

URBAN SILVICULTURE STRATEGIES FOR OAK FORESTS: DIRECT PLANTING IN EXISTING AND IMMINENT CANOPY GAPS IN OAK-BEECH FORESTS

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Forests in cities are a common and abundant resource that are socially and ecologically important, especially in the Northeastern United States, the most densely populated region of the country. Oak forests are the most common forest type across this region and a priority for municipal forest managers. The management challenges of these forests are similar to rural analogs, although the stressors are often co-occurring and exacerbated due to the urban social-ecological context. A particular challenge in managing oak in cities are constraints with implementing traditional oak silviculture (i.e., felling trees, shelterwoods) due to local ordinances that limit tree removal, as well as public perception. In 2020, we convened the Urban Silviculture Network to develop, study, and implement alternative management strategies for sustaining our urban oak forests. Here, we present a newly implemented study that leverages naturally existing and imminent canopy gaps in forests. With the introduction of beech leaf disease to the region, we identified an opportunity to test direct planting strategies and accelerate stand reinitiation in advance of canopy openings. The decline of mature forest from pests and pathogens is a threat to forests but may also be an opportunity for shade-intolerant species, like oak. Collectively, this research combines multiple threads of inquiry, including oak progeny study, the utility of direct planting in varied light and gap conditions, and the interaction between management strategies, including planting strategy and deer exclusion. Though conducted in cities, these approaches may scale up across the urban-rural continuum of eastern deciduous forest.

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