



## Complexity of Plant-Pollinator Networks Comprised of Native and Non-Native Plants and Pollinators in Relation to Land Cover

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### Urban areas have a variety of flower and bee species. How do native and non native bee and flower species interact?

- Native bumble bees (genus *Bombus*) prefer native flora due to years of co-existence, thus I predicted higher visitation rates at native flowers
- Non-native honey bees (genus *Apis*) are generalists and may prefer non-native flowers due to low competition from native *Bombus*, thus I predicted higher visitation rates at non-native flowers
- Higher tree cover can indicate a more natural, unmanaged area, thus I predicted to observe higher native flower species richness in areas with moderate tree cover

### Methods

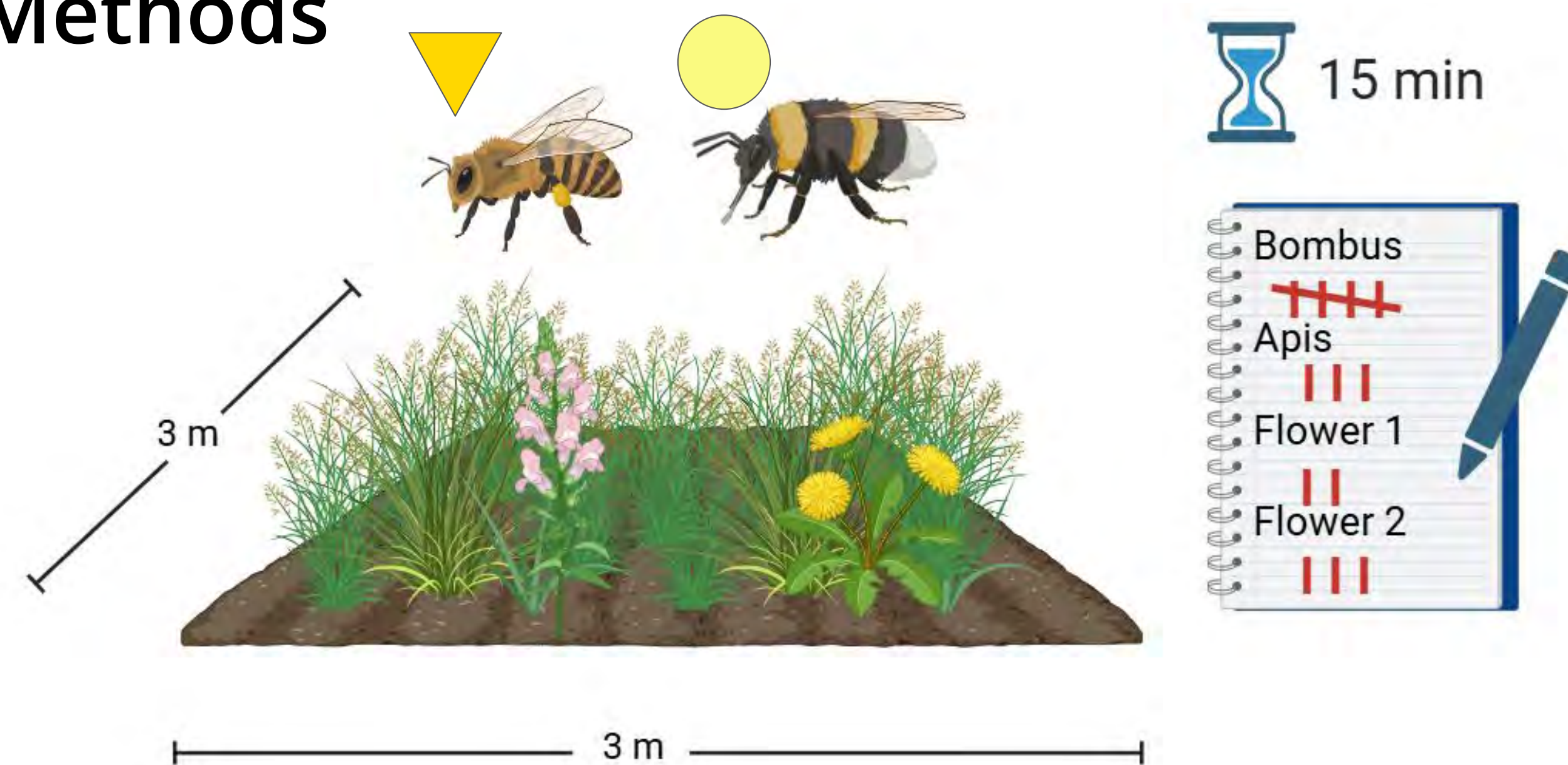


Figure 1: Method for sampling bee activity at 40 sites.

