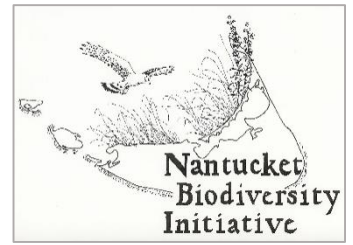


SOUTHERN PINE BEETLE

Dendroctonus frontalis



What is the southern pine beetle (SPB)?

The southern pine beetle (SPB) is a bark beetle that infests pine trees. The beetle is small, only 2-4 mm in length, about half the size of a grain of rice, and is red-brown to black in color. SPB is native to the southeastern United States but has been expanding up the Eastern Seaboard in recent years. Warming of winter temperatures have most likely contributed to this range expansion.

Where is SPB located?

Due to the impacts of climate change, they have been moving northward into New York and New England. SPB have caused extensive and rapid mortality of pitch pines (*Pinus rigida*) and Japanese black pines (*Pinus thunbergii*) on Long Island, NY since 2014. It has now been found on Nantucket with an infestation on the western part of the island and on Martha's Vineyard.

What does it do to trees?

The adult beetle enters the tree through crevices in the bark and then creates S-shaped tunnels in the cambium tissue, just beneath the bark. This disrupts the flow of nutrients, killing the tree in typically 4-6 weeks. Most trees resist the initial attacks by secreting resin that can "pitch out" some adults and slow the entry of others, but trees almost always die as their defenses are overwhelmed by thousands of attacking beetles. SPB has always been the most destructive pest of southern pine forests. The beetle can persist for years at very low numbers, sometimes going unnoticed. At other times, however, the population can explode, rapidly killing pine trees across the landscape. This switch between high and low population numbers is influenced by the availability of dense pine stands, the number of natural enemies, the types of fungus present, tree defenses, and changes in climate.

What trees are affected?

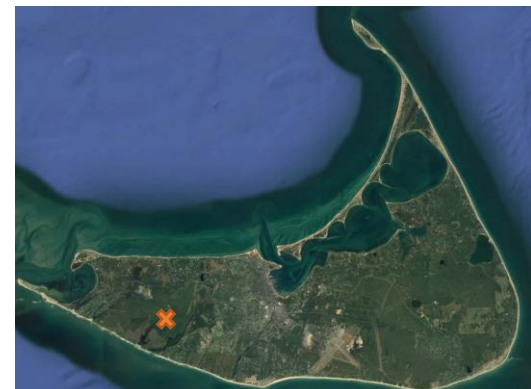
All pine trees are susceptible, including pitch pine, white pine, and Japanese black pine. In addition to pines, hemlocks and spruce may also be affected in highly infested areas. No hardwood tree species are affected.

What are the signs of an infestation?

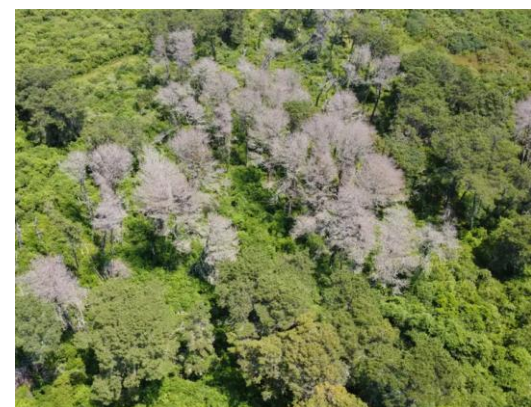
- Popcorn-shaped clumps of resin (pitch tubes) on the exterior of the bark
- Shotgun patterned holes on the exterior of the bark
- S-shaped tunnels under the bark
- Pine trees that have recently died; noted by reddish-brown needles



Southern pine beetle
USDA Forest Service, Bugwood.org



Southern pine beetle infestation location on Nantucket



Dead Pitch Pines

What is being done?

SPB has existed for many years in other regions of the country, and information sharing has been very valuable in creating a plan to address this pest and minimize its impacts on our forests. Prior to the infestation, the Nantucket Conservation Foundation (NCF), the Nantucket Land Bank, Massachusetts Audubon Society, the Linda Loring Nature Foundation and other conservation landowners on Nantucket began actively monitoring for this species in 2018. The Nantucket SPB working group has been active in regional SPB workshops and have developed partnerships with state and federal agencies and other conservation groups to prepare for potential outbreaks. Island-based conservation groups have since reached out to experts including state agencies with SPB experience to apply the best and most up to date science to determine priorities for management activities.

The active infestation on NCF property will be managed by cutting infested trees and thinning the understory. Other suppression efforts on-island may include cutting any infested trees and understory thinning. Due to the presence of known maternity roosts of federally endangered Northern long-eared bats (*Myotis septentrionalis*) in the area, federal regulations do not allow tree cutting until after the breeding season. While plans are being developed, monitoring efforts include aerial and ground surveys.

Thinning in overly dense pine stands is beneficial because increasing the distance between the trees disrupts the beetles' ability to communicate using pheromones, making it more difficult for them to attack trees in great numbers. Thinning also reduces competition among trees, creating healthier stands that are better able to fend off attack by SPB and other pests. Active forest management, including thinning, will be utilized by conservation organizations to increase the resilience of their pine stands in the face of threats from SPB, climate change, and drought.

What can I do?

If you have dead pine trees, consider risk and liability. Dead trees no longer have living SPB in them so they can be left standing to provide habitat for birds and bats if they do not pose a threat to humans. Remove standing dead trees if they have the potential to fall on people, structures, roads or utility lines.

- Consider contacting a certified arborist for a consultation.
- The Nantucket Southern Pine Beetle Working Group is encouraging the public to report any trees showing these symptoms immediately to spb@nantucketconservation.org. Please include GPS coordinates, specific directions, and a photo if possible.

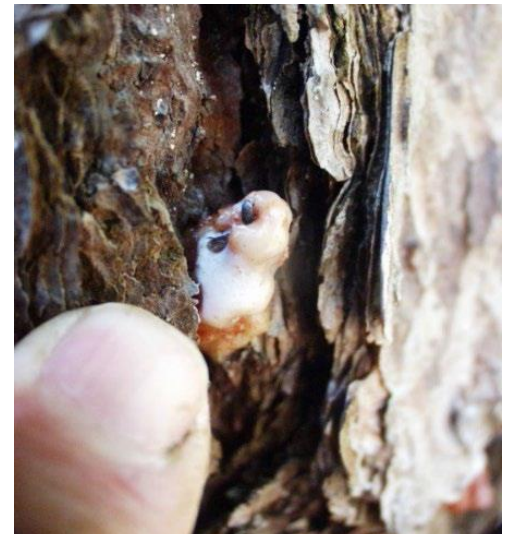
More information on the ecology and signs of southern pine beetle:

<https://www.youtube.com/watch?v=Elbz5Y0chIE>

MA DCR Forest Health Program Storyboard on southern pine beetle:

<https://storymaps.arcgis.com/stories/b60f63199fa14805a8b9f7c82447a25b>

Created August 1, 2023



SPB entering pitch tube



SPB tunnels, or "galleries," under the bark.



**Nantucket
Conservation
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