

Bark Beetles of the Front Range: Misconceptions and Truths

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Adult Ips Beetle. Actual size is about the size of an uncooked grain of rice.

When I speak to customers and friends about bark beetles, I very often hear fallacies and misconceptions about them. A lot of this is due to changes over the years in available chemicals as well as new techniques to combat beetles. Perhaps I can straighten a few of these fallacies out here.

The most common misinformation that I hear concerns remedial chemical treatments for downed logs versus preventive chemical treatments for healthy standing trees. These are two very different procedures:

In the 1970s, there was a huge pine beetle outbreak in the front range of Colorado. Thousands of trees were being attacked annually in Jefferson County alone. The Forest Service was busy cutting thousands of infested trees, including those on private property. These trees were usually cut into four-foot lengths, treated with chemicals, and covered with plastic and sealed. This process involved chemicals such as ethyldibromide and lindane. Ethyldibromide use stopped in the 1970s, and lindane use for this purpose ended around the turn of the century. Currently, infested trees are usually chipped up entirely with large capacity chippers, which will kill most of the beetles.

This is the most reliable method. In some cases, when the trees are inaccessible, the logs are left in shallow piles to bake in the sun, with or without plastic. This will kill some but not all of the beetles. Logs can also be cut up into firewood and split. This will kill off some beetles as well. The latter two methods probably allow a certain percentage of beetles to survive, but we are limited by the fact that there are currently no chemicals labeled for use in treating infested wood. Another option is to strip all the bark off the tree, which will kill all the beetles but is very labor intensive. Wood can also be buried, burned, or taken to an area void of pine trees; however, these methods are often unpractical.

The other side of beetle control is the preventive side. Preventive spraying is basically coating the trunk of the tree in a prophylactic manner. When the chemical is on the tree, any bark beetle that attacks will be repelled. Going back again to the 1970s, we used to use carbaryl (Sevin) for preventive spraying. Sometimes this product was mixed with molasses for adhesion to the bark. This product has a fairly high toxicity, and while still available and effective, it is not commonly used anymore for this purpose. Currently, we have moved onto safer and more practical pesticides for preventive spraying. The most common product is permethrin (Astro), with bifenthrin (Onyx) on the horizon as the next generation pesticide. These are lower in toxicity, almost odorless, and certainly don't create the sticky mess that the carbaryl with molasses did. Thankfully, public and environmental safety are more important these days, and efficacy has improved as well with the new products.

One other interesting fallacy I hear from old-time Evergreen residents concerns helicopters. If you used to have your trees sprayed by helicopters in the '70s and '80s, it was for spruce budworm, not pine beetle! The helicopters used to fly above subdivisions and drop bacillus thuringensis (b.t.) onto the treetops to kill spruce budworms feeding on spruce and fir trees. This would not work for bark beetles, since you must coat the trunks. Also, twenty short years later, this would not be acceptable with residents, who are now more environmentally conscious. Spruce budworm outbreaks are cyclical, and the next one may be soon. There has been an outbreak on Bear Mountain in Evergreen the past few years, and it may spread to other areas. If it does, it will be interesting to see how the public deals with it, in light of the logical environmental concerns.

The next most common fallacies I hear concern Pine Beetles (*Dendroctonus ponderosae*) versus Ips Beetles (*Ips pini*). Most mountain residents are familiar with Pine Beetles; however, the Ips Beetle is a relatively new problem in this area. In general terms, Pine Beetles tend to attack ponderosa pines (*Pinus ponderosae*) and Ips Beetles tend to attack lodgepole pines (*Pinus contorta*). Pine beetles have one generation per year and emerge mid to late summer. Ips beetles have numerous generations per year and emerge anytime from March to November. Another distinct

difference is the tendency of Ips Beetles to attack weak or even downed trees. While Pine Beetles prefer weak trees, Ips depend on it. I have often seen Ips Beetles attack a tree cut down and left on site within forty-eight hours. The Ips perceive the tree to be wounded and mass attack the downed tree. They will also attack and breed in branch piles. While they're at it, they attack surrounding trees as well. As far as identification, there are obvious differences. When a Pine Beetle attacks a tree, there will usually be obvious globs of sap called "pitch tubes" exuding from the tree, all up and down the trunk. These are often described as popcorn shaped masses of resin. On the other hand, when a tree is attacked by the Ips Beetle the symptoms are more subtle. If you look closely, you will often see fine sawdust in the bark crevices and at the base of the tree. Sometimes, you may also see smaller dry pitch tubes on the trunk. This is because when a tree is attacked by Ips it usually is quite weak and doesn't have the sap flow to push out against the beetle. Contrary to popular belief, Ips Beetles also leave the same blue stain in the sapwood of the tree as the Pine Beetle does.

If you live at 8400 ft on a north- or east-facing slope, it is likely that Ips is your main concern. If you live at 7400 ft on a south- facing



Mountain Pine Beetle Pitch Tubes

slope, pine beetle is probably your main concern. These are generalities, and there are many exceptions. There are also different beetles that complicate the issue. Douglas fir beetles are present in moderate numbers and attack Douglas firs. There are spruce beetles that attack spruces, etc. These are of concern to you if you live in a stand of these species. But the two main bark beetles of concern in the foothills area today are Pine Beetles and Ips Beetles.

The severe drought of the past six to seven years has caused a severe Ips Beetle outbreak at higher elevations in the Evergreen area. By higher elevations, I mean approximately 7800 to 8600 ft. This encompasses many local areas such as Soda Creek, Upper Bear Creek, Buffalo Park, Brook Forest, and higher parts of Evergreen Meadows. Lodgepole pines in this elevation range are very stressed as they prefer a slightly cooler and wetter environment. Lodgepoles from 8600 ft and up are thriving, relatively speaking. Ponderosa pines are stressed from the same drought, and pine beetles have been able to inflict a lot of damage and extend the severe outbreak that started in the mid-1990s. Examples of ponderosa stands in the area include Hiwan Country Club, Hiwan Hills, Evergreen Park Estates, The Woods, Tanoa, Genesee, and lower parts of Evergreen Meadows.

There are a few other signs of beetle that much of the general public are often confused about. When you see pieces of bark falling off your tree, it is usually woodpeckers feeding on beetles underneath the bark. Bark beetles are a food staple for them; however, there are not enough woodpeckers to make a dent in the population during an outbreak. If you see yellow, crusty pitch tubes on the trunk, this is usually the sign of an old, unsuccessful beetle attack and should not be of concern. However, keep in mind that if beetles attempted to attack that tree once, there is a good chance they will try again. If you see small holes in the bark that look like someone drilled into the trunk with a small drill bit, these are exit holes. It means the beetles have come and gone. If you see a lot of these on the trunk of a tree, the tree is probably dead by this time.

Whether the culprit is Pine Beetle or Ips, the best methods to deal with beetle outbreaks are cultural and preventive. Thin your forest to promote optimal health. This will also reduce wildfire risk. Thinning is the single most important thing you can do to help your forest. In a natural setting, forest fires would take care of this. However, since we put out all fires in residential areas, we must manually thin the overcrowded trees to create a healthy, beetle-resistant forest. Spray all your high value trees preventively on an annual basis. Check your trees in winter to detect pitch tubes or sawdust on the trunks. Even when an outbreak subsides, there are always bark beetles present, even if in lower numbers. The reason to act preventively is because once beetles successfully attack a tree, it must be removed.

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