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)

Figure 1. A plot frame is placed during 2009 field work in LARO for estimating cover of principal sagebrush steppe community indicator species, which include big sagebrush, native bunchgrasses, and invasive annual grasses.

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.

2009 Status

In 2009 the UCBN measured fundamental steppe community indicators in 2000 plots at CRMO, HAFO, JODA, and LARO in a second and final pilot effort to test the UCBN's draft protocol, which was finalized following 2009 field work. Preliminary results clarify the unique community types in each park, ranging from bunchgrass-dominated communities in JODA to the dense mountain big sagebrush stands in the northern portion of CRMO. Describing the composition and structure of these communities is a critical first step for managers in understanding their respective park systems, setting desired future conditions, and interpreting future trends. For example, 2009 data from 4 CRMO areas in Figure 2 illustrate how cheatgrass cover varies widely across the park depending on site history, elevation, and other factors.

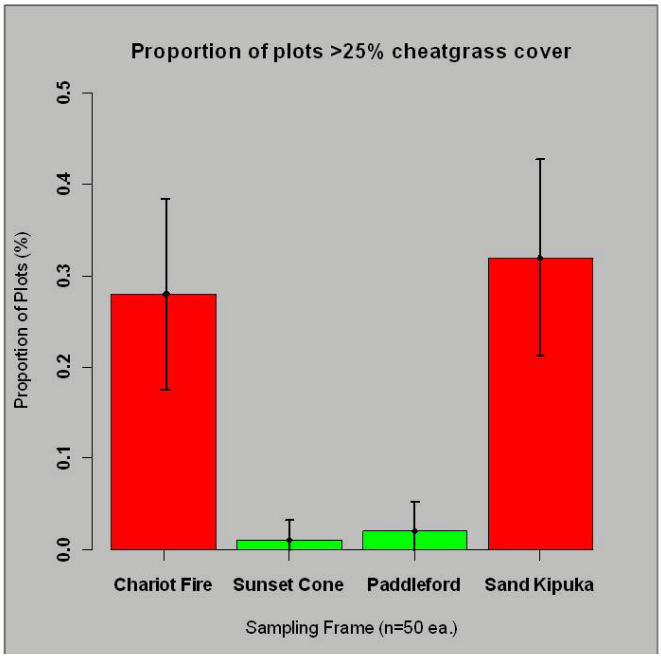

Figure 2. The proportion of sample plots estimated to contain >25% cover of the non-native invasive annual grass cheatgrass (*Bromus tectorum*) in 4 representative areas (sampling "frames") of CRMO. The Chariot Fire burned recently, and Sand Kipuka is in a low elevation portion of the Park. Both of these factors contribute to invasibility of rangelands by cheatgrass. Vertical bars represent 90% confidence intervals.

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 timing and intensity 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

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