Analysis of Forb Community Composition as a Function of Distance from the Forest Edge in a Montane Meadow of the Central Oregon Cascades

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Motivation and Objectives

- What can surveying a meadow plant community tell us about invasion from the surrounding forest?

**Objective:** Perform forb community survey to observe changes in species richness, dominance, and pairwise similarity with distance from the forest edge.

- This can tell us how we might expect meadow plant communities to change as trees continue to encroach.
Research Questions

- How does the forb community vary with distance from trees?

- How do richness and dominance of the forb plant community change as a function of distance from trees?
**Study Site and Methods**

- **Diagram of Transect Set-up**
- **= area of meadow site**

**Measured:** Forb plant counts in $1m^2$ quadrats for 7 trees, 0 – 19 meters from trees.

**Calculated:** 1) Species Richness, 2) Species similarity, 3) Dominance
**Results - richness & pairwise similarity**

**Species Richness**
- Forb species richness increases with distance from the edge.

**Pairwise Similarity**
- Most transects showed a complete turnover in species present between forest and meadow plots (similarity = 0).

**By distance from tree**
- Similarity of species increased with distance from trees.

**By tree**
- No consistent pattern of species richness variance among trees.
- High dominance of 1-2 species under canopy of trees, 45-60% of total.

- Dominance evened out in meadow plots, with multiple species sharing moderate dominance of about 20% of the total.
Discussion

- What can we expect to see if trees continue to invade the meadow?

- Further forest encroachment, increasing canopy cover of the meadow might:
  - decrease forb species richness
  - increase species dominance
  - eliminate forb species from the meadow
Conclusions and Further Work

- Meadow forb species are threatened by forest encroachment

Future research:
- Is this true for all meadows?
- How will changes in meadow forb communities affect our plant-pollinator interactions?
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