

Facts About B.C.'s Mountain Pine Beetle



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Basic Beetle Biology

- The Latin name for the mountain pine beetle is *Dendroctonus ponderosae*.
- The life span of an individual mountain pine beetle is about one year.
- Pine beetle larvae spend the winter under bark. They continue to feed in the spring and transform into pupae in June and July.
- Adult mountain pine beetles emerge from an infested tree over the course of the summer and into early fall.



Infestation Information

- The Ministry of Forests and Range estimates that the mountain pine beetle has now killed a cumulative total of 620 million cubic metres of timber since the current infestation began.
- The cumulative area of B.C. affected to some degree (red-attack and grey-attack) is estimated at 14.5 million hectares.
 - 14.5 million hectares is more than four times the size of Vancouver Island.
 - Newly attacked trees turn red about one year after infestation. Trees can stay in the red-attack stage for two to four years before turning grey as they lose their needles.
- On a provincial level, the infestation has peaked and is now slowing down.
 - 7.8 million hectares of red-attack were surveyed in 2008. This is compared to 10.1 million hectares the year before. This is the first decrease in red-attack since the current infestation began.
 - The amount of habitat available to the beetle has begun to diminish as the beetle has already attacked most of the mature lodgepole pine in the Central Plateau region.
 - The rate of spread in other areas of the Interior has been slowed by more diverse terrain and forests with a greater diversity of timber species.
- The mountain pine beetle in B.C. is as far-ranging as Fort St. John to the north, the Alberta border to the east, Terrace to the west, and the United States border to the south.

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- The B.C. Mountain Pine Beetle Status Map 2008 clearly shows the magnitude of the infestation. This map is posted at www.for.gov.bc.ca/hfp/mountain_pine_beetle/maps.htm.

Three Stages of Attack

- **Green Attack** – Adult beetles have found a new host tree and tunneled underneath the bark to lay their eggs. The tree dies soon after, but the needles stay green for several months.
- **Red Attack** – The needles have turned red as a result of the beetles killing the tree by mining the layer between the bark and the wood, cutting off the tree's supply of nutrients.
- **Grey Attack** – The needles have fallen off of the tree and only the bare branches remain. The decaying tree has become more susceptible to falling or being blown down.

Beetles and Weather

- Hot and dry summers leave pine drought-stressed and more susceptible to attack by the mountain pine beetle.
- Cold weather kills the mountain pine beetle. Mountain pine beetle eggs, pupae and young larvae are the most susceptible to freezing temperatures.
- In mid-winter, temperatures must consistently be below -35 Celsius to -40 Celsius for several straight days to have any effect.
- In the early fall or late spring, sustained temperatures of -25 Celsius can freeze mountain pine beetle populations to death.
- A cold snap is most effective in the fall, before the mountain pine beetles can build up their natural anti-freeze (glycerol) levels.
- Cold weather is also more effective before it snows. A deep layer of snow on the ground can help insulate mountain pine beetles if they're in the base of the tree.
- Wind chill affects mountain pine beetles, but is usually not sustained long enough to significantly increase winter mortality.