

Drought

During recent years, most states within the Northeast have received less than the average amount of rainfall, which has led to droughts. This recent droughty period followed a wetter-than-average interval during the mid 1990s, however, and was not as severe as similar drought periods during the 1930s and 1960s (Figure 4) (National Oceanic and Atmospheric Administration 2003).

Trees are generally tolerant of dry soil conditions because of their large root systems. However, foresters in many states have reported premature loss of leaves from forest trees during the past few summers and subsequent tree mortality related to drought symptoms. These water deficits will also be directly related to less growth in tree diameter and height, and to mortality at some locations.

The coincidence of drought with insect and disease pests can cause additional stress to trees. Trees weakened from previous damage are likely to be less tolerant of drought than healthy trees. Likewise, the stress of drought can make trees more vulnerable to tree diseases that easily spread during subsequent growing seasons with normal to high amounts of rainfall. Recent examples within the region include drought associated with oak borers and subsequent oak decline on the Mark Twain National Forest in Missouri, gypsy moth defoliation and oak mortality in Pennsylvania, and southern pine beetles and mortality of loblolly and Virginia pines in some Mid-Atlantic States. Insects and diseases are discussed in more detail later in this report.

Trees in urban settings are typically subjected to wounding, soil compaction, and limited rooting space in addition to the insect and disease problems of forest trees. Many urban trees are not capable of surviving the additional stress of drought. In particular, trees along streets and confined in parking lot islands tend to suffer most. Dogwoods and red maples are particularly prone to multiple stresses when in urban environments.

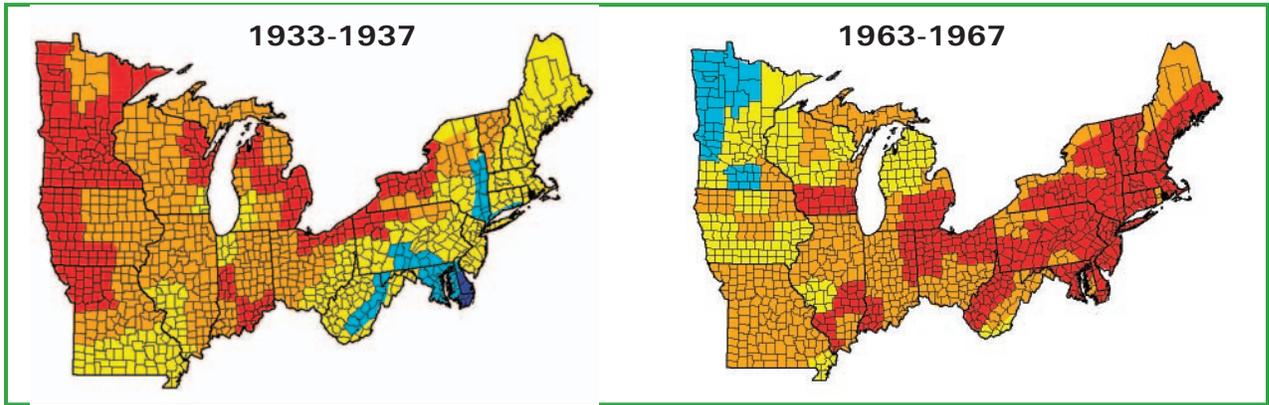


Figure 4a. Drought conditions during 1933-1937 and 1963-1967. (Source: National Oceanic and Atmospheric Administration 2003).

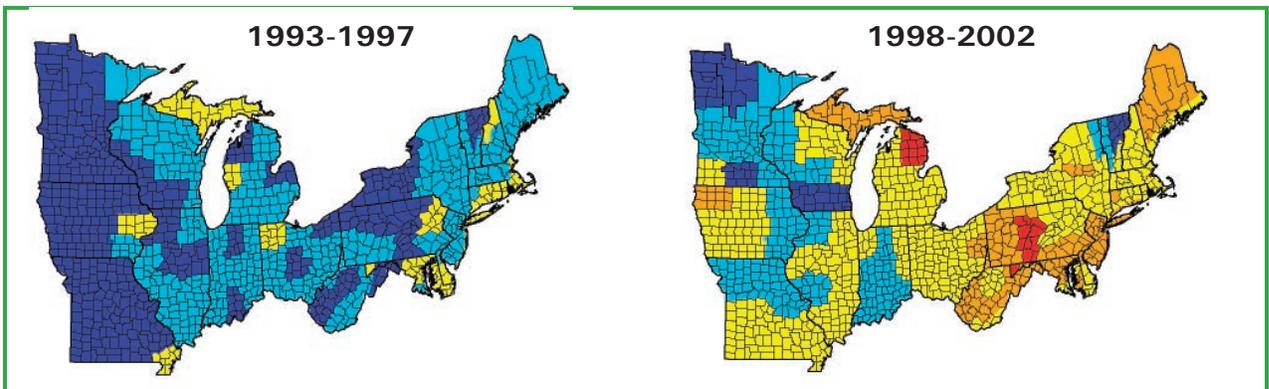
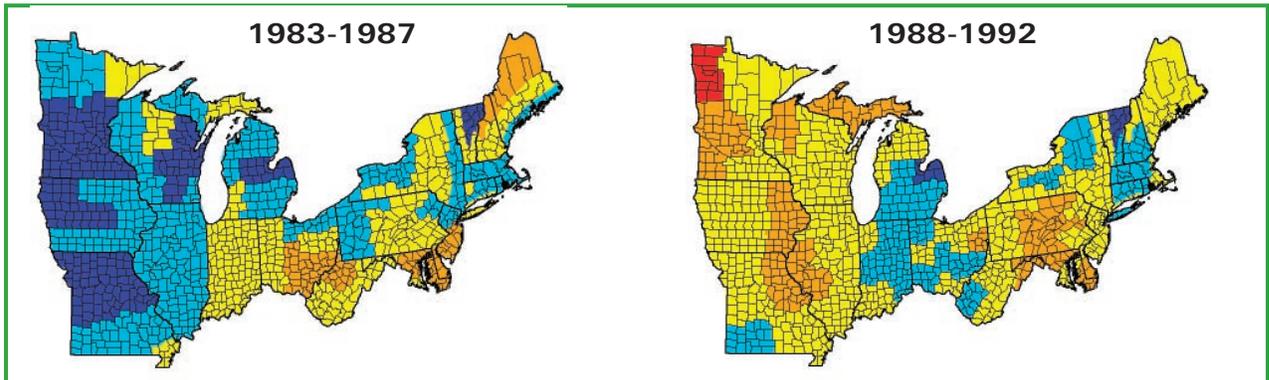
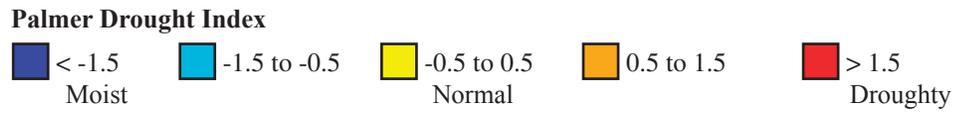


Figure 4b. Drought conditions during 1983-1987, 1988-1992, 1993-1997, and 1998-2002. (Source: National Oceanic and Atmospheric Administration 2003).