

Southern Pine Beetle Briefing

An aerial photograph of a vast forest landscape. A significant portion of the forest, particularly in the middle ground, is covered in trees with a brownish-orange hue, indicating they have been killed by the Southern Pine Beetle. The surrounding forest remains green, providing a stark contrast to the infested area. The background shows a hazy horizon under a cloudy sky.

NJ Pinelands Commission
15 Springfield Road
New Lisbon, NJ

June 10, 2011

www.southernpinebeetle.nj.gov

History

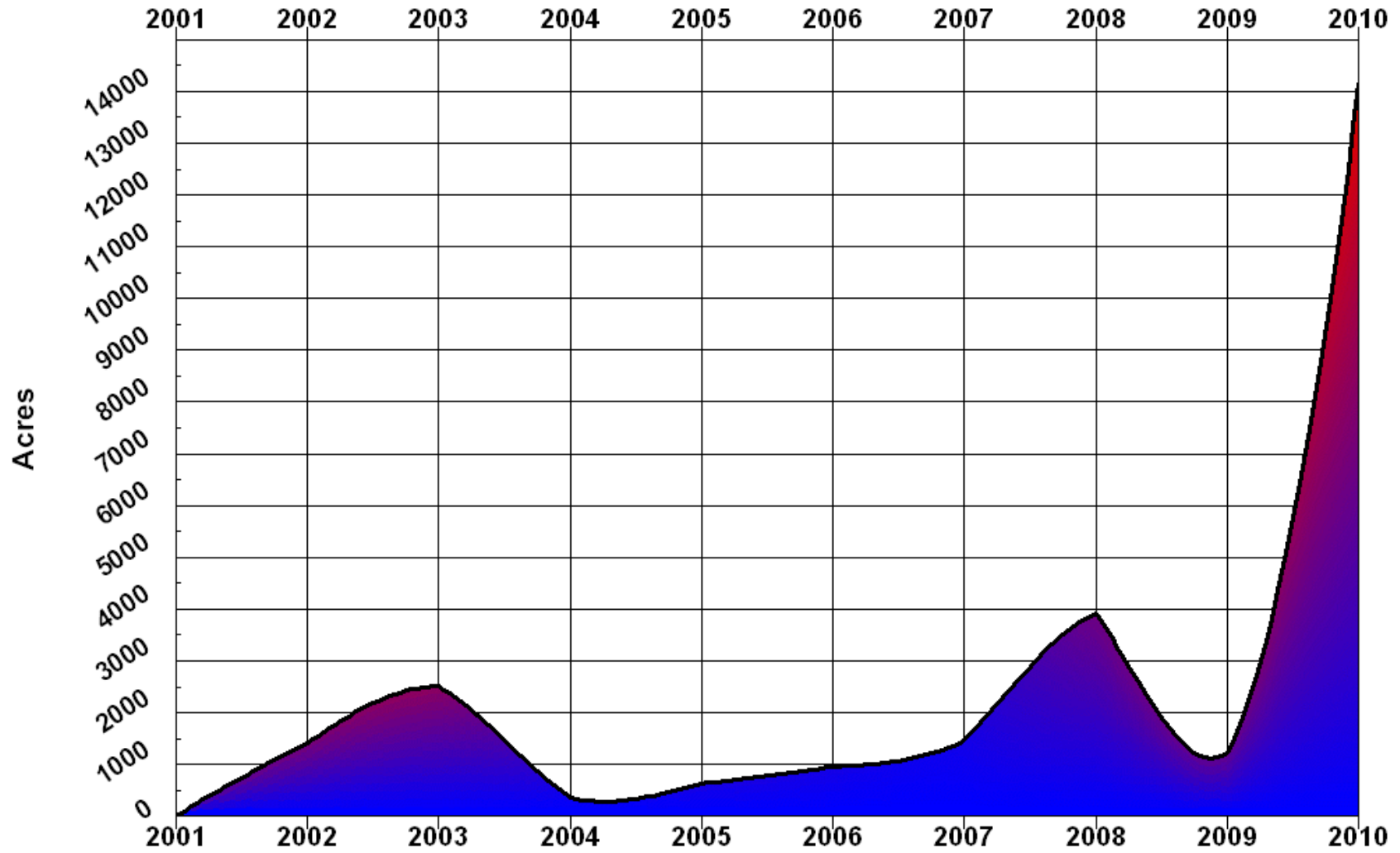


Dendroctonus frontalis

- Active populations for decades in Southeastern U.S.
- In 2001, a consultant forester reported an insect problem in NJ.
- SPB identification was made by NJFS and USFS.
- Likely migrated to NJ via wind and/or interstate commerce.

