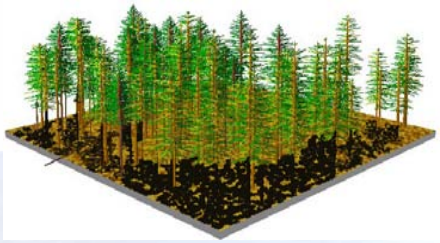
Accomplishments and Results

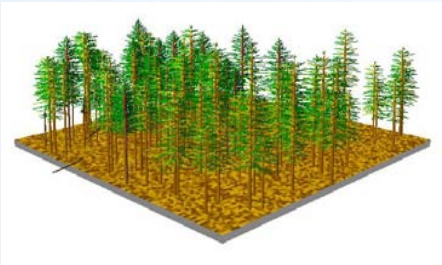
Treatment Areas 1 & 2

In treatment areas 1 & 2, 400 single-tree plots were established and pretreatment plot data collected in 2001. Prescribed fire treatment was applied to the plots in spring 2002. Sixty-one Douglas-fir and 129 ponderosa pine trees, or just over 50% of the sample plots were treated with prescribed fire. Postfire data was collected in 2002 to assess fuel reduction and fire impacts. Figures 3 – 12 show the reduction in 10HR, 100HR, 1000HR, litter, and duff fuels for all dbh size classes.



Treatment areas 1 & 2

In August 2002, the plots were evaluated for ground char, bark char, cambium kill and crown scorch. Figures 13 – 15 show the impact of the prescribed burn on the sample plot trees. Approximately 5% of the burned Douglas-fir trees and 25% of the ponderosa pine trees showed signs of insect attack. Of the 37 attacked trees, only one was unburned. Attacked, burned Douglas-fir trees had significantly higher crown scorch than unattacked burned Douglas-fir. Attacked, burned ponderosa pine had significantly more basal girdling than unattacked burned ponderosa pine. The number of attacked Douglas-fir trees was very low however. Most of the attacks were red turpentine beetle, and may not influence tree survival.



Treatment areas 3 & 4

Treatment areas 3 & 4 were established during the summer of 2002. Plots containing 100 Douglas-fir and 100 ponderosa pine trees in ten size classes were randomly assigned in each of the two treatment areas. Pretreatment fuels, vegetation, and soil-core data were collected during summer 2002. Fuel loads from treatment areas 3 & 4 are shown in figure 2 below.

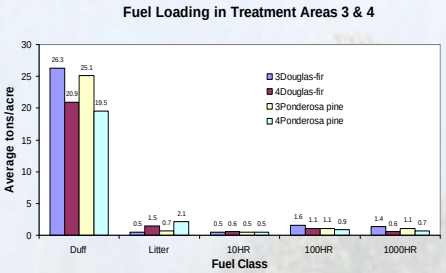


Fig. 2. Fuel loading by class from treatment areas 3 & 4.

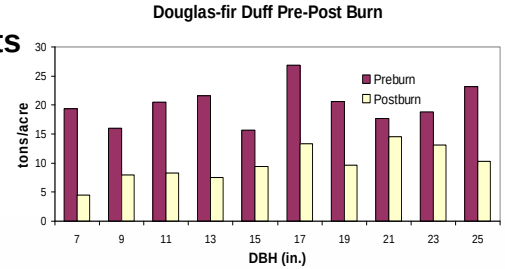


Fig. 3. An average of 10 tons/ac or 47% of the duff layer beneath Douglas-fir trees was consumed by prescribed burning.

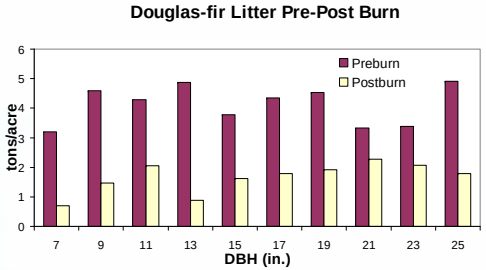


Fig. 4. An average of 2.4 tons/ac or 56% of the litter layer beneath Douglas-fir trees was consumed by prescribed burning.

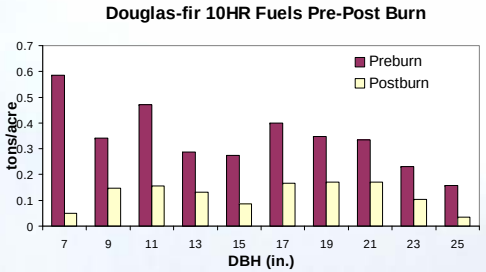


Fig. 5. An average of 0.24 tons/ac or 60% of the 10HR fuels beneath Douglas-fir trees was consumed by prescribed burning.

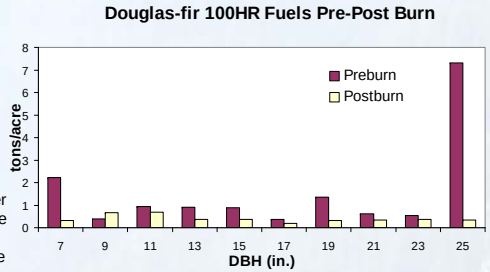


Fig. 6. An average of 0.80 tons/ac or 30% of the 100HR fuels beneath Douglas-fir trees was consumed by prescribed burning.

