

For Immediate Release: Arizona Bark Beetle Outbreak – Fall 2003 Update

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Summer weather conditions that influence bark beetles in Arizona's forests and woodlands have in general been less favorable to the insect's survival than what was experienced in 2002. However, some areas of the state have experienced greater mortality in 2003 than in 2002. At the lower elevations, below the Mogollon Rim, there appears to be less damage in 2003 whereas above the rim, at higher elevations, there is greater damage, particularly in stands of piñon pine.

Moisture levels in 2003 (January thru September) have been 1.7 inches below normal (average for Flagstaff, Prescott and Show Low), compared to the same period last year when moisture levels were behind 8.3 inches. The increased levels of precipitation in 2003 have led to generally less bark beetle activity. However, sustained high levels of bark beetles from 2002 to 2003 appear to have continued to kill trees but at a lower rate in 2003 than what was experienced in 2002.

Arizona's ponderosa pine and piñon forests have sustained significant impacts from the bark beetle outbreak of 2003. Conservative estimates in 2002, based upon U. S. Forest Service aerial surveys of federal lands, placed the number of dead ponderosa pine statewide at 2 million. This estimate did not take into account trees that may have died after the 2002 surveys were done between late July and October of last year. The 2003 aerial survey data has not been completely analyzed, but what has, is showing a ten fold

increase in the number of dead trees. This is believed to show that there was significant mortality after the 2002 aerial surveys but also that there was widespread damage to Arizona's forests in 2003.

Determining the exact date of tree mortality from the air can be difficult. Most bark beetle killed ponderosa pine trees will have red foliage for approximately 12 months. Thus, when a red tree is seen from the air it may have died the previous year, after the aerial survey, or it may have died within the current year.

For the areas that have had their aerial survey data analyzed, the Kaibab National Forest appears to have had the largest increase from 2002 to 2003. In 2002 there were 49,125 dead ponderosa but in 2003 that increased to 1,063,706 trees. This represents a 20 fold increase. Some of this huge increase can be explained by the early aerial survey date in 2002, indicating that many of these trees died in late 2002. However, ground surveys within the Kaibab N.F. in 2003 proved that there was significant mortality occurring.

The most heavily impacted forest in the state has been the Tonto. In 2002 it endured the most mortality with 495,810 dead trees. In 2003 that increased to 8,157,970 dead trees or about a 17 fold increase. The Prescott National Forest also had large amounts of mortality with 4,116,495 dead trees appearing in the 2003 survey.

Some of the greatest damage in 2002 occurred on tribal lands of the San Carlos Apache tribe. Since these lands are some of the last to be surveyed every year the final analysis is not yet complete. However, anecdotal information indicates that 2003 mortality levels will be high.

Piñon pine has also sustained large amounts of mortality over the past two years. Early indications from aerial surveys show that the Coconino and the Kaibab National Forests have sustained the greatest damage from bark beetles.

Several trees in the juniper family, true fir, Douglas-fir, and spruce have also been attacked by bark beetles. Native junipers, native Arizona cypress and Leyland cypress are among those being killed by the cypress bark beetle. Spruce bark beetle activity was reduced in 2003 but mortality in Douglas-fir and true firs doubled from 2002.

The best way to avoid having trees attacked by bark beetles is to take preventive measures. First and foremost, lower tree density through thinning. The fall and early winter season is the best time of year to thin stands. During other times of the year increases in beetle attacks may occur if the newly cut trees are left on the ground for more than 30 days. By October the last generation is either looking for a host or has already found a host. Once they have found a host they will stay there throughout the winter. If logs that are generated through thinning are attacked by the last generation their offspring will not complete their lifecycle and will die. If the logs or slash will remain on the forest floor for more than 30 days it is recommended that they be placed in a sunny spot so as to speed up drying.

Logs and slash generated in fall or early winter can be utilized for many uses. The logs can be used for firewood, lumber, beams, as posts and poles and as chips. It is best to create chip piles and spread those chips in the fall or early winter when they are less attractive to beetles.

The small slash (limbs and tops less than 3 inches in diameter) can be used by adult beetles but they won't reproduce in it. This material should be chipped if possible.

When piling for burning, put the smallest diameter material in the middle with the largest on the outside. Allow the piles to dry out prior to attempting to burn them. Be sure to consult with your local fire department prior to conducting open burns to assure that you are following local regulations.

Many people are unsure as to which trees should be removed. In these cases it may be best to consult with a certified forester or arborist. For a listing of certified professionals consult the yellow pages, call your local University of Arizona County Extension office, or log on to www.isa-arbor.com to find a certified arborist or www.safnet.org/certified/directory.htm to find a certified forester.

Often property owners will have several trees that have significant value in their landscape. These trees may be valued for their size or location. These high value trees can be given additional care to prevent colonization. They can be sprayed with preventative insecticides or irrigated. However, since the threat from attack is greatly reduced during the fall or early winter it is recommended that spraying of preventative insecticides be delayed until February for the lower elevations or March at the higher elevations. Consult the University of Arizona Forest Health website for information on spraying insecticides to prevent bark beetle attacks - <http://ag.arizona.edu/extension/fh>.

If natural precipitation is below normal during the fall and winter trees may benefit from irrigation every other month. When irrigating native pine trees they should be given enough water to wet the soil at least two feet deep. The water should be applied in a donut shaped pattern at the drip-line or outer edge of the trees branches. It generally takes about 2" of rain to soak 2 feet deep. Check the soil 6 to 8 inches deep just outside the drip-line of the trees monthly. Keep in mind watering restrictions that may be in

effect in your community and follow those guidelines as well. (Check with your local office of the Arizona Department of Water Resources for restrictions in your area.)

Applications of fertilizers will not help protect trees from the effects of drought, and will not protect against bark beetle attacks. Fertilizers may even hinder the ability of the trees to fight off bark beetles. Fertilizers often cause trees to put on extra growth, this growth will require higher levels of moisture to maintain healthy conditions. Fertilizers may also burn foliage if improperly applied.

The only known direct control method of infested trees is the removal of the infested trees. A good rule to remember is “If the tree is brown cut it down, if in doubt cut it out.” If dead trees are left standing we run the risk of the new generation of beetles leaving the tree and attacking more trees. Finding reddish-brown boring dust in the bark crevices of a tree indicates that the tree has been successfully attacked, and the tree should be cut down even if the tree is still green at that point. If dead trees are next to houses or other structures, they can become a hazard tree.

Many trees may only have the top half of the tree dead. In 2002 and 2003 we saw the lower half of the tree was killed shortly thereafter. Do not cut the top out of the tree hoping that the rest of the tree will recover. It is best to remove such trees to prevent the spread of beetles to other trees and to prevent them from becoming a hazard tree. You need not wait until the entire tree turns brown, many adult beetles may have flown from the tree before turning brown. Dead trees that do not have bark beetles in them and do not pose a safety hazard can be left in the forest to be used by wildlife.

Remember, the most effective method for preventing bark beetle infestations is to thin overly dense stands of trees in the right way, at the right time of year, using the right

equipment with proper training. If you need more information please contact your local University of Arizona Cooperative Extension office, State Land Department, or your local fire department. Additional information can be found at the following web sites. <http://ag.arizona.edu/extension/fh/> or <http://ag.arizona.edu/yavapai/>

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