



## Southern Pine Beetle, *Dendroctonus frontalis*

**Hosts:** Primarily hard pines (*Pinus* spp.), such as pitch (*P. rigida*), jack (*P. banksiana*), and red (*P. resinosa*), but also other pines and conifers

**General Information:** Southern pine beetle (SPB) is native to the southern U.S. where its outbreaks have killed host trees over extensive areas. It is thought to be one of the most destructive pests of southern pine forests. For example, between 1999-2002, an SPB outbreak in the southeastern U.S. resulted in more than one billion dollars in loss for the timber industry, according to the U.S. Forest Service. It is gaining a similar reputation in the northeast, where pine forests had historically been out of reach of this pest due to a colder climate. In recent years, both New Jersey and [New York](#)<sup>1</sup> have experienced significant localized outbreaks of SPB.

Southern pine beetle is one of many newcomers we can expect to invade Maine's forests as the climate continues to warm. We do not have enough information to predict how it will behave in Maine's forests, however we know that proactive management to limit availability of favored habitats can often reduce impacts from this insect (See [Dodds et al. article from the Journal of Forestry](#)<sup>2</sup>). For preventive thinning in pitch-pine dominated stands in New York State the Department of Environmental Conservation targets densities to less than 80 to 100 square feet/acre and or less than or equal to 450 trees/acre (see pages 3 to 4 in their [2018 Southern Pine Beetle Management Plan](#)<sup>3</sup>).

**Damage:** Adult beetles bore into the bark and create S-shaped tunnels in the cambium tissue below, weakening trees over time. Vigorous trees can often resist initial attacks by secreting large amounts of resin that can entrap and "pitch out" adults as they try to enter the tree. During outbreaks, affected trees almost always die because their defenses are overwhelmed by the cumulative attacks of countless beetles.

As with many forest pest species, SPB populations naturally rise and fall. The beetle can persist for years at very low numbers in an endemic phase, sometimes going unnoticed. At other times the population can explode, rapidly killing pine trees across the landscape, as is currently occurring on Long Island, New York. 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 health and defenses, and changes in weather.



*Image: A tree will try to "pitch out" any invading SPB.*

## Signs of Possible Infestation by Southern Pine Beetle

- Pitch tubes, appearing as popcorn-shaped clumps of resin on the exterior of the bark, occurring all the way up the tree (not just the bottom 6 feet, which is characteristic of native turpentine beetles)
- Tiny, scattered circular holes on the exterior of the bark
- Dense networks of S-shaped tunnels under the bark
- Discoloration of tree crowns



*Image: Left: When attacked by SPB, a pine tree will try to force the beetle out with pitch. Right: SPB adults leave S-shaped tunnels in wood.*

**Detections in Maine:** Adult SPB were collected from traps run by University of New Hampshire in Waterboro, ME in October 2021. To date, populations remain so low that no tree damage has been identified in Maine, however additional survey work remains to be done. Get the most up to date information as this situation develops by subscribing to our [Conditions Reports](#)<sup>4</sup>.

**Report Suspected Southern Pine Beetle or its Damage:** If you have found pine trees with infestation signs in Maine:

1. Take photos of the infestation signs (include something for scale such as a coin). Photos are necessary to help us determine if SPB could be the cause of damage.
2. Note the location (intersecting roads, landmarks, or GPS coordinates).
3. Submit a report using our [online reporting form](#)<sup>5</sup>, emailing [foresthealth@maine.gov](mailto:foresthealth@maine.gov), or calling (207) 287-2431.

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Thanks to NYSDEC for permission to use material from [their southern pine beetle information page](#)<sup>6</sup>.

1 FEMC analysis of southern pine beetle in New England and New York, <https://www.uvm.edu/femc/disturbance/pests/advinv>

2 Dodds et al. article in Journal of Forestry, <https://academic.oup.com/jof/article/116/2/178/4930769>

3 2018 Southern Pine Beetle Management Plan (ny.gov), [https://www.dec.ny.gov/docs/lands\\_forests\\_pdf/spb18mgmtplan.pdf](https://www.dec.ny.gov/docs/lands_forests_pdf/spb18mgmtplan.pdf)

4 Maine Forest Service Conditions Report Signup, [https://www.maine.gov/dacf/mfs/publications/condition\\_reports.html](https://www.maine.gov/dacf/mfs/publications/condition_reports.html)

5 Maine Forest Service Forest and Tree Insect and Disease Reporting Form, <https://appengine.egov.com/apps/me/dacf/mfs-tree-ailment>

6 NY State Department of Environmental Conservation Southern Pine Beetle Information Page, <https://www.dec.ny.gov/animals/99331.html>