

Forest Management Techniques—Whitebark Pine

Thinning:

- Creates better growing conditions by removing or reducing competition with other trees.
- Reduces forest fuels in places of high fuel density – reduces risk of catastrophic wildfire.
- Conversely can be used to increase fuel density – provides shelter locations for seeding and planting.
- May reduce the risk of mountain pine beetle infestation.

The goal of the thinning is to mimic the effects of a low to moderate severity fire. Thinning should create a matrix of areas not thinned, thinned areas where significant amount of surface fuels have been removed, thinned areas where all immature trees have been removed, and thinned areas where some mature trees are removed.

Typical thinning prescription will remove all non-whitebark pine trees. This includes a combination of felling and girdling of trees (Figure 1). Select whitebark pine should be removed if dying from blister rust. If the goal is to safeguard the whitebark pine stand from fire, the slash created from the forest management should be piled well away from the living whitebark pines and burned or disposed under controlled conditions. If the goal is to encourage low to moderate intensity fire then the slash can be lopped and scattered through the stand.



Figure 1: Girdled Tree - Wikipedia

Mountain Pine Beetle Treatments:

The goal of mountain pine beetle treatment is to reduce mortality of whitebark pine due to mountain pine beetle.

Primary tools are thinning to increase resiliency to attack and the use of verbenone to deter mountain pine beetle attack of whitebark pine (Figure 2). Thinning reduces competition for nutrients, water, and sunlight and will improve overall health and resiliency to disease and insects of the trees that remain following thinning (leave trees).

Verbenone deters mountain pine beetles from attacking pine trees. The verbenone signals mountain pine beetles that the tree has “no vacancy”. Verbenone is commonly applied as patches which are attached directly to the selected whitebark pine tree. Pouches are attached about 10 feet about the ground, usually 2 per tree on opposite sides of the trunk. Pouches should be attached just prior to the mountain pine beetles spring flight (Late May / Early June) and will need to be replaced annually. When treating a stand pouches can be attached in a 35 – 40 feet grid. This will create a pheromone “plume” that treats the area.



Figure 2: Verbenone Pouch - montananewsnow.com

Fire Management:

Whitebark pine is a fire dependent species. Low to moderate fires can reduce and remove competing vegetation. Fire suppression can create high fuel loads and increase the likelihood of a high intensity, stand replacement fire. Under the right conditions, control fire can be used as a tool to restore whitebark pine. Careful thinning can reduce fuels levels so that in the event of a wildfire, the wildfire is low to moderate intensity rather than high intensity, stand replacing fire event.

Source: Land and Managers Guide to Whitebark Pine Restoration in the Pacific Northwest Region 2009 – 2013. 2008. United State Department of Agriculture, Forest Service, Pacific Northwest Region.



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