

Ips Beetle Update

This sheet is additional information to the Colorado State University Extension/Colorado State Forest Service Insect Series publication "Ips Beetles" no. 5.558
<http://csfs.colostate.edu/pdfs/Ips.pdf>

Ips beetles, also known as engraver beetles, are bark beetles that attack pine and spruce trees. In general these beetles attack stressed or dying trees. Certain widespread conditions allow for population build-ups (e.g. drought, windthrow, fire, or many dying trees). The mountain pine beetle epidemic, drought, and most recently broken branches, tops, and toppled trees due to heavy snow or wind have contributed to the population increase, and in some counties the ips beetles are killing large numbers of healthy trees (dozens to hundreds of trees in a single year). Along the northern Front Range, ips beetles are causing significant mortality in some high-elevation lodgepole pine forests and also in some lower elevation ponderosa pine forests. This particular update is in regards to those ips beetles that attack ponderosa and lodgepole pine trees (e.g. *Ips pini* or pine engraver, *Ips knausi*, *Ips calligraphus* or sixspined ips, *Ips latidens*, *Ips integer*)

What is an Ips beetle?

Ips refers to the genus part of the scientific name. These bark beetles feed in the phloem and they also score the wood, thus the name engraver beetles. There are approximately 11 species native to Colorado. Those that attack pines and spruce are the most important in terms of damaging agents. Ips beetles are small (1/8 to 3/8 in long), reddish-brown to black, with a depressed cavity and spines at the rear end of the body (Fig. 1).

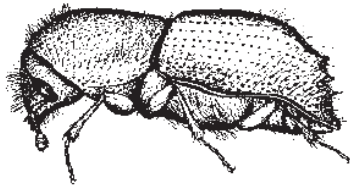


Figure 1. Adult Ips beetle (1/8 to 3/8 in long), note the cavity and spines at rear end of body.

How can I tell if my pine trees have been attacked by ips beetles?

Look for the following signs or symptoms. You will need to peel some bark off to look for signs of the beetle:

- a) Trees may fade early in the spring, during the summer, late summer, or early fall. This can happen very rapidly (less than 2 months). Fading can be at the top part of the tree or the whole tree. In general ips beetles attack small diameter lodgepole and ponderosa pine trees (6 inches and under) but can also attack the smaller diameter portions of larger pine trees.
- b) The tree will not usually produce pitch-tubes (as in mountain pine beetle) from ips attack. If pitch-tubes are produced they are usually very small and covered with boring dust (cinnamon color).
- c) There will be reddish boring dust at the base of the tree or on the bark crevices because ips beetles keep the gallery clean. You can look for the boring dust at any time during the warmer months.

- d) Just like other bark beetles, ips beetles leave a path or gallery under the bark. Galleries made by the adults are very distinct, they have a “Y” or “H” shaped pattern. They are also clear of sawdust, unlike the sawdust-filled galleries of mountain pine beetle.
- e) Evidence of woodpecker feeding on the main stem of the tree or on large branches in the canopy (on ponderosa pine).
- f) If the whole tree has faded, the insects may have already flown. To determine whether they are still in the tree, peel back an area of bark the size of a deck of cards at eye level on the main trunk. If you see many live insects, the tree is still infested – if you find none, and find many small, circular exit holes on the outer surface of the bark, the insects have already left. Look at the rear end of any insect you find for the depressed cavity and spines (Fig.1) to determine whether it is an ips beetle. This may require a hand lens.
- g) Trees that are still infested with ips beetles should be cut down and chipped or debarked to prevent spread. Remove slash and fresh wood from areas near living trees immediately to prevent other beetles from being attracted to the area.

How do ips beetles overwinter?

The adults overwinter either under the bark or they can also spend the winter among the duff at the tree base.

When do ips beetles attack trees?

Ips beetles in Colorado can have from 2 to 4 generations per year. Emergence will depend on temperature. If consistent daytime temperatures reach 50°F to 60°F, beetles will begin emerging. They may fly as early as March and flight can continue into November. Beetles can attack trees throughout the flight period; however, the first spring flight appears to be the most damaging.

Should I preventively treat my pine trees against ips beetles?

This is very difficult to assess in a natural forest setting. If ips beetles attack the top of the tree, it will be difficult to see the attacks until the tree is fading. By then it will be too late to protect the tree from attacks.

What and when can I spray to protect my trees from ips beetles?

If you are 100% sure that the tree has not been attacked then you can preventive spray those **high-value** trees. The registered products in Colorado are carbaryl (Sevin XLR, SL, 4L), permethrin (Astro), and bifenthrin (Onyx), among other formulations. Read the label and look for target pest “bark beetles” or specifically “engraver beetles” or “ips”. Spraying should be done before beetle flight – as early as March or April. However, it is not recommended to spray while there is standing water or snow on the ground, according to label. Because ips beetles can attack parts of the tree as small as 1” diameter, complete coverage from base to top of tree is needed, including larger branches. Preventive spraying of the upper crown of trees is the most difficult part, and only certified and licensed applicators should be doing this work with the assistance of a bucket truck.

Which trees should be sprayed?

ONLY those trees that have not been attacked and are considered high-value trees. Spraying is not meant as a forest-wide practice.

What can I do to prevent or mitigate ips beetle attacks?

- a) Improving tree vigor of individual trees may prevent ips beetle attack. There are many silvicultural practices that can improve tree vigor, but these practices are effective if done before an epidemic as long term prevention. Be aware, however, especially in older lodgepole forests, individual trees may not respond to the thinning or other silvicultural practices with increased vigor.
- b) Do not injure trees when thinning. Injured trees attract ips beetles.
- c) Do not stack recently cut green or unseasoned firewood near living trees. This is an ideal breeding place for ips and beetles may attack and kill these trees.
- d) Do not place slash piles near living trees. Ips beetles will be attracted to slash piles. Slash should be hauled away as soon as possible.
- e) If managed properly, slash piles may be used to attract beetles away from living trees. To do this, create a continuous supply of fresh slash during the flight period of emerging adults. This technique is known as "green chain" – it provides the beetles with enough green material to breed but is destroyed while the new larvae are developing. **BUT BE CAREFUL!** If you don't haul off or chip the slash every 4 -6 weeks, the ips beetles can complete their lifecycle and emerge from the slash pile. Start a new pile after you haul the old one off.
- f) This is a forestry tool for use primarily on larger acreages.
- g) Debark or chip logs that are infested with ips beetle larva as a suppression method. You can store debarked logs for firewood (but keep them away from living trees until they dry out.)
- h) If you have groups of ips-infested trees that you remove, be sure to continue to monitor the living trees adjacent to the areas you treated. It is not uncommon to miss a few newly infested trees with your first sanitation treatment. Remove any additional beetle-infested trees as soon as possible.

For more information please contact the Colorado State Forest Service entomologist or CSU Extension office.