

Attachments: Figures for NE TEMP2101: Managing Eastern White Pine Health.

Figure 1 Native range of eastern white pine in North America. Figure from Costanza, et al. (2018) Frequency refers to the percent of eastern white pine comprising tree species composition for individuals ≥ 5 in dbh. Little's (1971) published range is indicated in bold. Figure produced by Anthony Elledge, USDA-FS Forest Health Protection using Forest Inventory and Analysis (FIA) data and Canadian Forest Service Inventory data. Green triangles indicate locations of collaborators for this study. Light green triangles indicate additional collaborators in multi-state collaborative.

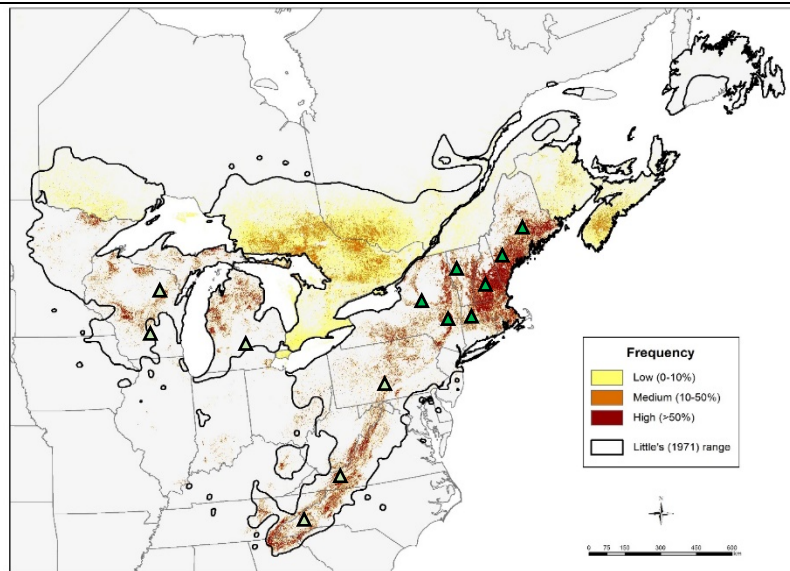


Figure 2. Diseased and healthy eastern white pine (Bergdahl, et al., 2020). Stand on left is suffering from stresses including high densities, drought, Caliciopsis canker, and white pine needle damage. Stand on right is managed to low densities to ameliorate stresses, increase crown health, and maximize value of wood.



Figure 3. Stocking guide (Leak & Lamson, 1999), adapted by R. Seymour (University of Maine) to show trajectory (orange line) of example white pine stand managed at a low density through precommercial and commercial thinning.

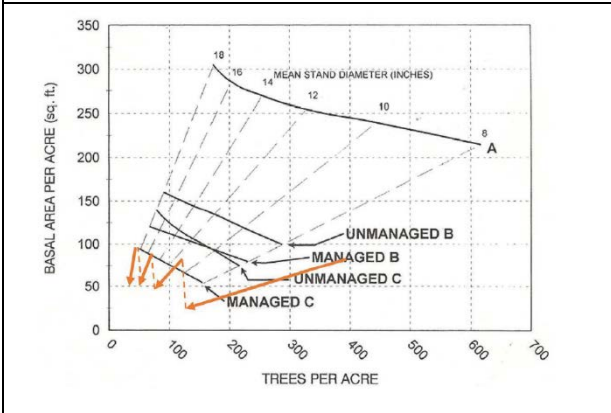


Figure 4. . Crop tree release by removing stems that touch the crown of the crop tree.

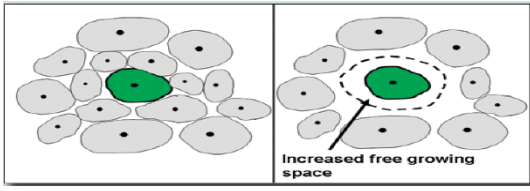


Figure 5. Net present value after 100 years of eastern white pine trees using densities shown in Figure 3 (Seymour, et al., 2009). “B-line” refers to recommended densities that maintain full occupancy of the site (Leak & Lamson, 1999). “Low Density” refers to recommended density for crop trees. “Control” refers to uncut stands.

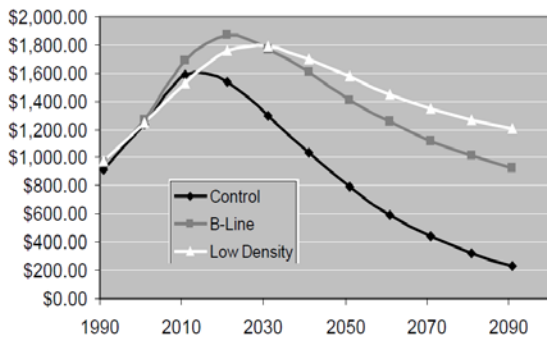


Figure 6. Silvicultural management treatments schematic overview at one location.

- 2-acre treatment blocks with 6 randomly assigned treatments in each of three replicates, 36 acres total.
- Each replicate has consistent pretreatment stand and site conditions; 2-acre blocks can be contiguous or nearby.
- Permanent plots: fixed-area circular 1/5th-acre plot at center of each block; goal: 30 EWP crop trees/plot.
- Block shape is flexible, but must accommodate plot (ideally circle or square: 296 x 296 ft).

Replicates can be located in different stands/forests in a given location.

PCT-CTR	Uncut-pruned	PCT-Uniform-Pruned	PCT-CTR-Pruned	Control (no treatment)	Uncut, delay PCT-CTR-Pruned
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PCT-CTR-Pruned	Uncut, delay PCT-CTR-Pruned	PCT-CTR	Uncut-pruned	PCT-Uniform-Pruned	Control
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Control	PCT-Uniform-Pruned	Uncut-pruned	PCT-CTR-Pruned	Uncut, delay PCT-CTR-Pruned	PCT-CTR
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