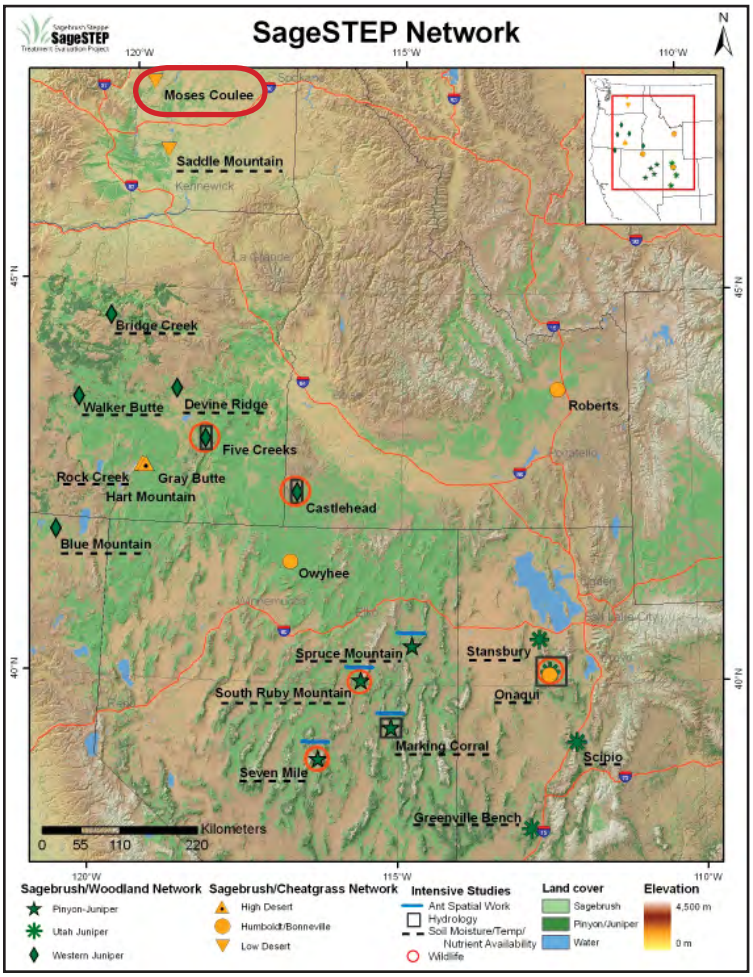
SageSTEP

Sagebrush Steppe Treatment Evaluation Project

SageSTEP is an interdisciplinary, long-term research program evaluating ways to improve the health of sagebrush rangelands across the Great Basin. The purpose of SageSTEP is to conduct research and provide improved information about restoring sagebrush rangelands degraded by conifer encroachment or exotic grassland invasion. This information will help resource managers make restoration management decisions with reduced risk and uncertainty. The project is a collaborative effort among researchers and land managers in a variety of disciplines from five universities, six federal agencies and one non-profit organization in six states in the Great Basin.

Treatment options—including prescribed fire, mechanical thinning of shrubs and trees, and herbicide applications—are being evaluated to learn how to create healthy and diverse plant communities that will be more resilient to fire and resistant to weed invasion. All treatments were implemented in the same year at each site in the fall of 2006, 2007, or 2008. Baseline data were collected at all sites prior to treatment, and post-treatment data have been collected each subsequent year through 2009. Less frequent, longer-term monitoring will help researchers more fully understand treatment impacts.



Multidisciplinary Data Collection

Vegetation and Fuels: 10-, 100-, and 1000-hour fuel samples, along with other vegetation and fuel measurements are collected in both the understory and overstory. Vegetation measurements will allow scientists to learn more about the plant community responds to prescribed fire and other management treatments.

Soils: Soils are sampled for chemical analyses and soil profile descriptions to tell scientists more about the effects of treatments on the availability of essential plant nutrients and to help explain vegetation response.

Hydrology: Rainfall simulations are conducted on small (0.5m^2) and large (35m^2) plots, and measurements are taken to help scientists better understand relationships between changes in vegetation and ground cover and runoff and erosion.

