

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Evaluate Reference Meadows and Develop Restoration Concepts for Halstead Meadow, Sequoia National Park, California

Type of Project: Research

Funding Agency: National Park Service

Other Partners/Cooperators: Colorado State University

Effective Dates: 5/1/2005 - 12/31/2010

Funding Amount: \$116,821

Investigators and Agency Representative:

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Investigator: David J. Cooper, Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University, Fort Collins, Colorado 80523, 970-491-5430, davidc@cnr.colostate.edu

Project Abstract:

Halstead Meadow in Sequoia National Park is a 39-acre montane meadow crossed by the main park highway. The meadow has developed severe erosion gullies, lowering of the water table, drying of soils, dieback of native meadow plants, and invasion of pocket gophers as a result of early grazing and water channelization through culverts. The Federal Lands Highway Program (FLHP) will fund drainage improvements as well as restoration of meadow damage that can be directly attributed to the road. Planning for this restoration project, and a pilot restoration project to precede it, needs to begin in FY05 in order to meet the FLHP timeline. The project proposed here will analyze the topography, hydrologic regime, and vegetation composition of reference meadows and Halstead Meadow. These data will be used as a baseline/reference of the types of conditions that likely occurred in Halstead Meadow prior to incision and the conditions to which the meadow should be restored. Results will be directly applicable to a restoration design and recommended road drainages structures for the meadow. The FY 06 funding, coming from both FLHP and Fee Demonstration accounts increased the scope of work to include a restoration design, contract documents, project inspection, and monitoring to implement the restoration of natural topography, hydrologic regime, and vegetation to upper Halstead Meadow. This phase will also produce planning and a preliminary design for restoration of the lower Halstead Meadow.

Outcomes with Completion Dates:

List of Products:

Phase 1:

1. Scientific Research and Collecting Permit obtained through NPS Research Permit and Reporting System: May 1, 2005
2. Progress Report (Mid-Year) due to Athena Demetry: July 30, 2005
3. Completion Report due to Athena Demetry (for PMIS reporting): October 31, 2005
4. Draft Final Report due to Athena Demetry: November 30, 2005
5. Investigator's Annual Report due to NPS Research Permit and Reporting System: December 31, 2005
6. Final Project Report: due within 30 days of receipt of park comments on draft.

Phase 2: Upper Halstead Meadow Pilot Restoration

1. Draft design, including drawings, quantities, technical specifications, and a written plan: February 1, 2006.
2. Final design: March 1, 2006.
3. Draft contract documents, including CAD drawings, full specifications, and bid items and quantities: April 1, 2006
4. Engineer's estimate (subcontractor to Dr. Cooper): April 1, 2006
5. Final contract documents: May 1, 2006

6. Assistance with plant propagation specifications, bid evaluations, and nursery visits: May 1, 2006
7. Technical documents required for USACE 404 permit and 401 permit: May 1, 2006.
8. Technical assistance for evaluation of bids and negotiations to reach final bid: August 15, 2006
9. Construction inspection to ensure proper implementation of design: October 30, 2006
10. Plant installation oversight: June 1, 2007.
11. Monitoring and progress report: September 30, 2007
12. Monitoring and progress report: September 30, 2008
13. Monitoring and progress report: September 30, 2009
14. Final Report and publication on restoration project and monitoring results: December 31, 2009

Lower Halstead Meadow

1. Installation of groundwater wells in lower Halstead Meadow: June 30, 2006.
2. Final report on groundwater, topography, and vegetation study of lower Halstead Meadow: December 31, 2006.
3. Preliminary design for restoration of lower Halstead Meadow, including recommendations on phased implementation: January 31, 2007.

Keywords: meadow restoration, Halstead Meadow, Sequoia National Park, Colorado State University

For Administrative Use Only:

Date Annual Report Received:
Date Final Report Received:
Publications, etc. on file: