

Researcher discovers genetic differences in trees untouched by mountain pine beetles

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Credit: University of Montana

A University of Montana researcher has discovered that mountain pine beetles may avoid certain trees within a population they normally would kill due to genetics in the trees.

UM Professor Diana Six made the discovery after studying mature whitebark and lodgepole trees that were the age and size that [mountain](#) pine beetle prefer, but had somehow escaped attack during the recent

outbreak.

After DNA screening, survivor trees all contained a similar genetic makeup that was distinctly different from the general population that were mostly susceptible to the beetle.

"Our findings suggest that survivorship is genetically based and, thus, heritable," Six said, "which is what gives us hope."

In western North America, whitebark pine, a high elevation keystone species recommended for listing as an endangered species, and lodgepole pine, a widespread ecologically and economically important tree, have experienced extensive mortality in recent climate-driven outbreaks of the mountain [pine](#) beetle.

"Our results suggest that surviving [trees](#) possess a wealth of information that can be used to inform our understanding of the genetic and phenotypic bases for resistance and to develop management approaches that support forest adaptation," Six said.

The study was published July 23 in the journal *Frontiers in Plant Science*.

More information: Diana L. Six et al, Are Survivors Different? Genetic-Based Selection of Trees by Mountain Pine Beetle During a Climate Change-Driven Outbreak in a High-Elevation Pine Forest, *Frontiers in Plant Science* (2018). [DOI: 10.3389/fpls.2018.00993](https://doi.org/10.3389/fpls.2018.00993)

Provided by University of Montana

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