

SYSTEM DIMENSIONS	CHEMICAL AND PHYSICAL	BIOLOGICAL COMPONENTS	HUMAN USES
Extent Pattern	Nutrients, Carbon, Oxygen Contaminants Physical	Plants and Animals Communities Ecological Productivity	Food, Fiber, and Water Recreation and Other Services

● Forest Disturbance: Fire, Insects, Disease

What Is This Indicator, and Why Is It Important?

This indicator reports the acreage of forest affected each year by several important types of disturbance: forest fires, insects, and diseases of trees.

Fires, insects, and diseases are, for the most part, natural influences on forests. However, at times, such influences can exceed or otherwise differ from what might be encountered in an undisturbed ecosystem. For example, fire suppression may foster the conditions necessary for catastrophic fires, and introduced pests like gypsy moths and Dutch elm disease can devastate large areas.

What Do the Data Show? Fewer acres have been burned by wildfire in recent decades than in the first half of the 20th century. Since 1980, between 2 million and 7 million acres burned per year, down from a high of 52 million acres in 1930; the decline is largely due to fire suppression policies and practices. Note that the data reported here describe all wildfires, including both forest fires and grassland/shrubland fires. Although nationwide data do not show an increase in recent decades, data (not shown here) from national forests, which are mostly in the West, do show a significant increase.

Insect damage varies dramatically from year to year. Five insect species together affected between 8 million and 46 million acres per year from 1979 to 1999, with a clear trend toward fewer acres over that time. Many insect populations go through major cycles of year-to-year variation. For example, much of the variation over the past 20 years results from such cycles for gypsy moth and southern pine beetle.

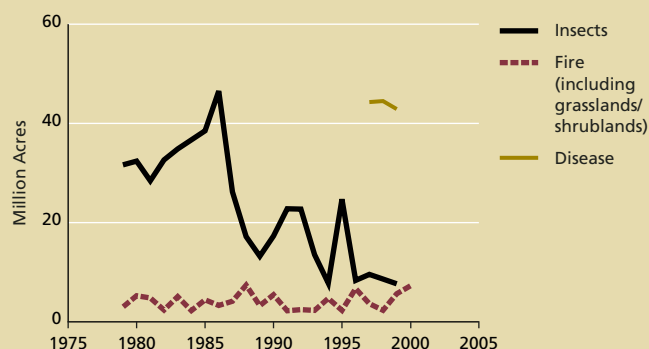
In recent years, 43–44 million acres have been affected by two major diseases/parasites (fusiform rust and dwarf mistletoe).

Discussion It would be desirable to be able to report on acreage affected by forest fires (as distinct from other wildfires), on the acreage subject to different levels of fire intensity, and on the acreage of prescribed fire (fires that are intentionally set as a management tool). In addition, data on the acreage affected by other diseases is not available. Finally, some non-native insects, such as the hemlock woolly adelgid, which affects half of all eastern hemlock forests, may spread widely before it causes damage that is apparent from aerial surveys.

See also Fire Frequency (p. 128).

The technical note for this indicator is on page 242.

Fire, Insects, and Disease: Recent Trends

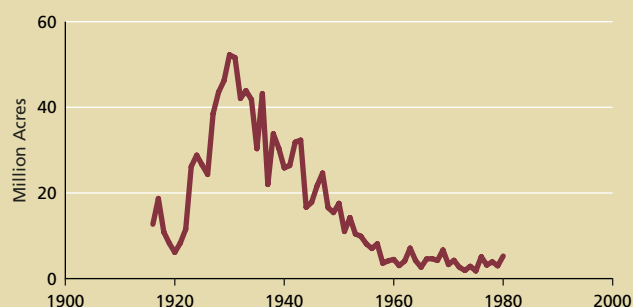


Insects: gypsy moth, spruce budworm, southern pine beetle, mountain pine beetle, western spruce budworm (all but the gypsy moth are native to the United States.)

Diseases: fusiform rust, dwarf mistletoe

Data Source: USDA Forest Service Forest Health Protection/Forest Health Monitoring Program (insects, disease), National Forest System (fire); note that these data are not limited to national forests. Coverage: all 50 states

Historic Wildfire Acreage (Forests and Grassland/Shrubland)



Data Source: USDA Forest Service, National Forest System; note that these data are not limited to national forests. Coverage: all 50 states