

Using silvicultural experiments to identify bottlenecks and maintain species diversity in northern hardwood forests.



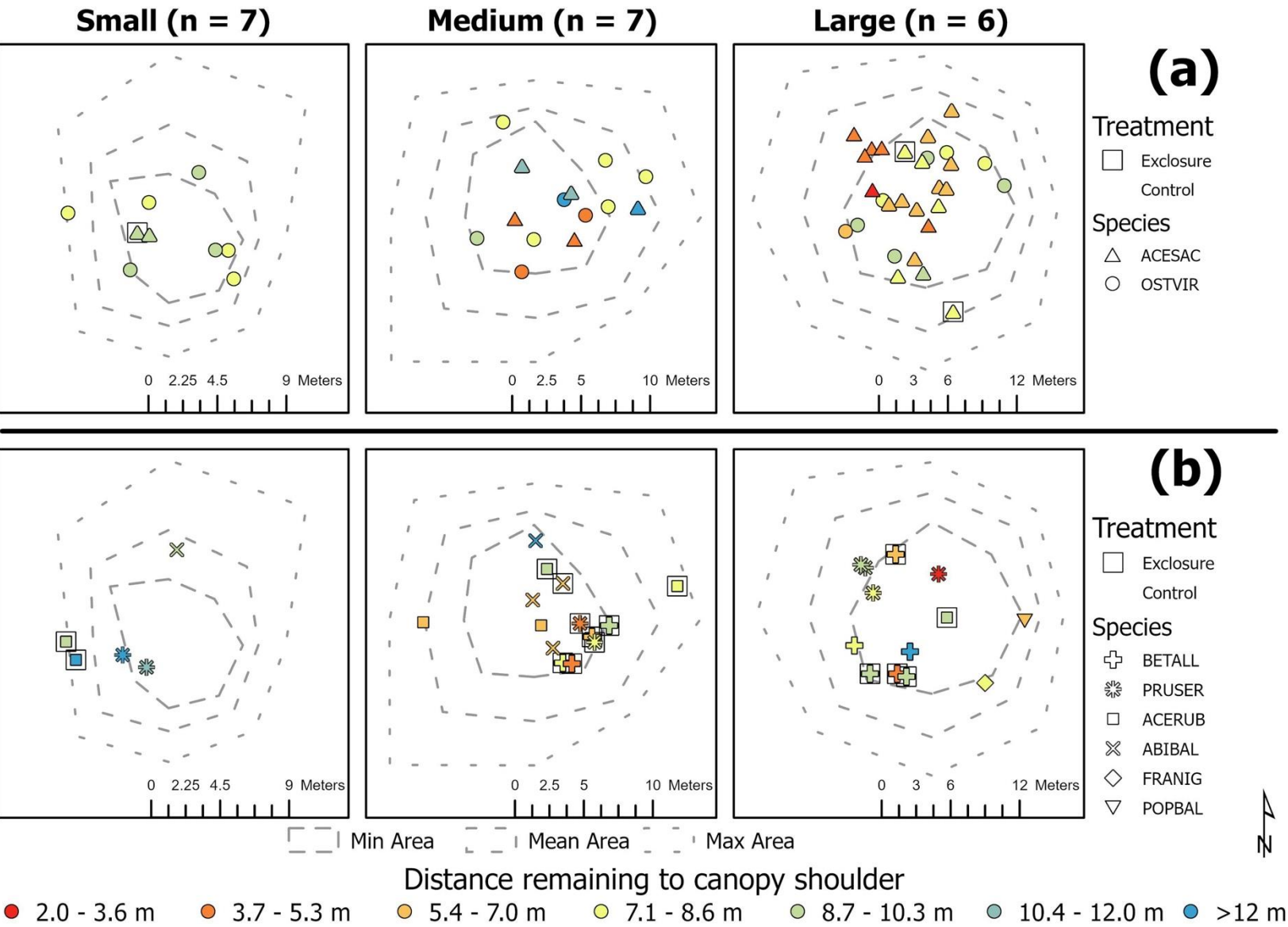
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A variety of silvicultural experiments have been established over the last 20 years at the Ford Forest with the goal of maintaining species diversity in managed forests. This talk will highlight key findings from gap based silviculture experiments and the Northern Hardwood Silviculture Experiment to Enhance Diversity.



Yellow Birch Legacy Tree Project

Group selection with legacy-tree retention

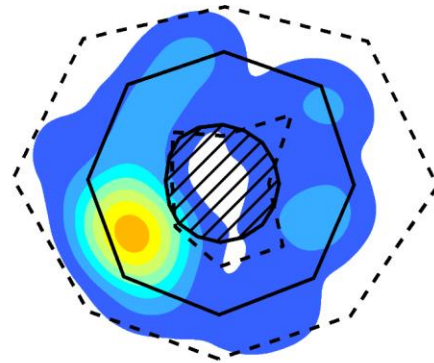
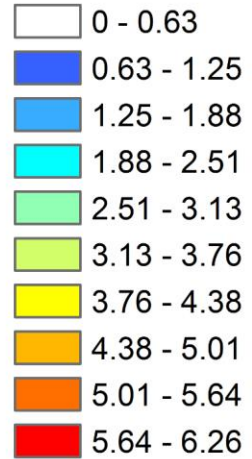


Knapp, S. P., Webster, C. R., & Kern, C. C. (2019). Can group selection with legacy retention change compositional trajectories in conventionally managed hardwoods?. *Forest Ecology and Management*, 448, 174-186.

