Adirondack Windstorms and Insects

By Douglas C. Allen

Severe wind storms of the kind that marched through the Adirondacks on July 15, 1995 are not unknown to this region of New York. For most people of the present generation, prior to this summer, memories focused on the "great blow" of 1950. However, this and the most recent episode were merely the latest in a series of similar events that have been recorded in this area periodically since the late 1700s. In an anthropomorphic sense, these storms probably were viewed as little more than curiosities prior to the time people settled and developed the north country. Today, however, they can be devastating to both people and property.

An interesting question arises concerning the impact of these natural events on "forest health." The general public tends to view the aftermath as all "bad news"; understandably, because attitudes are formed by immediate concerns about safety, property damage and downed power lines, with little thought to the beneficial ecological consequences. However, people should realize that these natural events are partially responsible for the pattern, distribution and diversity of vegetation that exists in the Adirondacks.

On private lands, there may be interest in salvaging downed material to recover potential loss of wood products. Also, there should be a concern about the sanitation benefits that can accrue from early removal of downed or damaged trees. In this type of situation, the forest owner's objective usually is a combination of sanitation/salvage; the former to prevent a buildup of potential insect pests, the latter to recoup financial losses.

Of primary concern is the extent to which insects such as woodborers and bark beetles will exploit the abundant source of host material produced by the storm. In a "forest health" sense, these organisms will play an important role in the decomposition of this woody material and recycling of nutrients to the forest ecosystem.

A study by entomologists from the New York State Museum and Science Service and State Conservation Department following the storm of November, 1950 suggests that populations of certain insects are likely to build up in downed material, but they are unlikely to invade adjacent healthy trees. If the landowner wants to salvage wood in order to minimize insect-caused damage that is likely to reduce or negate the economic value of storm damaged trees, however, there is a sense of urgency.

