



Upper Columbia Basin Network Resource Brief

National Park Service
U.S. Department of the Interior

Inventory & Monitoring Program



Climate Change at Nez Perce National Historical Park

The 38 sites across Idaho, Montana, Oregon, and Washington that comprise Nez Perce National Historical Park (NEPE) commemorate the history and ongoing traditions of the Nez Perce. Efforts to preserve the natural resources that shaped Nez Perce culture and, where possible, to restore plant and animal communities that have been altered by subsequent human activities, are likely to be made more difficult by long-term climate change. In the Pacific Northwest, warmer temperatures and wetter winters are predicted to result in more rain, less snow, and stream flows that are larger in the winter and spring but smaller and warmer in the summer and fall than in the past.

Wildland Fire

Historically, the ecology of the Pacific Northwest was influenced by both lightning-caused fires and fires set by indigenous peoples to increase the productivity of various roots, berries, and other plants used for food. Because of the relatively small size of NEPE sites, the proximity of private land, the need to preserve historic resources, and the risk of furthering the spread of non-native plants, all fires occurring in NEPE are put out as quickly as possible. Regardless of fire suppression efforts, however, warmer temperatures in the western U.S. in the last three decades have been associated with reduced summer moisture, promoting easier ignition and faster spread of fires, especially where highly flammable nonnative species have moved in.

Camas

The camas lily (*Camassia quamash*) is one of the most widely used traditional foods of the Nez Perce. The seasonally wet prairies of the interior Columbia Basin where camas grows have declined as a result of agricultural use, the spread of nonnative plants, irrigation, and flood control. Climate change could further reduce camas habitat because early drying and excessive soil temperature can interrupt or prevent the plant's germination and flowering. Significant camas populations are still found at two NEPE units, Weippe Prairie and Big Hole National Battlefield. At the 274-acre Weippe Prairie, where the species is the key cultural resource, camas density appears to have



NPS PHOTO

The perennial camas in bloom at Weippe Prairie.

increased slightly since livestock grazing and hay production ended in 2007, but competitive nonnative forbs, especially orange hawkweed (*Hieracium aurantiacum*) and sulfur cinquefoil (*Potentilla recta*), require ongoing treatment.

Riparian Communities

Recent monitoring indicates that water temperatures in Lapwai Creek (the Spalding unit) exceed those considered optimum for fish and benthic macroinvertebrates. The warmer water and lower flows likely to result from climate change, especially during late summer, also increase the presence of phosphates and fecal coliform, impairing the water quality. Lapwai Creek is especially vulnerable to warmer summer temperatures because of the sparse shade over it. Nonnative plants such as reed canarygrass (*Phalaris arundinacea*) and Bohemian knotweed (*Polygonum cuspidatum*) have formed dense stands there, preventing understory colonization by native plants that would more effectively shade the creek.

Amphibians

Whether caused by warmer temperatures or reduced precipitation, lower water depth increases the likelihood of evaporation before metamorphosis of amphibian embryos occurs. Climate change could also result in dry areas that fragment amphibian habitat and create barriers to dispersal. In a 2002 inventory of five of the largest NEPE sites, the western toad (*Bufo boreas*) was the most frequently recorded amphibian, but the second most abundant was the nonnative bullfrog (*Rana catesbeiana*). It is not yet clear if the spread of this frog in the Pacific Northwest may benefit from or be impaired by climate change.

For More Information

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<http://science.nature.nps.gov/im/units/ucbn/>



PHOTO BY JOHN MOSESSO / ife.nhlg.gov

The native western toad and nonnative American bullfrog.