

TRENDS IN FOREST CONDITION

Sugar Maple Health

The general condition of maple stands was monitored as part of the **North American Maple Project**, with over 1300 overstory (canopy) sugar maple trees evaluated for a variety of indicators of health. The percent of healthy sugar maple trees remained constant in 2003, with 94% of overstory trees rated as healthy. Foliage transparency has remained elevated above 15% since 2000 (**Figure 1**), attributable to several factors. Bruce spanworm and a combination of other defoliating insects have been active over the past several years. In 2003, 42% of NAMP sites had trees with moderate to heavy defoliation, affecting an average of 13% of trees across all plots (**Figure 2**). Some locations have experienced multiple years of defoliation, which may result in long-term health problems. Many locations are also impacted by drought stress, which has affected different parts of the state since 2000.

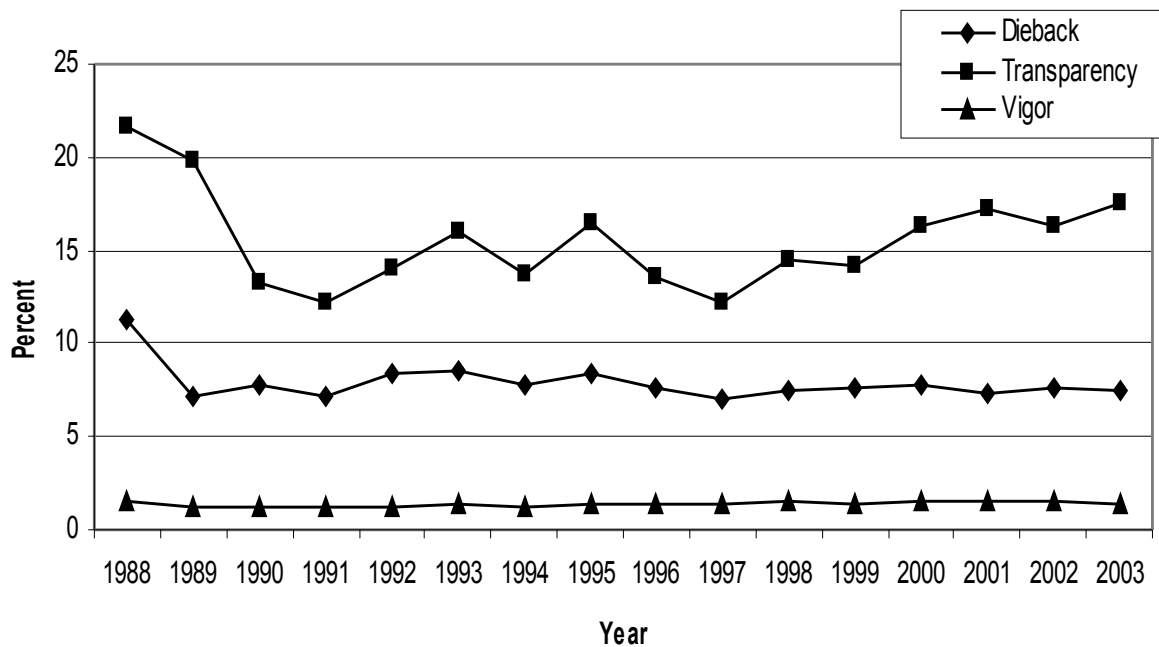


Figure 1. Trend in overstory sugar maple condition on North American Maple Project plots in Vermont, 1988-2003.

