

## FOREST HEALTH IN WEST VIRGINIA: PAST, PRESENT AND FUTURE

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**Abstract:** This report chronicles the status of forest health in West Virginia as of 1993. Primary data sources are the Forest Inventory and Analysis reports, West Virginia state forest pest reports, National Oceanographic and Atmospheric Administration weather records and numerous other publications. We attempted to describe primary stressing agents affecting the forest, including drought, defoliation, fire and overstocking and to relate the occurrence of stress to the performance of the forest (growth, mortality, etc.). Furthermore, we divided the state into zones representing the major cover types (mesophytic hardwoods, Appalachian oaks, northern hardwoods and spruce). Indexes to the health status of these types, such as growth and mortality, were examined, and comparisons were made between high and low stress zones, using the expected rates from published reports.

Forests in West Virginia are generally healthy, although certain areas have been subjected to fairly heavy stress loads over the past 10 years. Forest fires have severely impacted the southern West Virginia counties of Mingo, Logan and Boone. Drought has been severe in several areas of the state, including part of north central West Virginia and the Ridge and Valley Province of the Eastern Panhandle, extending into Pendleton County. Counties experiencing high stress loads showed growth rates about one third lower than areas experiencing lower stress. Appalachian oak forests seem most vulnerable to future stresses, since oaks are highly susceptible to defoliators and occur in drought-prone areas. oaks are also particularly vulnerable to decay, and numerous studies report that there is a lack of adequate oak regeneration in our present-day stands.

The area in spruce forests in West Virginia has decreased steadily over the past few hundred years, and the current rate of mortality in mature spruce exceeds that of other forest types in the state. Whether this is due to the relict nature of spruce, to natural processes, such as cohort senescence, or to anthropogenic influences, such as air pollution or global warming, cannot be determined. The encouraging news is that, in many areas, natural spruce regeneration is apparently healthy and thriving.

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