

# **Annual Assessment of Forest Health in the Lye Brook Wilderness Area 1996**

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## **Cooperators**

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## **Abstract**

Most indicators of forest health measured in 1996 showed an improvement in tree condition from the previous year. At the 1400 foot elevation plots, overstory tree dieback remains low (6.1%), crown density has varied little (50.3%) and foliage was more abundant than in 1995, with average foliage transparency improving from 23% to 18%. At the 2200 foot elevation plots, overstory tree dieback remains very low (5.1%), crown density and foliage transparency both improved substantially from 1995.

Black cherry at the 1400 foot elevation plots continues to show high average dieback (12.5%), high foliage transparency (26.5%), and reduced crown density (38%). Other overstory tree species rebounded from dry conditions of 1995 and show improvements in most tree health indicators.

Damages to trees from insects, diseases, weather and other factors are a natural part of forests. Detecting and recording those damages that are significant to tree health and survival provides a information that can explain unexpected declines in tree health. Injury and damages present on tree boles, exposed roots, crownstem, branches and foliage are recorded when above a threshold established as "significant to tree health".

In 1996, nearly 40% of overstory red maple and black cherry trees on plots had visible damage symptoms. Fewer damages were detected on paper birch (20%), balsam fir (8%) and red spruce (5%). The most common type of damage was indicators of internal decay on tree boles.

## **Introduction**

Annual assessments of crown condition, mortality, and damage are conducted on permanent plots located at two elevations, 1400 and 2300 feet. The purpose of these plots is to document changes in tree health over time and to aid in the identification of causes for declines, if they occur.

Table 1. Trend in average crown dieback measurements for overstory trees growing on monitoring plots at different elevations in the Lye Brook Wilderness Area, 1994 - 1996.

Species	Elevation	1994	1995	1996
Balsam Fir	2200	1.0	1.8	2.9
Black Cherry	1400	6.5	12.5	12.5
Paper Birch	1400	*	*	4.5
Red Maple	1400	3.8	5.4	5.4
	2200	6.0	6.4	6.9
Red Spruce	2200	1.0	2.6	4.3
All Species	1400	5.2	7.1	6.7
	2200	3.4	4.2	5.1

\* Sample size <10 trees.

Table 2. Trend in average crown density measurements for overstory trees growing on monitoring plots at different elevations in the Lye Brook Wilderness Area, 1994 - 1996.

Species	Elevation	1994	1995	1996
Balsam Fir	2200	48.3	44.2	50.6
Black Cherry	1400	45.5	42.5	38
Paper Birch	1400	*	*	54
Red Maple	1400	55.2	52.3	51.5
	2200	46.7	50.2	56.4
Red Spruce	2200	51.0	51.4	58.6
All Species	1400	53.0	52.4	50.3
	2200	48.3	48.7	55.2



Table 5. Percent of overstory trees affected by different types of tree damages in 1996.

Species	Elevation	Percent of trees and type of damage
Balsam Fir	2200	4 % with resinosis from bark beetles 4 % with broken or dead crownstem
Black Cherry	1400	10% with cankers 30% with indicators of decay
Paper Birch	1400	10% with indicators of decay 10% with open wounds (size > 20% of circumference) P8ecay