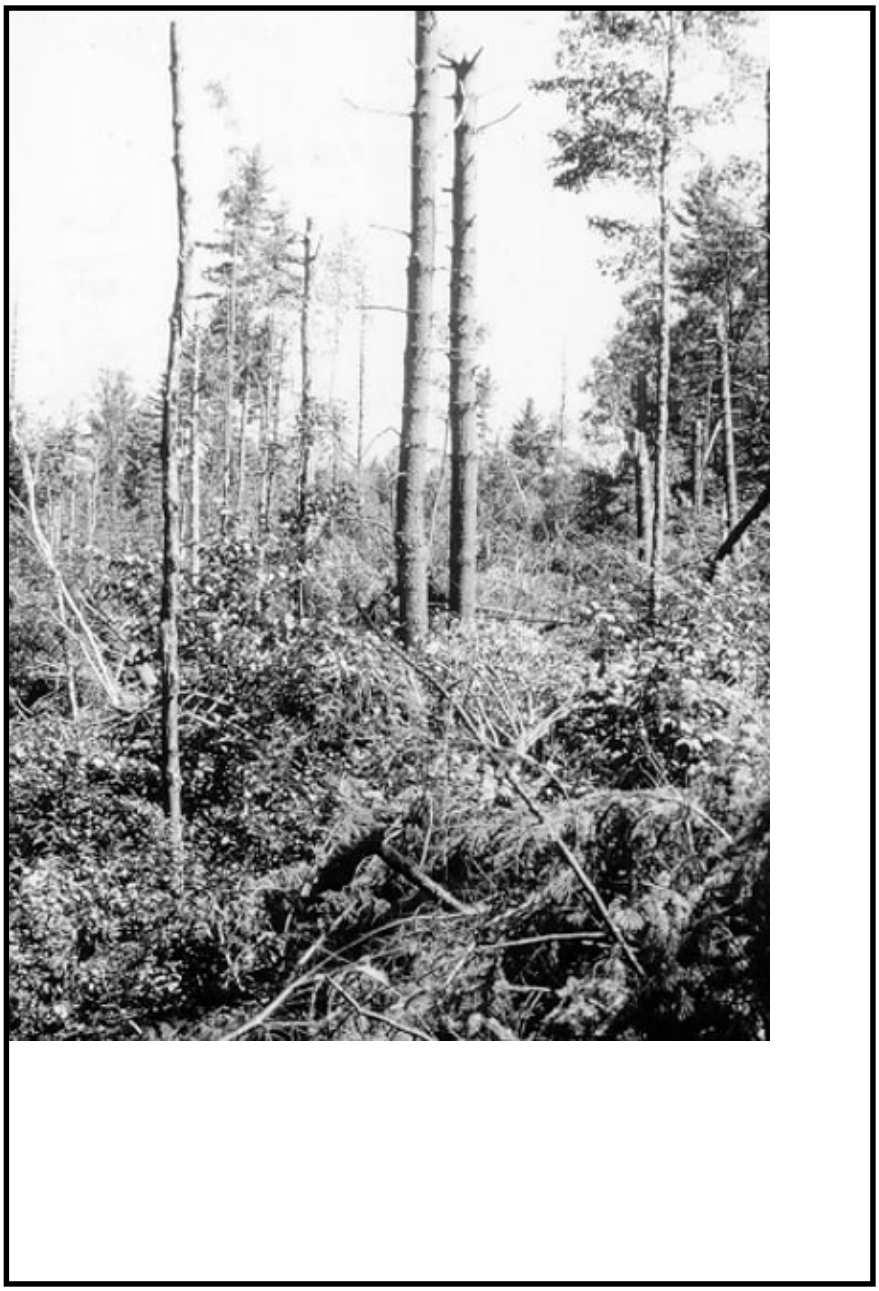

Photo by Doug Allen

Susceptibility to secondary insects (i.e., species requiring stressed or damaged trees, or freshly cut wood) is of more immediate concern in the current situation compared to the 1950 storm because of timing. Trees downed or damaged in July were susceptible to invasion this summer, probably within a few days or weeks depending on the host and insect species involved. Trees damaged by a storm in November, however, would not be invaded until spring.

Two groups of beetles are the major concern; woodborers (both roundheaded borers and ambrosia beetles) and inner bark borers (bark beetles). Conifers (needle bearing trees) are susceptible to both groups, but ambrosia beetles are the primary potential source of degrade for hardwoods.

Suitable host material takes one of two forms; i) downed or severely damaged standing trees and ii) individuals that survived damage, and appeared healthy this summer, but actually could have been seriously stressed by physical injuries that

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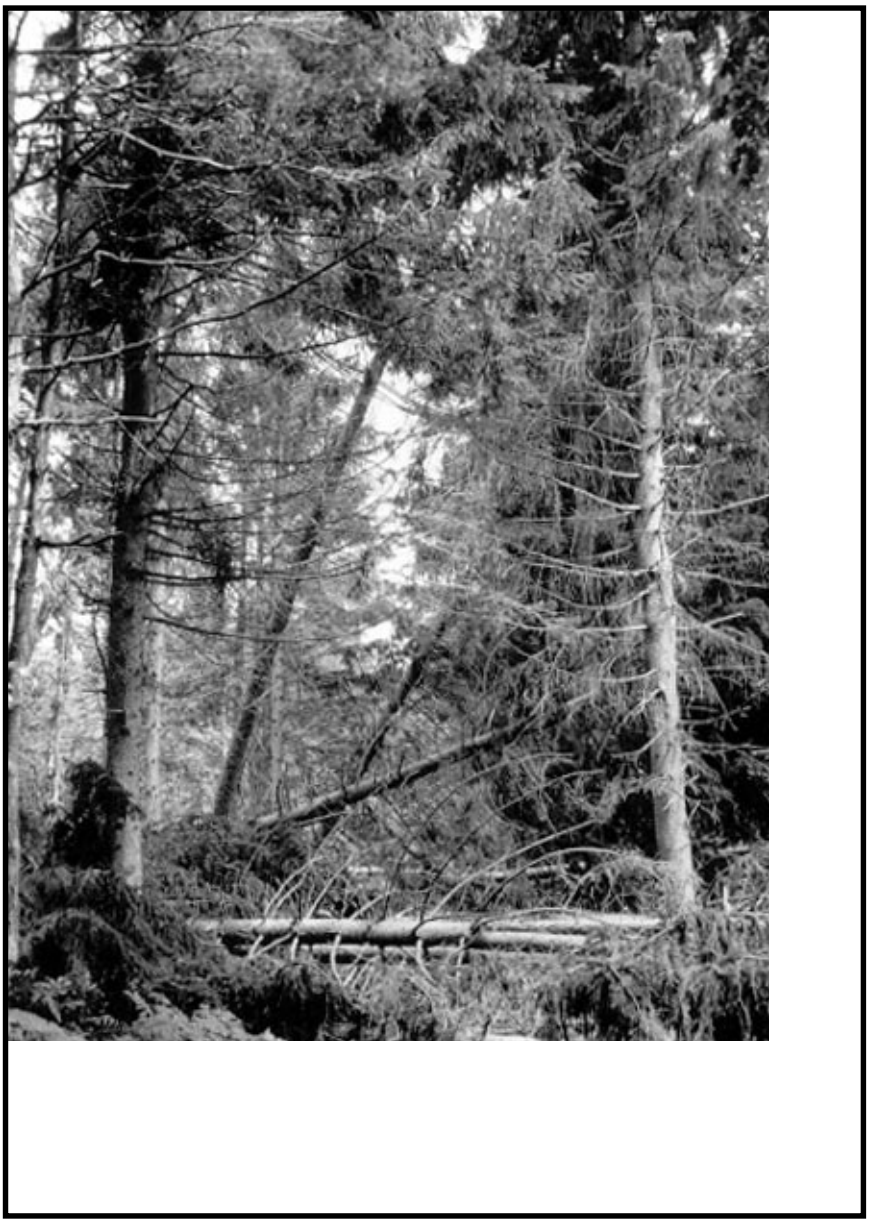

