

# CENTRE FOR ENHANCED FOREST MANAGEMENT



## ADVANCES IN FORESTRY RESEARCH

DEPARTMENT OF RENEWABLE RESOURCES

EFM RESEARCH NOTE 01/2006



### Does mechanical site preparation have a long-term effect on aspen regeneration in mixedwood stands?

SIMON M. LANDHÄUSSER, VICTOR J. LIEFFERS, JANE M. WOLKEN, ERIN C. FRASER, PETER V. BLENIS, AND KEN MALLET

After the harvest of boreal mixedwood stands, sites are often mechanically site prepared to provide good planting spots for white spruce seedlings. During the mechanical site preparation (MSP) aspen roots in the soil are wounded especially when using ripper plows and disc trenchers.



While root wounding tends to promote suckering of aspen, it is not clear what effect MSP has on the long-term

growth and quality of aspen regeneration on these sites. In many circumstances the incidental aspen is considered to be an important component of the regenerating stands. Objectives were to determine the stem density, growth rates and incidence of diseases of aspen in 10 year old aspen stands that had been given MSP treatments after harvest.

Ten years after MSP with a ripper plow, stem density of sites that were treated with MSP had 31% lower stem density and were about 14%



shorter than untreated control sites. However there were no differences in diameter increment between the untreated sites and sites treated with MSP. Although there was less staining in the stems of trees given MSP



treatments, the incidence of *Armillaria* root infections was higher in areas that had been site prepared. In particular the infection of roots

with *Armillaria sinapina* was significantly higher. More detailed analysis showed that the infections were closely associated with the occurrence of root wounding as a result of the MSP treatment.

**Implications:** While MSP resulted in reduced stem density and a slight decline in growth relative to stands not treated, it is likely that the regenerated aspen will produce a viable stand of aspen. As there was an increase in the incidence of *Armillaria sinapina* due to the root wounding, the long-term future of these aspen stands needs to be periodically re-assessed since these stands could develop increased root and basal stem decay with increasing age.



**Funding** was provided by Ainsworth Lumber Inc., Alberta Pacific Forest Industries Inc., Daishowa Marubeni International Ltd., Footner Forest Products, Louisiana Pacific Canada Ltd., Millar Western Industries Ltd., Slave Lake Pulp Corporation, Weyerhaeuser Canada Ltd and the Natural Sciences and Engineering Research Council of Canada (NSERC).

#### Further Information:

Fraser, E.C., Landhäusser S.M and Lieffers, V.J. 2006. Does mechanical site preparation affect trembling aspen density and growth 9-12 years after treatment? *New Forest*. In press.

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Centre for Enhanced Forest Management, Dept. of Renewable Resources, U. of A., Edmonton, AB T6G 2H1

[Simon.Landhausser@ualberta.ca](mailto:Simon.Landhausser@ualberta.ca)