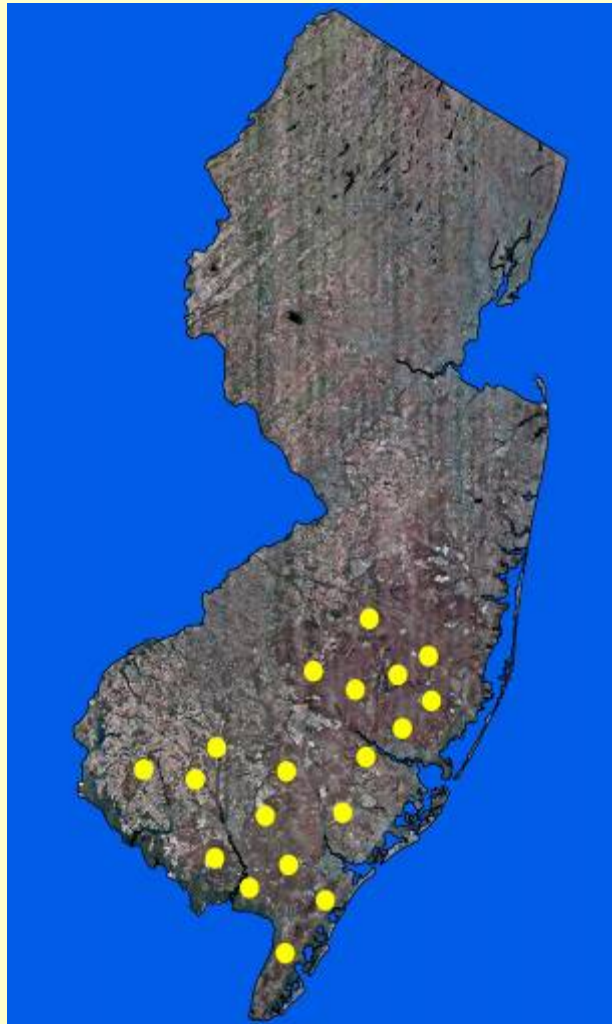


Potential Southern Pine Beetle Infestations

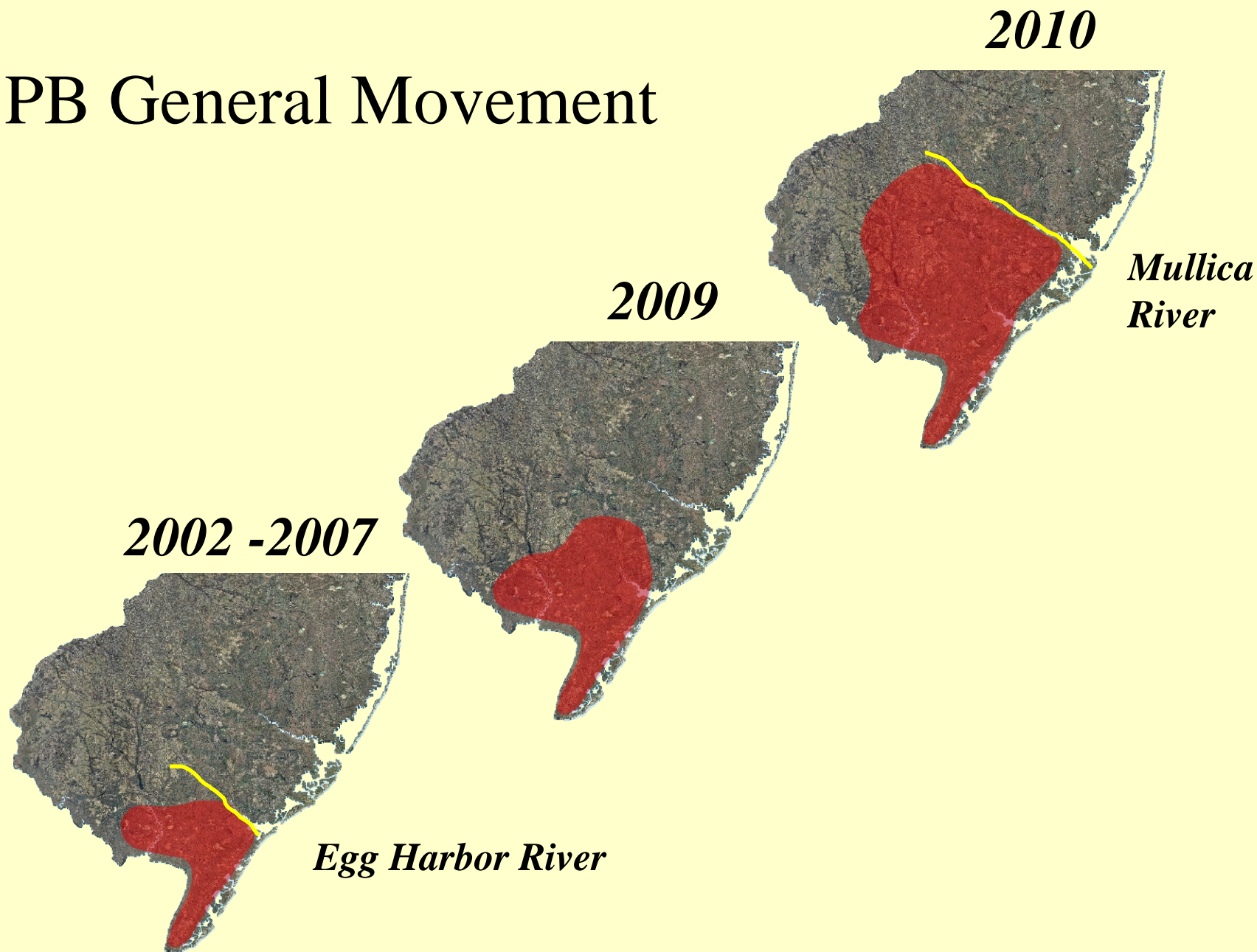


Source: NJ Forest Service 2010

SPB trapping program monitors SPB populations



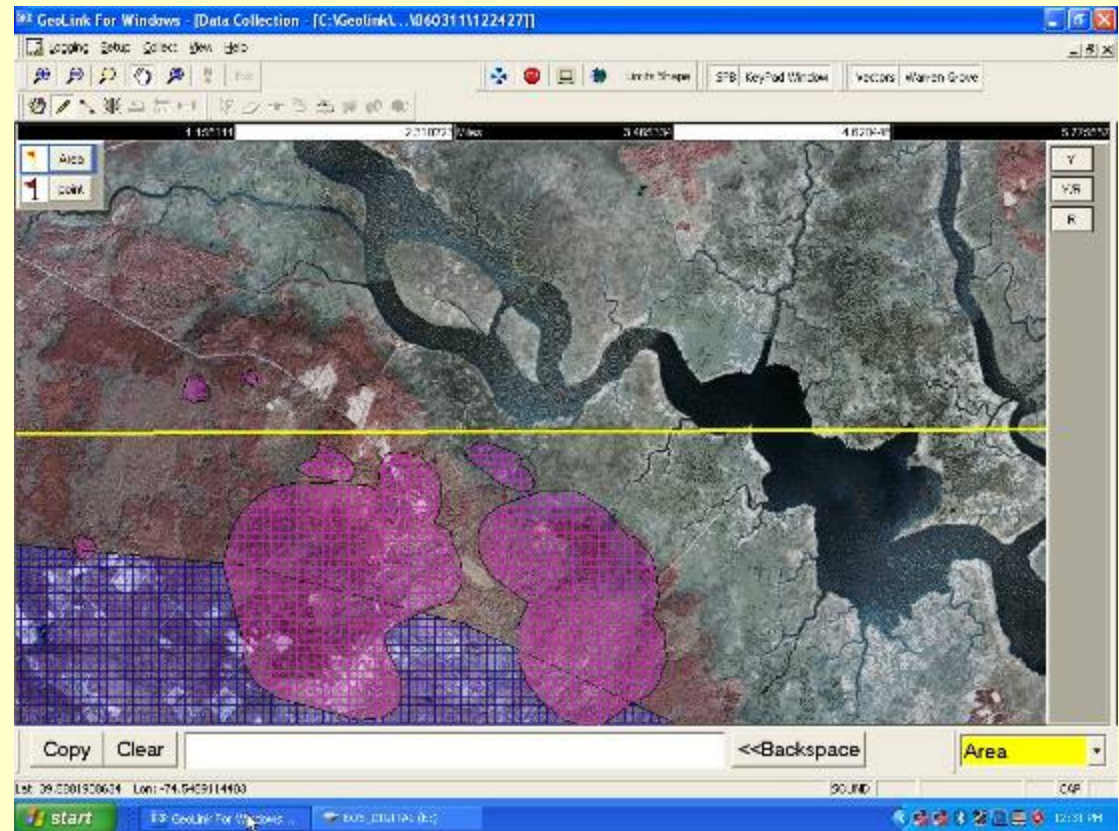
SPB General Movement



Data and Mapping

Digital Aerial Mapping Systems

- GPS tracking over aerial imagery.
- 85% of all suspected SPB infestations detected through aerial flights are confirmed through ground verification as SPB.



Large Aggressive Spots Multiple Heads

March 22, 2011
Early during leaf out



