee species are dietary specialists, and many specialists prefer pollen from the Daisy (Asteraceae) family
- Early nesting increases reproductive success
- Dandelion (*Taraxacum officinale*), a member of the Asteraceae family that is non-native to North America, is available earlier in the season than other Asteraceae
- **This study explores whether the early availability of this invasive species gives a potential reproductive advantage to the bees that collect this type of pollen**



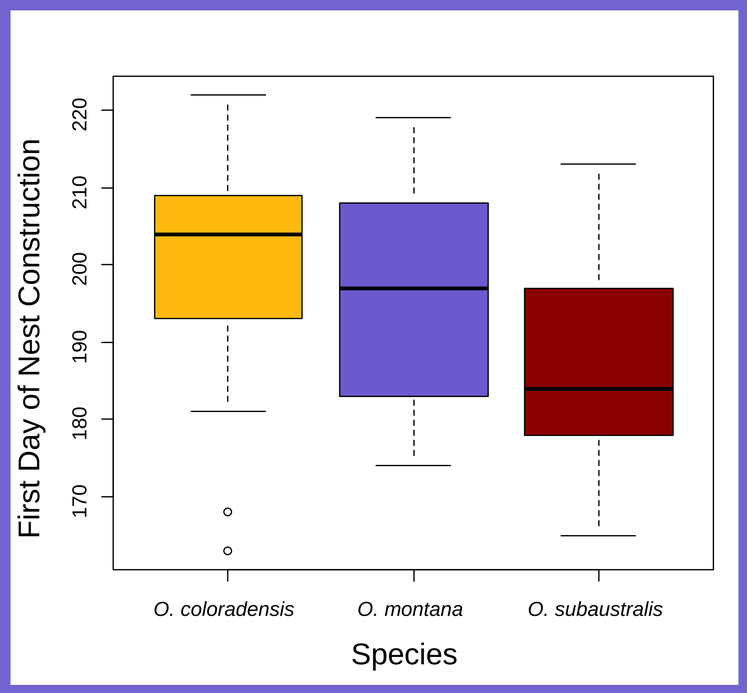
Kebler Pass site, Colorado, early June. Few Asteraceae available.

Brush Creek, Colorado. *Helianthella* (Asteraceae family) & *Delphinium* (Ranunculaceae family).

