Upper Columbia Basin Network
Inventory and Monitoring

National Park Service
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Pacific West Region

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Scenic vista at Craters of the Moon National Monument and Preserve. Photo by Devin Stucki.

Cover story: How do we keep safe in the UCBN

Devin Stucki, UCBN Vegetation Ecologist and Heidi Becker, NEPE Natural Resource Specialist, provide us a summary of the different steps taken to be safe in the field while collecting data.

Working together towards a common goal

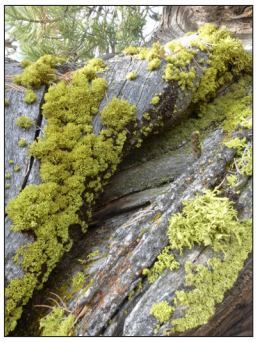
The Upper Columbia Basin and Mojave Desert networks will be implementing the white pine monitoring protocol at Great Basin National Park this year, seeking to expand current monitoring efforts.

New staff in the UCBN

We welcome our recently arrived Chief of Integrated Resources Manager at Craters of the Moon National Monument and Preserve.

UPPER COLUMBIA BASIN NETWORK
UCBN

Plus:



National Park Service
U.S. Department of Interior

The National Park Service has implemented natural resource inventory and monitoring on a servicewide basis to ensure all park units possess the resource information needed for effective, science-based managerial decision-making, and resource protection.

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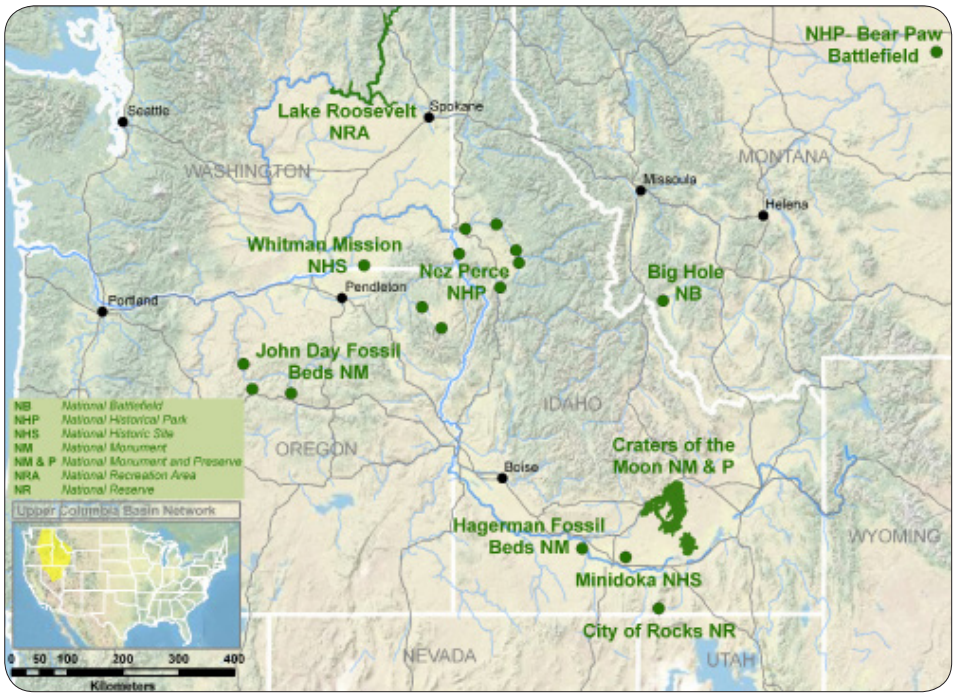

PARKS IN THE NETWORK

Big Hole National Battlefield (BIHO)

City of Rocks National Reserve (CIRO)

Craters of the Moon National Monument and Preserve (CRMO)

Hagerman Fossil Beds National Monument (HAFO)

Minidoka National Historic Site (MIIN)

John Day Fossil Beds National Monument (JODA)

Lake Roosevelt National Recreation Area (LARO)

Nez Perce National Historical Park (NEPE)

Whitman Mission National Historic Site (WHMI)

http://science.nature.nps.gov/im/units/ucbn/
Taking the pulse of the National Parks

The UCBN is now on Facebook!
Follow us at: https://www.facebook.com/npsucbn/

The Program's Manager Corner
Gordon Dicus

Recent sunny, warm weather is a welcome change following a snowy winter and a very wet spring around the Inland Northwest. And now a busy summer field season rapidly approaches. Our field work will start with camas lily monitoring at NEPE's Weippe Prairie, which engages local high school students as citizen scientists to collect data on camas lily density. We are grateful to NEPE's Heidi Becker who continues to coordinate the high school groups as well as participation by other NEPE staff. Devin Stucki, UCBN vegetation ecologist, will lead a field crew conducting our sagebrush steppe vegetation sampling this summer at LARO and JODA, as well as white pine sampling and pika surveys at CRMO, plus some pilot sampling at Great Basin NP in Nevada as we strive to expand the regional extent of our whitepine monitoring. While we still have some staff vacancies, we're hopeful that our field work projects will not experience any disruptions. Jeff Lonneker, UCBN data manager, will be working to jump start our water quality monitoring in NEPE's Lapwai and Jim Ford Creeks, and in WHMI's Mill and Doan Creeks. Once filled, the UCBN aquatic technician will take over that water quality monitoring. On a more positive note, we were able to get Devin Stucki promoted into the UCBN vegetation ecologist position – a much deserved recognition of Devin's contributions to the UCBN I&M program and his growing responsibilities.

