



Monitoring Sagebrush Steppe Vegetation in the UCBN

Network parks where resource is being monitored

- City of Rocks National Reserve (CIRO)
- Craters of the Moon National Monument and Preserve (CRMO)
- Hagerman Fossil Beds National Monument (HAFO)
- John Day Fossil Beds National Monument (JODA)
- Lake Roosevelt National Recreation Area (LARO)

Importance: Sagebrush Steppe – a threatened ecosystem

Sagebrush steppe is one of the most threatened ecosystems in the Intermountain West. Substantial portions of the region have been converted to agriculture and heavily grazed rangeland. Much of the remaining sagebrush steppe has been degraded through altered fire regimes and invasion of introduced plants. Historic and current land use practices both within and adjacent to UCBN park steppe communities continue to fragment and alter steppe ecosystems, and predicted climate change scenarios for the region will likely exacerbate these changes.



Figure 1. Burned steppe in HAFO following the Long Butte fire, which impacted over 75% of the park in August 2010, including many areas surveyed by the UCBN in 2008 and 2009. The UCBN will assist the park in evaluating post-fire recovery by comparing pre- and post-fire monitoring data.

2010 Status

In 2010 the UCBN estimated the amount, as measured by percent cover, of bare soil and principal native and non-native plant species in 2000 plots distributed in 10 sampling frames in CIRO that overlap with grazing allotments, and in 28 sampling frames in CRMO that capture a range of park environments and site use histories. This is the first year of monitoring following completion of the final protocol in 2009. Results provide baseline descriptions of the composition of steppe plant communities. Describing these communities is a critical first step for managers in understanding their respective park ecosystems, setting desired future conditions, and interpreting future trends. For example, 2010 data from 7 CIRO areas in Figure 2 illustrate how cheatgrass cover varies widely across the park depending on site history, elevation, and other factors.

Monitoring Objectives

- Determine the status and trends in the composition and abundance of principal native and non-native invasive indicator plant species, and in the amount of exposed bare soil, in UCBN sagebrush steppe communities.

Management Applications

- Provides critical information on park ecological condition
- Provide feedback on the success of park management and restoration activities
- Inform integrated assessments of climate change impacts on park resources
- Support park resource planning and land health reporting efforts

Contact Information

Tom Rodhouse, Tom_Rodhouse@nps.gov

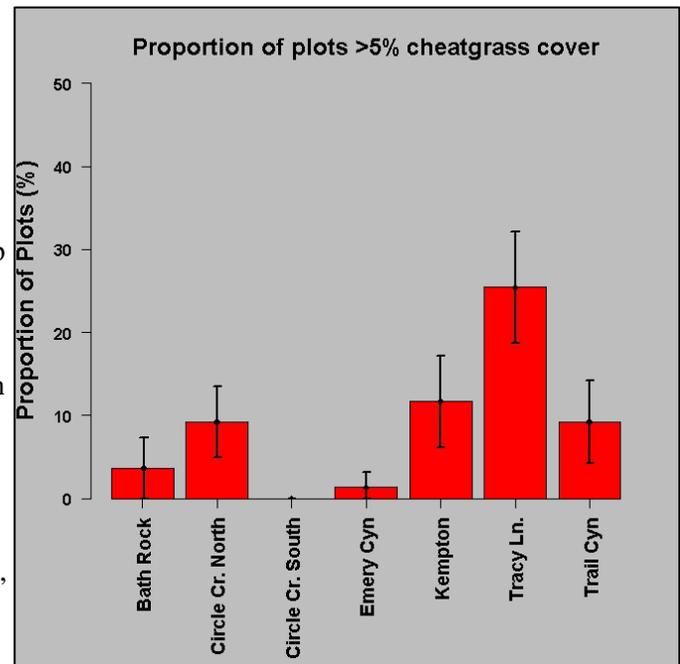


Figure 2. The proportion of sample plots estimated to contain >5% cover of the non-native invasive annual grass cheatgrass (*Bromus tectorum*) in 7 CIRO sampling frames. Grazing history and topography vary among these frames. Tracy Ln. experienced a fire in 2000. These factors contribute to differential invasibility of rangelands by cheatgrass. Vertical bars represent 90% confidence intervals.