Economic assessment of mountain pine beetle timber salvage

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A recently published study by U.S. Forest Service researchers evaluates potential revenues from harvesting standing timber killed by mountain pine beetle in the western United States. The study shows that while positive net revenues could be produced in West Coast and Northern Rockies states with active timber markets, the central Rocky Mountain states of Colorado, Utah, and Wyoming—which have the largest volume of standing dead timber—would not generate positive net revenues by salvaging beetle-killed timber.

A mountain pine beetle epidemic in the western United States has left mountainsides covered with dead pines, especially lodgepole pine, with most of the timber and land affected on national forests. Policymakers and forest managers are considering increasing timber salvage rates on these lands as a way to address potential wildfire threat, hazards from falling trees, and visual impact, but first need to assess the broader economic ramifications of putting more timber on the market in areas where mills have closed and markets have waned over the two last decades.

Research Forester Jeff Prestemon and fellow scientists with the Forest Service Southern Research Station Forest Economics and Policy unit and with the Eastern Forest Environmental Threat Assessment Center were asked to evaluate the circumstances under which salvaging pine beetle-killed timber would be cost-effective. The researchers used an economic assessment model to estimate potential salvage volumes, costs and revenues from programs that would encourage salvage of standing dead

timber, summarizing findings by state and owner groups.

"We carried out a set of multiyear simulations to produce an assessment of the net revenue impacts of salvage on national forests and other public and private lands in the 12 contiguous western U.S. states," says Prestemon. Net revenues are defined as revenues received at the mill gate less the costs of harvesting, transportation, and administration. The researchers also carried out a scenario that tested doubling the total mill capacity in Montana and Colorado—two states heavily affected by the mountain pine beetle—to evaluate the effects of efforts to encourage or subsidize higher rates of salvage in these states.

Findings from the assessment include:

- The central and northern Rocky Mountain states have the most salvageable timberland and the largest total salvageable volumes, with the highest in Montana, Colorado, Wyoming, and Idaho.
- The majority of timber and lands affected in the 12 western states are on national forests—88 percent of the total salvageable volume and 84 percent of the total area.
- Four states—Colorado, Idaho, Montana, and Wyoming—have actual volume losses greater than 2 billion cubic feet. Two additional states—Oregon and Utah—have more than 1 billion cubic feet of salvageable volume.
- Of the above six states, Idaho, Oregon, and Montana currently have the timber processing capacity to absorb large quantities of salvage.
- Scenarios show that salvage would generate positive net revenues in Idaho, Montana, Washington, Oregon, California, and South Dakota.
- States where salvage-generated revenues are on average less than salvage costs include Colorado and Wyoming—which have large proportions of salvageable volume—and Nevada.

- For Wyoming and Colorado, scenarios show that relatively high volumes removed per acre of timberland lead to quick saturation of available markets even when the number of total acres harvested is small.

"In short, our results show that places where timber product markets are strong are likely to have profitable salvage, while places where product markets are weak would need sizable public expenditures to achieve appreciable reductions in the amount of dead standing timber," says Prestemon. The study did not examine other factors that might influence land management decisions, such as fire risk reduction, improvement in stand conditions, or jobs.

More information: www.srs.fs.usda.gov/pubs/ja/20 … 13_prestemon_001.pdf

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