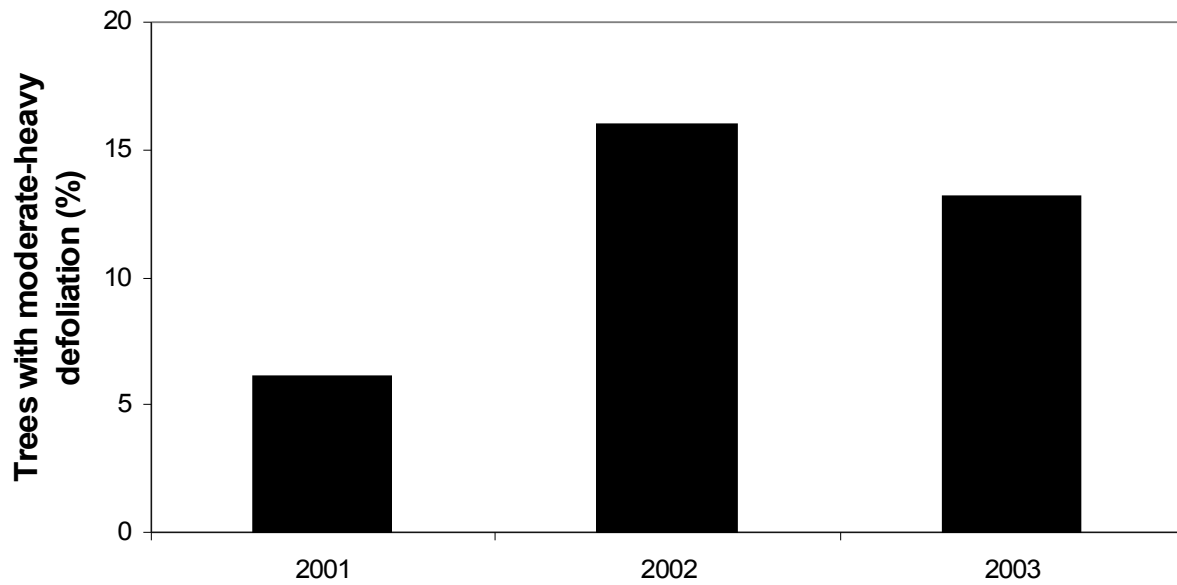


Figure 2. Average percent of overstory sugar maple trees with moderate-heavy defoliation during 2001 through 2003.

Other Hardwood Species Health

Four additional species occur frequently on NAMP plots (more than 30 overstory trees) and were assessed for health: red maple, yellow birch, white ash and American beech (**Figure 3-6**). While most species showed stable health (no change in average dieback and vigor), foliage transparency increased. Defoliation contributed to thinner foliage, and yellow birch leaf diseases were common. Thinner crowns may also reflect ongoing effects from drought stress. No new mortality occurred on these species. An additional evaluation of only those trees with high dieback (>15%) or thin foliage (>25% transparency) illustrates poor beech health compared with other species (**Figure7**). Similar beech health concerns have been observed during other statewide assessments.

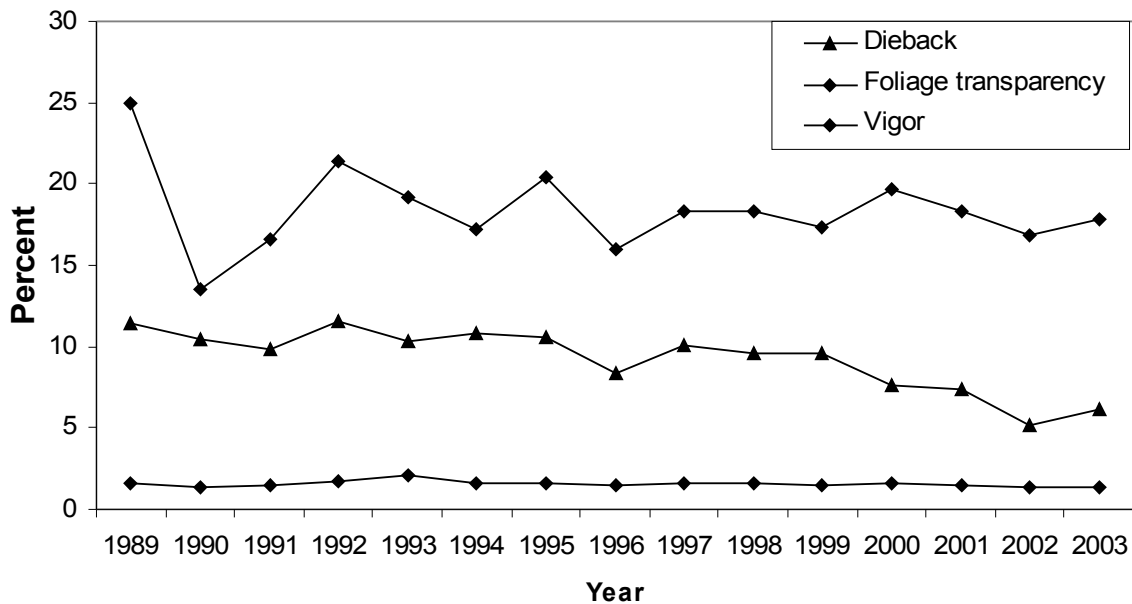


Figure 3. Trend in red maple condition on North American Maple Project plots in Vermont, 1989-2003.

