



Climate Change in the UCBN

Network parks where resources are being monitored

- Big Hole National Battlefield
- City of Rocks National Reserve
- Craters of the Moon National Monument and Preserve
- Hagerman Fossil Beds National Monument
- John Day Fossil Beds National Monument
- Lake Roosevelt National Recreation Area
- Nez Perce National Historic Park
- Whitman Mission National Historic Site

Importance: Species and habitats vulnerable to climate change

Increasingly, we hear about “climate change” and the effects it may have on the environment. According to the 2007 report of the Intergovernmental Panel on Climate Change, “there is high confidence that recent regional changes in temperature have had discernible impacts on physical and biological systems.” Climate change will cause significant challenges in water quality, hydrology, invasive species, vegetation, and wildlife management. Park ecosystem response to precipitation, atmospheric CO₂, temperature, fire frequency, vulnerability to exotic species invasion, and the potential for recovery are all challenges for park managers. In general, higher temperatures in the spring and summer along with earlier melting of the snowpack may affect the available water sources around the area. Nonnative species that can easily adapt to the new climate may outcompete native species and alter native landscapes and food chains. Recently, the warmer seasons have also contributed to an increase in the frequency and duration wildfires. Species like sagebrush, slow-growing trees, fish and small animals like pika are particularly at risk for survival because they have a limited ability to relocate and have very specific habitat needs.

Monitoring Objectives

- Estimate the effects of biological invasions, fire, past or current grazing on parklands or surrounding lands, and climatic trends and fluctuations
- Understand the potential for restoration and recovery
- Estimate status and long-term trend in regeneration of park aspen populations as individual stands
- Provide robust model-based estimates of site occupancy probabilities for pika study areas based on vegetation cover, landscape type and complexity
- Estimate the principal factors driving ecosystem change and identify principal indicators that need to be included in an effective monitoring program for sagebrush steppe

Management Applications

- Inform integrated assessments of climate change impacts on park resources
- Support park resource planning and land health reporting efforts
- Make recommendations for an efficient long-term monitoring program for at-risk species in UCBN parks

Contact Information

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Field research team in sagebrush at City of Rocks National Reserve.



North Fork of Big Hole River at Big Hole National Battlefield.



Snow in the high country at Craters of the Moon National Monument and Preserve.