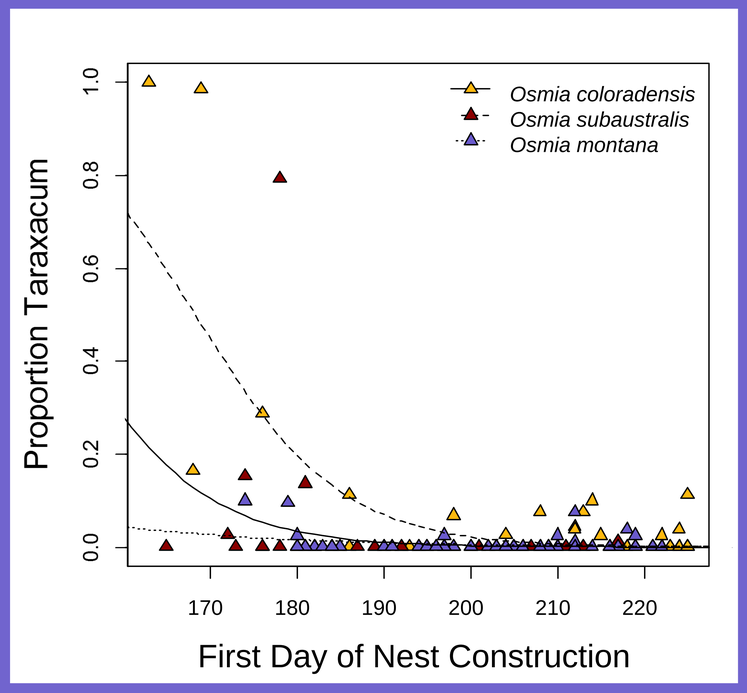
Methods



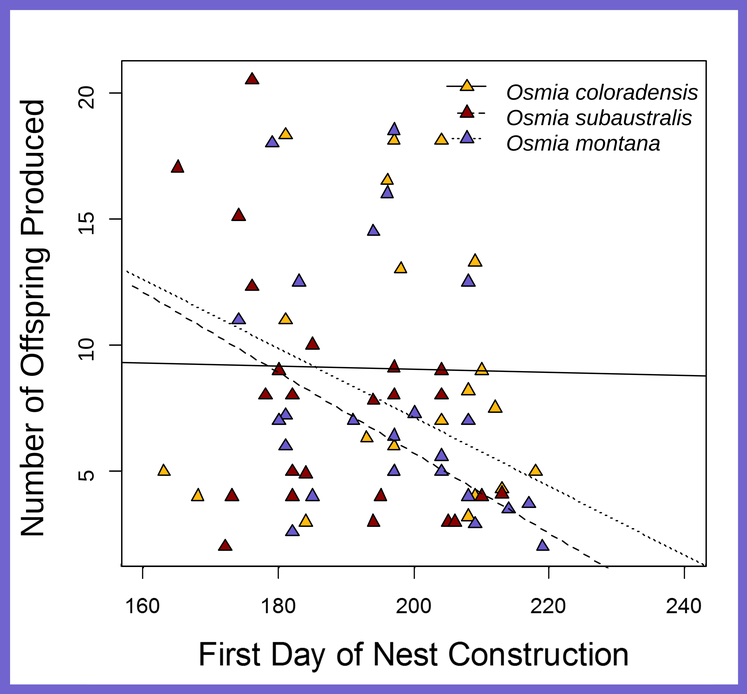
Results



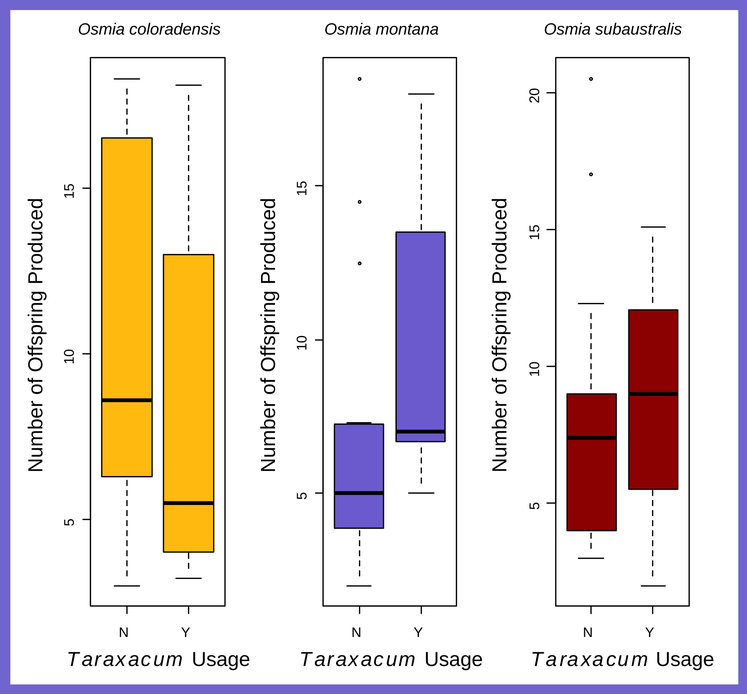
On average, *Osmia subaustralis* nests earliest, followed by *Osmia montana*, and then *Osmia coloradensis.*



Bees nesting earlier in the season use a greater amount of *Taraxacum* pollen.

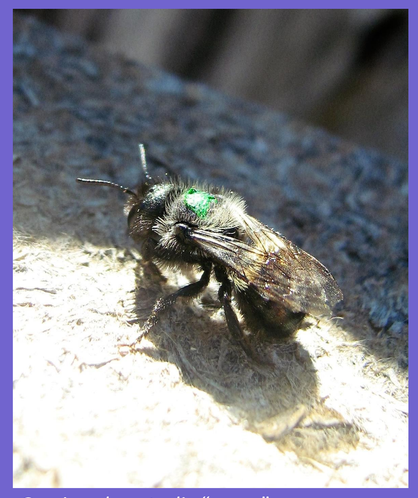


Bees nesting earlier in the season produce more offspring.



There is no consistent interaction between *Taraxacum* usage and number of offspring produced.

Rosy Point, Colorado. Trap-nest with *Erigeron* (Asteraceae family).



Osmia subaustralis "green".

Conclusion

- Earlier nesting leads to a greater number of offspring produced on average, and early nests contained more *Taraxacum* pollen
- *Taraxacum* usage may be linked to a greater offspring production in *Osmia montana*, but we cannot determine if the relationship is causal
- Comparing offspring production of bees at sites with varying amounts of *Taraxacum* might help test the relationship between *Taraxacum* usage and fitness

Acknowledgements

I would like to thank Dr. Jessica Forrest for her mentorship with this project, and the entire Forrest lab for introducing me to ecological research. I would also like to thank Dr. Forrest and Vinko Culjak Mathieu for the beautiful photos.

Contact us

Charlotte Cahill, ccahi043@uottawa.ca
https://forrestlab.wordpress.com/

uOttawa