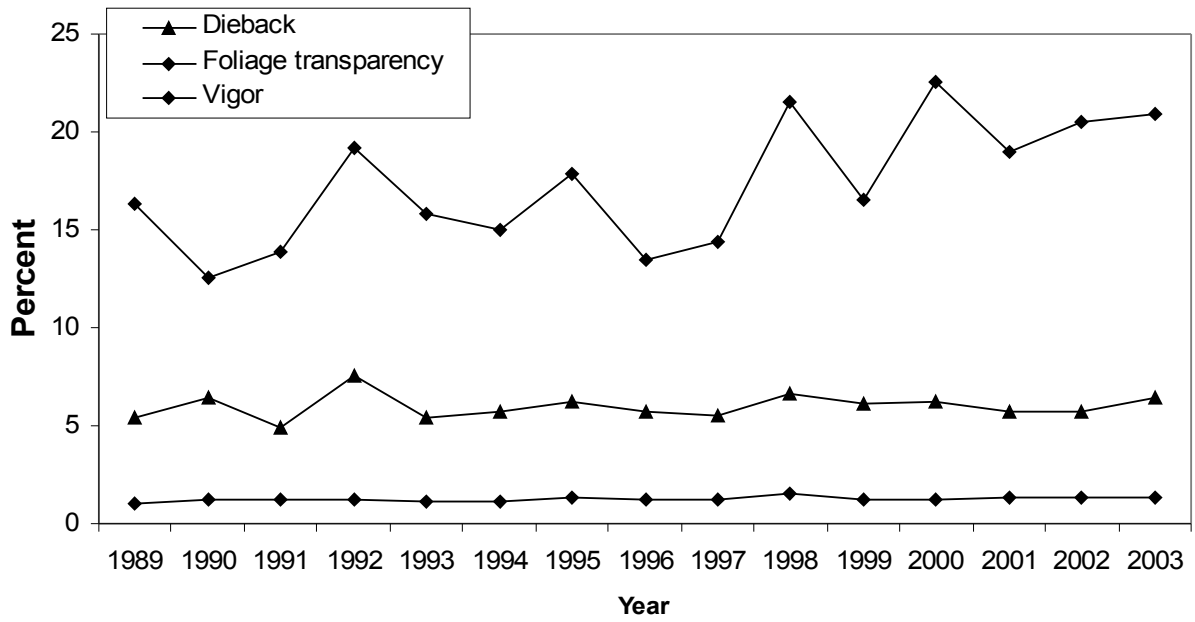


Figure 4. Trend in yellow birch condition on North American Maple Project plots in Vermont, 1989-2003.

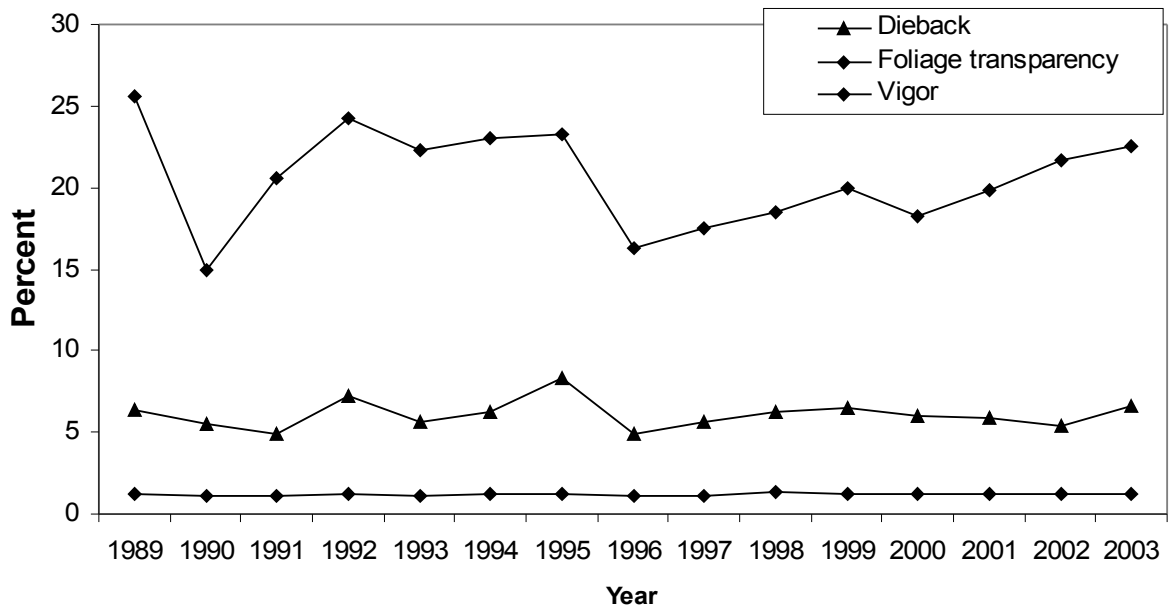


Figure 5. Trend in white ash condition on North American Maple Project plots in Vermont, 1989-2003.