As known to those long involved with the I&M Program, there is a growing emphasis on collaboration across I&M Networks and among agencies and partners to meet the objectives of long-term monitoring and to meet the demands of data analysis and results reporting. Tom Rodhouse, UCBN ecologist, continues to engage in bat monitoring initiatives involving several agencies and partners in the Pacific Northwest. Through an expanding collaboration with Oregon State University, Tom and partners will conduct acoustic monitoring of bats in UCBN Parks, in other I&M Networks, as well as on state lands and Fish & Wildlife refuge lands. They will also continue to participate in growing efforts to monitor the status of whitenose syndrome in our regional bat populations. A talented videographer, Michael Durham, is working with Pacific West I&M Networks to produce videos highlighting some of our diverse natural resource monitoring, and he will team up with UCBN to develop a video on bat monitoring. When finished this bat monitoring video will be added to our UCBN web site (see the web link on page 2), an excellent source for videos, project reports, journal publications, and contact information for those seeking more I&M information. We look forward to working with our partners and Park staff this summer, collecting another year's data as we continue to grow our long-term inventory and monitoring program.

Townsend's big-eared bat at Pond cave at Craters of the Moon National Monument and Preserve (CRMO). Photo by Michael Durham.

How to keep safe in our network - Two perspectives

Devin Stucki - UCBN Vegetation Ecologist

UCBN Aquatic Biologist downloading water quality data at Jim Ford Creek, Nez Perce National Historical Park

Safety is a top priority for the UCBN and communication is key to ensuring that fieldwork is conducted safely and efficiently. From protocol development to data entry, there are several measures in place to promote workplace safety.

Protocol development is the first step to safe fieldwork. Most UCBN monitoring protocols restrict travel to a distance of 2 km or less from the nearest road or trail in order to reduce travel time should help be necessary. Slopes steeper than 35° are excluded from sampling to reduce the risk of slips or falls. Park staff give valuable insight during protocol development, identifying hazards specific to a park.

Close communication with park staff is vital to maintaining safe operations both before and during fieldwork. Annual preparation for fieldwork begins by distributing readiness reviews, job hazard analyses, and field itinerary documents to park contacts. These documents establish a line of communication with park staff and outline important information such as the schedule and location of fieldwork and steps being taken to mitigate the risks involved.

During fieldwork, crews typically check in with a park contact before work each day, and check out upon returning from the field. Crews carry radios programmed with park frequencies, cell phones (where applicable) and a satellite messaging device that allows for communication when out of radio or cell-phone service. This device can also contact emergency dispatch directly and provides the user's location using GPS. Two-way radios enable crew members to communicate with each other when working apart.

Operational risk assessment tools such as Severity, Probability and Exposure (SPE) and Green, Amber, Red (GAR) assessments are used to evaluate decisions in the field, and tailgate safety discussions are regularly conducted to discuss specific risks and keep safety at the forefront of crew members' minds.

There are many dimensions to maintaining a safe work environment. The UCBN appreciates all of the work that our park contacts do to help us work safely and efficiently.

Heidi Becker - NEPE Natural Resource Specialist

Safety of park employees is the number one priority of Nez Perce National Historical Park (NEPE). Park staff strives to follow the Department of the Interiors motto, "Think Twice, Work Safe". In order to do so, the park follows several safety protocols.

For example, before park rangers leave for a site visit, they sign out on a white-board with the site name, brief description of tasks to be completed and an estimated return time. This informs other employees of when to expect them back at the park, and thus when to notify authorities if necessary.

Park rangers going out into the field also take a Garmin InReach Satellite Communicator, which can be used to send messages to employees back at the visitor center, notifying them of a late return and/or issues encountered in the field. This device can also be used to send an SOS in the event of an emergency.

How to keep safe in our network - Two perspectives (continued)

Heidi Becker - NEPE Natural Resource Specialist

Because NEPE park sites are distributed across four states, effective communication is vital.

Just as the UCBN, park staff complete one of two risk management assessments; a SPE or a GAR, prior to large public events or intricate field projects. Both of these are tools promoted in the National Park Service (NPS) Operational Leadership program, which is a component of the NPS Safety System.

Completing a SPE and/or GAR enables staff to review, in detail, the planned event or project and determine the possible risks associated with them. Then, depending on the rating received, staff determines the best way to mitigate these safety hazards. This process promotes the safety of both visitors and park staff.