May 23, 2011
60 days later



Verification following aerial detection



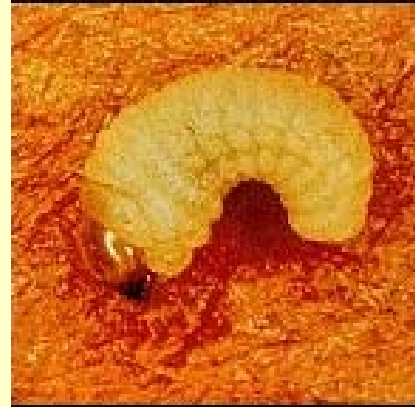
Characteristic pitch tubes from adult Southern Pine Beetle attack

SPB Life Cycle

Egg (1)



Larva (2)



Pupa (2)



Adult (3)



- 1 Photo provided by the USFS
- 2 Photo provided by Bugwood.org
- 3 Photo provided by Gerald Lenhard

SPB Life History

Multiple generations each year in same area



SPB Adult (left), rice grain, turpentine beetle



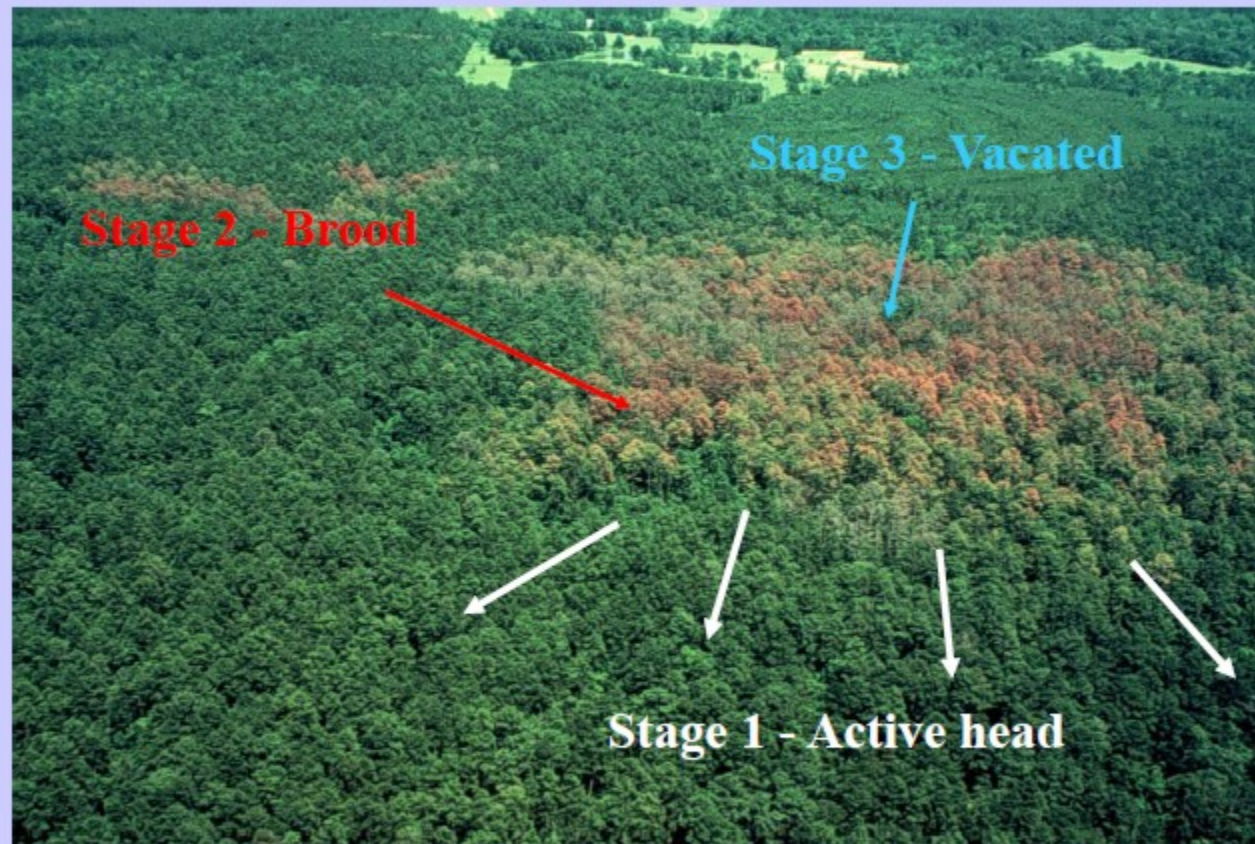
Most of the larvae are concealed within bark



