

For Immediate Release: Pine Bark Beetle Outbreak in Arizona

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Winter conditions in Arizona's ponderosa pine and piñon forests have been favorable for the over-wintering of pine bark beetles. At the lower elevations beetles have emerged, at the higher elevations of beetles can be found in dead trees, awaiting emergence. At all elevations, populations of *Ips* and *Dendroctonus* species bark beetles are very high. What may well determine whether or not we have increases in bark beetle killed trees this year is the weather.

The moisture levels in the fall/winter of 2001-2002 were 7.6 inches below normal (average for Flagstaff, Prescott and Show Low), leading to the death of millions of trees in 2002. The fall/winter of 2002/2003 was 2.9 inches below normal. Even with below normal levels of precipitation most of our forests should have sufficient levels of moisture in the soil on May 1; however soil moisture can become depleted very quickly if dry, windy spring weather persists. With these past and present conditions in mind it is hard to predict the level of bark beetle damage that will occur in 2003. We can, however, report that very high numbers of piñon *Ips* bark beetles are being trapped east of Flagstaff, reinforcing that the beetles had good conditions this winter. We are also seeing fresh attacks in piñon in northern Arizona.

The last significant bark beetle outbreak in Arizona occurred from 1951 to 1956, unfortunately we do not have good data on how that outbreak progressed in relation to

weather patterns. Recent outbreaks in other parts of the country are not comparable because of the different species of beetles that are causing the Arizona outbreak. For these reasons it is nearly impossible to predict how successful the beetles will be in 2003.

The best way to avoid having trees attacked by bark beetles is to take preventive measures. First and foremost is to lower tree density through thinning. However, at this time of year thinning may cause increases in bark beetle populations due to the increased exposure of the remaining trees to May and June's drying winds. Furthermore, increases may occur if the newly cut trees are left on the ground for more than 30 days. If the material is chipped or hauled off the property to a landfill where the material will be buried. If they are chipped, don't pile the chips deeper than 3 inches next to live trees as the chips may attract bark beetles. If it is necessary to create piles deeper than 3 inches, keep the piles in the open sun and as far from live trees as possible. If removal or chipping is not an option then it may be best in northern Arizona to wait until October to begin thinning.

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.

The small slash (limbs and tops less than 3 inches in diameter) can be used by adult beetles but they won't re-produce in it, thus it can become a trap for. This material should be chipped if possible. When piling, put the smallest diameter material in the middle with the largest on the outside.

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 infestation. They can be irrigated or sprayed with preventative insecticides.

If these trees are irrigated 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. If the soil is dry, then water. Generally, the months that most often warrant watering are May, June, and October. However, depending on weather patterns watering may be needed any month of the year. If current dry conditions continue this spring you may need to irrigate at the end of April. 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.

Un-infested trees can be protected from beetle attacks by spraying with insecticides. When spraying, the entire trunk and the bases of large branches of the tree 4" in diameter and greater must be soaked. Spraying large trees is generally not a practice

that homeowners can do themselves, to locate a certified pesticide applicator call the Arizona Structural Pesticide Control Commission at 800-223-0618.

The currently recommended chemicals for this purpose are carbaryl and permethrin. You must use a product that is especially formulated for bark beetles, such as Sevin SL, Dragnet, or Astro. This is a protective measure only, it will not kill beetles once they enter the tree. Typical home and garden products containing carbaryl or permethrin will be ineffective. If the correct material is applied properly it can be effective for an entire season. Spraying should have been completed prior to April 1 to ensure a full season of protection. If spraying after April 1 you must be sure that the trees have not already been attacked. Trees can be checked for infestations by climbing, with a hydraulic lift, or with high-powered binoculars to inspect the entire trunk of the tree. Also check the bark crevices and the base of the tree for fresh boring dust. Spraying trees already infested will prove to be ineffective.

The only known direct control method is the removal of infested trees. A good rule to remember is “If the tree is brown cut it down, if in doubt cut it out.” If we leave dead trees 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.

Insecticide injections or systemics have not proven effective against *Dentroctonus* spp. bark beetles in studies conducted by U.S. Forest Service and Canadian Forestry Service researchers. Many trees have been injected with what seemed to be success.

What may have happened is that the treated tree successfully pitched out the attacking beetle with resin prior to the treatment. The tree was then injected with insecticide when in fact no beetles were actually in the tree. The tree saved itself! Studies have shown that injecting chemicals will not kill *Dendroctonus* spp. bark beetles attacking conifers and injures the tree in the process.

There are several miracle cures being promoted to save trees from bark beetles. These materials may not have gone through extensive research to test their effectiveness. Buyer beware! Often, if what is being marketed sounds “too good to be true” it generally doesn’t live up to its billing. Remember, it is against the law to use unregistered pesticides and using pesticides for insects not listed on the label is unwise.

The University of Arizona, Northern Arizona University, and U.S. Forest Service will be engaged in research to test materials to prevent and control *Ips* spp. bark beetles in northern Arizona. When these studies are completed and reviewed the results will be released to the public as soon as possible.

Many trees may only have the top half of the tree dead. In 2002 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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