

Trends in tree health on the Lye Brook Wilderness Area

In 2009, 5 forest health monitoring plot-clusters were evaluated in the Lye Brook Wilderness Area. Plot-clusters were measured at 2 elevations: 1,400 and 2,300 feet, for a total of 167 live trees and 125 overstory live trees. Trees at both elevations have been declining over the past decade as a variety of stress events have impacted tree health. In 2009, average dieback and foliage transparency was greater than the long-term average on all the plots (Figures 38 and 39). Likewise, the percentage of trees with thin foliage (20%) and high dieback (13%) remained higher than most years.

A Crown Condition Index combining crown health indicators (dieback and foliage transparency) was used to identify unhealthy trees (Figure 40). Although 2009 appears to have fewer unhealthy trees than recent years, overall there have been an increasing percentage of unhealthy trees. The species involved have varied from year to year, but in 2009, most of the unhealthy trees were balsam fir, red maple and red spruce. The annual mortality rate of overstory trees was also high in 2009, with 3.1% new dead trees.

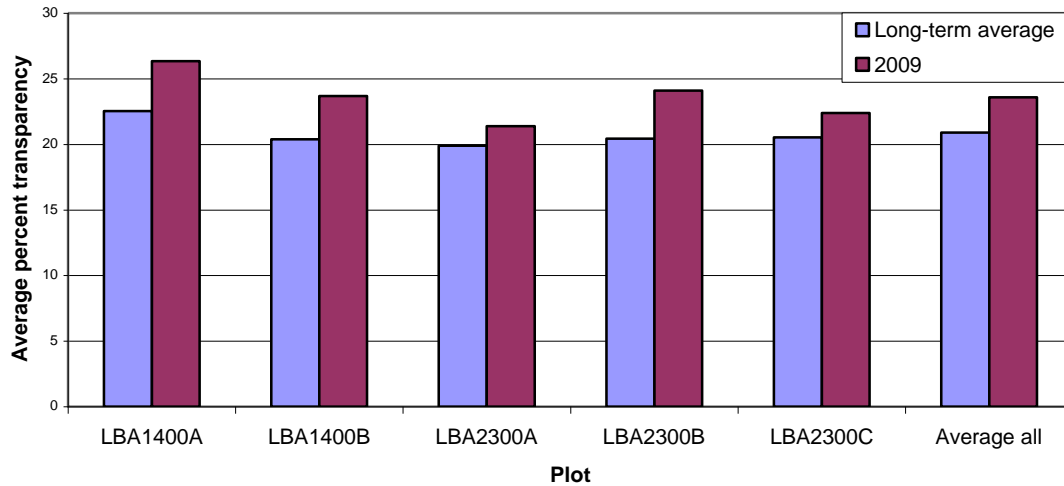
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**Figure 38.** Dieback in 2009 compared to the long-term average on each monitoring plot in the Lye Brook Wilderness Area.

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**Figure 39.** Foliage transparency in 2009 compared to the long-term average on each monitoring plot in the Lye Brook Wilderness Area.

**Figure 40.** Crown Condition Index of unhealthy trees (crown condition index  $\geq .25$ ) showing an increasing percentage of unhealthy trees on Lye Brook Wilderness Area plots.