

# BARK BEETLE

## FREQUENTLY ASKED QUESTIONS



### **1. What is the current bark beetle situation in New Mexico?**

In 2020, state-wide drought conditions were especially favorable for populations of several species of bark beetles to increase. As a result, the New Mexico Forestry Division's Forest Health Specialist noticed increased bark beetle activity leading to tree mortality in the East Mountains, Eldorado at Santa Fe, and other areas immediately east of Santa Fe. If drought conditions and above average temperatures continue into 2021/2022 tree stress will intensify and bark beetle populations will likely increase, especially in piñon and ponderosa forests.

### **2. Where do these beetles come from and what type of trees most commonly are attacked in New Mexico?**

These are native bark beetles, which are present year-round in our forest and woodland ecosystems, but usually at low population levels. Most bark beetles in New Mexico that cause widespread mortality attack conifers, particularly piñon and ponderosa pine. Junipers sometimes are attacked and killed.

### **3. How do I know if my conifer trees have been infested?**

The first symptom that property owners will notice is yellowing or browning of needles on a tree. This can happen on a portion of the tree's canopy or throughout the whole canopy (Image 1). To determine if a tree has been infested with bark beetles, landowners should look for evidence of "pitch tubes," which are small areas of sap build-up at each bark beetle entry point (Image 2). However, in times of drought, pitch tubes may not be present. Instead, small piles of sawdust will gather in the bark, in branch crotches and/or around the base of the tree (Image 3). Additionally, woodpecker feeding activity will substantially increase on trees with bark beetle infestations (Image 4).



**Image 1. Yellowing and browning needles are a symptom of bark beetle attack. Either part or the entire canopy can change color.**



**Image 2. Pitch tubes can develop at the point of bark beetle entry into a tree. In times of severe drought, pitch tubes may not develop.**



**Image 3. Boring dust from bark beetle tunneling activity can accumulate in bark fissures, branch crotches, or at the base of the tree.**



**Image 4. Woodpecker feeding activity is noticeable on trees recently infested by bark beetles.**

#### **4. How do these beetles kill trees?**

Essentially, bark beetles girdle a tree making it impossible to move water and nutrients throughout the tree. Adult bark beetles tunnel their way through the outer bark of a tree and then emit a chemical scent (called a pheromone) that attracts other beetles. The beetles then mate and lay eggs in galleries in between the bark and the wood. When the eggs hatch, the larvae feed on the nutritious soft inner bark layer. A "blue stain" fungus carried by the beetles can contribute to the death of the tree by clogging water and nutrient-conducting tissues. Newly emerge adult beetles then leave the infected tree and fly to another nearby tree.

#### **5. What management options are available if trees on my property are infested with bark beetles?**

Unfortunately, once a tree is actively infested with bark beetles it cannot be saved. The best option is to cut down the infested tree and remove it from the property. To limit the spread of bark beetles on the property, the tree should be cut and removed within 30 days of the confirmation of infestation. The cut and removed tree should be taken to an area without a population of healthy trees of the same species. Alternately, a cut tree can be debarked and cut into small sections and placed away from healthy trees on the property. Before a property owner cuts any tree, a professional, such as the New Mexico Forestry Division's Forest Health Specialist, should positively confirm a tree is infested with bark beetles.

#### **6. How can I prevent bark beetles from attacking my trees?**

The most economical and environmentally friendly way to protect trees from bark beetle attack is to water them during periods of drought. Trees should be watered deeply (3-4 hours with a soaker hose is best) once a month if no precipitation has occurred during that month. Of course, it's usually not feasible or cost effective to water every tree on a property, so high-value trees (e.g. those that provide shade, offer privacy, etc.) should be prioritized. Please be aware that watering is not a fool proof strategy for preventing bark beetle attack, but it does help bolster a tree's natural defenses. Caveat: Trees, especially piñon and juniper can be watered too much.

