



Camas

Citizen Science Monitoring Program

This program would not be possible without our volunteers.



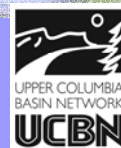
Camas Monitoring: what is it?



The Camas Citizen Science Monitoring Program (CMP) is part of a national initiative to monitor vital signs, selected indicator species representing the overall health or condition of park resources. Camas was chosen as a vital sign at Nez Perce National Historical Park's Weippe Prairie site (ID) and Big Hole National Battlefield (MT) because of its value as both a cultural and natural resource.

This project seeks to engage high school volunteers, or 'Citizen Scientists', in the long range scientific monitoring of camas populations. Specialized monitoring techniques were specifically designed for this program. The monitoring data will help National Park Service staff recreate more naturally functioning wetland ecosystems using camas as an indicator species.

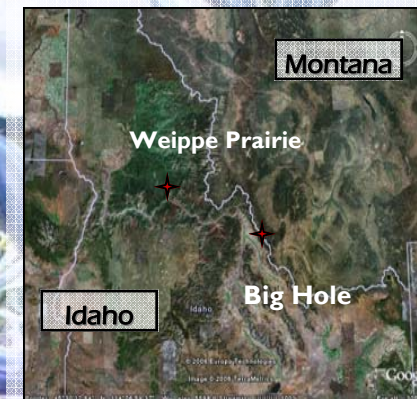
Collaborators:



We thank the Nez Perce and other tribes.

A natural and cultural resource

Camas is sometimes found in seasonal wet prairie ecosystems, such as those found in the interior Columbia Plateau. The presence of these wetlands has been reduced as a result of land alteration associated with development and agriculture. From a cultural perspective,



camas is one of the most widely utilized root crops of the Nez Perce and other tribes of the Pacific Northwest.

It has always been important to the social and economic aspects of Nez Perce culture, and is still an important traditional food source for Nez Perce people. Its regeneration will help the National Park Service recreate cultural landscapes similar to those that existed before the coming of white settlers.



Data Collected

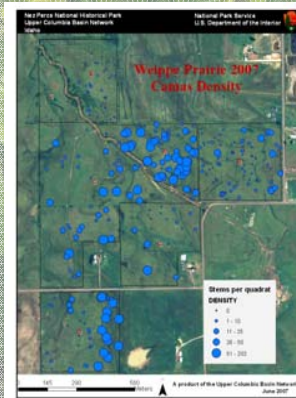
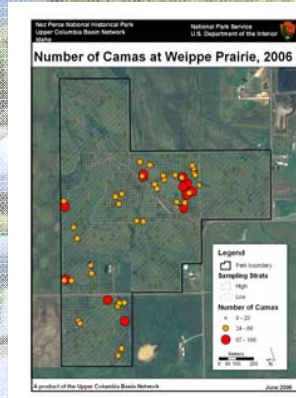
Volunteers participating in the program will use Global Positioning Systems (GPS), and compasses to collect data. Within a given plot, Citizen Scientists and National Park Service staff will record the:

- Number of camas plants
- Number of reproductive camas plants
- Depth of the thatch
- Presence of 2 invasive species

Data Maps

Below are maps made using Geographic Information System (GIS) technology and satellite photos depicting Camas Monitoring Program data collected in 2006 and 2007. Over time, scientists will be able to detect changes and trends in camas populations, thatch depth, and the existence of invasive species with this type of data imaging.

population density



For more information please contact:

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Camas

Citizen Science Monitoring Program

Components of the program are tied to state science standards, and students work alongside ecologists, statisticians, integrated resource managers, and interpretive rangers.



Historical/Cultural

Native Americans have used camas bulbs as a food source for at least 7,000 years. It was and remains an important traditional staple for the Nez Perce. Sweet like licorice when properly processed, bulbs are high in protein and nutrients. At Weippe and Big Hole, Nez Perce harvested and prepared camas. The gathering of family and friends, and camp life in general, led to dancing, playing games, wedding celebrations, and the organizing of buffalo hunts.

Weippe Up until about the 1960's, Weippe was one of the few continual-use digging areas for the Nez Perce. It was also there that Lewis and Clark first met the Nez Perce in 1805. The privatization of land has made it very difficult to gather and process camas as people once did, however, the traditions are still alive and passed down from generations.

(photographs courtesy of Nez Perce NHP)

Cultural Landscape

A 1961 interview with Nez Perce elder Elizabeth Wilson paints a picture of the historical landscape at Weippe: "Lots of people went to dig at Weippe... They pitched their tepees in a circle; she said (the tepees) used to cover almost all of the meadow... Early in the morning they were off to dig. The women dug, until a little after noon..."

To the Nez Perce, camas is a sacred gift given to them by the creator.

Big Hole National Battlefield At this site a group of Nez Perce built a camp in 1877 while trying to flee from the U.S. military and escape to the Canadian border. To feed the hungry, camas was being gathered and roasted at the time military forces attacked before dawn. Camas still grows there in wetland areas near the stream.

(Aoki, 1977)

Wetland Indicator

Based on pollen dating, the camas lily is 70,000 years old. It is a forb, varying from white to purple in color. The flower spike stands 5 to 10 cm taller than its basal whorl leaves. Camas tends to grow in full sun and is often found in ephemeral (seasonal) wetlands. Camas habitats are: wet meadows, wet prairies, depressions, annual floodplains, moist hillsides, and streambanks. Camas is found from sea level to 10,000 ft. (Anonymous, 2001)

Land alteration associated with development and agriculture has greatly reduced wetland habitats, affecting camas populations of the Inland Northwest. Camas once grew in such quantity it was likened to vast blue lakes. NPS staff is looking to determine how land management techniques, precipitation, temperature, and other environmental factors affect growth and reproduction within their camas populations.

Invasive Species

Invasive species are non-native plants that, when moved to new areas, tend to dominate and out-compete existing species for natural resources. They can threaten the existence of native species such as camas. The two invasive species monitored at the Weippe Prairie are:

Non-native

Orange Hawkweed and Cinquefoil



The National Park Service has programs in place to eradicate these invasive weeds.

Thatch Depth Thatch is accumulated dead grasses, commonly associated with meadows and prairies. Citizen Scientists measure thatch depth to help determine if non-native grasses are competing with camas growth.