S-shaped galleries and pupa chambers on the underside of infested bark

**How does a
SPB spot
expand?**

SPB Spot Growth Process



Stage 3 = Vacated

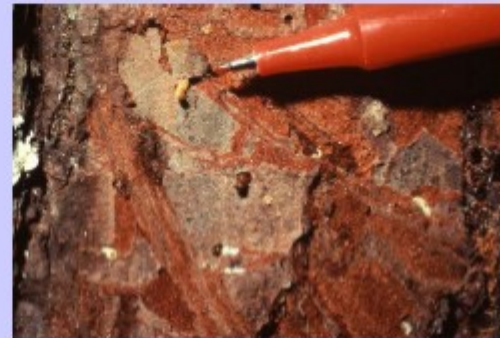


- **Crown red or without foliage**
- **Many exit holes in bark**
- **Bark loose, with blue stain, sawyers**
- **Lots of ambrosia beetle dust at base**
- **No SPB brood in outer bark**
- **May see clerid larvae, pupae**

Stage 2 = Brood trees



- Crowns green – yellow (faders)
- Pitch tubes hardened
- Galleries well developed with larvae, pupae or new adults
- No checkered beetles on bark

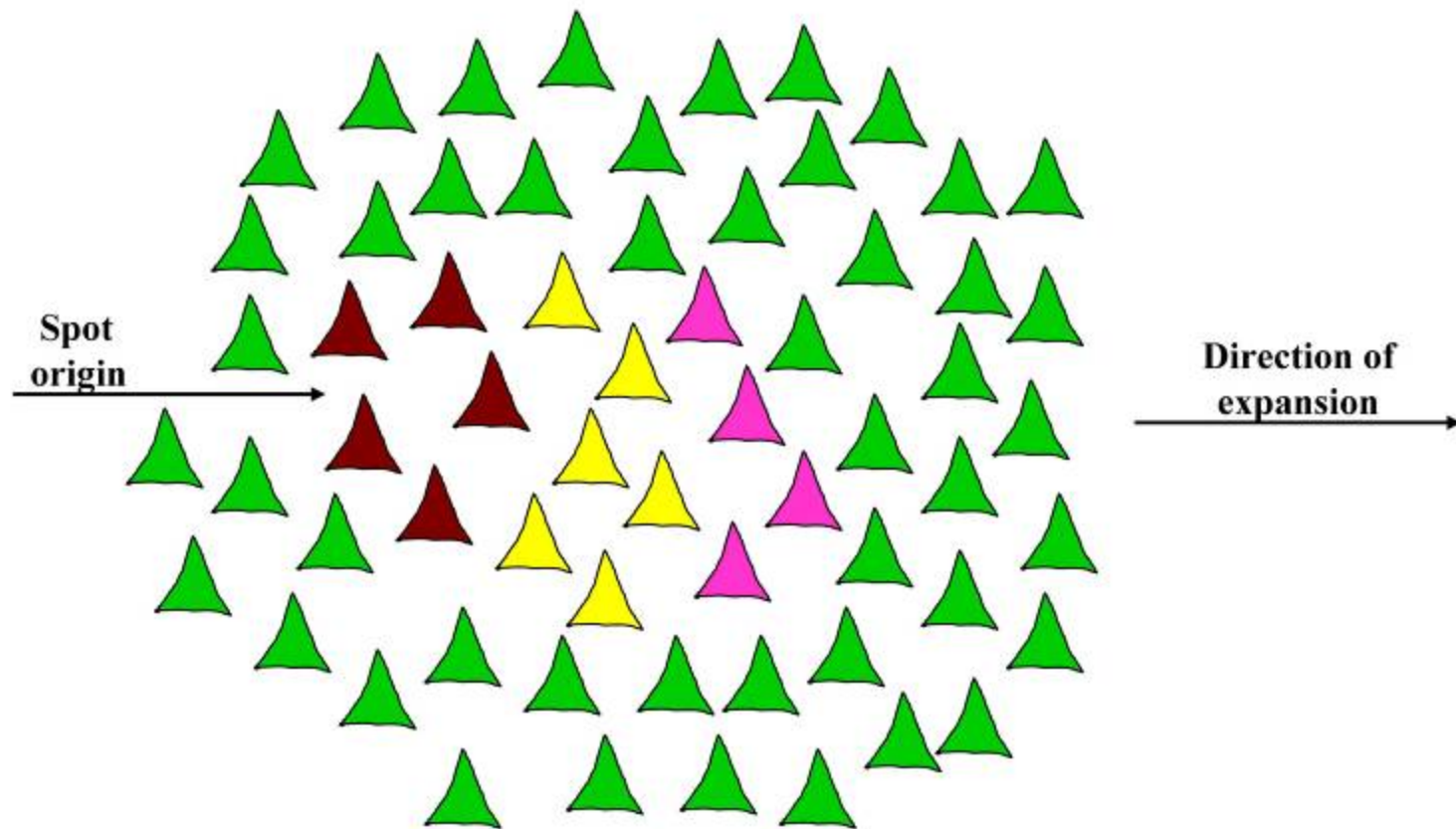






Stage 1 = Fresh attacks



- Fresh pitch tubes or reddish boring dust in bark crevices
- Green crown
- Bark difficult to remove
- Inner bark white, without galleries
