

*Pines After Southern Pine Beetle Attack*



## **Manage Your Forest To Prevent Southern Pine Beetle Damage**



*Pines Managed to Help Prevent Attack*

**Florida Department of Agriculture  
and Consumer Services  
Division of Forestry**

**University of Florida Institute of Food  
and Agricultural Sciences**

**U.S. Department of Agriculture – Forest Service**

## What is the Southern Pine Beetle?

The southern pine beetle (SPB) is an aggressive insect pest that has devastated pines in yards and forest tracts throughout northern and



*SPB, left, compared to grain of rice and black turpentine beetle.*

Credit: Southern Forest Insect Work Conference. [www.forestryimages.org](http://www.forestryimages.org)

central Florida. Like other species of bark beetles, populations of the SPB feed in the inner bark of susceptible pines and usually attack trees that are stressed due to overcrowding, competition, injury, drought, disease or old age. When these types of stressful forest conditions occur in combination over a widespread area, SPB outbreaks can develop, during which even healthy pines can be mass-attacked and rapidly killed. Such conditions led to Florida's most extensive SPB outbreak in 2001, when nearly 2,900 infestations were detected in 34 counties, covering 17,600 acres and resulting in the loss of several million dollars of pine timber.



*Extensive pine mortality during an SPB outbreak on Florida's Ocala National Forest.*

Forest management, however, can help prevent SPB outbreaks and damage, as well as enhance recreational opportunities, reduce the risk of loss from wildfires, and increase the economic potential of forest land. Good forest management pays in the long run. As a non-industrial private landowner in Florida, you may qualify to have a forest management plan drawn up for your property, or to receive assistance with forest management practices that reduce the risk of SPB attack.

## What Factors Make Pines Susceptible to SPB Attacks?

As young pine stands grow, trees begin to crowd and compete with one another for space, sunlight, water, and nutrients. In most plantations, this crown and root competition begins as early as age 10-15 years, or even earlier on better-quality sites. If a dense stand is not thinned by this point, radial growth and vigor decline and trees become very susceptible to SPB and other bark beetles.



*A dense, unthinned, susceptible stand.*

Similarly, pine stands with a buildup of competing hardwood and other underbrush beneath the main canopy are susceptible to bark beetles, especially during droughts or other periods of environmental stress.



*Thick hardwood competition beneath pines.*

Other factors that increase stand susceptibility to bark beetles include: loss of vigor associated with age, disease or root damage; injuries or wounds to pines; and inappropriate pine species for a given site.

## What Can I Do to Help Prevent SPB Attacks?

 **Thin** dense, overcrowded pine stands to increase the vigor of remaining trees, make beetle spread more difficult due to wider tree spacing, and produce higher-value wood products (sawtimber) at final harvest. Thin stands to a basal area of 80 square feet per acre or less, giving individual tree crowns adequate room to expand.

 **Prescribe burn** to reduce competing hardwood vegetation and underbrush beneath pines, reduce wildfire hazard, and enhance certain wildlife, recreation, and aesthetic values. Often, very dense buildups of competing vegetation under the pine canopy should first be reduced by mechanical means.



*A stand managed through thinning and prescribed burns.*

 **Minimize or avoid wounds** to pines during harvesting operations to reduce the production of pine odors that attract bark beetles. For similar reasons, don't conduct thinnings during bark beetle outbreaks or near active infestations.

 **Harvest and regenerate** stands of overmature, senescent pines. If removal of old pines conflicts with other management objectives, monitor such pines frequently for bark beetle activity. Remove pines weakened by disease, injury, lightning or other stress to increase overall stand vigor and resistance to bark beetles.

 **Avoid planting pines off-site,** especially loblolly and shortleaf pines, which are more susceptible to the SPB than longleaf or slash pines. A forester can help you determine which species are appropriate for a given site.



*Longleaf pines*

 **Promote a diversity** of tree species and ages in the forest landscape, which can make susceptible trees or preferred host species more difficult for bark beetles to find.