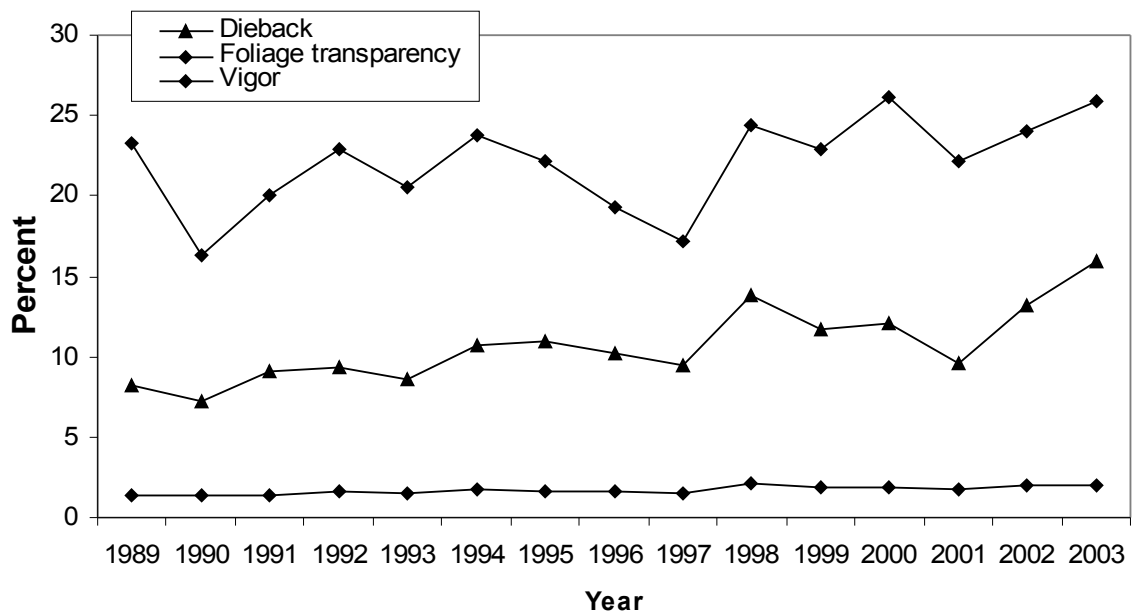


Figure 6. Trend in beech condition on North American Maple Project Plots in Vermont, 1989-2003.

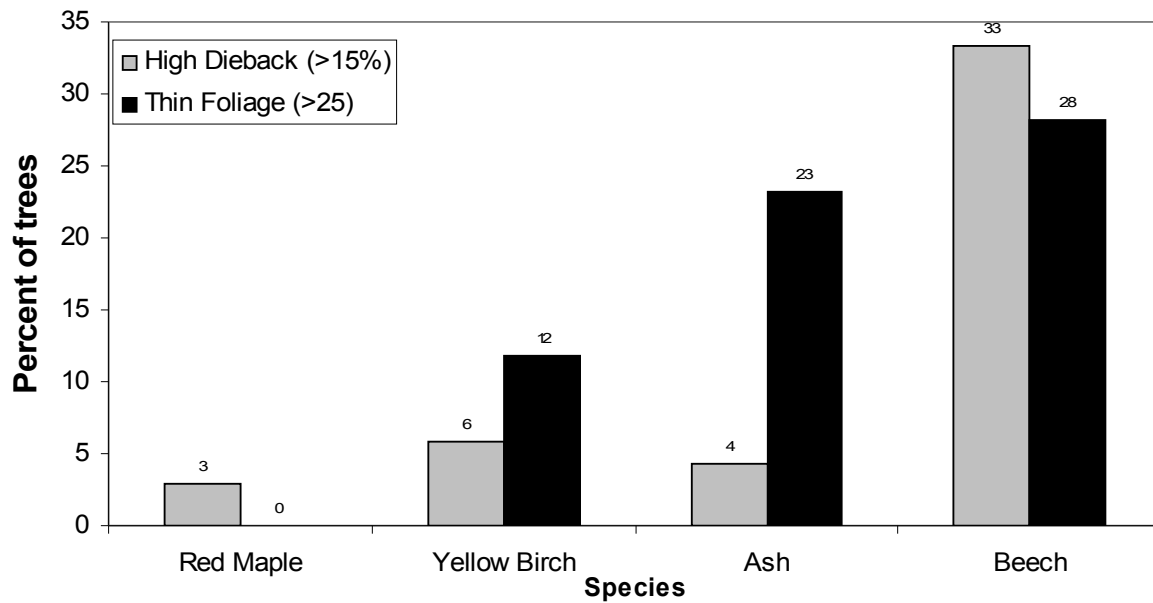


Figure 7. Percent of overstory trees on NAMP plots with high dieback or thin foliage in 2003 for red maple, yellow birch, white ash and beech.