

The Mountain Pine Beetle Epidemic

What is the latest movement of the mountain pine beetle?

The summer of 2009 aerial survey results for northern Colorado and Southeastern Wyoming reveal that there was about 600,000 new acres infested in 2009; these are acres that had not previously been affected by the bark beetle epidemic.

In Colorado and southeastern Wyoming, mountain pine beetles have affected more than 3.6 million acres from the first signs of outbreak in 1996 (around 3 million in Colorado). The reason for the extra 400,000 acres unaccounted for this year was the some changes in how acres were counted. This year we were able to include acres from all species and from all counties over the last 13 years.

Four Major Tree Species Are Affected.

In Colorado and Southeastern Wyoming, larger diameter lodgepole, ponderosa, limber, and bristlecone pines are attacked and killed by mountain pine beetles.

The current epidemic is still primarily in lodgepole pines where their trunks that have a diameter greater than five inches. Even on the Front Range the greatest increases have been in the lodgepole pine forests. For Example, Larimer County's affected acres increased from 260,000 acres to 500,000 acres affected, (up 92%) and Boulder County saw an increase from 50,000 acres to 77,000 (up 54%). In both counties, most of the change is occurring in the lodgepole pine forests.

In lower elevation ponderosa pine forests, mountain pine beetle-killed trees increased only by a 2,000 acres in Boulder County and 15,000 acres Larimer County in 2009. There is greater variability in the age, size and density in the ponderosa pine forests of the Front Range of Colorado. Therefore, the course of the mountain pine beetle epidemic and the severity of losses are difficult to predict with any degree of confidence. We suspect that tree mortality in ponderosa pine will be more variable than the losses observed in lodgepole pine forests west of the Continental Divide.

Limber and bristlecone pines are also being attacked at high elevations in Boulder, Clear Creek, and Larimer Counties.

How did this happen?

Many call this a perfect storm.

- Climate change has brought warmer winters.
- Fires, mining, and settlement at the turn of the century created even aged, uniform stands of prolific lodgepole pine.
- Firefighting practices brought many fires to a halt before these fires had a chance to burn the natural mosaics the landscape required for trees diverse in age, and size, especially in the ponderosa pine stands.

This "perfect storm," brewing for around 100 years, created large caches of target trees just the right size for mountain pine beetle at the beginning of the 21st century.

Dead and dying trees that were isolated to five northern Colorado counties in 2006 can now be seen in some Front Range areas, as well as southern Wyoming. The bark beetle is starting to invade ponderosa pine stands on the Front Range.

Is This Safe?

There have been some near misses on NFS land and one fatality on private property. Wet weather has accelerated root rot in the beetle-killed trees, creating a safety hazard difficult to mitigate. Lookouts on every field crew have become a necessity, as is choosing a worksite outside the beetle-killed forests on windy days. Getting important safety messages out to the public is also a critical task.

Red and dead lodgepole pine trees can fall at any time because of their shallow roots. Watch the weather before leaving and stay away from red and dead trees on windy days. Get to an open area if the wind kicks up and you are near dead or dying trees. 80% of the lodgepole pine trees will fall within 10 years

What is the USFS Doing About It?

Region 2 declared the dead tree hazards an emergency and ordered a National Incident Management Organization (NIMO) Team. This a seven-member team of professional incident managers with complex incident management as their primary focus. This approach will allow us to separate and track the emergency response. The NIMO Team approach assures us the opportunity to respond appropriately given the scale and complexity of the incident.

We cannot stop the epidemic. However, the Forest Service will continue to protect communities and resources with its partners, and to treat key places in the forest to promote diversity as the forest regenerates. Some critical areas are:

Forest management in the wildland urban interface and watersheds will protect some areas and provide new trees in other areas that may be able to withstand future insect and disease effects. In some places, these actions also provide defensible space in the case of a wildfire.