## **If an SPB infestation occurs, prompt control measures can help prevent additional losses.**

Due to a very effective odor-driven communication system used by the SPB, small infestations can expand by more than 50 feet per day, quickly resulting in many acres of dead pines. If you detect enlarging patches of recently killed or dying pines on your property, contact your county forester or county extension office for an evaluation of the situation. If they determine the problem is an SPB infestation, the best control option is usually to cut, remove, and process all infested trees, plus a buffer strip of uninfested green trees as soon as possible.

## What Are the Signs of SPB Attack?

**Signs of SPB attack may include:** popcorn-sized resin globs or “pitch tubes” in the bark crevices, winding “S-shaped” galleries under the bark, and clusters of pines with crowns fading from green to yellow to red. Other bark beetle species (Ips, black turpentine beetles) can produce similar symptoms, but the S-shaped gallery pattern under the bark is distinctive of the SPB.



Credit: Tim Tigner, Virginia Department of Forestry, [www.forestryimages.org](http://www.forestryimages.org)



Credit: Ronald F. Billings, Texas Forest Service, [www.forestryimages.org](http://www.forestryimages.org)

*SPB pitch tubes*

*SPB galleries under the bark*

## What is Being Done to Monitor SPB?

Each spring, the Florida Division of Forestry conducts an SPB trapping survey in central and northern Florida. This survey monitors the numbers of SPBs and their predators captured in pheromone-baited flight traps, and the results are used as an early-season prediction of SPB activity levels. Also, the Division of Forestry conducts aerial survey flights to detect and monitor SPB infestations.

## Are Management Assistance Programs Available?

Programs that provide technical and financial assistance with forest management planning and practices are available periodically. To find out what programs may be available currently, contact your county or district Division of Forestry office, or visit us on the internet at [www.fl-dof.com](http://www.fl-dof.com)

## Division of Forestry District Offices

### Northern and Central Florida

**Blackwater Forestry Center:** (850) 957-6140  
Escambia, Okaloosa and Santa Rosa

**Chipola River District:** (850) 872-4175  
Bay, Calhoun, Gulf, Holmes, Jackson, Walton and Washington

**Tallahassee District:** (850) 488-1871  
Franklin, Gadsden, Jefferson, Leon, Liberty and Wakulla

**Perry District:** (850) 838-2299  
Dixie, Lafayette, Madison and Taylor

**Suwannee District:** (386) 758-5700  
Baker, Bradford, Columbia, Hamilton, Suwannee and Union

**Jacksonville District:** (904) 266-5001  
Clay, Duval and Nassau

**Waccasassa Forestry Center:** (352) 955-2005  
Alachua, Gilchrist, Levy, Marion and Putnam

**Bunnell District:** (386) 446-6785  
Flagler, St. Johns and Volusia

**Withlacoochee Forestry Center:** (352) 754-6777  
Citrus, Hernando, Lake, Pasco and Sumter

**Orlando District:** (407) 856-6512  
Brevard, Orange, Osceola and Seminole

## Other Sources of Information

**Florida Division of Forestry:**  
[www.fl-dof.com](http://www.fl-dof.com)

**Bark Beetles of North America:**  
[www.barkbeetles.org](http://www.barkbeetles.org)

**Forest and Shade Tree Insects of Florida:**  
<http://eny3541.ifas.ufl.edu/>

**Southern Pine Beetle Internet Control Center:**  
<http://whizlab.isis.vt.edu/servlet/sf/spbicc/>

**USDA Forest Service, Forest Health Protection,  
Southern Region:**  
<http://fhpr8.srs.fs.fed.us/index.html>

**University of Florida—IFAS Extension:**  
<http://extension.ifas.ufl.edu/>

**University of Florida School of Forest Resources and  
Conservation Extension:**  
[www.sfrc.ufl.edu/Extension/](http://www.sfrc.ufl.edu/Extension/)

**A Guide for Prescribed Fire in Southern Forests:**  
<http://flame.fl-dof.com/Env/RX/guide/>

## Good forest management practices help prevent bark beetle attacks and result in more productive pine stands.

Due to the limited options for remedial control of bark beetles, the best way to prevent losses is to manage pine stands such that they are healthy, vigorous, and resistant to attack. Give pines plenty of sunlight, space to grow, freedom from competing plants, and protection from injury, and plant on proper growing sites. All of these practices are compatible with the production of high-value wood products and other forest management goals.



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