The 'Evolution of Stand Structure' – Using Fungal Inoculation as a Habitat Enhancement Tool

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Inoculation of live trees with native wood decay fungi in order to promote heart rot has excellent potential as a wildlife tree creation and habitat enhancement tool. Inoculated live trees usually maintain good growth and form, and present few worker safety problems, while developing the primary habitat attribute of internal heart rot decay. Inoculation is useful in restoring or enhancing habitats where there is a lack of suitable wildlife trees and stand structure.

A five-year operational trial was initiated by the author in 2002 on two similar sites on western and north-central Vancouver Island, British Columbia. Both sites are in the coastal western hemlock very dry maritime (CWHxm) biogeoclimatic zone, and consist of relatively homogeneous second growth Douglas-fir (*Pseudotsuga menziesii*) stands. A total of 245 healthy, defect-free Douglas-fir trees were selected for treatment or as controls. Treatments involved inoculating the trees with a native heart rot decay fungus (*Phellinus pini*). Two inoculation methods (climbing and drilling method; rifle induction method) and two fungal sources (local and non-local source *P. pini*) are being tested. A subsample of these trees will be destructively sampled at one year and five years post-treatment to evaluate the extent of decay introduced into the tree. Evidence of wildlife use will also be described over this period.

Preliminary results suggest that fungal inoculation is an efficient and cost-effectiveness mechanism for creating wildlife tree habitat. Results from parallel U.S. Pacific Northwest inoculation trials have shown development of internal tree decay and subsequent use by cavity excavating wildlife within 5-10 years.

Fungal inoculation is potentially a very useful tool for enhancing habitats where there is a lack of current stand structure (i.e., few standing dead or defective trees which provide habitat for cavity excavating wildlife). This technique is readily applicable to partial-cutting silvicultural systems in managed second growth forests, and in locations such as recruitment old growth management areas and wildlife habitat areas. Consequently, fungal inoculation may be of particular significance as a "recovery tool" for cavity dwelling wildlife which are *at risk*.