



Tour discusses managing mixedwood

by Al Wiensczyk, Ecosystems and Stand Management Extension Specialist

“Mixedwoods: Manage the stand, measure the landscape” was the theme for this year’s Northern Silviculture Committee summer field tour held June 17–18, 2008 in Fort St. John. The tour attracted 60 participants from the provincial and federal governments, academia, and industry as well as the consulting community who were all interested in learning about, and discussing, mixedwood management in the northern boreal forest. One of the key messages from the tour was that mixedwood ecosystems can be very complex and that management should be focused at the landscape scale. This complexity also creates challenges for integrating

and describes the ecosystems to be managed, the objectives for mixedwood management (e.g., products, yield, stand and landscape diversity), the methods for classifying and tracking forest types, the management strategies to be used, and the stocking standards and free-growing criteria associated with each forest type. Also included in his presentation was an explanation of the 5522 survey methodology. Details on this survey procedure as well as others designed for use in the boreal mixedwood can be found on pages 110–117 in the *Silviculture Survey Procedures Manual* available at: <http://www.for.gov.bc.ca/hfp/publications/00099/Surveys/Silviculture%20Survey%20Procedures%20Manual-March%2028%202008.pdf>



Al Wiensczyk photo

The Donaran Moulder was used to create raised mounds prior to planting conifer seedlings on a site north of Fort St. John.

policies and regulations with the management goals for these areas.

Allan Powelson (BC Ministry of Forests and Range) described the four broad land classes/forest types used for managing mixedwoods: Conifer-leading (C) (> 80% basal area [BA] is conifer); Deciduous-leading (D) (> 80% BA is deciduous broadleaf); Conifer-leading mixedwood (CD) (> 50%, but < 80% BA is conifer); and deciduous-leading mixedwood (DC) (> 50%, but < 80% BA is deciduous). The two mixedwood types can then be further differentiated, based on their structural attributes, into stratified, intimate, and mosaic mixtures.

Powelson stressed the importance of having a landscape-level, mixedwood strategy that outlines

Craig Farnden (University of British Columbia) described a survey methodology that he’s developed to assess stocking status and contributions to landscape-level management objectives. His approach uses the quadrat methodology, developed for ecology, to measure the abundance of different species within an area. With this method, surveyors simply note the presence or absence of a coniferous and/or deciduous tree within a circular plot. (Note: plot size is still a work in progress although a 10m² plot (1.78 m radius) was one option.) The plot data can be used to classify the stand into one of the four types described above and also allows users to determine the relative predicted yield (age 80) and compare that to an acceptable threshold to assess stocking.

Chris Hawkins (University of Northern British Columbia) discussed results from a project looking at the impact of broadleaf density, primarily birch, on conifer radial growth in the Fort Nelson, Fort St. John, and Dawson Creek Timber Supply Areas (TSAs). The objective of the study is to define deleterious competition relationships for a variety of stand ages and productivity levels. Hawkins has found that the impact of broadleaf competition changes as the age (size) of the conifer trees increases. He also noted that the absolute density (sph) of the competition is not necessarily a good measure of competition and has used a Stand Density Index (SDI) and a Relative Density Index (RDI) to incorporate a competition–size component. For more information on this study and others visit the Mixedwood Ecology and Management website at <http://mixedwood.unbc.ca/>

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Key point: Impact of log-deck location

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Al Wienszky photo

Craig DeLong discusses the benefits of underplanting spruce seedlings in 40 to 60-year-old aspen stands.

Craig DeLong (BC Ministry of Forests and Range) presented the benefits of underplanting spruce in pure 40 to 60-year-old aspen stands. This treatment has several benefits, including re-introducing spruce to areas where it was removed by past management practices and reducing spruce establishment costs since minimal site preparation is needed. Other benefits include a reduced incidence of frost damage to spruce, reduced bluejoint grass competition due to the aspen overstorey, better maintenance of aspen-rich litter on the site through multiple rotations, and better maintenance of tree cover, thereby reducing any visual management concerns. The incidence of root rot damage to spruce may also be reduced. Results from a 15-year-old underplanting study by DeLong have shown excellent spruce survival (> 90%), better second-year performance, and reduced frost damage compared to spruce in clearcuts.

Although the underplanted trees after 15 years have significantly lower total height and basal area than those in clearcuts, these attributes are still acceptable and should allow them to reach the target height of 3–4 m by age 20–25 years.

DeLong proposed that harvested mixedwood sites be allowed to regenerate naturally, leading to an increased aspen component and decreased spruce component. Spruce loss, he said, will be offset by underplanting mid-aged aspen stands. He believes that this cost-effective silvicultural system is more consistent with the natural ecological dynamics of the boreal forest. DeLong also noted there are operational barriers to applying this system, including policies that restrict transfer of reforestation obligations from one area to another and security of tenure which may limit the licensee's ability to benefit from their investment.

Tour participants also viewed several previously harvested sites. One of the key points raised at these stops was the impact of log-deck location and length of time the log deck remains on aspen regeneration. Log decks left on the roadside over a growing season result in lower aspen stocking and more variability in height and distribution of the regeneration. This is critical if the area is to be managed as a deciduous forest type. Companies may be assessed a levy (~ \$2000/ha) for site rehabilitation and conifer planting if they choose to roadside

deck and leave the decks over the summer. Also noted was the lack of aspen regeneration in burn piles. These areas are usually colonized by species that seed-in such as balsam poplar and willow. According to **Brian Farwell** (BC Ministry of Forests and Range), licensees are encouraged to put all log decks and burn piles on the road, unless the road is to be used in the future or if the area is used for cattle range. This will minimize the loss of productive ground—especially for aspen. He noted that if this was not possible then log decks, which will be regenerated to conifer, should be located on one side of the road with enough gaps to allow access to the deciduous stand behind them, which are managed on a shorter rotation.

Tour attendees also visited a site recently site-prepared using the Donaran moulder (see photo). In this stand, 10-m-wide treated strips were interspersed with 20-m untreated strips. Spruce will be planted and managed in the treated area while aspen will be managed for in the untreated area. In approximately 60 years, the aspen in the untreated strips will be ready for harvest. In another 60 years, both the spruce and the aspen strips will be harvested. Mounding has been a very successful site-preparation technique in this area as it helps reduce the impact of grass competition on the regenerating spruce.

Range tenures are present throughout the southern third of the Fort St. John TSA, according to **Andrew Tyrrell** (Canadian Forest Products). Tyrrell discussed some of the sources of potential conflicts between range and forest tenure holders. These include resource availability (grass versus trees), regeneration success (fire and trampling), access, removal of barriers (man-made and natural), water availability, traffic, and alteration of wildlife patterns. To address any potential conflicts, a Timber and Range Impact Mitigation committee (TRIMC), formed in 2004, has developed a set of best management practices. In addition, the BC Ministry of Forests and Range currently requires forestry and range licensees to complete a Timber-Range Action Plan (TRAP) prior to issuing any deciduous harvest authorizations. Tyrrell noted that typical mitigation measures that can be prescribed include grass seeding of roads, burning roadside debris, changing harvest timing (summer versus winter), planning access management, leaving riparian buffers, modifying debris-pile techniques, repairing/clearing fences, and changing salt-lick locations. 🌲