

Study helps managers identify regions with multiple threat potential, including wildfires

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A recent study in the *Journal of Forestry* now offers managers a tool to help them identify regions exposed to multiple forest threats. The tool uses a novel 15-mile radius neighborhood analysis to highlight locations where threats are more concentrated relative to other areas, and identifies where multiple threats may intersect. It is a technique that may have never been used before to describe forest threats, according to the researchers.

"Policymakers and managers often rely on maps showing where forest threats are most prevalent; they then assess these threats in relation to the [forest resources](#) most valued by the public," explains Jeff Kline, the study's lead author and a research forester at the Forest Service's Pacific Northwest (PNW) Research Station. "Management priorities are then made based on this information. We have devised a way to combine and display forest threat data at its appropriate spatial scale and in a way that transcends [political boundaries](#), using readily available GIS [geographic information system] [analytical tools](#)."

"To our knowledge, this is the first time that data describing different threats have been displayed in this manner," adds co-lead and research ecologist, Becky Kerns, "Our approach recognizes that a single point mapped as potentially highly vulnerable to a threat may not be all that important from a regional or national planning perspective. What is important is the concentration of threats within a defined and appropriate spatial scale of interest."

The study, which began in 2008, examines spatial data characterizing wildfire, insects and disease, and urban and exurban development in the northwestern United States. It covered 488,000 square miles in Idaho, Montana, Oregon, Washington, and Wyoming, using a novel 15-mile radius neighborhood analysis to highlight locations where threat of a given disturbance may be more concentrated relative to other areas.

The maps and overlays can help managers locate regions where potential threat combinations are most prevalent. Such assessments can help managers allocate resources toward mitigation efforts and better use shrinking budgets. Federal wildfire suppression expenditures exceeded \$1 billion in 2000. They have exceeded that amount nearly every year since, according to the National Interagency Fire Center.

Three key findings characterize the study:

(Note: Maps created by the researchers highlight the intersection of locations where a given disturbance exists at a higher concentration relative to other areas in the five-state study region.)

- Although still a very high concern, wildfire potential combined with urban and exurban development can occur on a fairly small geographic area in the northwestern United States, despite widespread concern about their coexistence.
- The combination of wildfire with insects and disease affect extensive portions of the forested landscape in the northwestern United States.
- The triple threat of wildfire, insects and disease, and urban/exurban development, is not common in the northwestern [United States](#).

More information: Mapping Multiple Forest Threats in the Northwestern United States, www.safnet.org/publications/jof/

Provided by USDA Forest Service

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