



# GREAT BASIN FIRE SCIENCE DELIVERY

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## *Webinar Brief for Resource Managers*

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# Sagebrush Steppe Treatment Evaluation Project: Summary of Short-Term Results

*Presented on 15 January 2014 by Jim McIver, Research Ecologist, Oregon State University*

**Project Summary** (2-3 sentences): Restoration treatments were generally effective in meeting management prescriptions intended to shift fuel beds toward pre-settlement conditions. Removal of woody vegetation by any means increased available ground water at all sites, with herbaceous vegetation already beginning to capture additional water by three years post-treatment. The balance between cheatgrass and perennial bunchgrasses however, was shifted toward cheatgrass at drier sites. Short-term faunal response (birds, butterflies) was subtle, and restoration treatments do not appear at this time to have unintended consequences. While most people believe that some form of restoration is needed in the Great Basin, trust in management agencies to implement treatments lags behind confidence in treatments. Economically, it appears best to apply management treatments at earlier stages of degradation.

### Management Implications

- Increased ground water availability after woody vegetation removal indicates that there are both risks and opportunities in terms of herbaceous vegetation response
- While 3 years of treatment response indicates restoration success at some sites, it will require 10 years of post-treatment data to evaluate treatments at most sites
- Hydrological work points toward short versus long-term tradeoffs in the benefits of woody removal, especially after fire
- So far, treatments have no negative unintended consequences for fauna

**Abstract:** For the past eight years, SageSTEP scientists and managers have been working to fill an information void. Sagebrush communities in the Great Basin are threatened, with much of the original area already lost to cheatgrass invasion and woodland expansion. Landscape changes have increased fire risk, and reduced forage, water, and wildlife value, including that of the Greater Sage-Grouse. Yet management efforts to reset the balance of vegetation in sagebrush steppe lands have been hampered by lack of information on the effectiveness of restoration practices like prescribed burning, mechanical treatments, and herbicide application. Managers need multivariate research conducted over multiple sites, yielding data that records change over time. In 2006, SageSTEP scientists and their manager partners began evaluating restoration treatments at 18 study sites. They have measured ecosystem response to prescribed fire, clearcutting, tree shredding, mowing, and herbicides. Collaborators at universities and government agencies in six western states are now working together to analyze and interpret field data. SageSTEP scientists have already reported many results: in our newsletter, in conferences and workshops, in tours, and in scientific journals. This **webinar** is a

compilation of some of the more important short-term results of SageSTEP experiments through the third year after treatment. Many of these findings have been summarized in the summer 2013 SageSTEP Newsletter (Issue 21), and will be published later in 2014 as part of a 'Special Issue' in *Rangeland Ecology and Management*. As times passes, SageSTEP will continue to provide meaningful information, as ecosystem components begin to stabilize after initial short-term responses to treatments.

### **Most Relevant References:**

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### **To be published in 2014 as part of a 'Special Issue' in the journal *Rangeland Ecology and Management* (exact titles may change between now and publication):**

- Chambers, J.D., R.F. Miller, D.I. Board, D.A. Pyke, B.A. Roundy, J.B. Grace, E.W. Schupp, and R. J. Tausch. 2014. Resilience and resistance of sagebrush ecosystems: implications for state and transition models and management treatments.
- Gordon, R., B. Shindler, and M. Brunson. 2014. Public priorities for rangeland management: a longitudinal panel study of residents in the Great Basin.
- Hulet, A., B. Roundy, S.L. Peterson, R. Miller, R. Tausch, and J. Chambers. 2014. Utilizing NAIP imagery to estimate tree cover and biomass of pinyon-juniper woodlands.
- Knick, S.T., S.E. Hanser, and M. Leu. 2014. Ecological scale of bird community response to pinyon-juniper removal.
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