Right: **UCBN Vegetation Ecologist collecting sagebrush-steppe data at John Day Fossil Beds National Monument.**

New faces in our network

Linda Manning - Chief of Integrated Resources Management
Craters of the Moon National Monument and Reserve

Linda Manning is the new Chief of Integrated Resources Management at Craters of the Moon National Monument and Preserve (CRMO). She is originally from southwest Oregon and has a biology degree from Southern Oregon State College.

During her undergraduate career she worked as a cave guide at Oregon Caves National Monument and Preserve (ORCA) and after college she worked in management for the concessionaires at ORCA and Crater Lake National Park. Later, she worked for one winter at a ski resort before starting to work as a seasonal biotech at Crater Lake and Death Valley National Parks. Her work experiences in these two parks solidified her desire to work permanently for the National Park Service (NPS). Taking well-meaning advice to get her permanent government status, she decided to work for the Internal Revenue Service.

After an extended period away from NPS, she returned to Death Valley National Park (DEVA) where she worked on two specific projects; one on Devils Hole pupfish *(Cyprinodon diabolis)* and another one on abandoned mine lands mitigation.

Most recently, she was responsible for the terrestrial wildlife program and leading the team for the Bioblitz at DEVA.

She is very excited to be at Craters of the Moon. She had the great opportunity to detail here last summer and greatly enjoyed the park, the people and the Idaho area. She is looking forward to working with the staff and partners and to collaborating with the network. She lives in Arco with her husband John, dog Bärli and geriatric cockatiels Chester and Poppy.

Collaboration among networks - Five needle pine monitoring

Devin Stucki - UCBN Vegetation Ecologist

Limber pine at Craters of the Moon National Monument and Preserve.

White pine populations, including limber pine, have declined across the western United States due to several threats such as the non-native white pine blister rust, and the native mountain pine beetle and dwarf mistletoe. A collaborative monitoring protocol was developed between the UCBN, the Sierra Nevada Network (SIEN), and Klamath Network (KLMN) to assess the status and trend of 5-needle pine populations and the pests and pathogens affecting them. Studying the dynamics of these pathogens, as well as stand dynamics such as species composition and seedling regeneration, will assist resource managers in making informed management decisions concerning 5-needle pine woodlands within their parks.

The UCBN began monitoring limber pine at Craters of the Moon (CRMO) in 2011. Since then, a total of 93 permanent plots (50 m x 50 m) have been established, surveyed, and revisited once. No white pine blister rust has been found within plots, though a localized infection was discovered by CRMO resource management in the north end of the monument in 2006. As a result of management intervention this infection appears to be eradicated. Incidence of mountain pine beetle remains very low within plots but dwarf mistletoe infects about a third of limber pine within the sample frame.

In 2017, the UCBN will work with the Mojave Desert I&M Network to extend the white pine monitoring protocol to Great Basin National Park (GRBA). Monitoring will focus on limber pine and bristlecone pine, offering a valuable opportunity to compare limber pine trees at CRMO with those at GRBA, and broadening our knowledge of these long-lived and magnificent trees.

New Publication!

The UCBN is proud to announce the publication of an entire NPS Centennial special issue of the journal Ecosphere in December 2016 dedicated to the contribution of Inventory & Monitoring Division science to park management. The issue consists of 20 articles, including one by our very own UCBN ecologist Tom Rodhouse about the importance of parks for bat conservation. Tom also led the writing of the special issue introductory essay which reflects more broadly on the challenges and opportunities of doing effective science and monitoring to improve conservation decision-making. The following link provides access to the Ecosphere special issue, where you can read the contributions from Tom and other I&M scientists:
http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1576/full

Featured Organism - Lichens

Devin Stucki - UCBN Vegetation Ecologist

From temperate rainforests to arid deserts, lichens seem to make a living almost everywhere you look. Lichens can be found growing in a variety of habitats including on tree bark, dead wood, windswept rocks, forming soil crusts, or even tumbling around in the wind, just to name a few!

Lichens are composite organisms, part fungus and part green algae or cyanobacteria, or both. In general, the algae/cyanobacteria provide carbohydrates to the fungus through photosynthesis, while the fungus provides structure for the photosynthetic partner. This symbiotic relationship allows for each partner to live in environments where they otherwise wouldn't be able to.

Lichens are both ecologically and culturally valuable. Lichens play an important role in nutrient exchange and providing food and nesting materials for a variety of invertebrates, birds, and mammals. Humans have a long history of using lichens for food, clothing, fire tinder, dyes, and medicines. Lichens can also be used as indicators for changing air quality.

In May 2016, Crater of the Moon National Monument and Preserve (CRMO) hosted a BioBlitz focused on lichen diversity. With the help of lichenologists Shelley Benson and Steve Sheehy, and many budding citizen scientists, we added 10 lichen species to the CRMO species list. This was a great opportunity to connect with the public and learn more about an important, and often overlooked, resource.

Other fun facts about lichens:

- Lichens were some of the first organisms to colonize land.
- Lichens can be very slow growing and long lived, some over 8,000 years old!
- A few lichens are poisonous and many have antimicrobial properties.
- Some lichens can be identified by applying a chemical and watching for a change in color.

All photos taken at Craters of the Moon National Monument and Preserve. Courtesy of Devin Stucki.