### Key results

- No statistically significant difference in *Bombus* and *Apis* visitation to native or non-native flowers ( $\chi^2 = 3.57$ ,  $p = 0.06$ )
- Open areas (measured by % forest), had greater bee activity
- For every 1% increase in grassland, there was an increase of 1.04 bees ( $p < 0.001$ )
- No significant difference ( $p = 0.82$ ) in Shannon diversity index between open and covered areas

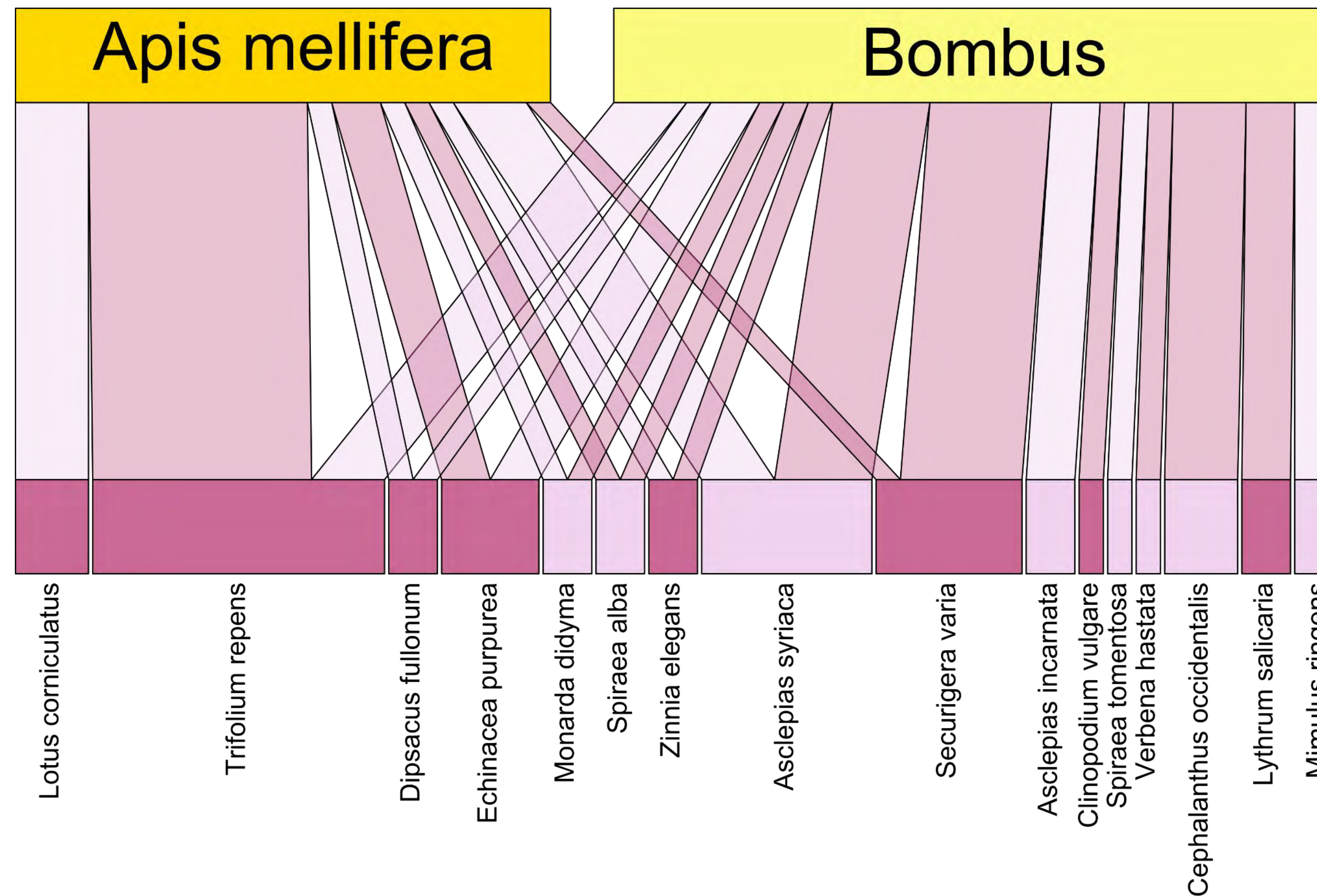


Figure 2. Network showing visitation of bees (top row) to flowering plants (bottom row). Plants are colored by native (light pink) vs non-native (dark pink) status.

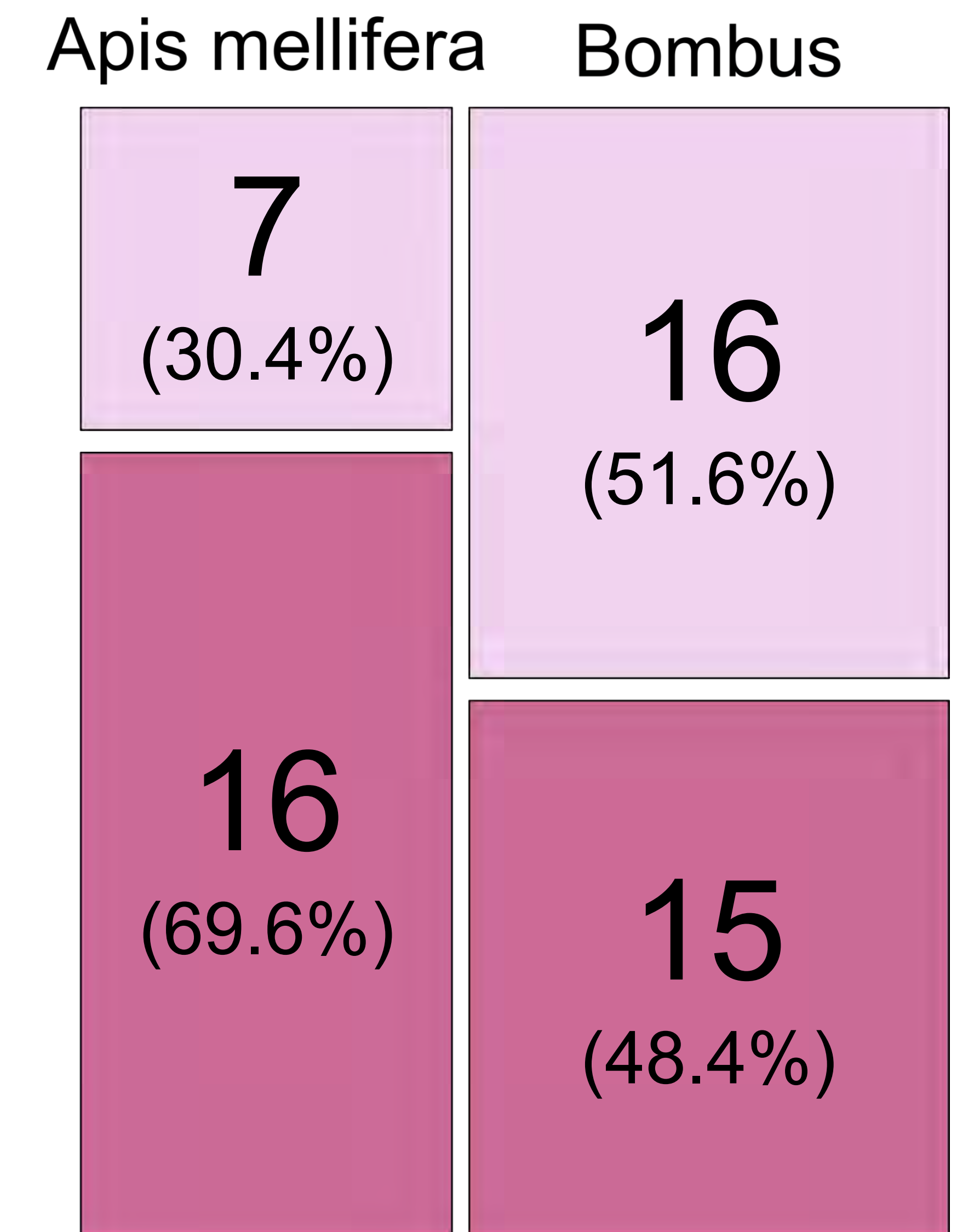


Figure 3. Proportion of native vs non-native plant species visited by native and non-native bees.

