



# NORTHERN HARDWOOD NOTES

## Releasing Yellow Birch Saplings And Poles

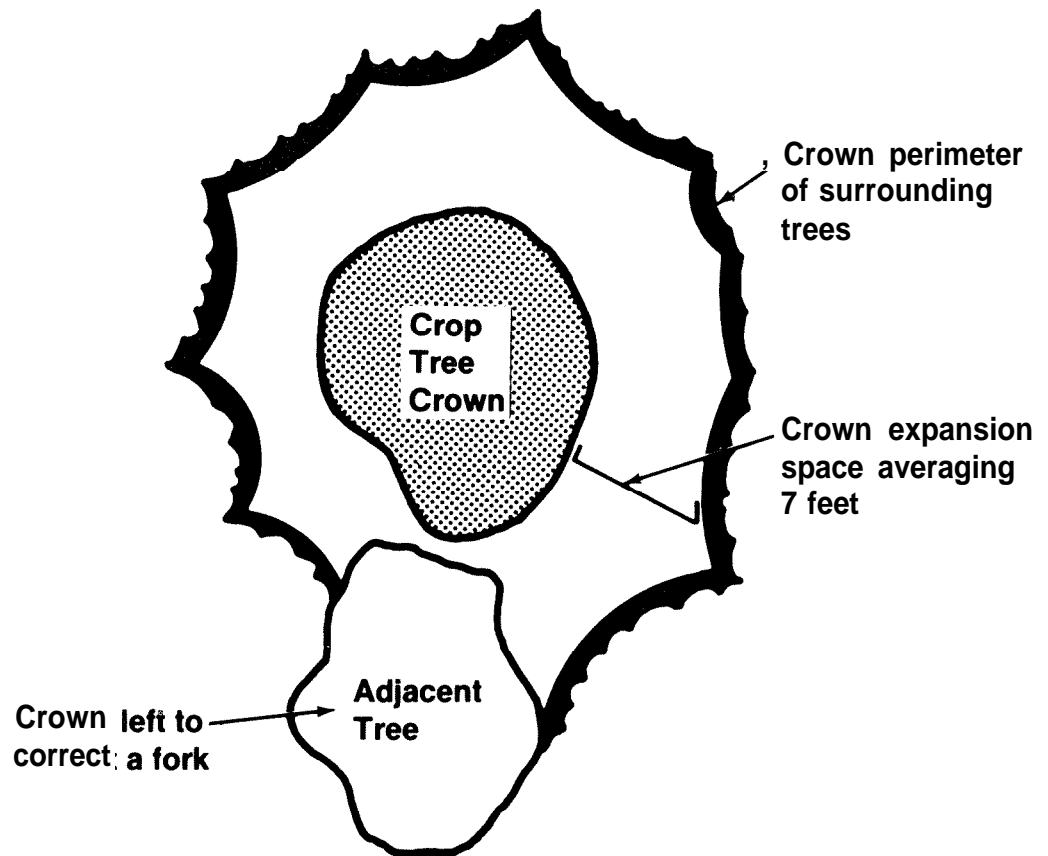
Yellow birch needs moisture, nutrients, overhead light, and enough space for the crown to expand in order to compete successfully with faster-growing northern hardwoods. By releasing crowns early, you can increase the number of future veneer and saw log trees in a stand and double the growth rate, thus cutting rotations in half. If you delay crown release too long, growth response is poor. After 45 years most birch trees in unmanaged stands occupy such poor crown positions that little can be done to improve them.

Saplings respond best to crown release. Diameter growth rates of saplings can be increased up to 3 inches per decade. Pole-size trees respond nearly as well as saplings to crown release. Thinned stands generally grow 2 to 3 square feet in basal area per acre annually. After 10-12 years, adjacent crowns will have met and small lower branches in the live crown will have died.

A reasonable goal is to produce 75 18-inch diameter) final harvest trees per acre on medium to good sites. For yellow birch, this requires releasing 100 crop trees per acre in sapling-and pole-size stands to cover unexpected losses and to keep costs down. Stands are normally ready for commercial cutting when they contain 100 to 120 square feet of basal area per acre and trees are about 6 inches in diameter.

### Steps to follow:

1. Determine the number of trees per acre, the basal area, and average tree diameter of the stand. Then see the table for the basal areas to leave after crown release.
2. Select up to 100 dominant and codominant crop trees per acre, spaced about 20 feet apart. Strong intermediates are suitable if dominants and codominants are lacking. Birches with large vigorous crowns and clear boles are preferred for their rapid growth and minimal epicormic sprouting.
3. Release crop trees to provide 7 feet of open space between tree crowns. (see figure). Removing only one or two main canopy trees is not enough. All trees below the main canopy within the prescribed distance can be cut. Cut any subcanopy tree that is rubbing or likely to lean against crop trees to prevent wounds, infections, and decay.
4. Don't create openings larger than 10 feet wide-they won't close before the next thinning.
5. Leave adjacent tree crowns to correct a small fork (less than 2 inches in diameter, see figure).
6. Retain a stem of equal quality nearby to produce a grade 2 butt log if it is the only tree left restricting the crop tree's growth.
7. Don't thin where stocking is already too low.
8. Thin dense pockets of high-quality stems; retain trees with the best developed crowns.



**Projection of a crop tree's crown and neighboring crowns after crown release in a pole-size stand.**

9. Remove or girdle high-risk, cull, and wolf trees in the overstory.
10. Then cut low-vigor, low-quality, leaning, crooked, forked, and cankered trees from below to reach the prescribed residual basal area.
11. In commercial thinning leave a uniformly thinned stand of thrifty dominants and codominants, with adequate growing space.

Precommercial cuttings can greatly improve the species composition of the final stand. Begin with Step 2, but do not thin unless suitable crop trees are present within the prescribed spacing. Save the trees to make an earlier commercial cut. Then continue from Step 3 through Step 8. Make firewood salvage sales and remove or girdle high-risk, cull, and wolf trees where feasible.

Suggested stocking for even-aged pole-and saw log-size yellow birch trees on good sites (site index 60 or more)<sup>1</sup>

<b>Average<sup>2</sup> stand d.b.h. (inches)</b>	<b>Trees per acre</b>	<b>Average spacing</b>	<b>Residual basal area per acre</b>
	<i>Number</i>	<i>Feet</i>	<i>Square feet</i>
4	521-625	9	45-55
5	365-437	10	50-60
6	290-340	12	57-67
7	235-273	13	63-73
8	200-229	14	70-80
9	180-202	15	79-89

<sup>1</sup>Figures are based on measurements of growth and quality development of individual trees in several birch studies in progress.

<sup>2</sup>Average d.b.h. of all trees 4.6 inches and larger except for the 4.0-inch class which includes all trees 0.6 inches and larger.

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