

Laminated Root Rot



One fungus many names

Phellinus weirii (Douglas-fir
type)

Inonotus sulphurascens

Coniferiporia sulphurascens

How it Gets its Common Name



What is it?

- Natural disturbance agent part of a healthy ecosystem provides important wildlife habitat and biodiversity
- Spreads by root to root contact
- Survives for long periods in stumps
- From a timber perspective it's a major pest
- Losses in BC estimated at over 1million m³/yr. (40,000 houses)

Modelling Impacts

- BC uses TIPS Y to model timber volume over time
- TIPS Y based on “fantasy world” devoid of forest health
- Compensated for using “fudge” or operational adjustment factors (OAFs)
- For root disease use OAF2 - starts at zero and increases to full value at stand age 100

Modelling Impacts cont'd

- In the **CDFmm** and **CWHxm1** and **xm2** an OAF 2 of **7.5%** is used to account for both laminated and Armillaria root disease
- Added to default OAF2 of 5% for waste, decay, and breakage in these BECs to get an over all OAF2 of 12.5%

Hosts

Highly Susceptible	Susceptible	Tolerant	Resistant	Immune
Douglas-fir true fir	western hemlock spruce larch	pin	cedars	hardwoods

Age Effects

- Young trees die → 1-2 years
- Older trees → 15-20 years
- Old Growth → more like a butt rot

Distribution & Hazard

- Follows natural distribution of Douglas-fir
- High hazard (probability):

CDFmm,

CWH dm, ds1, mm1, mm2,

ms1, ms2, xm1, xm2

Life Strategy

- Get there first (first come first serve)
- Protect your turf → gated (zone lined) community
- Wait for the next unsuspecting victim (stealth pathogen)

Symptoms (I'm sick!)



Signs – Ectotrophic Mycelium (first come first serve)



Setal Hyphae



Brown Crusty Layer (exterior zone lines)



Stain



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Decay (showing Zone Lines)



Survival (*Stealth Mode*)



Fruiting Body



Root Rot Centers



Look Up Way Up



Survey Methods

Helicopter or Ortho Photos

- Works best for large centers in the interior
- Difficult on the coast

Walkthroughs

- delineate areas that require detailed surveys and/or skip directly to stratification
- Need experienced surveyors

Detailed

Detailed survey methods (objective is to stratify or delineate larger areas for treatment)

