

FOREST DISTURBANCE

Disturbance is a continuous factor in forest development and ranges from the obvious damage caused by ice storms to the less apparent effects of drought.

Other types of natural disturbance are wind, flooding, insects, and [fire](#).

Perhaps the most important disturbance affecting eastern hardwood forests was the loss of [American chestnut](#) resulting from an introduced disease in the 1920s. One of the most important effects of disturbance is modification of light reaching the forest floor, for example caused by ice breakage of tree branches in the canopy.



This photo shows forest disturbance caused by an ice storm.

Increased light allows increased survival and faster growth of small seedlings and saplings. Disturbances resulting from ice and wind storms cause landscape scale forest damage of varying intensity that must be mapped for forest managers to plan restoration or salvage activities. Silviculturists mimic nature in a controlled and planned manner by cutting trees to change the light regime in the stand and reaching the forest floor.

Our research shows:

- Hurricane Opal, in early October 1995, caused a mosaic of blow down patches of trees ranging from 0.1 to 4 acres in size in the Bent Creek basin in Asheville, [North Carolina](#), and mostly at lower elevation.
- Episodic, high-intensity wind disturbance may have a substantial influence on forest structure, species composition, regeneration, and microtopography of the southern Appalachians.
- Satellite imagery can be used to map forest disturbance caused by ice storms in hardwood forests of eastern [Kentucky](#).
- Periodic outbreaks of southern pine beetle have resulted in accelerated conversion of pine hardwoods stands to hardwoods.
- Forests disturbed by 100 years of intense grazing and repeated high grading can be regenerated with a desirable timber stand.

Contact: Henry McNab or Cathryn H. Greenberg