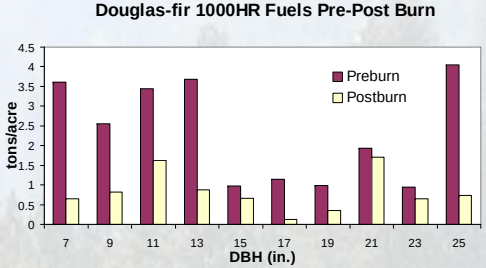


Fig. 7. An average of 1.4 tons/ac or 32% of the 1000HR fuels beneath Douglas-fir trees was consumed by prescribed burning.

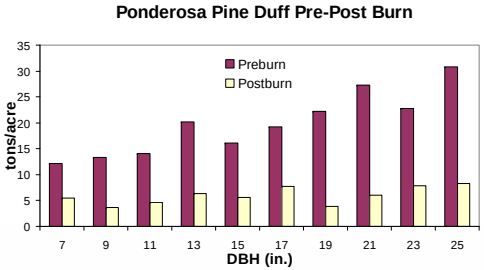


Fig. 8. An average of 14.1 tons/ac or 64% of the duff layer beneath ponderosa pine trees was consumed by prescribed burning.

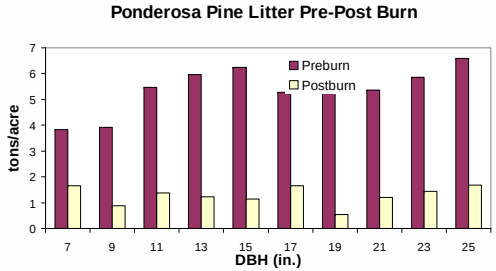


Fig. 9. An average of 4.1 tons/ac or 75% of the litter layer beneath ponderosa pine trees was consumed by prescribed burning.

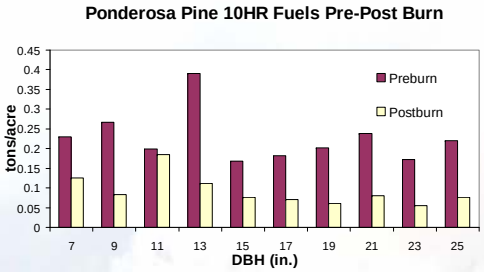


Fig. 10. An average of 0.15 tons/ac or 45% of the 10HR fuels beneath ponderosa pine trees was consumed by prescribed burning.

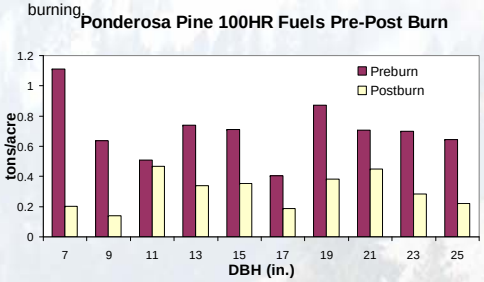


Fig. 11. An average of 0.50 tons/ac or 50% of the 100HR fuels beneath ponderosa pine trees was consumed by prescribed burning.

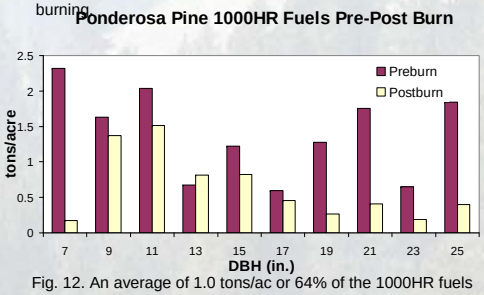


Fig. 12. An average of 1.0 tons/ac or 64% of the 1000HR fuels beneath ponderosa pine trees was consumed by prescribed burning.

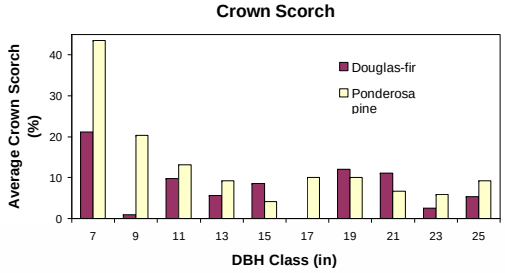


Fig. 13. Percent crown volume scorched for burned trees in treatment areas 1 and 2 by DBH class.

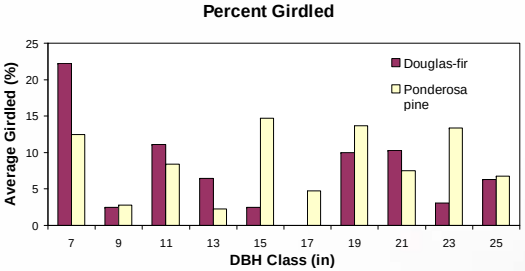


Fig. 14. Percent basal girdling estimated from four cambium samples for burned trees in treatment areas 1 and 2 by DBH class.

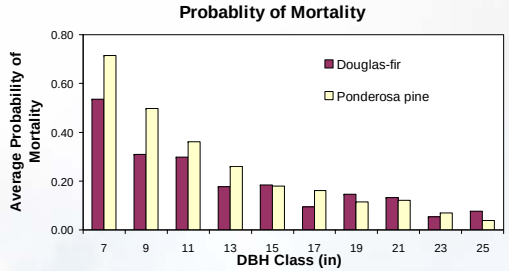


Fig. 15. Predicted probability of mortality for burned trees in treatment areas 1 and 2 by DBH class using Ryan and Amman (1994) equation.

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