

Protect Your Piñon Pine Trees from *Ips* bark beetle

Piñon pine trees can be attacked by a native bark beetle called *Ips confusus* (*Ips*). Normally, *Ips* beetles limit their attacks to trees that are in decline due to root injuries, wounding, under watering or over watering. However, during high-stress situations like drought, *Ips* beetles are a considerable threat to healthy trees. They will not attack juniper (cedar) trees.

Ips kill piñon trees by attacking in mass numbers. The adults create galleries (tunnels) between the bark and wood of branches and the trunk to mate and lay eggs. Once hatched, the larvae begin creating small galleries in the tree layers (cambium and phloem), which provide the entire tree with water and nutrients. The larvae disrupt these two layers with their galleries. This damage cuts off the tree's food and water supply, thus killing the tree. Beetles do not damage the interior wood of the tree so it can still be used for lumber or other products. Following a successful attack, the needles of the infested tree quickly fade from green to straw-colored. Needles will continue to decline, turning red and eventually brown. By the time the tree appears to be dying, the beetle generation that killed the tree has emerged and attacked a new tree. *Ips* beetles are prolific breeders, producing three to four generations in one season. The beetles become active in spring when nighttime temperatures are at least 40 degrees for two consecutive weeks and can remain active into late October when nighttime temperatures drop below 40 degrees for two consecutive weeks.

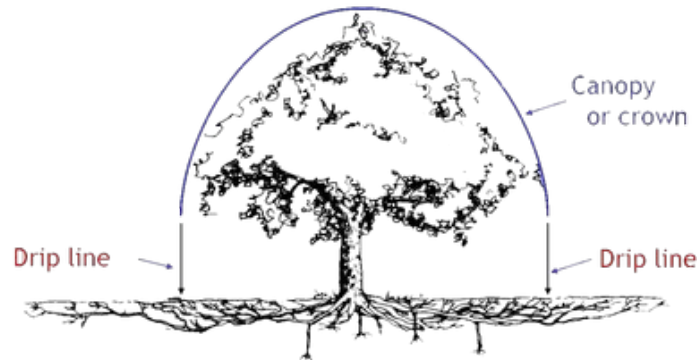


Figure 1. Piñon pines killed by *Ips* bark beetle (left). Pitch tubes on a piñon tree (right)

As a homeowner, there are a couple of management strategies available.

- Do not cut any green/live branches or do whole tree removal during the beetle's active periods, April to October.
 - Dead trees and branches may be cut but nothing that will stimulate sap flow.
 - If green cutting must be done, remove all material from the property within a couple days and bury the stump.
- Use a preventative chemical spray on favorite trees; this can get expensive so the homeowner must choose which trees to protect.
 - Healthy piñons must receive treatment at least two times per year, once in early spring (usually April) and again in early fall (usually August).
 - The active ingredients available for use with bark beetles are typically carbaryl (brand name Sevin), permethrin (brand name Astro), or bifenthrin (brand name Baseline or Talstar). Many products currently on the market contain these active ingredients. Use the insecticide as a drenching spray on the entire trunk and branches greater than one inch in size. Follow the manufacturer's recommendation for the proper rate for bark beetle treatment.

- Winter water your trees.
 - Conifer trees transpire (release moisture through their needles) all year long. When the soil is dry from lack of moisture (snow or rain), trees can become stressed.
 - Focus on the favorite trees, water them approximately once a month when there is no snow on the ground, and the temperature is above 40 degrees Fahrenheit. In some areas, this may only occur in the fall and early spring.
 - Apply water starting at the edge of the tree crown's drip line; this is at the edge of the crown, where rain would drip off, and water out from the drip line. This is where most of the absorbing tree roots are located.
 - The root system of piñon trees include tap and spreading roots, they can reach two times out the height of the tree.



If recently killed piñon trees are identified, the surrounding green trees should be inspected to determine if the *Ips* beetle has successfully attacked them. If beetle presence is detected, the trees may require management. Trees currently infested are usually still green and should be promptly removed from the landscape (burned or hauled away). It is important to remove trees with beetle larvae or pupa from the property before they emerge and attack nearby piñon trees. The easiest way to tell if a tree is or was infested is to look for entry and exit holes. If the tree had enough moisture available to produce sap during the attack, pitch tubes will be visible at the entry site (see Figure 1). The tree's defense system will produce sap in an attempt to drown the beetle. The pitch will be thumbnail sized and with a reddish hue due to the sawdust created by the beetle as it bores through the bark. Exit holes occur after the tree is dead, these holes will be perfectly round and the size of a pinhead or a BB pellet. If exit holes are present, the *Ips* beetles have left and flown to another tree. This dead tree does not contain any live *Ips* beetles and can be considered firewood.

Summary of how to manage *Ips* beetles during high bark beetle population periods:

Do:

- Remove infested trees as soon as identified
- If green trees need to be removed for reasons other than safety, this should only be done during winter months
- Ensure all cut material is either dry or removed from the site by mid to late March
- Water favorite trees in the summer during periods of drought and during winter months
- Spray favorite trees with a preventative chemical two times per year to prevent bark beetle attack when beetle populations are in the vicinity
- Thin the forest, during winter months, to allow for more resources (water, nutrients, sunlight) to be available for each tree. Reducing the overall density of the forest and creating more space between trees will improve individual tree health and reduce wildfire intensity.
- Remove dead trees as time and money allow for wildfire hazard reduction and aesthetic purposes. This can be done any time of the year (no sap is produced to attract the beetle).

Do Not:

- Cut branches or whole trees during active flight period (April – October)

For more information, contact the Colorado State Forest Service, Grand Junction Field Office at 970-248-7325.

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