



## Case Study 1

# The Challenge of Controversial Resource Issues: Southern Pine Beetle

The southern pine beetle (*Dendroctonus frontalis*) (SPB) is a bark beetle native to the southeastern United States. The SPB disperses widely and can attack multiple host trees in a beetle's lifetime. An infested spot can spread 50 to 70 feet per day, allowing unmanaged infestations to lead quickly to an outbreak. Adult females bore through the tree's inner bark (phloem), lay eggs, and release pheromones that, in combination with chemicals from the damaged tree, attract more beetles. The adult females then resurface and go on to infest new trees. They leave behind larvae that feed on the phloem for about two weeks, pupate in the outer bark, and emerge after another two weeks, often flying several miles before infesting a new tree. Stressed, dying, or recently dead pines are most vulnerable to SPB infestation. A mass attack of SPB can kill a tree in less than three days.

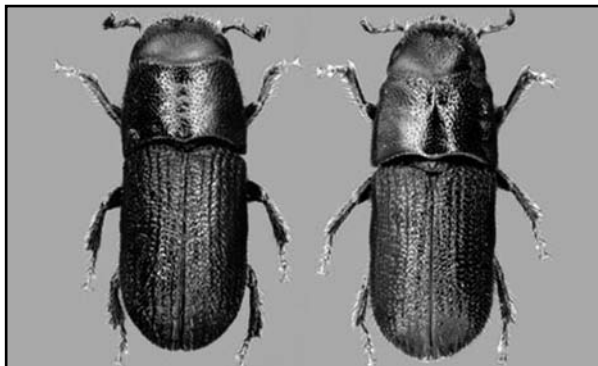


Photo by: David T. Almquist

Southern pine beetles, native to the southern United States, can cause great damage to pine forests in a short time.

Pine beetle outbreaks are natural occurrences that can drastically alter forest composition, increase risk of wildfire, and destroy habitat for some types of wildlife. Socio-economic impacts can include: the disruption of forest management plans, property damage and safety risks

from falling trees, law suits in response to the spread of SPB from one property to another, changes in property use and value, and loss of potential timber. Pine beetle outbreaks in urban and interface areas are also problematic because they can create hazards and result in damage to infrastructure. Therefore most local governments and natural resource agencies feel they must take measures to suppress them.

In the spring of 1994 the city of Gainesville, Florida, and surrounding areas experienced an unprecedented outbreak of SPB. It had been nearly 50 years since there had been any sign of the beetles in the area. The conditions were ideal for an outbreak: dense stands of mature loblolly pines and a severe drought followed by a warm winter. Generally, stands with a basal area above 120 ft have increased susceptibility to SPB. The Gainesville area was struck again in 2001 by another outbreak, this time more severe and widespread.

Recognizing and quickly responding to signs of infestation are essential for controlling beetle populations and minimizing damage.

Management strategies to control SPB infestations include (1) cutting, removing, and processing infested trees (2) cutting and spraying infested trees with insecticides (Lindane and Chlorpyrifos were used in the 1994 and 2001 but are now largely unavailable), (3) cutting trees and burning the debris, and (4) using a cut-and-leave technique that may disrupt expansion of infestations in forest stands when tree removal is not feasible.

In response to the 1994 pine beetle outbreak, Gainesville's local government implemented an aggressive suppression program. The program

goal was to rapidly and thoroughly treat all infested trees to reduce the subsequent infestation and tree mortality. Containing the outbreak largely depended on how quickly and effectively private landowners and managers of public lands responded to infestations. The Florida Division of Forestry (DOF), with federal support, worked with the City of Gainesville and Alachua County to contact landowners and manage infestations. One of the program's strengths was the collaboration of multiple agencies and experts on a Technical Advisory Committee (TAC). TAC members included arborists, entomologists, tree physiologists, and other specialists.

The suppression program used several approaches for detecting infestations: aerial surveys, a telephone hotline for reporting suspected infestations, and ground checks by DOF with follow-up visits. Public education efforts about beetle detection and management included radio, television, and print media releases and interviews; expert lectures; and workshops. TAC members met regularly to review assessments and make recommendations. The city and county offered cost-share programs to help landowners remove infested trees. They cut and sprayed trees for a reduced fee, but landowners were responsible for debris removal. Cost-share programs encouraged prompt responses to infestations and reduced the financial burden to individual property owners.