Correctly applying insecticide to the bark prior to bark beetle peak flight (apply in March or April) can help protect individual trees. Treatment consisting of a 2% carbaryl solution can protect trees for about a one year. Landowners who choose permethrin can expect about six months of protection. Once a tree is infested it is too late to consider the use of insecticides. Large-scale application of insecticides is not feasible from either an economic or practical standpoint. Aerial spraying is not viable as an alternative because the insecticide would not adequately cover the bark surface and could impact other, non-

targeted organisms and beneficial insects. Many insecticides (including those listed) are federally registered product and will have to be applied by a licensed applicator. It is also illegal to use a pesticide in a manner not listed on the label. **Again, it is important to remember that no amount of spraying or watering will help save a tree once bark beetles have infested it.**

Another way to protect a stand of trees is to thin the smaller and less healthy trees to give the remaining trees a better chance to regain enough vigor to fight off beetle attacks. Slash should be immediately removed, burned, or chipped and dried. Properly treated slash can be a beneficial component to vegetation restoration and erosion control as it improves soil quality, moisture retention, and nutrient cycling.

### **7. What actions should be avoided when attempting to protect trees?**

Do not do anything that will introduce further stress to your trees. Anytime a tree is damaged it needs to expend precious moisture (in the form of sap) to heal that injury. This can weaken the tree and make it more susceptible to bark beetle attack. Common injuries result from nearby construction, improper pruning, or landscaping practices. Removing small or poorly competing trees from a stand can improve the vigor of the remaining trees, but it is a mistake not to deal with the slash (treetops and limbs) generated by cutting. Untreated slash left on the site may be an attractant to additional beetles. If they breed in the slash, they represent yet another source of new beetles to attack the remaining trees. Freshly cut trees that still retain some green needles should be debarked, mulched, or chipped immediately, to kill any remaining beetles. Because feeding by the non-lethal bark moth or pitch nodule moth can resemble bark beetle attack, do not cut down trees before confirming bark beetle presence.

**Do not fertilize trees as this promotes tree growth which may be unsustainable and exert further moisture stress on the tree. This has the unintended consequence of making the tree more susceptible to beetle attack.**

### **8. What are the impacts of bark beetle infestations?**

It is difficult to measure the social, environmental, and economic impacts related to tree losses due to bark beetle caused mortality. The duration and extent of the population increase or outbreak cannot be predicted. Not all impacts will be negative. Potentially positive results will be the natural thinning of some stands, improved watershed yield, improved wildlife habitat, and enhanced biological diversity. Trees reproduce and die throughout the life of the forest; in this event, though, the process of trees

dying is far more apparent. Even under the worst circumstances, there will still be a forest; it just may not resemble the forest with which we are now familiar.

#### **9. Can I burn wood treated with pesticides?**

It is not recommended to burn pesticide treated wood. Homeowners should ask wood sellers if their wood has been previously treated and when. Most pesticide experts say that the heat of a fire is enough to burn off any residual carbaryl or permethrin from treated wood. However, the recommended best practice is to not burn any treated wood until it has properly been seasoned after cutting. Some woods dry out more slowly than others after cutting, so it is recommended that if you plan to burn firewood that was previously treated for bark beetles, let it dry out for up to a year.

#### **10. How have past forest management practices contributed to this problem?**

It is generally accepted that many forest management policies and practices contributed to the unnatural tree densities that now exist in our forests. Fire prevention and suppression activities appear to be the primary factors interrupting the natural fire return cycle. Fire suppression and over-grazing during the first three-quarters of the 20th century were supposed to protect forests from a perceived "enemy" but ended up programming our forests for fiercer wildfires in the final quarter century, not to mention these first few years of the 21st century. It is important to remember that land managers have used the best available science and followed societal values through time and the management strategies through time reflect this.

#### **11. Are funds available to help me thin trees on my property?**

New Mexico State Forestry has several cost-share programs that may be able to help. Contact your local NMSF district for more information.

#### **12. Who should a private landowner contact for information on protecting trees or reducing their susceptibility to pine bark beetles?**

The New Mexico Forestry Division's Forest Health Specialist or your New Mexico Forestry Division District can offer advice and assistance. Please refer to the New Mexico Forestry Division [contact page](#) for further information.

**13. Who should a private landowner contact for information on protecting homes and land from fire?**

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