CFAES

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

GRADUATE EXIT SEMINAR

SAVANNAH BALLWEG

Shifts in sapling regeneration over 25 years in mature woods of Appalachian Ohio

Many oak-hickory forests in the eastern US are experiencing compositional shifts as they fail to replace themselves, while mesic species like red maple, sugar maple, and American beech have come to dominate the regeneration layer. The Wayne National Forest of southeast Ohio is a largely mature oak-hickory forest with a similarly mesophying understory. Through the resampling of 98 permanent plots established in the WNF during the 1990s, we can see changes in this regeneration layer over 25 years. Our research compared species composition and abundance of saplings within the Wayne National Forest's Marietta Unit. Our analysis found statistically significant change in sapling species abundance between the sampling periods, with sharp decreases in overall sapling abundance over time. This significance of this change was more impactful on smaller saplings than larger saplings. We also explored specific changes in composition and abundance to gain further insight into the dynamics of noteworthy sapling species, including species like maples, beech, and oaks which are of increased interest in mesophying woods. Red maple, sugar maple, and American beech, the three most abundant sapling species, also each increased in relative density. American beech led all other sapling species in both stem abundance and relative density. Meanwhile all species of already sparse oak saplings decreased in stem counts and relative density. Other species less integral to the study of mesophication, including flowering dogwood, green ash, and spicebush, also had noteworthy abundance shifts. Computations of values like species richness, evenness, and diversity were also completed to quantify shifts across the entire vegetation layer. Species richness showed a minor decrease, while evenness and diversity values increased. These findings help us foresee potential future forest composition, and explore the implications of floral shifts.

Advisor: David M. Hix

THURSDAY, APRIL 16th, 2020
9:30 A.M.

Join the seminar via Zoom: https://osu.zoom.us/j/377913781

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