

Fire severity in southwestern Colorado unaffected by spruce beetle outbreak

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A dead beetle is visible alongside the charred bark of a tree. Credit: Robert Andrus / University of Colorado Boulder

Contrary to expectations that spruce beetle infestations increase the severity of wildfires in southwestern Colorado, a new study led by

University of Colorado Boulder researchers has found that this native insect may not be to blame after all.

Spruce bark beetles have affected roughly half a million acres of Engelmann spruce and subalpine fir forests across the state in recent years. In 2014, spruce beetles infested more than 87,000 new acres in Colorado. Several large severe wildfires have occurred in the state over the past decade, leading some to hypothesize that the beetle's destructive spread may be a contributing factor.

Not so, according to a field study led by CU-Boulder researchers, who found that higher levels of spruce beetle infestation did not lead to more ecologically severe fires. The findings were published this week in the journal *Ecological Applications*.

The study is the first to quantify the influence of spruce beetle and [fire](#) severity on spruce-fir forests through direct field measurements as opposed to using satellite or aerial imagery. The researchers examined five recent subalpine fire zones in the San Juan Mountains of southwestern Colorado.

"Our study is unique because we were actually out in the forest peeling bark off of the burned trees, looking for evidence of the beetle," said Robert Andrus, a graduate researcher in the Department of Geography at CU-Boulder and lead author of the new study. "We were interested in the ecological effects of the interaction between these two disturbances and determining whether more trees were killed by fire in areas of higher beetle infestation."

The lack of correlation between spruce beetle infestation and severe fire damage suggests that factors such as topography and weather conditions play a larger role in determining the severity of Colorado's subalpine wildfires.

The study may have future implications for state land managers and policymakers, who must decide how best to devote resources to fire suppression and spruce beetle containment efforts.

Provided by University of Colorado at Boulder

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