- Adult clerids on bark
- No exit holes in bark
- No white sawdust at base of tree

Expanding Southern Pine Beetle Infestation



 Uninfested pine  Stage 3 (dead and vacated)  Stage 2 (with brood)  Stage 1 (fresh attack)

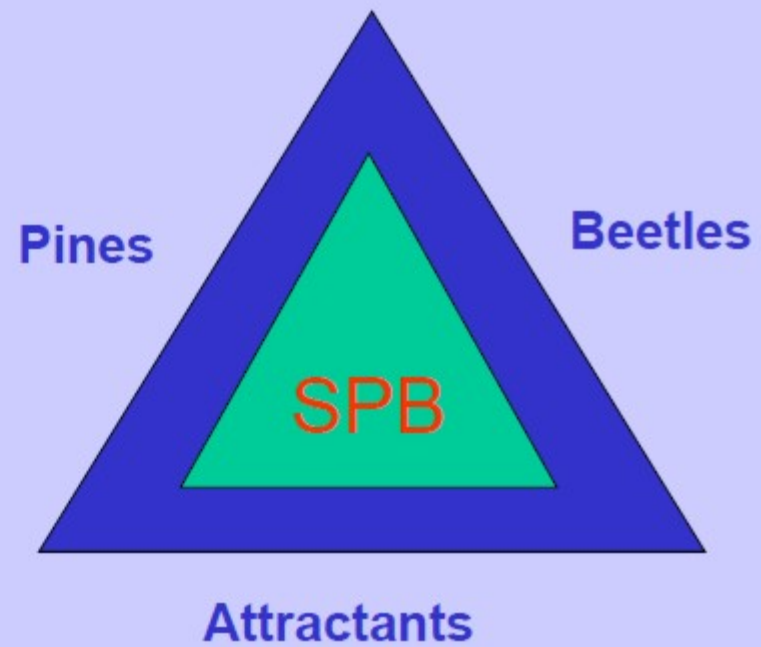
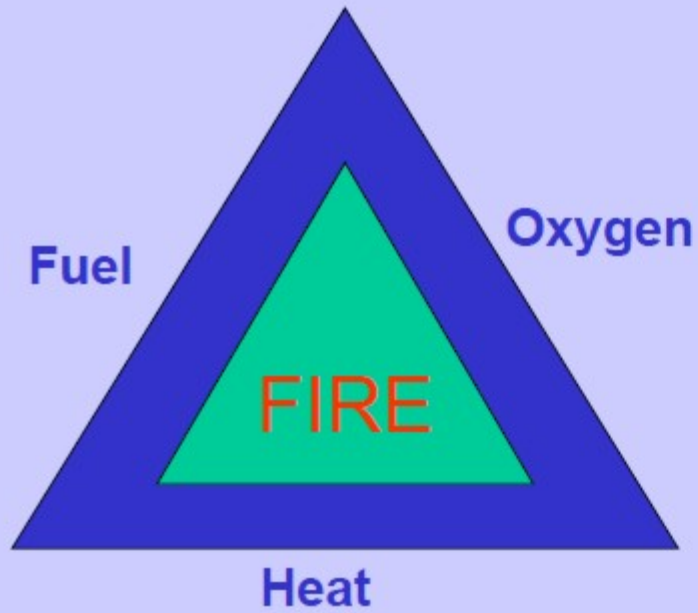


New spot proliferation

Old expanding spot



SPB Triangle for Spot Growth



Indian Mounds Wilderness in Texas – July 1992



Indian Mounds Wilderness in Texas February 1993



11-year old pine plantation

Indian Mounds Wilderness in Texas – June 1993



11-year old pine plantation

Indian Mounds Wilderness in Texas – August 1993



11-year old pine plantation

7,500 acres killed by SPB

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Southern Pine Beetle Outbreak on Indian Mounds Wilderness

