

Demonstration Plots for Comparing Fuels Complexes and Profile Development Associated With Spruce Beetle Activity

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Description of Project: Spruce beetle activity increased dramatically on Intermountain Region National Forests beginning in 1987. Between 1995 and 2001 spruce beetles infested over approximately 200,000 acres of spruce-fir forest resulting the death of over 700,000 trees. The extensive mortality also altered fuel complexes and loads in affected areas. The need arose to impose various density management treatments over large spatial scales to suppress spruce beetle populations and reduce the susceptibility of stands to beetle attack. These treatments, however, also resulted in the production of large quantities of down and dead woody fuels and increased fine fuel loads. As a consequence, the risk of ignition and potential for extreme fire behavior in post-treatment stands could exceed that of beetle-killed stands actually increasing the risk of wildland fire. This situation provided a unique opportunity to establish permanent demonstration plots in treated versus untreated spruce-beetle killed stands to conduct fuel inventories and appraisals for assessing changes in the fuel complexes over time. Based on the fuels inventory and appraisal data fuels treatment strategies including mechanical and biomass utilization have been implemented on the demonstration plots. Protocols derived to measure and manipulate hazardous fuels on managed and naturally disturbed sites such as insect infestations can then be applied on a broad scale to other areas experiencing similar perturbations.



Figure 1. Fuels in (a) control, (b) moderately thinned, and (c) heavily thinned stands



Figure 2. Fuels treatments in 2002 (a) chipping fuels (b) treated plots

Accomplishments in 2003

1. Completion and distribution of project brochure and site map
2. Re-inventoried fuels plots
3. Guidelines for insect considerations and fuels management
4. Work Conference Presentations

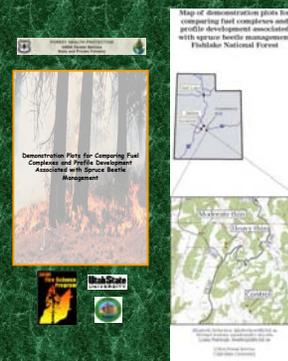


Figure 5. Project brochure

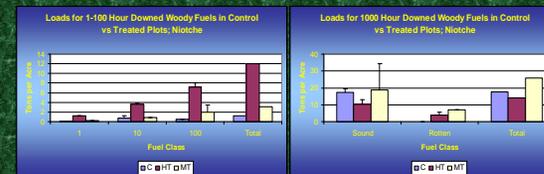


Figure 3. Downed fuel loads 2003. G = Control; HT = Heavy Thin; MT = Moderate Thin

Objectives 2004

1. Complete treatments
2. Interpretive signs
3. Site visits
4. Complete reports

Forest Health Considerations and Fuels Management

Will the fuels treatment increase insect and disease problems?

- > Present pest population levels
- > Production of host materials
- > Condition of host materials
- > Timing of treatment
- > Surrounding stand conditions
- > Type of treatment
- > Duff depth

Figure 4. Guidelines for insect and disease considerations