



# MOUNTAIN PINE BEETLE

## Fact Sheet 4 Pine Beetle and Watershed Risks

March 11, 2014

*The Bear Creek Watershed Association protects and restores water and environmental quality within the Bear Creek Watershed from the effects of land use.*

Clear Creek County  
 Jefferson County  
 City of Lakewood  
 Town of Morrison  
 Aspen Park Metropolitan District  
 Brook Forest Inn  
 Conifer Sanitation Association  
 Conifer Metropolitan District  
 Denver Water Department  
 Evergreen Metropolitan District  
 Forrest Hills Metropolitan District  
 Genesee Sanitation & Water District  
 Geneva Glen  
 Jefferson County School District  
 Kittredge Water & Sanitation District  
 Tiny Town Foundation, Inc.  
 West Jefferson County Metropolitan District  
 Evergreen Trout Unlimited  
 U.S. Army Corps of Engineers

**In Our Watershed**—Mountain pine beetle is a serious insect pest of ponderosa and lodgepole pine forests in Colorado. The current outbreak is killing large numbers of pines on the western slopes and has moved into Front Range watersheds. Mountain pine beetle populations are on the rise in the Bear Creek Watershed and could affect forests in the watershed over next two decades. Mountain pine beetle, *Dendroctonus ponderosae*, is native to the forests of western North America. Mountain pine beetles attack pines greater than seven to eight inches in diameter, particularly ponderosa, lodgepole, Scotch and limber pine. Bristlecone and pinyon pine can be attacked, but this is less common.

**Affects on Bear Creek Watershed**—A beetle-infected area can affect watershed by altering water quality and water quantity. There are potentially large tracts of the Bear Creek Watershed that could be infected by the beetle and loss of many thousands of acres of forest. The beetle problem could affect both the Bear Creek and Turkey Creek drainages of the watershed. Here are just some of the future concerns to the Bear Creek Watershed Association:

- Increased fire danger.
- Nutrient enrichment and runoff (nitrogen and phosphorus flushing).
- Increased nutrients in lakes and reservoirs can cause worst quality problems.
- As there is less canopy with extensive beetle kill, there is a dramatic increase in sediment and soil erosion from both stormwater events and by wind erosion
- The increased erosion results in more sediment loads in waterways.
- Often this new sediment load is made up of much smaller or finer soil particles than occurs under more normal conditions and this increased amount of fine-particle sediments (clay and mud) in waterways can affect aquatic life spawning and habitat.
- The reduced forest canopy allows more sunlight to reach the forest floor, which in turn increases the amount heat transferred to runoff water and then causes increased temperatures in the streams.
- Increased temperature can affect the fish whom are very sensitive to high temperatures, particularly trout species; Fish kills.
- Increased temperature on the forest floor cause the natural soil moisture to decrease and dries up the forest. Dry soil can more easily erode.
- Changes the watershed hydrology, which can potentially increase flows and alter the timing of runoff.
- Increased flows can cause problems with stream channel stability.
- Early snow melt-off.
- Make watershed planning and use of best management practice implementation less predictable and harder to manage.
- Diverts resources and funds from other projects and forces the Association and other agencies to be reactive.
- Degrade drinking water quality.
- Affects recreation uses; increases the danger to hikers; impacts tourism.
- Also can affect utility transmission, property values, transportation, and construction activities.