July 1992



February 1993



June 1993



August 1993

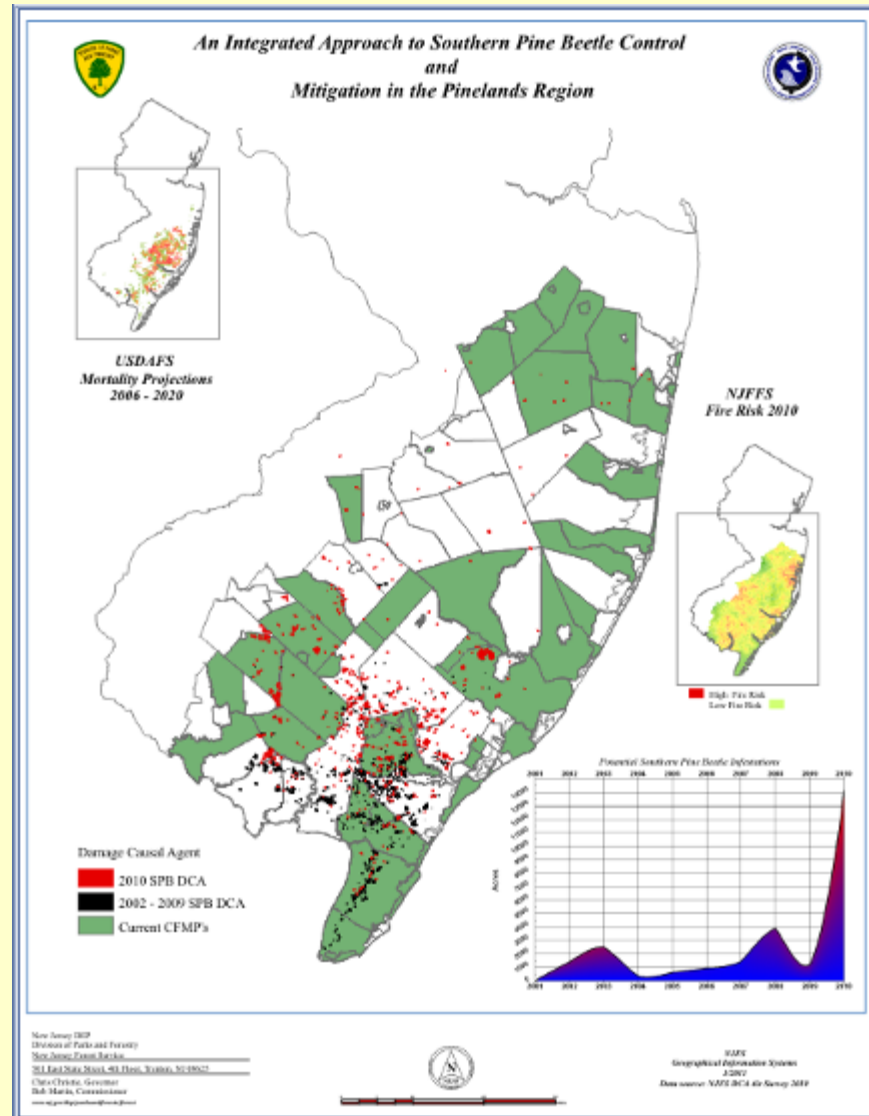




SPB severe outbreak (Tennessee)

8 Years of SPB Mortality

Approximately 389 recorded infestations (14,100 acres) in the NJ Pinelands region in 2010





Hardings Run Apartment Complex in Mays Landing



Winslow Wildlife Management Area



Glassboro Wildlife Management Area with feed strip



Union Lake Wildlife Management Area



Clarks Landing with Mullica River in background



Clarks Landing with Mullica River in background



Clarks Landing with Mullica River in background



Clarks Landing looking south past the Mullica River



Pine Plains...