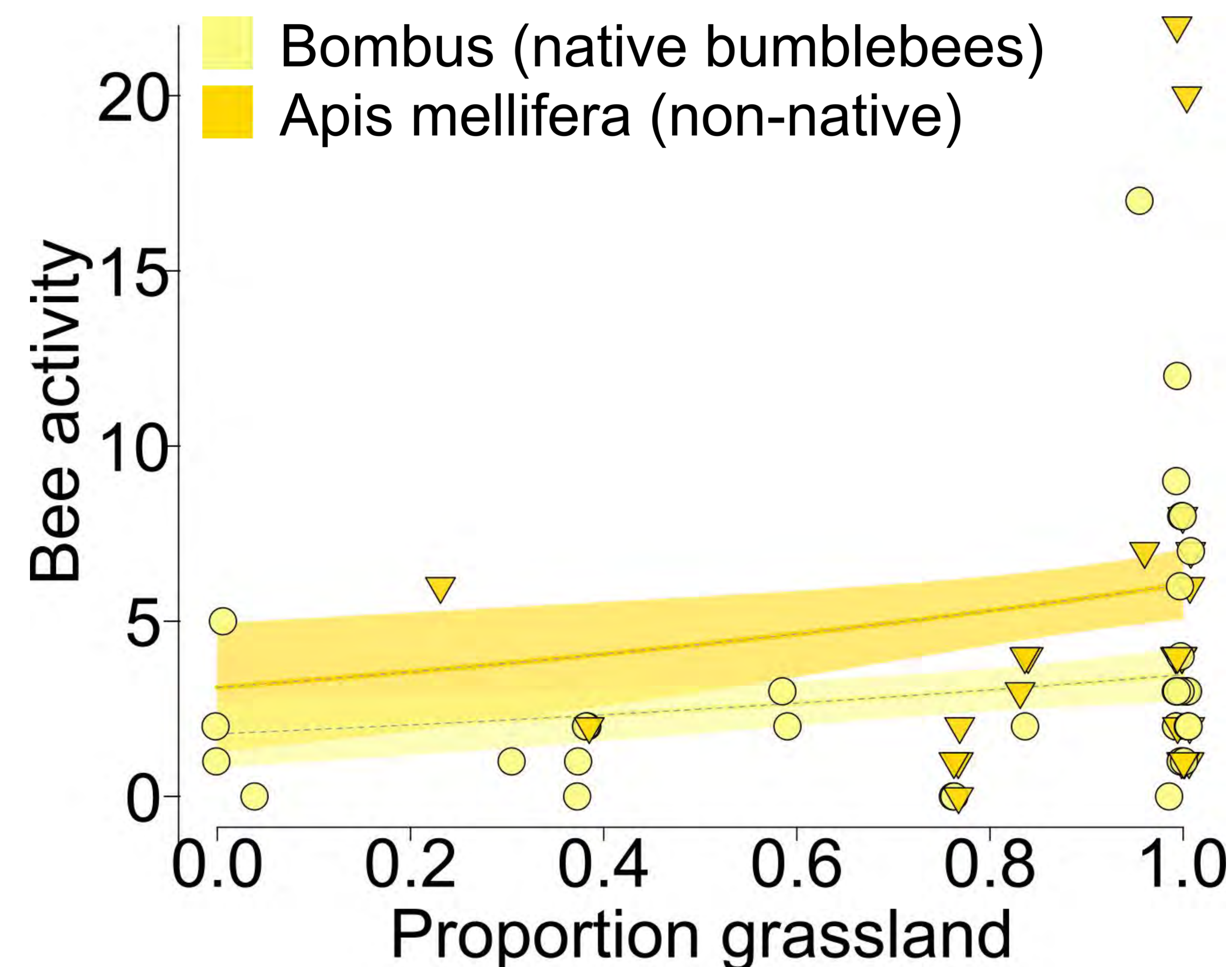


Figure 4. Relationship between habitat openness (measured as proportion of forest in a 5m radius circle) and bee activity (defined as bees flying through and landing in observation sites).

