# REHABILITATION OF NORTHERN HARDWOOD STANDS IN SOUTHERN MAINE FOLLOWING EXPLOITATIVE HARVESTS

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Northern hardwoods constitute the most common forest type group in Maine today. Much of this forest is owned by small non-industrial landowners in the southern region of the state, where diameter-limit cutting and high-grading are common. These types of harvests often result in residual stands characterized by poor quality and low vigor trees, less valuable species, and variable stocking and crown cover (Nyland 1992). Silvicultural opportunities for small woodland owners are limited by such conditions. This problem is confounded by the fact that many landowners further degrade or sell their property because poor quality and quantity of timber deter profitable and sustainable management. This is particularly a concern in southern Maine, where land-use pressure is high and forest tracts are predominantly small and privately owned.

Though the negative effects of diameter-limit cutting and high-grading have been documented (Kenefic et al. in press, Nyland in press), research addressing the rehabilitation of degraded stands is scant. Strategies which promote long-term ecological and financial benefits while addressing the financial constraints of small woodland owners must be identified.

The purpose of this study is to compare and evaluate the outcomes of alternative silvicultural treatments following exploitative harvests in southern Maine. Data will be collected from recently harvested northern hardwood stands in the region. Silvicultural treatments will be modeled over a 100-year period using the NE-TWIGS variant of the Forest Vegetation Simulator (USDA Forest Service). These treatments will include control (no treatment), diameter-limit cutting, intermediate treatments, and even- and uneven-aged regeneration harvests. A financial analysis pertaining to timber harvests and residual stand conditions will be compared across treatments and sites, and sustainability of composition, structure and production will be evaluated.

This research will enable us to identify forest practices that allow sustainable, economically viable management of a stand type that is common in the region. The results will provide a valuable tool for landowners and forest managers who seek to manage degraded northern hardwood stands.

## Literature Cited

Kenefic, L.S., P.E. Sendak, and J.C. Brissette. In press. **Comparison of fixed diameter-limit and selection cutting in northern conifers.** Northern Journal of Applied Forestry.

Nyland, R.D. 1992. **Exploitation and greed in eastern hardwood forests: Will foresters get another chance?** Journal of Forestry 90: 33-37.

Nyland, R.D. In press. **Diameter-limit cutting and silviculture: A comparison of long-term yields and values for uneven-aged sugar maple stands.** Northern Journal of Applied Forestry.

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