Bark Beetle Management Strategies
What is bark beetle management?

- Good forest management results in good bark beetle management.
  - Maintaining appropriate stocking levels helps to maintain tree vigor.
  - Reducing tree densities in beetle prone areas can help to decrease the future risk posed by spreading beetles.
What is bark beetle management?

• Prevention:
  – Proper forest and slash management to limit the amount of easily infested host material.

• Suppression:
  – The use of various methods and techniques to attempt to decrease a population:
    • Mechanical
    • Chemical
Prevention

• Maintaining appropriate levels of tree stocking for a given site:
  – Allows trees to have ample moisture and nutrients.
  – Reduces environmental stress:
    • Also helps to increase the drought resilience of the trees.
  – Can remove infested trees to reduce population levels.
Prevention

Thinned, appropriate stocking

Unthinned, overstocked
Prevention

• Silvicultural thinning and proper slash treatment help
• Use of alternative species
• Watering
• Removing competing brush
• Do not fertilize (exacerbates the moisture stress issue)
Prevention

• Watering:
  – Valuable trees
  – Not possible on a landscape scale
  – Deep (2 feet or more) watering once a month are better than frequent, shallow watering
Prevention

- **Watering:**
  - Watering zone
  - Drip line

Courtesy Joel McMillan
Slash Management

• Proper slash management is very important:
  – Slash can provide a breeding habitat for beetles
  – It lacks any defenses that a live tree has
  – Slash can attract beetles to live, residual trees
    • Deep chip piles do the same
    • Populations can be moved in slash/firewood
Slash Management

• Removing slash from the site is best.
  – Preferably to an area without the host species

• Alternatives:
  – Chipping
  – Removing bark
  – Burning

Pictures from Joel McMilan and John D. Hodges, Mississippi State University, Bugwood.org
Slash Management

• Best to do thinning work in October through January
  – Allows slash to dry before first flight

• Place slash in full sunlight

• Do not pile firewood around trees.
Chemical Prevention

• Possible to prevent beetles from attacking trees
  – Requires application of insecticides to the entire bole of the tree to a 3 inch diameter.
  – Lasts about a year
  – Carbaryl and Permethrin
    • Brand names: Sevin, Astro Permethrin Plus C
  – Registered products: must be applied by a licensed professional
  – Expensive
Applying insecticides

University of Georgia Archive, University of Georgia, Bugwood.org

Courtesy Joel McMilian
Post Attack Management

• “If it’s Brown, Cut it Down”
• A mass attacked tree is a dead tree.
• No systemic treatment for infested trees
• Best approach:
  – Remove tree from site,
  – Chip and remove chips
  – Burn
  – Peel the bark
Where to go from here?

• In an ecological sense, pockets of mortality are a natural way to thin an over stocked forest.
  – The forest will be thinned one way or another
    • Bark beetles
    • Fire
    • Human actions
  – Sites can only support so much vegetation
    • Moisture, soils, sunlight, etc.
Where to go from here?

• There is no guarantee that any treatments will be 100% effective

• With extreme droughts populations can build quickly

• The largest contributor to increasing populations of bark beetles is the environment
More Information

• Contact local NMSF district or state office:
  – District Offices
  – State Office:
    • Danny Norlander
      505-476-3351
  – Website: nmforestry.com