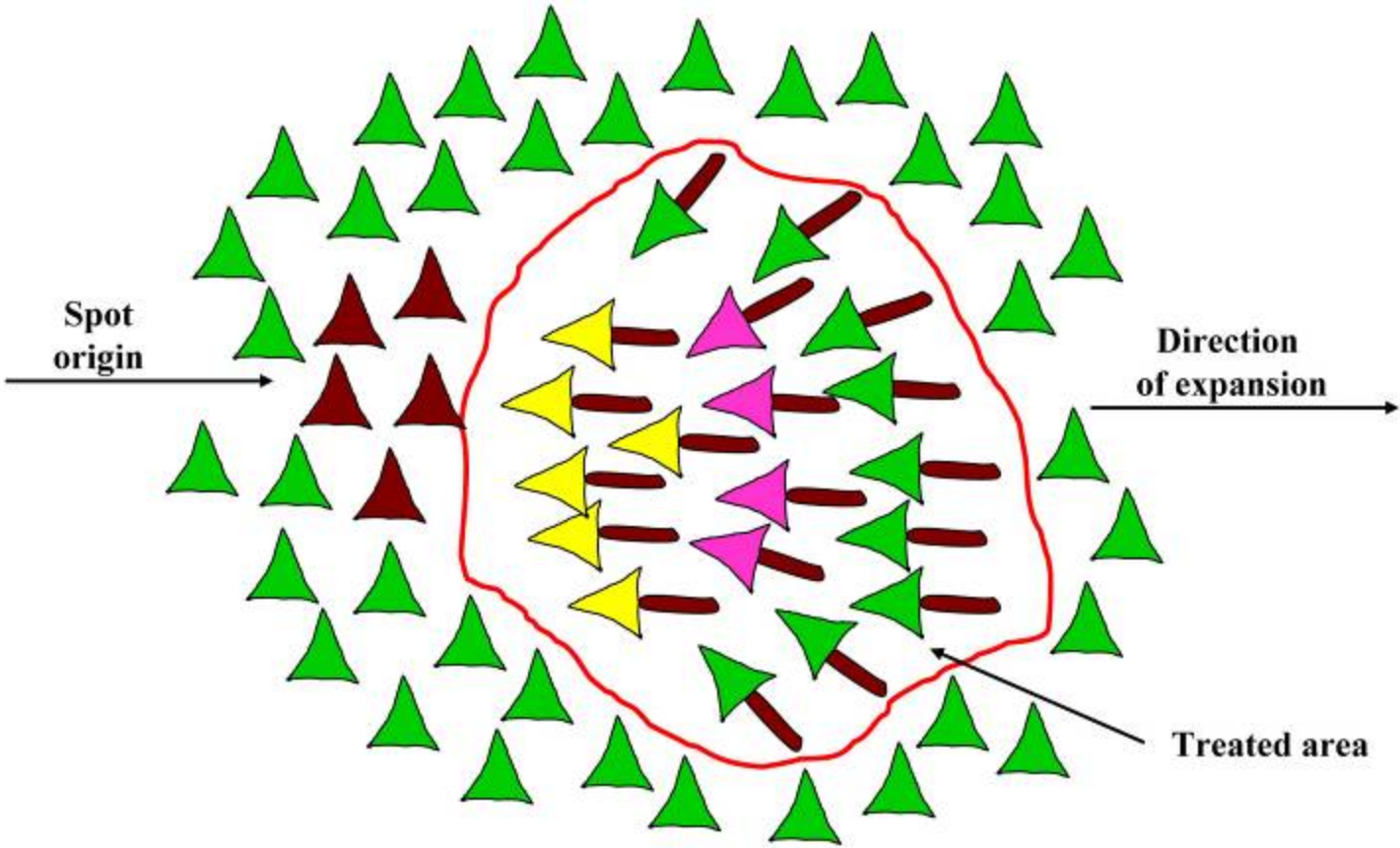
Current Strategies

- Aerial survey flights – Once a week
- SPB spots detected and ground verified
- Foresters prepare and submit a report
 - T&E species; Inter-agency review process
 - Coordinate with the Pinelands Commission
- State certified sawyer crews scheduled to perform suppression activities (cut and leave)
- Site is monitored after treatment via air and ground



SPB suppression activities by State Forest Fire Service certified sawyer crews.

How to Apply Cut-and-leave




Uninfested pine
standing


Stage 3
standing


Stage 2 felled


Stage 1 felled


Uninfested pine
felled

Small Spot Treatment

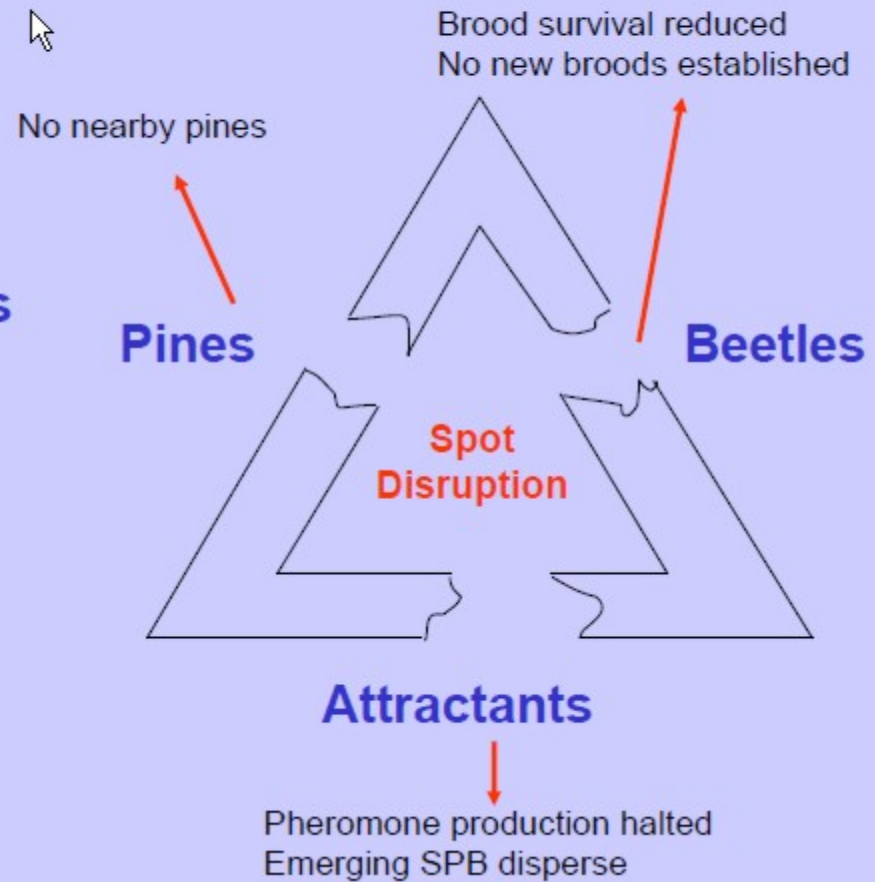
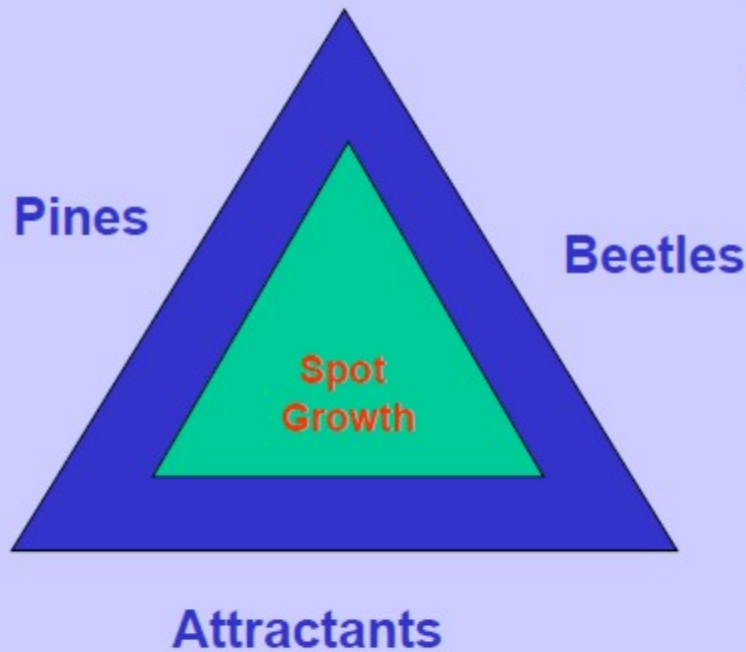


