

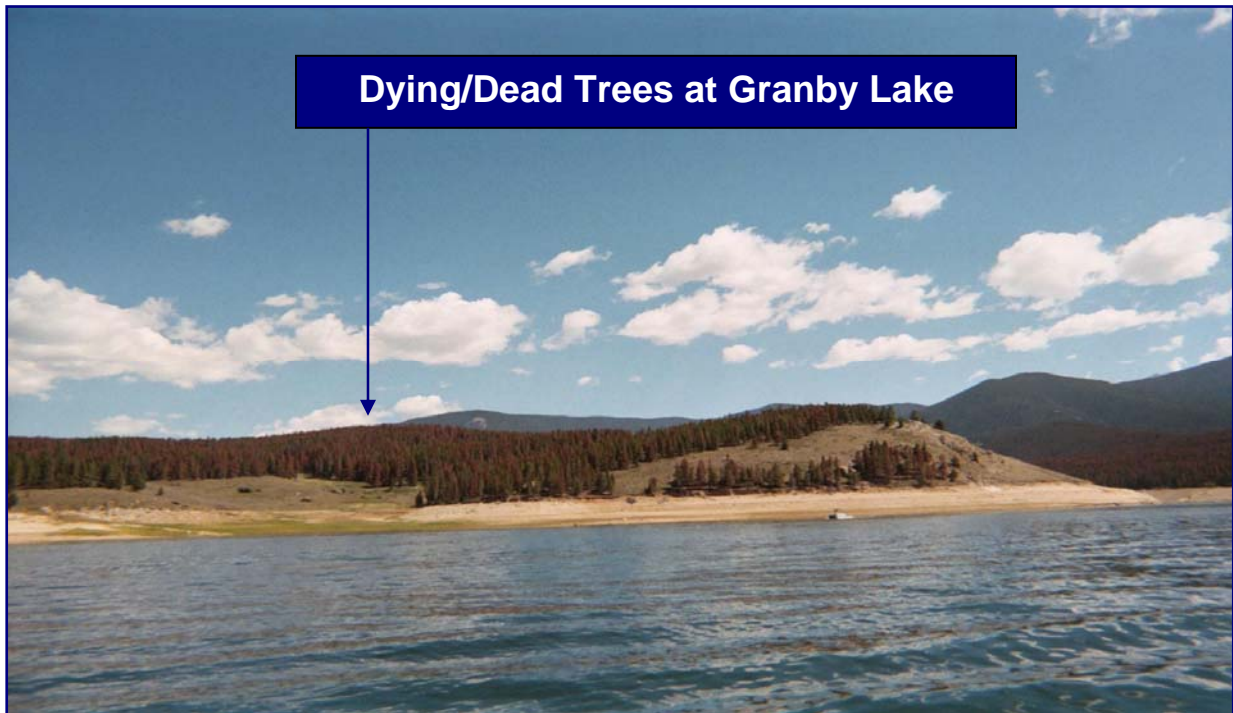
# MOUNTAIN PINE BEETLE SPRAYING / INSPECTION

## Various locations around Colorado

The infestation in Grand County is said to be the largest of its kind in all of the United States and unfortunately has been spreading into Summit and Eagle Counties. Legend has it that sometime in the 1800's in the Grand Lake area during a war with a neighboring tribe, the forest was set on fire by a local tribe of Indians. Lodgepole pinecones are best germinated

Colorado's forests are infested by a variety of pests, most notably MPB. Other problem causing pests and diseases include, but not limited to:

- Mistletoe,
- Western Gall Rust,
- IPS beetles, and
- Red Turpentine Beetle



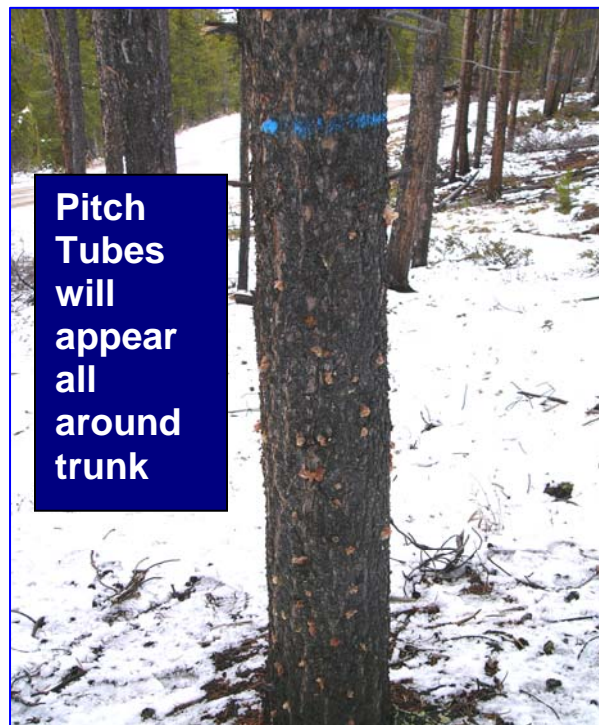
by fire resulting in a monoculture of trees tending to grow closely and tall crowding out other species. This factor coupled with a lack of forest management (i.e. thinning practices), not allowing natural fires to burn and the drought being experienced in Colorado over the last few years has made the forest weak and susceptible to a number of pests. One of the more devastating of which is the Mountain Pine Beetle (MBP).

Infestations can be attributed to:

- Forest Health – The forest is extremely over crowded. According to forestry experts a healthy forest consists of 30 trees per acre with at least 10' spacing between crowns. Thinning is highly advised for both health and fire mitigation purposes.

- Lack of diversity – The majority of the trees found in Grand County are Lodgepole pine. This is allegedly due to fire history in the area as Lodgepole seedlings need fire to sprout/grow.
- Weather – Drought in Colorado has contributed to forest health.
- Damage to trees caused by: Construction related activities, severe weather (such as Colorado's recent drought and/or lightning strikes), and Animal activities (such as Porcupines who remove bark, and Elk/Moose/Deer who rub trees with their antlers).

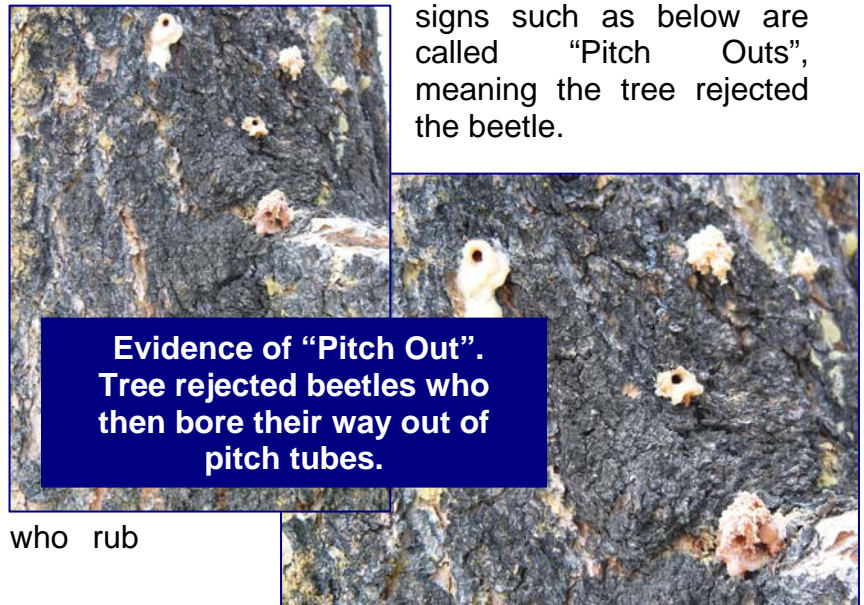
All of these activities may weaken the trees making them more susceptible to pests and disease.



**Pitch Tubes will appear all around trunk**

The photo above is a good representation of a successful MPB attack. Note the pitch tubes of sap that look like popcorn.

Having shown these pictures to the Colorado State Forest Service Entomologist, it was confirmed that tree signs such as below are called "Pitch Outs", meaning the tree rejected the beetle.



**Evidence of "Pitch Out". Tree rejected beetles who then bore their way out of pitch tubes.**

The difference between above and below "Pitch out" photos are:

- Above – evidence the beetles managed to bore their way out of the pitch tube.
- Below – evidence the beetle was rejected but unable to remove itself from the pitch thereby remaining 'stuck' so to speak.



**Mountain Pine Beetle "pitched out" by tree**

All trees showing this type of rejection are candidates for preventative spraying.