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occurred to root systems when they were "rocked" severely in high winds.

CONIFERS

We are fortunate in the northeastern United States because, as a rule, the bark beetles associated with conifers are not as aggressive as their counterparts in the south or west. This means that generally a tree must be severely damaged or stressed in some other way before beetles are able to invade. It is a certainty that next summer in the Adirondacks bark beetle populations will build up in windblown spruce and pine. Also, in many situations it is probable that when these insects emerge from downed material they will be able to successfully establish in standing, stressed hosts on the periphery of blowdowns. However, it is very unlikely that emerging populations will infest healthy trees in nearby stands. From a **sanitation** standpoint, under these conditions it may be important to remove infested material this fall, winter or as early as possible in the spring to destroy beetle broods before they complete development. This reduces the likelihood that stressed trees adjacent to blowdowns will be attacked by emerging beetles next summer. In terms of **salvage**, early removal will prevent degrade from the blue stain fungus that accompanies bark beetle attack. These insects remain under the bark and do not bore holes in the wood.

Two types of true woodborers commonly are associated with conifer blowdowns in the northeast; roundheaded borers (also called long-horned beetles) and ambrosia beetles. The principal roundheaded borers of concern belong to a group known as "sawyer beetles." Their immature stages (larvae) feed beneath bark like true bark beetles, but differ from the latter in that they are much larger and excavate large (diameter, length) overwintering tunnels a few to several inches into the sapwood. These tunnels and the blue stain that also accompanies these infestations, can seriously degrade lumber. Sawyer beetle adults are active from May to September. Therefore, it is likely that much blowdown was infested during the summer of 1995.

Ambrosia beetles do not spend any time beneath bark, but bore very small holes directly into the wood. Adults inoculate their galleries with fungal spores, and beetles and larvae feed on the fungus that eventually grows in the gallery system. Degrade results from the "pin" holes and associated dark fungal stain that permeates wood adjacent to each gallery. Holes and stain appear in lumber and veneer produced from infested trees. Ambrosia beetles require unseasoned (moist), sound wood. Generally, in our region adults of the key species involved attack freshly cut logs or blowdown in spring and early summer. It is unlikely that material damaged last July will be infested until spring 1996 when **salvage** must be done early to minimize losses.

HARDWOODS

Experience suggests that the main thing to be concerned about with hardwood blowdown, especially sugar maple and yellow birch, will be ambrosia beetle activity next spring. As with conifers, it is unlikely that this material currently is infested with ambrosia beetles, but it will be a prime target next spring when overwintering adults emerge and seek new hosts. Here again, **salvage** must be done quickly to prevent degrade. In the likelihood that some trees may have been infested by late emerging adults this summer, or that trees will be attacked too early for timely salvage next spring, when logs are brought out they should be **processed quickly** to minimize degrade.▲

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