

MUTI-COHORT FOREST STRUCTURE SAMPLING PROJECT

Forestry Research Partnership Project No. 140-304

The Aim

The project augments and standardizes the collection of forest structure and age data for a subset of permanent growth and permanent sample plots within the northeastern Ontario plot network. Down woody debris, veteran tree age, and vertical and horizontal heterogeneity data will be integrated with existing growth and yield plot data to classify plots into three broad stages of forest development based on the multi-cohort concept.



Measuring downed woody debris

The Approach

Preliminary work on cohort classification provided a series of 134 permanent growth and permanent sample plots that cover a range of stand-level conditions. Four standard forest units were involved (SF1, SB1, MW2, SP1), and plots were spread across multiple management units so that results apply regionally. The cohort concept relates to forests in early, mid, and late stages of succession ("cohorts") and suggests that relative proportions of these be maintained at a landscape scale through the application of appropriate stand-level silviculture. Application of such an approach requires

the determination of amounts of forests across the landscape by structural, or cohort class; estimates of the frequency of cohorts by forest type expected under natural disturbance regimes; and the application of various intensity partial harvests to maintain the structural complexity associated with the cohort class being emulated. Hence, managed stands could contribute in larger part to the structural diversity of forests at the landscape level, and the maintenance of appropriate proportions of cohort classes associated with older stands would not necessarily exclude harvesting. The approach is proposed as one means to diversify post-harvest conditions and in



Using a densiometer

turn maintain biodiversity that is threatened by traditional clearcut and even-aged forest management in boreal forest zones. Cohort classification relies on compositional, structural, and age data, some of which was missing for selected sites prior to the Multi-Cohort Stand Structure Sampling Project. In fall 2003, a total of 95 permanent sample plots and permanent growth plots involved in cohort classification work were revisited to collect additional downed woody debris, age, and canopy overstory density data.

The Tree Tip

Downed woody debris and canopy openness data has not been collected for permanent growth plots, and is inconsistent or absent for permanent sample plots involved in cohort classification work. Standardizing data

collection methods and sampling the majority of sites being used to classify cohorts in the northeast region fills a critical gap in available data and minimizes uncertainties in cohort classification. Cohort classification is an important first step towards a multi-cohort management approach, something Tembec Inc. is interested in pursuing as early as 2007 for one of their northeastern Ontario management units. In addition, wildlife studies are planned in areas that correspond to sites sampled during the project. This will contribute additional data that are essential for provincially acceptable forest management plans that use a multi-cohort approach.

The Team

- **Ben Kuttner** R.P.F. (Project Lead)
Forestry Consultant/University of Toronto
- **John Pineau** (Project Facilitator)
Canadian Ecology Centre – Forestry Research Partnership
- **Paul Gelok**
University of Toronto
- **John Parton**
Ontario Ministry of Natural Resources
- **Gordon Kayahara**
Ontario Ministry of Natural Resources
- **Wally Bidwell**
Lake Abitibi Model Forest

For more detailed information, please visit:

www.forestresearch.ca/partnership_projects/sustainability/140-304