

RM-CESU-Progress Report, FY07

Project Title: Development of Whitebark Pine Condition Assessment Tools in Grand Teton National Park

Park: Grand Teton NP

Funding Source: Rocky Mountain CESU Technical Assistance, GRTE in-kind funds.

University Partner: Dr. Dan Tinker, and Nancy Bockino, University of Wyoming

Project Description: Determine the degree to which the mountain pine beetle and white pine blister rust have impacted the whitebark pine ecosystem in Grand Teton National Park for use in implementing successful restoration practices. Conduct rust-resistant tree identification. Provide instruction to park staff in identification of blister rust and its signs, and mountain pine beetle and its signs in whitebark pine.

Primary technical assistance will be analysis of the distribution of blister rust in WBP stands in Grand Teton National Park with respect to stand characteristics and environmental variables. Products will include analysis of the condition of WBP stands in GRTE, and geospatial maps showing the spatial distribution of infestations.

Methods: In summer 2007, prior to funding of this project, Nancy Bockino and NPS staff developed a sampling scheme for whitebark pine stands following the guidelines of the interagency Whitebark Pine Monitoring Committee. A total of 22 transects were installed and read in GRTE in 2007. Stands were surveyed as well as classified to NVC classification, and marked for repeat visits.

Project Results: This project was funded late in FY07, so deliverables outlined below are not anticipated to be completed until Spring 2008. Data have been provided to Cooperators for analysis. Preliminary results indicate more than 50% of stands had blister rust present, however, the proportion of trees infected in each stand varied greatly. It was common for rust infested trees to also be infected with mountain pine beetle. Beetle infected trees usually result in tree mortality within two years, whereas blister rust infected trees are likely to survive longer, though there is evidence that the tops of many trees, and numerous cone-producing branches are killed.

The following products are anticipated in Spring 2008:

- Georeferenced dataset of transects surveyed within park, listing NVC classification, stand composition information, infestation rates.
- GIS-based analysis of the relationship, if any, of infestation rates to stand characteristics, biotic, and abiotic variables including elevation, slope, aspect.

- Brief describing of known distribution of blister rust and mountain pine beetle within GRTE, identification of areas most at risk in GRTE, possible suggestions of restoration strategy based on distribution within GRTE and available literature.

Follow-up: Results of this project will help identify the degree to which the WBP ecosystem in GRTE is being altered by current infestations of exotic and native pests. Re-reads of the stand transects in 2008 will also incorporate additional data collection on understory species composition and on regeneration. Though considered a climax tree species at high elevations, it is not clear if WBP is self-replacing in GRTE at this time. Should infestations in WBP continue this study will provide baseline 2007 data as to the condition of WBP in GRTE, and will allow managers to assess the need for active restoration in whitebark pine systems in GRTE. Data from GRTE stands will also be compared to stands throughout the GYE, allowing a broad-scale assessment of infection and of regeneration. Comparing the condition of whitebark pine in GRTE to other areas of the GYE will provide a broad view of the range of conditions occurring throughout the region.

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