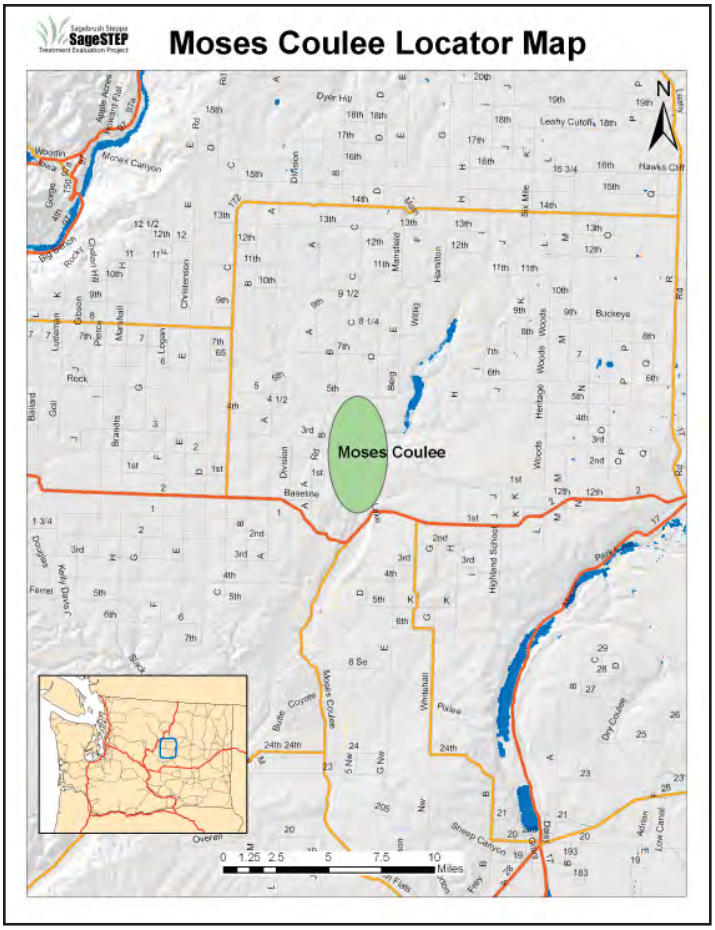
Wildlife: Wildlife data collection focuses on the effects of treatments on migratory songbirds.

Insects: Butterflies are surveyed for biodiversity, and ants are studied for their importance in seed dispersal and predation in sagebrush-steppe systems.

Additional Data: Yearly standard photographs are taken, and multiple soil moisture sensors, and a climate station are present at each site.

Economics: Environmental valuation study will identify and measure changes in environmental benefits (such as recreation and ranching) resulting from ecosystem changes caused by treatments.

Sociopolitical: Studies focus on understanding the social acceptability of management practices as well as factors that influence managers' willingness to use them.



Moses Coulee Site Quick Facts

Location: Near Wenatchee, WA

Land Management: The Nature Conservancy, Moses Coulee Preserve

Plots: Four 50-acre core plots (Control, Burn, Mechanical, Herbicide)

Elevation: 1700 ft

Topography: 0–10 % slope with a Southern aspect

Common Vegetation: Bluebunch wheatgrass, Wyoming big sagebrush, Needlegrass, Sandberg's bluegrass

Soils: Strat-Tubspring-Skaha complex

Fire Regime: The Wyoming big sagebrush type is the driest of the sagebrush steppe communities and historically had a fire return interval of approximately 50-100 years. The introduction of cheatgrass into the sagebrush steppe communities has increased fine fuels and reduced the fire return interval to less than 10 years throughout much of its range.

Representative Land Base: This site is representative of much of the shrub steppe ecosystem of eastern WA.

Grazing: This site is actively grazed and will be fenced for the duration of the study to exclude livestock.

Land Management Treatments

This site is part of the study of cheatgrass invasion of sagebrush communities. The primary objective is to find out how much native bunchgrasses need to be present at the time of treatment in order for managers to improve land health without having to conduct expensive re-seeding. Treatments were implemented at this site in fall 2008, except for the burn, which is planned for 2009.

- Prescribed burn
- Mowing: sagebrush mow height of ~12-15" throughout plot
- Tebuthiuron (Spike 20P) Herbicide Application: aerial application for 50% sagebrush mortality
- Control plot: untreated

Plateau pre-emergent herbicide treatment is crossed with the four main treatments on half of the site's subplots to control cheatgrass.

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