

Whitebark Pine (*Pinus albicaulis*) Forest Health in California: A Guide to Common Pathogens



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In collaboration with:
The California Native Plant Society
USDA Forest Service, Pacific Southwest Region,
February, 2014

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Photo on cover page:
Pinus albicaulis mortality in the Antelope Creek Research Natural Area,
Shasta-Trinity and Klamath national forests

All photos by Michael Kauffmann unless otherwise noted

Suggested report citation:

Kauffmann, M. 2014. Whitebark Pine Forest Health in California: a guide to common pathogens.
Unpublished report. California Native Plant Society Vegetation Program, Sacramento, CA.

<http://pacslope-conifers.com/conifers/pine/wbp/CNPS-Reports/WBP-Forest-Health-California.pdf>

Special thanks for feedback and images provided by:

- Danny Cluck - Entomologist, Forest Health Protection, US Forest Service.
- Erik Jules - Professor, Ecology, Humboldt State University.
- Jeffrey Kane - Assistant Professor, Fire Ecology and Fuels Management, Humboldt State University.
- Ronald Lanner, Forest Biologist, Conservation of Biodiversity - Pacific Southwest Research Station.
- Connie Millar - Research Paleoecologist, US Forest Service.

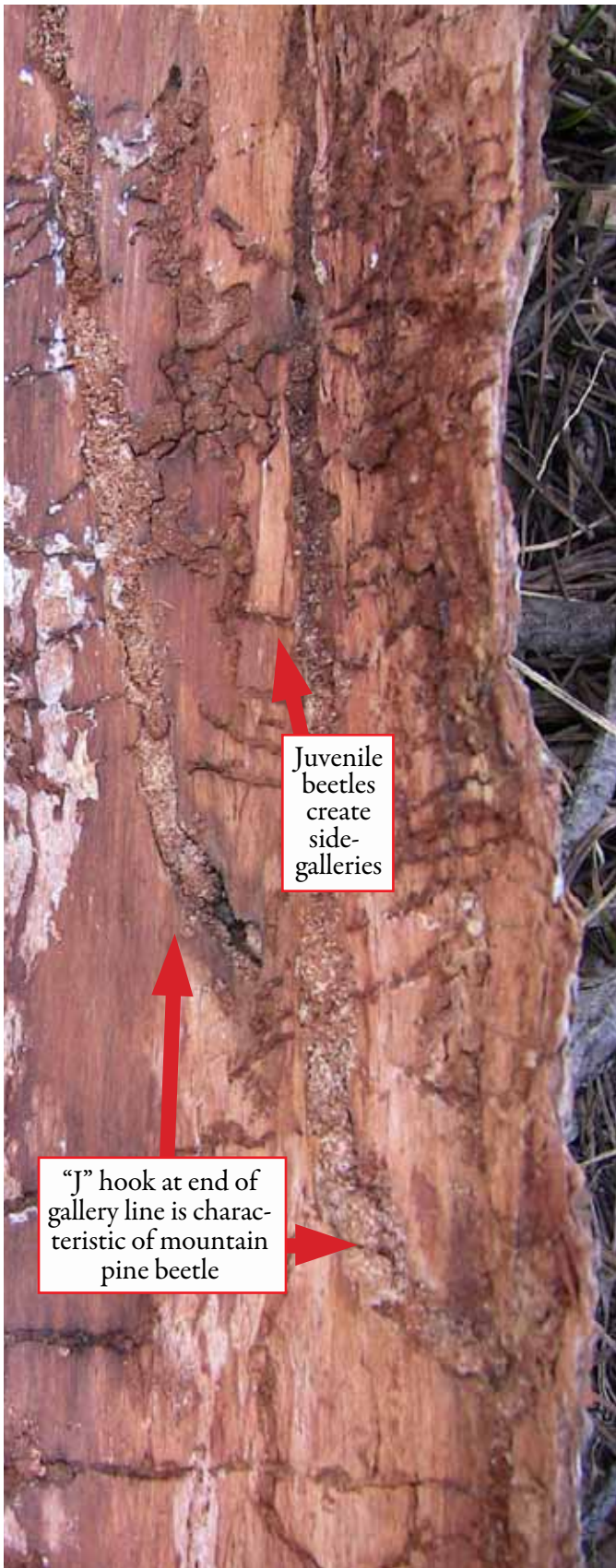
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Whitebark Pine Forest Health In California

Mountain Pine Beetle (*Dendroctonus ponderosae*)



Juvenile beetles create side-galleries

"J" hook at end of gallery line is characteristic of mountain pine beetle



Multiple stem clumps of whitebark pine recently killed by mountain pine beetles in the Warner Mountains

Pitch tubes from active beetle attack (Dendroctonus sp.)



Mountain pine beetle (Dendroctonus ponderosae) galleries

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White pine blister rust (*Cronartium ribicola*)



White pine blister rust aecia emerging from whitebark pine bark

*Branch flagging can be caused by white pine blister rust (*Cronartium ribicola*)*



Det Vogler



*The uredinial spores are found on *Ribes* sp.*

Bark damage on whitebark pine, due to mammals eating into the cambium to secure sugary deposits the trees make as a defense against white pine blister rust



Whitebark Pine Forest Health In California

Other health issues



Erik Jules



Bark damage caused by a sapsucker

Limber pine dwarf mistletoe (Arceuthobium campylopodum) on whitebark pine



Jeffrey Kane



Red band needle disease (Mycosphaerella pini) can lead to tree mortality

Brown felt blight (Neopeckia coulteri) is limited to lower branches that get buried in snowpack

Twig beetle (Pityophthorus sp.) on whitebark pine in the Warner Mtns.



Rachel Simons

Shoot moth damage in the Warner Mountains, possibly Rhyacionia sp.



Rachel Simons