

# Assessing Limber Pine Stand Conditions after Blister Rust and Mountain Pine Beetle Outbreaks in the Central and Southern Rocky Mountains (INT-EM-B-11-01)



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## Introduction

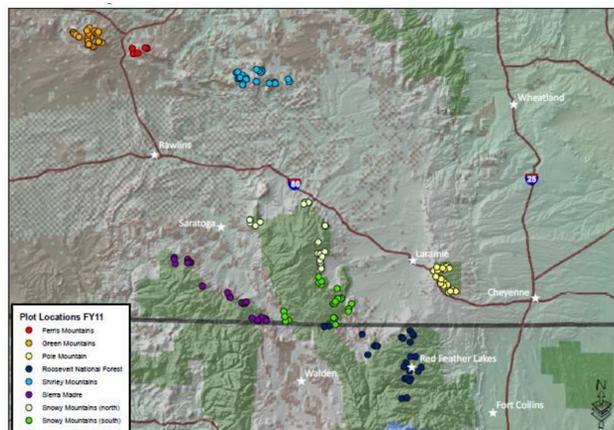
Mountain pine beetle (MPB) and white pine blister rust (WPBR) threaten limber pine stands in the Central and Southern Rocky Mountains. MPB is killing mature trees and limber pine is a preferred host. The added impacts of WPBR may devastate some areas since small trees are particularly susceptible. Information on the current status of limber pine are needed to develop appropriate recovery plans. The objective of this study is to assess stand conditions, tree and regeneration health, and the extent and severity of WPBR and MPB in affected areas to guide future management.



Limber pine stands showing evidence of MPB and WPBR impacts (left). Lethal WPBR canker on a young limber pine (center and right).

## Methods

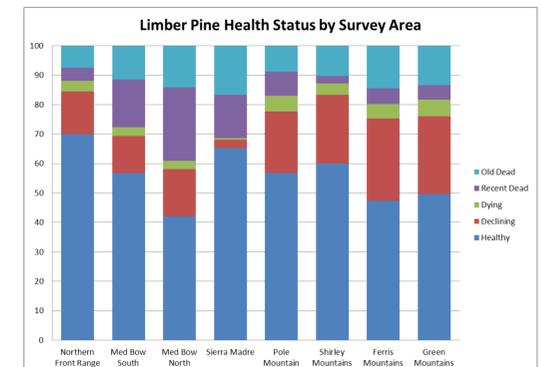
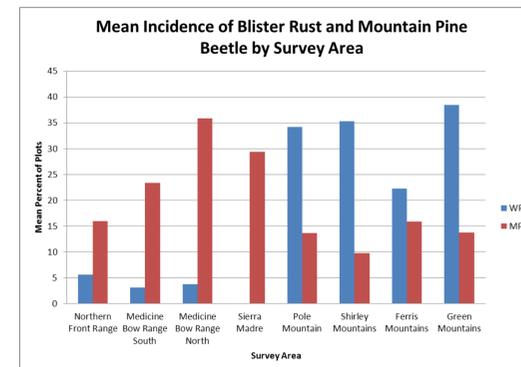
Stands were identified using FHM-ADS data, previous surveys, and local experts. Stand data collected included: lat/long, slope, elevation, aspect, topography, structure, and disturbance history. Tree and regeneration data collected included: species, DBH, health status, WPBR status, cones, and other damages including cause and year of death. Ground cover, understory vegetation, and invasive species were assessed in fixed area subplots.



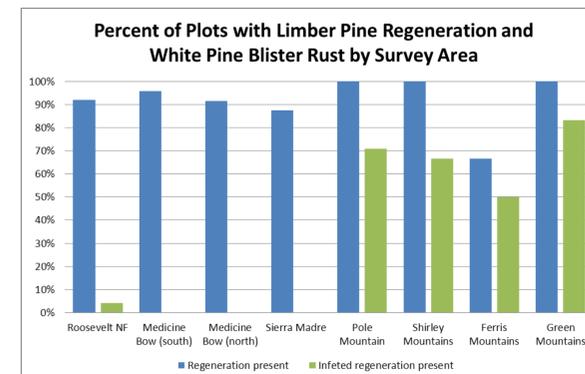
Wyoming BLM and USFS lands in southern Wyoming and northern Colorado were assessed in 2011.

## Preliminary Results

In 2011, 175 plots were established within 8 survey areas including the northern Front Range, southern Medicine Bow, northern Medicine Bow, Sierra Madre, Pole Mountain, Shirley Mountains, Ferris Mountains, and Green Mountains.



- MPB occurred in all survey areas and WPBR in all but the Sierra Madre.
- MPB was observed most frequently in the Med Bow and Sierra Madre ranges.
- WPBR occurred most frequently on Pole, Shirley, Ferris, and Green Mountains.
- Over 50% of limber pines were classified as declining, dying, or dead in the northern Medicine Bow, Ferris, and Green Mountains.



- Limber pine regeneration was present in all survey areas.
- WPBR is impacting regeneration in most survey areas.

## Future Plans

Data from FY11 is currently being analyzed. FY12 survey areas will include BLM lands in MT and WY; portions of the Medicine Bow, Bighorn, and Shoshone NFs; and Boulder County, CO.

## Acknowledgments

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