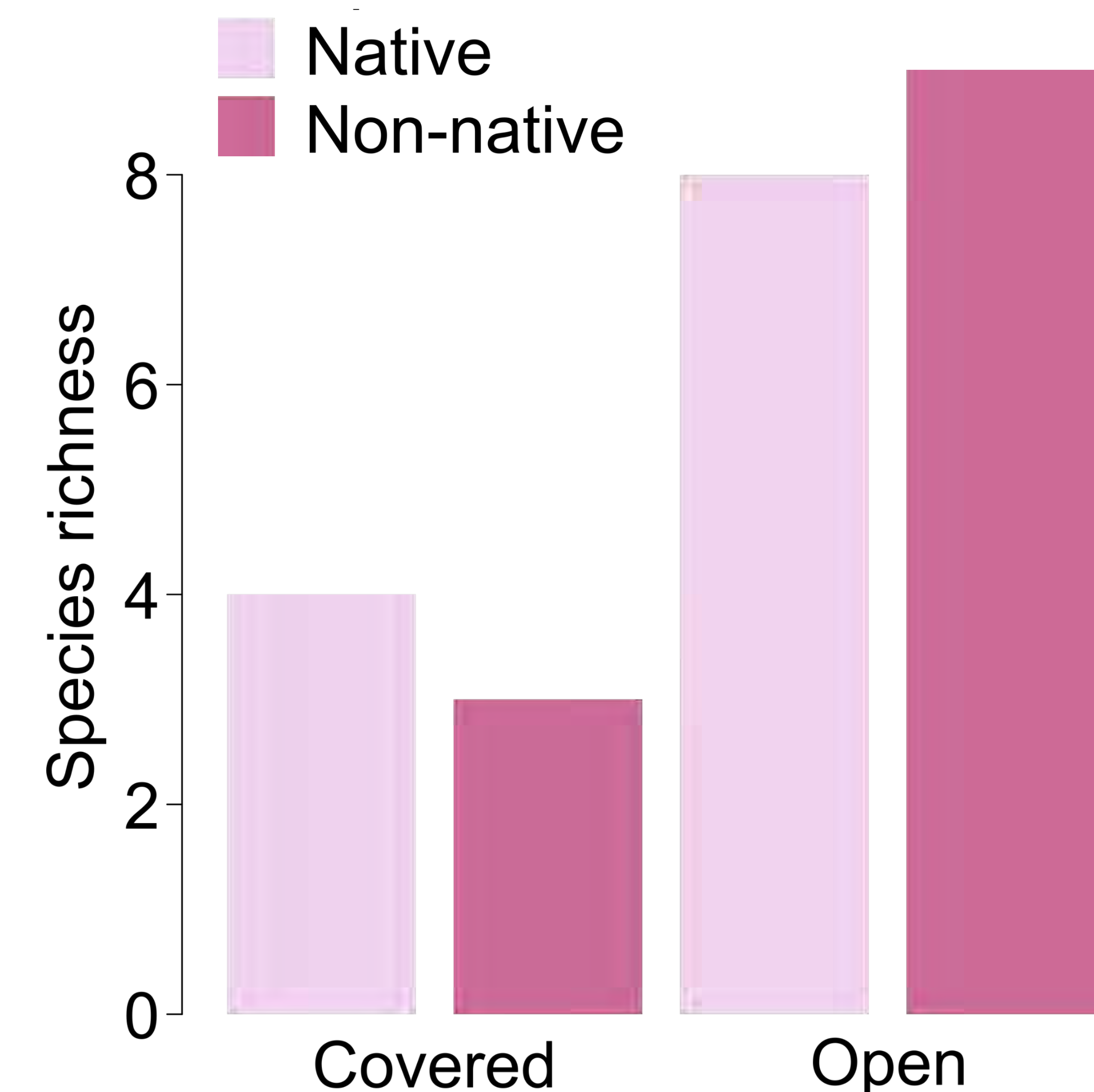


Figure 5. Comparison of native and non-native plant species richness in open vs covered microhabitats.

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