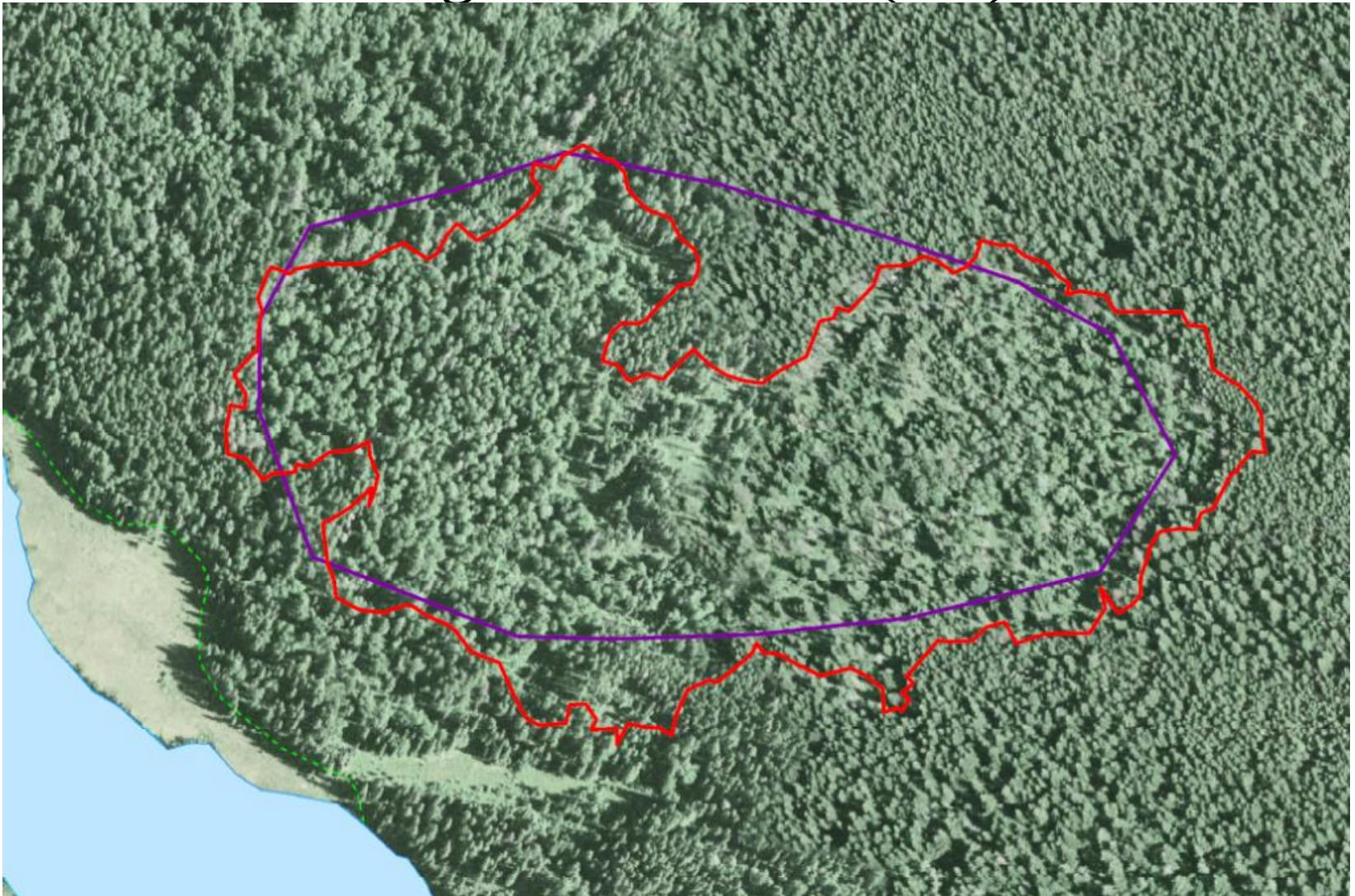
Pre-harvest

- Transect surveys (e.g. 5m transect spaced every 100m) look for symptoms and signs to get % infected trees
- Sketch mapping using strip lines or traversing with ipad to get % infected area

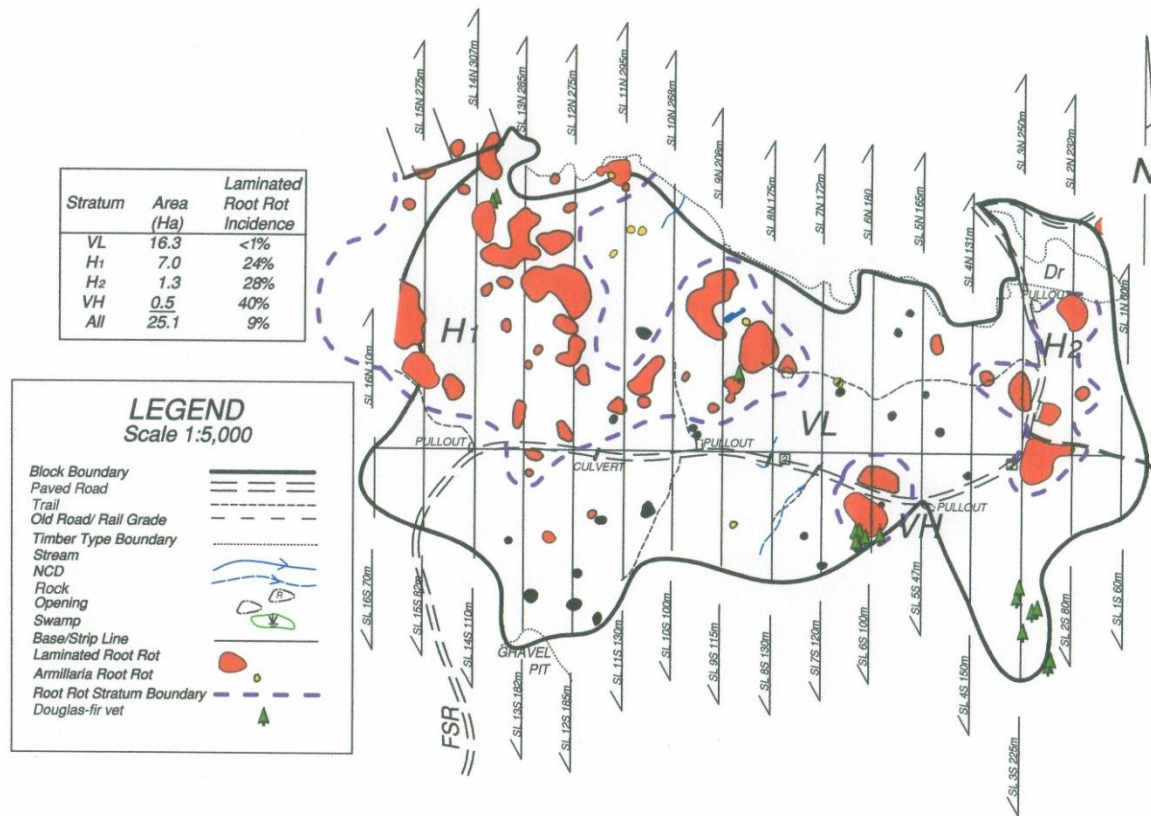
Post harvest = Stump Top

- Mark and gps stumps with decay and stain (harder when mechanical harvesters used)
- Not recommended in the interior where decay not always visible

Large DRL Center (BC interior) Heli (purple)
vs. ground truthed (red)



Strip lines - Blast from Past



Confounding Factors

- Often associated with & masked by Douglas-fir Beetle, Armillaria Root Rot, Deciduous patches
- Typically large centers left out of blocks or put into wildlife tree patches (crappy cedar)

Strata Treatment

- Stumping
- Alternate Species

Limiting Factors

- Expensive (no longer covered under coastal appraisal manual)
- Fine textured soils
- Wet sites
- Steep slopes
- Large stumps
- Shallow soils
- Riparian areas



Alternate Species

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Douglas-fir true fir	western hemlock spruce larch	pin	cedars	hardwoods

A close-up photograph of a large, weathered log with peeling bark, surrounded by green leaves and moss. The log is the central focus, with its light brown, flaking bark showing deep textures and cracks. Several green leaves are scattered around the log, some showing signs of decay or insect damage. A small, reddish-brown leaf with dark spots is prominent in the lower left. The background is dark and filled with more foliage and branches.

Any
Questions?