

## The Research Continues

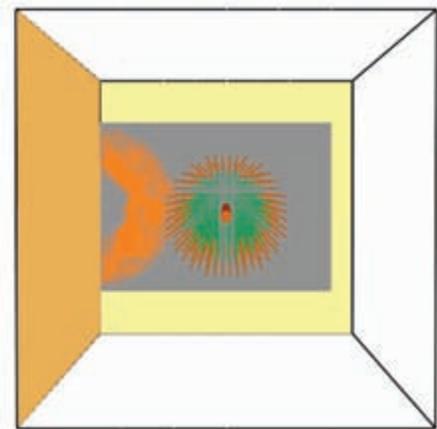
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### Isolating the Effects of Western Spruce Budworm

Insects are often thought to increase fire hazard or behavior, but precise links between historical western spruce budworm outbreaks and fire are difficult to make from dendrochronology alone. FFS researchers Greg Cohn, Russ Parsons, and Emily Heyerdahl, working with Dan Gavin at the University of Oregon, are using 3D fire models, to understand the impact and magnitude of western spruce budworm outbreaks in the Interior West.

To isolate the effect of defoliation on crown fuels, FFS researchers simulated single-tree torching across a range of crown fuel changes that occur during western spruce budworm infestations. By isolating the effects on a single tree and simulating them in a 3D fire model (WFDS), researchers identified precise links between western spruce budworm disturbance and fire behavior changes. Initial findings show that defoliation dampens crown fire behavior by increasing the surface fire intensity necessary to ignite a tree and by inhibiting fire spread between crowns.

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### Innovating with LIDAR Technology

LIDAR (Light Detection and Ranging) technology uses a laser beam to determine atmospheric properties and provide a three-dimensional image of the optical characteristics. For investigating wildfires, LIDAR is generally mounted on an airplane, making the process expensive to use and limited in its range of applications. To move this kind of technology into the field, the researchers at the Missoula Fire Sciences Laboratory have developed a truck-mounted LIDAR scanning



system designed specifically for smoke plume monitoring. The LIDAR can be programmed to scan in any direction, providing critical real-time (short- or long-term) monitoring while operating from a safety zone outside a burn area, guaranteeing the safety of research personnel.

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