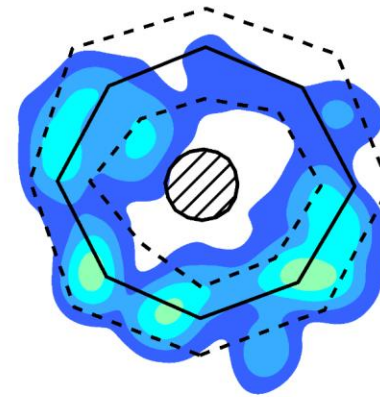
Poznanovic et. al. (2014). Spatial patterning of underrepresented tree species in canopy gaps 9 years after group selection cutting. *Forest Ecology and Management*, 331, 1-11.

Eastern Hemlock

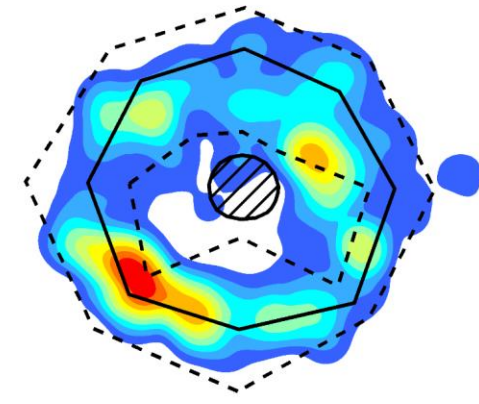
Stems 100 m⁻²



Small Gap



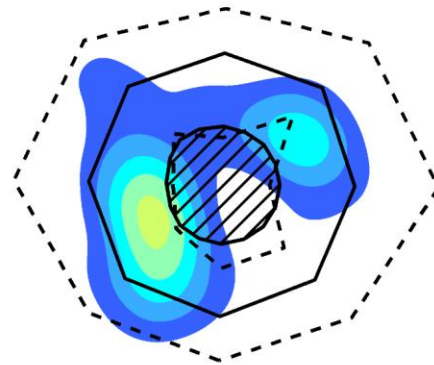
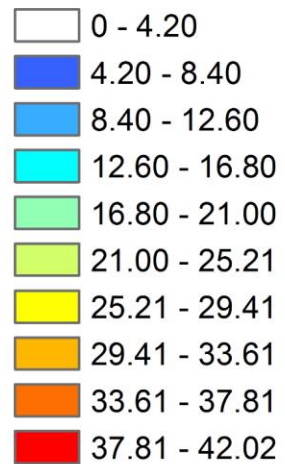
Medium Gap



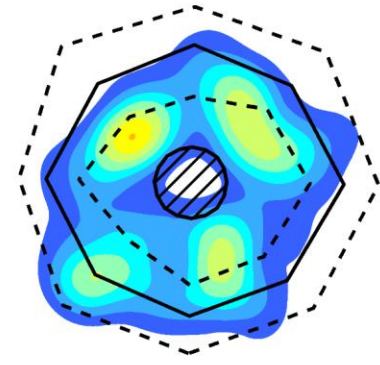
Large Gap

Yellow Birch

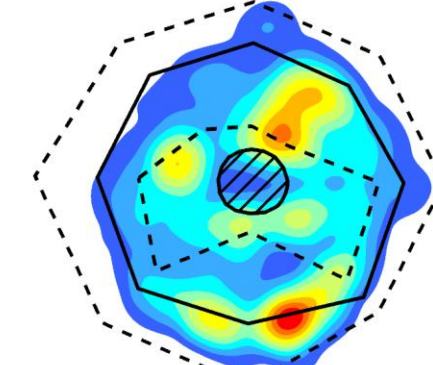
Stems 100 m⁻²



0 5 10 20 Meters



0 5 10 20 Meters



0 5 10 20 Meters

Mean Canopy Area

Min & Max Gap Areas

Mean Gap Area



Nested treatments

Light limitation



Seedbed limitation



Deer browse



Seed limitation



NH-SEED: Northern Hardwood Silviculture Experiment to Enhance Diversity, est. 2016

Bartlick, C. I., Burton, J. I., Webster, C. R., Froese, R. E., Hupperts, S. F., & Dickinson, Y. L. (2023). Artificial tip-up mounds influence tree seedling composition in a managed northern hardwood forest. *Canadian Journal of Forest Research*, 53(11), 893-904.

Bartlick, C. I., Burton, J. I., Webster, C. R., Froese, R. E., & Dickinson, Y. L. (2023). An experimental approach to identify drivers of tree regeneration diversity, composition, and heterogeneity in northern hardwood forests. *Forest Ecology and Management*, 546, 121320.