



FOREST MANAGEMENT TOOLS



INFORMING PRODUCTS AND TOOLS

Stand density management diagram calibrated for tolerant hardwoods of northwest New Brunswick

- Help to determine thinning needs and to monitor stand development after treatment
- Provides limits of density and stocking within stand should be maintained for optimal growth

Mapping of probability of moose browsing on regeneration and sapling of commercial species

- Identified areas where there's a high probability that regeneration is browsed by moose

Knowledge synthesis

- Pre-commercial thinning
- Distribution, silvics and stand attributes of key species associated with northern hardwoods in New Brunswick
- Silvicultural systems and treatments for tolerant hardwoods of New Brunswick



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KNOWLEDGE SYNTHESIS

- Pre-commercial thinning
- Distribution, silvics and stand attributes of key species associated with northern hardwoods in New Brunswick
- Silvicultural systems and treatments for tolerant hardwoods of New Brunswick





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TECHNICAL NOTES

- Optimizing tree bucking in hardwoods
- Effect of competition on tree characteristics and wood quality of sugar maple and yellow birch
- Sugar maple and yellow birch growth response to partial harvesting
- Decay and discoloration in tolerant hardwoods
- Stand basal area-canopy cover relationship for northern tolerant hardwoods
- Stand basal area reconstruction for northern tolerant hardwoods of northwest New Brunswick
- Role of advance regeneration on future stand development along gradients of time since harvest and harvest density
- Reconstruction of historical stand structure, species composition and growth patterns of tolerant hardwood species in northwestern New Brunswick
- Factors influencing mountain maple growth
- Developing a methodology to map trees to harvest in low volume stands
- Comparison of harvester productivity under different commercial thinning variant





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SCIENTIFIC ARTICLES

- Hébert, F., Krause, C., Plourde, P.-Y., Achim, A., Prigent, G. and Ménétrier, J. 2016. Effect of tree spacing on tree level volume growth, morphology, and wood properties in a 25-years-old *Pinus banksiana* plantation in the boreal forest of Quebec. *Forest*, 276(7): 1-16.
- Baral, S., Berninger, F., Schneider, R. and Pothier D. 2016. Effects of heartwood formation on sugar maple (*Acer saccharum* Marshall) discoloured wood proportion. *Trees*, 1-10.
- Baral, S., Danyagri, G., Girouard, M., Hébert, F. and Pelletier, G. 2016. Effects of suppression history on growth response and stem quality of extant northern hardwoods following partial harvests. *Forest Ecology and Management*, 372:23-246.
- Hébert, F. Bachand, M., Thiffault, N., Paré, D. and Gagné, P. 2016. Recovery of plant community functional traits following severe soil perturbation in plantations: a case-study. *International Journal of Biodiversity Science, Ecosystems Services & Management*.
- Fréchette, E., Chang, C.Y. and Ensminger I. 2016. Photoperiod and temperature constraints on the relationship between the photochemical reflectance index (PRI) and the light-use efficiency of photosynthesis in *Pinus strobus*. *Tree Physiology*, 36 (3): 311-324.
- Labelle, E.R., Soucy, M., Cyr, A. and Pelletier, G. 2016. Effect of tree form on the productivity of a cut-to-length harvester in a hardwood dominated stand. *Croatian Journal of Forest Engineering*, 37(1): 175-183.
- Fréchette, E., Wong, C.Y.S., Junker, L.V., Chang, C.Y.-Y. and Ensminger, I. 2015. Zeaxanthin-independent energy quenching and alternative electron sinks cause a decoupling of the relationship between the photochemical reflectance index (PRI) and photosynthesis in an evergreen conifer during spring. *Journal of Experimental Botany*, 66(22): 7309-7323.
- Klenk, N.L. and Wyatt, S. 2015. The design and management of multi-stakeholder research networks to maximize knowledge mobilization and innovation opportunities in the forest sector. *Forest Policy and Economics*, 61:77-86.