

# ESA2019

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## LOUISVILLE

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### 10: Does forest cover affect *Osmia* and other cavity-nesting bee abundance?

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Tuesday, August 13, 2019

04:30 PM - 06:30 PM

📍 Kentucky International Convention Center - Exhibit Hall

#### Background/Question/Methods

Bee communities serve an important role in our local ecosystems as they pollinate several crops and flowering plants. Many farmers rely on honeybees (*Apis mellifera*) for pollination. However, due to the decline in the domestic honeybee hives, there may be an increased reliance on native pollinators. Cavity-nesting bees have the potential to be used for crop pollination as they can be managed using artificial nesting habitats such as trap nests. The genus *Osmia* specifically, is an important pollinator of popular orchard trees and have been found to be more efficient than honeybees in certain apple orchards. Previous research has shown that cavity-nesting bee abundance is positively correlated with forest cover, but little is known about their preferences within more urbanized settings. In this study, we examined the effects of forest cover on the abundance of cavity-nesting bees in Southeastern Massachusetts, with a specific focus on the genus *Osmia*. From 2016-2018, bees were collected biweekly at six different sites via pan trap and sweep net, during the months of April to October. OLIVER, MassGIS's online mapping tool, was used to estimate percent forest cover within a 500m buffer at each of the six study sites.

#### Results/Conclusions

Throughout the three years we collected a total of 177 cavity-nesting bees out of which 92 belong to the genus *Osmia*. Statistical tests showed a significant effect of site on overall cavity-nester abundance ( $F_{5,233}=3.7$ ,  $p=0.003$ ) along with *Osmia* abundance ( $F_{5,131}=3.5$ ,  $p=0.005$ ). *Osmia* and total cavity-nesting bee abundances at the least forested site were similar to the abundances at the most forested site which indicates that there is no direct effect of forest cover on *Osmia* and other cavity-nesters abundance. The significant effect of site on *Osmia* and other cavity-nesters abundance may be due to other factors at the sites rather than forestation. The abundance of *Osmia* as well as the overall abundance of cavity-nesters at the urban sites with sustainable land-use practices were comparable to the rural site with the highest abundance, whereas the abundance at the urban site lacking these practices was significantly lower. In an urban/sub-urban setting, overall cavity-nesting bee abundance does not seem to have a strong correlation with forest cover, suggesting other factors such as sustainable land-use practices may be more important to help promote their community.

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