



Sagebrush Steppe Monitoring

John Day Fossil Beds National Monument Clarno Unit

Importance: 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 Upper Columbia Basin Network park steppe communities, continue to fragment and alter steppe ecosystems, and predicted climate change scenarios for the region will likely exacerbate these changes.

2013 Status

The Clarno unit was surveyed over the course of 3 days in early summer. UCBN staff estimated the amount (measured by percent cover) of bare soil and principal native and non-native plant species in steppe communities of the unit. Shrubs continue to be largely absent from the landscape following the 2011 fire. No big sagebrush, rabbitbrushes, nor bitterbrush was encountered. Broom snakeweed, which readily re-sprouts following fire, was encountered in 20 plots (9%). Cheatgrass was more abundant this year, whereas medusahead showed a slight decline. Above average winter precipitation may have caused cheatgrass to rebound and may have hindered medusahead's advance. Still, both non-native invasive annual grasses dominate much of the Clarno landscape and pose a major threat to the ecological integrity of the unit. Based on the combination of bare ground and principal species cover, 18% (40 plots) were considered to be in good ecological condition. Bluebunch wheatgrass appears to be recovering from the 2011 fire and counts were up slightly from last year. However, robust stands (cover >25%) remain rare and appear to be lower than in 2012. This native grass is of particular interest given its dominant role in the Clarno ecosystem.

Management Applications

- Provide 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

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 sagebrush steppe communities of the Upper Columbia Basin Network.



Native grass Bluebunch wheatgrass (*Pseudoeregneria spicata*) and native forbs, yarrow (*Achillea millefolium*) and basalt milk-vetch (*Astragalus filipes*), 2 years after the 2011 wildfire in the Clarno Unit.



An expansive medusahead infestation at upper Indian Canyon, northeast corner of the Clarno Unit, photographed during the 2013 survey.