

## Appendix 10: Hardwood Stand Improvement

**Objective:** To improve the growth and quality of desired trees in hardwood-dominated stands with abundant tolerant hardwood species by removing stems at risk of losing value and reducing competition among remaining crop trees which increases growth rate and promotes higher valued products.

### **Pre-Treatment Assessment:**

- Between 26 and 40 m<sup>2</sup>/ha BA (>10 cm dbh class).
- 60% of BA in acceptable hardwood species (sugar maple, red maple, yellow birch, ash, basswood, disease free beech, oak, butternut, ironwood).
- > 30% of total BA are quality hardwood potential\*.
- Moderately-well to well drained, without evidence of unacceptable risk of wind throw, pest or disease damage and within Ecosite 5 or 7 (DNR Ecosite Classification).
- 10 years since last harvest treatment.
- Stands treated under the *New Brunswick Sugar Bush Silviculture Program* are not eligible.
- Woodlot owner signed agreement on plan objectives and timeline.
- A written prescription including pre-treatment stand information and treatment plan/objectives must be prepared by an RPF or CFT and be made available to ERD if the treatment is selected for audit.

### **Post-Treatment Inspection:**

- Removed between 20% and 40% BA (including trails).
- ≥ 80% of BA must be comprised of acceptable hardwood species (see pre-treatment assessment species); ≤ 20% may be quality red spruce, white pine, hemlock or cedar.
- > 50 % of total BA are quality hardwood potential\*.
- Thinned using consistent pattern.
- Crop tree spacing (> 80% of crop trees released on 3 sides).
- Should leave 5 large diameter trees/ha for coarse woody debris density, if possible.
- Trails < 5 m.
- Removal (priority) pecking order: defective and poor form trees, damaged or likely not to survive 10 years; intolerant hardwood, balsam fir

- Crop tree damage incidents must be < 10% of crop trees (in BA sweeps).
  - exposed sapwood greater than 200 cm<sup>2</sup>;
  - > 20% crown damaged;
  - > 20% root system damaged
- Minimal damage of desirable regeneration and saplings
- Areas > 1000 m<sup>2</sup> either untreated or residual BA < 15m<sup>2</sup>/ha must be mapped out

Sampling: Plot intensity greater of one plot per ha or 4 plots per work area.

\* quality hardwood tree potential (acceptable growing stock): contains or has potential to contain at least 1 pallet log > 2.6 m in length; > 10 cm dbh; no rot, dry or dead wood, straight, no spiral cracks; NHRI tree form and risk rating guide shall be used to assess quality tree potential.

**Stand Assessment Guidelines** (additional methods of assessing suitability for treatment):

- Avoiding windthrow: Height to diameter ratio on crop trees less than 0.80.
- Quality tree potential: >50% Acceptable Growing Stock (pg.42, Pelletier, G., Landry and M.Girouard. 2013. A Tree Classification System for New Brunswick. Northern Hardwood Research Institute. Edmundston, New Brunswick).