Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Restoring Natural Fire Regimes at Golden Spike National Historic Site by Developing a Healthy Sagebrush/Grassland Vegetation Community to Prevent the Cheatgrass-Wildfire Cycle
Discipline: Natural Resources
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Utah State University
Effective Dates: 5/31/2007- 12/31/2012
Funding Amount: $157,375 [$76,375 added in FY08]
Investigators and Agency Representative:

NPS Contact: Tammy Benson, Chief of Operations, Golden Spike National Historic Site, P.O. Box 897, Brigham City, UT 84302, (435) 471-2209 x24, tammy_benson@nps.gov

Investigator: Eugene Schupp, Associate Professor, Department of Wildland Resources, Utah State University, Logan, UT 84322-5230, 435-797-2475, schupp@cc.usu.edu

Project Abstract: Researchers from Utah State University will partner with the NPS and USGS to study the plant communities at Golden Spike National Historic Site (GOSP) to determine how to restore a fire-safe ecosystem. GOSP currently has significant sagebrush cover and virtually no native herbaceous plants in the understory. The goal of this research is to develop methods to promote the establishment of a desirable perennial understory in sagebrush communities at GOSP and other sagebrush communities in the western U.S. There are two primary ways to promote the dominance of native understory vegetation: 1) remove overstory vegetation to reduce competition with the understory; and 2) add understory vegetation (e.g. through seeding) to bolster existing population. Unfortunately, relatively little is known about which methods, or combination of methods, work the best. This is a three-year study to evaluate the short term effects of two experimental factors, overstory thinning and understory seeding. Overstory thinning will include fire, chemical, and mechanical treatments, as well as untreated controls. Understory seeding will include studies on: 1) the use of seed-caching rodents to seed desirable species, 2) determination of the best desirable species for establishing in manipulated versus unmanipulated sagebrush communities, and 3) exploration of alternative seeding methods such as seeding on snow, seeding before snow, etc

Outcomes with Completion Dates:

1. Subsequent to collaborating with Dr. Matt Brooks (USGS) and NPS personnel, have equipment, sampling schedule, site locations, implementation strategy, and preliminary database design ready for field season. October 1, 2007.
2. Field work completed for 2007 by November 30, 2007.
3. Semi-annual progress report submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator and on-line Investigator's Annual Report on FY 2007 work provided by December 31, 2007.
4. Have all required permits by October 1, 2008.
5. Subsequent to collaborating with Dr. Matt Brooks (USGS) and NPS personnel, have equipment, sampling schedule, site locations, implementation strategy, and preliminary database design ready for field season. October 1, 2008.
6. Field work completed for 2008 by November 30, 2008.
7. Semi-annual progress report submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator and on-line Investigator's Annual Report on FY 2008 work provided by December 31, 2008.
8. Lab work and preliminary data analysis for 2008 field samples complete by May 2009.
9. Semi-annual progress report submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator, June 30, 2009.
10. Field work completed for 2009 by November 30, 2009.
11. Semi-annual progress report submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator and complete On-line Investigator's Annual Report by December 31, 2009.
12. Lab work and preliminary data analysis for 2009 field samples complete by May 2010.
13. Conduct any follow-up field sampling June 2010-June 2011.
14. Semi-annual progress report submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator, June 30, 2010.
15. Final analyses and write-ups complete December 31, 2011.
16. Final report with all associated databases and metadata submitted to the NPS Key Official and Rocky Mountains CESU Research Coordinator, March 1, 2012.

17. Verbal presentation of research and findings to GOSP staff will be delivered by PI upon completion of the project.

Keywords: fire ecology, wildfire, cheatgrass, sagebrush, restoration, vegetation community, Golden Spike NHS, Utah State University