

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 B.C. Ministry of Forests, Lands and Natural Resource Operations estimates the mountain pine beetle has killed a cumulative total of 723 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 18.3 million hectares.
 - 18.1 million hectares is more than five 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 slowed considerably since it peaked in 2005.
- In terms of area, 3 million hectares of red-attack were surveyed last in 2012. This compares with 4.6 million hectares in 2011.
 - 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 somewhat slowed by more diverse terrain and forests with a greater diversity of timber species.
- The latest computer modelling projections indicate about 57 per cent of the pine volume in the province may be killed by 2021. This is significantly less than the 80 per cent pine-kill that was being projected six years ago.

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Three Stages of Attack

- **Green Attack** – Adult beetles have found a new host tree and tunnelled 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.