Key elements that helped the program achieve its goals included interagency cooperation, commitment, USDA Forest Service-funded cost-share components, and the timber industry's cooperation in responding quickly to infestations. The city government's willingness to search for and assist with solutions was also an essential element of the program.

The program encountered several challenges, such as poor access to remote areas, price-gouging by some tree surgeons, slow response from some natural resource agencies, and con-

flicts with reluctant landowners. Illegal dumping of infested wood debris threatened to spread beetles and dumping of insecticide-treated logs jeopardized water quality. In addition, there was a shortage of people to respond to the barrage of phone calls and requests the hotline received during the outbreak.

During the 2001 outbreak most of the same techniques were used to alert residents, coordinate agency efforts, and respond to requests. In addition, some experts encouraged the state's agricultural commissioner to declare a state of emergency. While most area residents cooperated with the voluntary suppression program, some opposed the suppression strategies, suggesting that the beetle infestations occur naturally and should therefore be allowed to run their course. Absentee landowners also contributed to management issues by not being nearby to check and manage their property.

A declaration of emergency would have allowed authorities to enter properties where infestations were not being managed properly and, after a review process, allow them to treat or remove trees at the landowner's expense. This proposal outraged some community members who argued that such actions would be unreasonable and even illegal. They advocated public education about SPB and the availability of voluntary management programs for residents with severe infestations. Although a state of emergency was never declared, the suggestion generated divisive debate within the community, exemplifying some of the complex challenges that can emerge from such an issue.

Police arrested one Gainesville man for attempting to disrupt beetle management on city property. The man argued that the process was natural and provided woodpecker habitat; he said that "poisoning" and cutting the trees was wrong. Foresters maintained that the outbreak threatened natural resources, public safety, and infrastructure. Another resident commented on the city's efforts to suppress the

beetles in an editorial for the local newspaper. She said, “It looks like a frenzy to me. We’re cutting down all the pines (and every other tree that’s in the way) so the borers won’t have any trees left to infest, is that it? I’m just glad these forestry people aren’t doctors.”

Conflicts also arose from neighbors of a local preserve who thought preserve managers allowed an infestation to spread onto private property. Some experts agree that the preserve’s response was delayed and ineffective. Some residents even sued the preserve, claiming that its negligence led to infestations within the nearby residential development. The 6,000-acre preserve lost 15,000 trees to SPB, and although it may have played a role in the spread of infestations to the private development, this claim is difficult to prove. Suppression program organizers suggest that an inflexible management philosophy, poor accessibility, and bureaucratic obstacles contributed to the agency’s ineffective response.

Before the 1994 outbreak there was no protocol for dealing with SPB outbreaks in the Gainesville area. During the 1994 outbreak, public lands within Alachua County lost an estimated 29,000 trees and private residents lost more than 8,000 trees and spent a total of about \$1.4 million for removal, even with the cost-share program. Despite the severity of beetle-related damage, the organizers of the suppression program consider it a success. They claim it helped preserve thousands of trees in the area’s urban forest and minimized economic and ecological effects, while avoiding water contamination. The program’s educational efforts not only helped mitigate the problem at the time, but prepared residents to be able to recognize infestations in the future.

In response to the SPB epidemics in Alachua County (and northern Florida) in 1994 and 2001, statewide prevention and education efforts have been implemented, including a billboard campaign, state-wide landowner

workshops, and brochures distributed to non-industrial private forest (NIPF) landowners of ten acres or more in several high-risk counties. These efforts emphasize that pine forests should be managed to promote forest health and decrease susceptibility to SPB attack. State cost-share programs that provide partial reimbursement to NIPF landowners for preventative management practices (such as pre-commercial thinning and prescribed burning) have also been implemented. Members of the TAC suggest that further action be taken to prevent future SPB outbreaks. They recommend preventative resource management, continued education efforts, incentives, and possibly mandates requiring beetle management in the event of an outbreak.



Photo courtesy of www.forestryimages.org

The Florida Division of Forestry used these billboards to raise awareness about SPB prevention activities.

## Source

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