- Limited number of trees
- Generally located around lightning strikes or stressed trees



- Minimal environmental impact

Effects of Spot Disruption

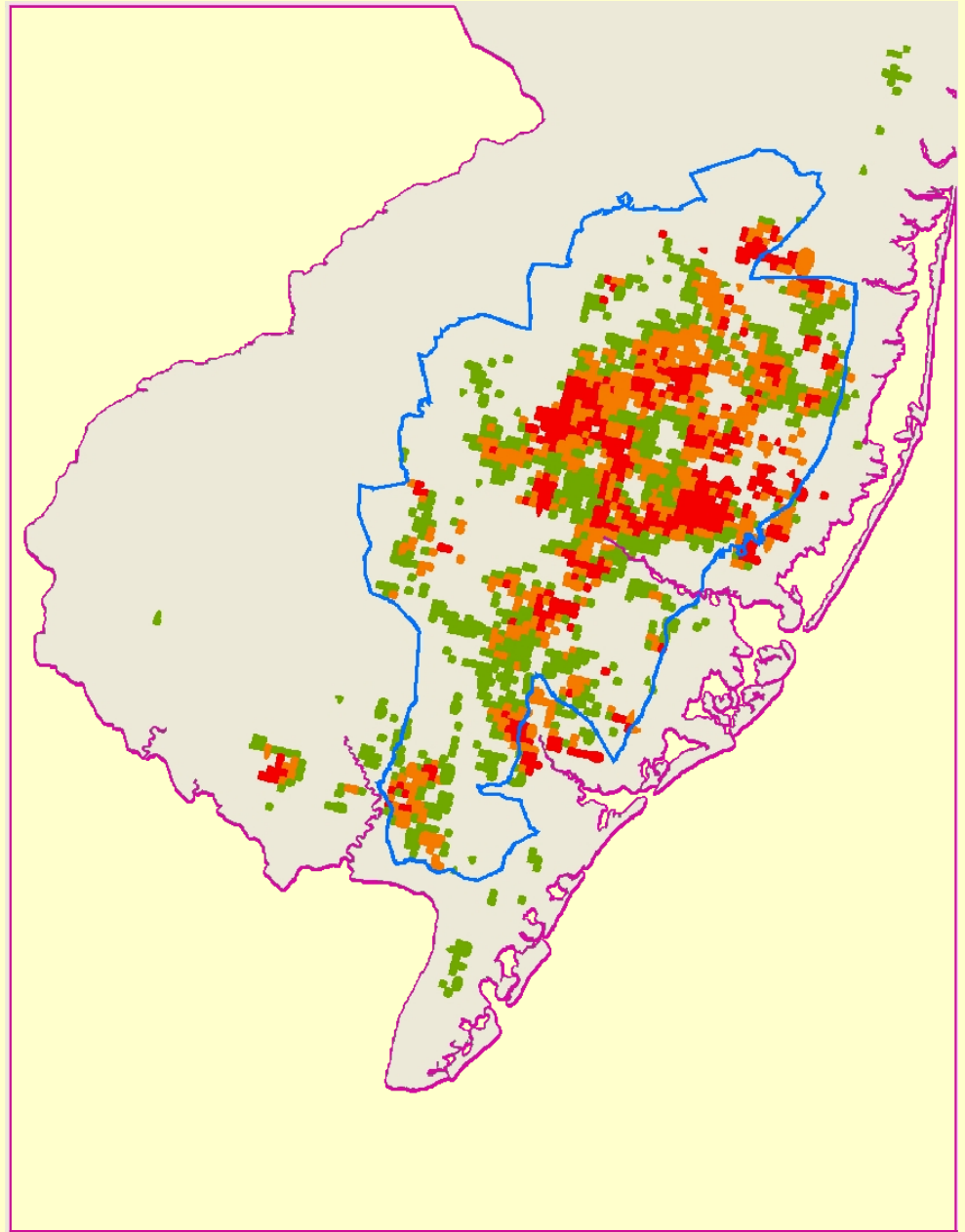


Ad Hoc Advisory Committee

- Emile DeVito - NJ Conservation Foundation
- John Bunnell– Pinelands Commission
- Kim Laidig - Pinelands Commission
- Troy Ettel - NJ Audubon
- George Zimmermann – Stockton College
- Mark Vodak – Rutgers University
- Matthew Ayres - Dartmouth College
- Ronald Billings - Texas Forest Service
- Bill Oldland - USFS
- Stephen Clarke - USFS
- James Meeker – USFS
- Bob Williams - Land Dimensions
- Mayor Pikolycky of Woodbine Borough
- Thomas Bullock – NJ Forestry Association
- Brad Rosenthal – Cape May County
- Tom Hirshblond - Industry Representative
- Matt Simons - Atlantic City Electric
- Richard Reenstra – Ocean County
- Ken Taaffe - NRCS
- Roger Smith - Fort Dix



U. S. Forest Service
Percent Mortality
Projections
2006-2020



Impacts to the Pinelands

- Rapid conversion of pine forests to hardwoods.
- Loss of critical habitat for T & E species.
- Watershed and riparian deterioration.
- Loss of aesthetics and recreational opportunities.
- Increased wildfire risk to lives and property.
- Increased danger from hazard tree failure.

Critical Needs

- Partnership with the Pinelands Commission for SPB suppression.
- Temporary emergency action creating an expedited review and permitting process (five working days or less) for SPB cut and leave suppression activities.

Critical Needs

- Meet with Pinelands Commission staff to develop a specific implementation and permitting process.
- Monthly updates to the Pinelands Commission outlining suppression progress and beetle populations dynamics.