Some critical areas are:

1. ***Hazardous Fuels Adjacent to Communities:*** The USFS treated: **25,500 acres** in 2009 via timber harvest, fuels treatment, hazard reduction, spraying of valuable trees in campgrounds and recreation sites in Colorado and Wyoming. Most of these treatments were within the wildland urban interface. About 6,800 acres were on the Front Range of Colorado.
2. ***Roads, Recreation Areas and Activities Where Hazard Trees Threaten Public and Employee Safety:***
 - ***Twenty million out of state visitors*** were drawn to Colorado by the beautiful mountain scenery and spent \$ 7.6 billion there in 2006. The White River, and Arapaho and Roosevelt National Forests are two of the four most visited National Forests in the United States together they average 46 million visitors a year.
 - ***911 miles of trails 20%*** of all the trails on the Medicine Bow-Routt, White River, Arapaho, and Roosevelt National Forests (the three National Forests) are affected by the beetle epidemic.
 - ***3,198 miles of road*** (40% of all the roads on the three National Forests) are affected by the epidemic. The Medicine Bow-Routt has completed NEPA analysis on 1500 miles of roads and received ARRA funds to complete a portion of the work. The White River has completed NEPA analysis on 1400 miles of affected roads. NEPA analysis is underway for roads on the Arapaho and Roosevelt.
 - ***21,455 acres of developed recreation sites*** (19% of all of the acres of campgrounds and picnic areas on the three National Forests) could be closed or use could be limited while dead and hazardous trees are removed. Many of these sites will be revisited more than once as beetles kill additional trees. Structures and saplings can be added to provide shade and screening, but it will take time and money for this to happen.
 - ***The beetle is affecting fifteen ski areas.***

Note: The areas listed above are just for the lodgepole pine forests affected and do not include the ponderosa pine areas that have been recently affected by the mountain pine beetle.

3. Power Lines Utility Corridors and Microwave Sites:

Electric generation in western Colorado must cross beetle-killed areas to serve Front Range demands. Shutting down transmission lines due to falling trees or wildfires can threaten power supply to Denver and throughout Colorado.

- In Colorado, beetle-killed trees affect more than 550 miles of transmission lines and distribution lines.
- In Wyoming, Rural cooperative Carbon Power and Light has a tight budget and 69 miles of distribution lines that could be disrupted or damaged by wildfires or falling tree hazards
- More than 60 miles of designated utility corridors containing gas, electric and water lines in Wyoming and Colorado may be affected.
- Five microwave sites in Colorado may also be affected.
- About 75 miles of these lines run through roadless areas.

4. Essential Water Supplies Could be Affected by the Increase Risk of Fire.

- More than two million people in the Denver Metropolitan area receive their water from forests killed by beetle epidemics.
- Another 750,000 residents of northern Colorado cities like Fort Collins receive supplemental water supplies from these areas.
- Water providers take water from west of the continental divide and deliver it to customers using a complex system of pumps, conveyances and storage reservoirs. For example, Denver Water alone has 25 reservoirs on the forests (Pinchot Institute for Conservation, 2007). Many of these conveyances and storage reservoirs are in beetle-infested areas.
- Fuel reduction projects are needed in these areas to protect essential water supplies.
- Numerous agricultural reservoirs and many miles of irrigation ditches provide essential water for agricultural uses and water needs for the Colorado and Platte River systems to provide essential habitat for Threatened and Endangered riverine species.
- The heart of the epidemic in Colorado and Wyoming contains the headwaters for rivers that supply water to 17 western states.

5. ARRA Funds Helped Mitigate Hazards in 2009.

- The Routt National Forest got \$2.2 million of ARRA funds for roadside hazard tree removal. All of this work is under contract, with most of it being completed in 2009. Local contractors did the work.
- A half a million ARRA dollars went to the Rocky Mountain Youth Corp in an ongoing effort to remove beetle-killed trees from developed recreation sites and hiking trails on the Routt NF. RMYC complimented the contracted work by cleaning up slash at trail heads and developed recreation areas.
- The Arapaho and Roosevelt National Forest received \$1.5 million for hazard tree removal, spraying trees in recreation sites, and hazardous fuel reduction projects.

6. Retaining a Viable Forest and Wood Products Industry in Colorado and Wyoming Will be Vital For Forest Management Now and Into the Future.

- Multiple benefits can be achieved on a landscape level including reduction of hazardous fuels with smart use of biomass products.
- Cutting these hazardous, beetle-killed trees creates a win-win-win situation that extracts biomass, utilizing it to make value-added wood products and energy, while creating local jobs that support rural economies.
- Here is an example of how biomass can be used: One ton of bone dry woody biomass equals one megawatt hour of electricity or 10,000 lbs of steam. An acre of lodgepole pine mortality can yield as much as 60 bone dry tons.