Farms in our study

- Small carpenter bees (Ceratina spp.) pollinate raspberries and excavate nests in piths of raspberry canes (Figures 1-3).
- Few studies have measured the nesting density of bee populations (Figures 1-3).
- Knowledge of nesting ecology can inform management to support this native pollinator and the services it provides.

Study Sites

- Farms in our study (Figure 4) varied in terms of management type and surrounding landscape.
- Important management differences include:
  1. organic vs. conventional farming
  2. pruning practices
  3. presence of early-flowering crop (eg. blueberry)
- Natural areas around farms varied in habitat type (Figure 5).

Results

- No significant difference in nest density was found between farm types (P = 0.664; Figure 9).
- A significant relationship was found between nest abundance and proportion of dead canes (y = 227.06x - 65.75, P = 0.00527; Figure 10).
- A significant difference was found between means before the dead cane data was normalized.

Discussion

- Presence of blueberries, an early-flowering crop, does not have a significant effect on Ceratina nest density.
- Management (pruning practice) appears to be a factor that strongly influences nest density.
- Future steps would include sampling each farm to determine number of nest holes per site that are false nests (not Ceratina).

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References


Hypothesis

We expected to find higher nest density of Ceratina on farms with both raspberry and blueberry crops.

Methods

- Randomly selected 30 sites at each farm (N = 14).
- Set a 1m x 1m quadrat at each site (Figure 6).
- Measured diameter of each cane in the quadrat at 0.5 m above the ground.
- Measured height and diameter at the nest for any cane with nest hole (Figure 7).
- Estimated average nest density at each farm.

Introduction

- Pollination services provided by native bees play an important role in agricultural systems.

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