

West Region Wildfire Council's 2020-2021 Forest Health Management in Pinyon Pine

Background

The **pinyon ips beetle** (*Ips confusus*) is a native insect in western Colorado that is always present in pinyon forests. Under normal conditions, the pinyon ips serves an important ecological function by killing off weakened or stressed pinyon pine trees - a natural disturbance that helps thin the forest and reduces overall competition for light, water, and nutrients. Since 2018, the beetle's population in this area has grown to outbreak levels due to hot weather and extreme drought conditions along with ample host material. These conditions have allowed the beetle to spread rapidly, resulting in widespread pinyon pine die off.

Ips Beetle Activity

In our 6-county area, the adult ips beetle "flight period" is typically from early April through early October; during this time the adults fly, bore into host pinyon trees and slash, mate, and lay eggs. As the larvae hatch beneath the bark, they feed on the cambium layer of the tree, depriving the tree of essential water and nutrients. If enough beetles are present, this eventually kills the tree, usually within several weeks. Several generations of ips beetles can be produced during April through October. Warmer weather conditions expedite the growth of the insect, resulting in more generations in hotter seasons. Between October through March, the beetles become inactive and overwinter beneath the bark of pinyon trees. They become active again in the spring when night-time temperatures remain at 40 degrees or above for about 2 weeks consecutively - typically around early April - and begin their first flight looking for new host material.

Prior Forest Management in Pinyon Pine

In the past, the West Region Wildfire Council (WRWC) and the Colorado State Forest Service (CSFS) used best management practices for wildfire mitigation treatments that prescribed cutting/chipping/masticating dead or dying pinyon trees and slash host materials to limit ips beetle spread. After the 2018 and 2019 season, we saw evidence of an ips beetle outbreak across the landscape and in some of our wildfire mitigation treatment areas, so we sought advice from ips entomologists. We learned that cutting, masticating, and/or chipping pinyon trees releases volatile organic compounds (VOCs) that *can* attract adult beetles during their flight period. After the flight period in the fall of 2019, we hired a contractor to masticate dead or dying pinyon trees from our affected 2018 and 2019 Cost-Share wildfire mitigation projects and modified our BMP's regarding forest health management in pinyon pine.

Best Management Practices (BMP)

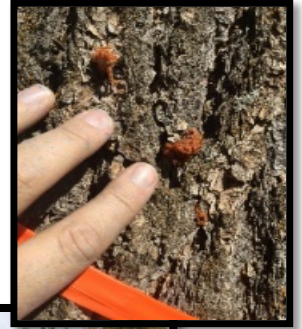
In 2020 and 2021, WRWC and CSFS will implement the following BMPs for all projects in pinyon pine that receive technical and financial support through the WRWC Cost-Share Program and/or the WRWC Chipping Program. Landowners are advised to adhere to these management practices in treating their own properties.

- Trees that have been dead for 3 or more years no longer contain ips beetles and are not suitable hosts, so they can be cut down and used as firewood.



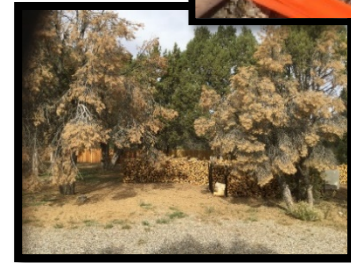
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- Trees that are recently dead or showing signs of infestation, such as yellowing or very light green needles (*see illustration of infested pinyon trees*) or pitch tubes (*see illustration of pitch tubes*) should be disposed of as soon as possible using the following seasonally adjusted guidelines:



March 16 through October 14

- Cut pinyon trees and haul them off site (*not to an area with pinyon trees*) or burn them immediately (*be aware of local burning regulations/restrictions*).
- Do not store firewood from these trees or distribute it to other areas with pinyon trees (*see illustration of trees affected by stored firewood*).
- Avoid chipping, masticating, or extensive pruning to avoid the release of VOCs.



October 15 through March 15

- Cut and chip or masticate pinyon trees early enough in the winter to allow chips/chunks to release their VOCs by April 15 (*most of the VOCs are released in approximately 4 weeks*).
- If firewood is utilized, burn it the same winter no later than March 15.
- Prune and limb trees so the cut material can release its VOCs prior to the first annual flight.
- Cut slash material in late October to allow it to dry out. Slash may stay green enough for colonization for up to six months, especially if it is stored in shade at high elevations.

Administration of the WRWC Cost-share Program

- Registration for WRWC Cost-Share Program will remain the same. (www.cowildfire.org)
- Cost-Share projects will be designed, laid out, and shown to contractors throughout the summer.
- Cost-Share mitigation treatments in pinyon pine will be conducted between October 15 and March 15 and will be administered according to the above BMPs.
- Project administrators will determine if firewood can be utilized on a case-by-case basis, based on field inspection, and incorporate that information into the scope of work for the project.

Administration of the WRWC Chipping Program:

- Registration for WRWC Chipping Program will remain the same. (www.cowildfire.org)
- Community chipping events in areas dominated by pinyon pine will operate between November 1 through March 15.
- Homeowners are requested to use the above seasonally adjusted guidelines for cutting and pruning.

Learn More About Ips Beetle

Ips Beetle; Fact Sheet Number 558: <https://extension.colostate.edu/docs/pubs/insect/05558.pdf>

Management Guide for Pinyon Engraver Beetle: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5187536.pdf

Management Guide for Pinyon Engraver Beetle (Pinyon Ips Beetle); Forest and Insect Disease Leaflet: <https://ffsl.utah.gov/wp-content/uploads/pinyonengraverbeetle.pdf>

The Pinyon Ips Bark Beetle: <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1394.pdf>

Slash Management for Controlling *Ips confusus* (Ips) Bark Beetle: https://tra.extension.colostate.edu/wp-content/uploads/sites/9/2019/09/Slash-Management-with-regard-to-Ips_CSFS_2019.pdf