



Basin Bulletin

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Lemhi penstemon near North Fork Big Hole River. Photo by Michael Durham

Cover story: Where monitoring and management meet: BIHO Lemhi penstemon

Tom Rodhouse, UCBN Ecologist, shares an example of how collaborative monitoring can provide science-based information essential to park management.

Regional use of UCBN monitoring protocols.

Gordon Dicus, Program Manager, provides an update on the plan to implement UCBN monitoring protocols in other parks in our region.

How can you see our monitoring data?

Learn about collaborative efforts to make UCBN monitoring data available to park staff.



UPPER COLUMBIA
BASIN NETWORK
UCBN

Plus:

- Check out our field schedule for this summer, pg. 4
- Welcome our new Superintendent, pg. 4
- Mark your calendars for the upcoming lemhi penstemon webinar, part of the Inventory and Monitoring Division [monthly series](#), on March, 16th
- *This just in!*...[NRSS press](#) release on pika research
- What do you know about the Western screech owl?, pg. 8





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.

Upper Columbia Basin Network
105 East 2nd Street, Suite 5
Moscow, ID 83843

Program Manager

Gordon Dicus (208) 885-3684
Gordon_Dicus@nps.gov

Ecologist

Tom Rodhouse (541) 312-6425
Tom_Rodhouse@nps.gov

Aquatic Biologist

Eric Starkey (208) 885-3010
Eric_Starkey@nps.gov

Data Manager

Kirk Sherrill (208) 885-3022
Kirk_Sherrill@nps.gov

Biological Technician

Devin Stucki (541) 312-2323
Devin_Stucki@nps.gov

GIS Analyst

Meghan Lonneker (208) 885-3014
Meghan_Lonneker@partner.nps.gov

Science Comm. Specialist

Paulina Starkey (208) 885-3015
Paulina_Starkey@partner.nps.gov

Newsletter Contributors

Gordon Dicus Tom Rodhouse
Kirk Sherrill Eric Starkey
Mandi Wick

Distribution

Please distribute this newsletter on to any person or group who is interested!

Questions about the newsletter?

Write to: Editor

Paulina Starkey,
Paulina_Starkey@partner.nps.gov



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!

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The Program's Manager Corner

Gordon Dicus



Happy New Year from the UCBN I&M program. It was great to close out 2015 with a UCBN Science Meeting at City of Rocks National Reserve. The CIRO staff generously accommodated all the participants, arranged restaurant meals, and shared some sunny Fall weather to enhance our enjoyment of their beautiful park. A big thank you to the CIRO staff, especially Kristen Bastis and Wallace Keck, and to everyone who attended. The meeting centered around presentations on 2015 field activities and accomplishments for our monitoring protocols, highlighted integration of UCBN monitoring with park resource management interests, and included park resource management project updates, stimulating discussions of monitoring goals and park information needs, as well as plans for 2016 fieldwork (see the schedule on page 4).

While the Science Meeting stressed the steady, well established goals and methods of our monitoring protocols and

projects, 2016 is shaping up to be a year of change for the UCBN I&M program. Dan Esposito, UCBN Biological Science Technician, left in late January for a new job with the NRCS in southern Oregon. Dan provided excellent service to our terrestrial monitoring protocols, especially the sagebrush steppe vegetation monitoring, and will be sorely missed. In addition, Kirk Sherrill will be leaving the UCBN Data Manager position in March. Kirk brought a great suite of GIS, landscape ecology, and data management skills to our program, and will be hard to replace. Kirk will become the new Data Manager for the Rocky Mountain I&M Network in Fort Collins. Kirk and his wife have family roots in Fort Collins, where they will enjoy the benefits of grandparents doting on their young son. And Meghan Lonneker, who has ably assisted GIS and data management operations at UCBN for over 6 years, will be greatly reducing her part-time hours in order to focus on new professional endeavors.

We strive to not miss too many beats in our busy schedule as I work to fill these staff vacancies. In addition to maintaining our annual monitoring fieldwork, the UCBN is evaluating potential expansion of monitoring protocols to additional parks (see article on page 6), as well as continuing to contribute to regional and national initiatives with a variety of partners. The latter includes the data visualization projects you'll learn about on page 7, assisting with "bioblitz" projects at CIRO and CRMO in May 2016, consulting with US Forest Service and Montana Natural Heritage programs on Lemhi penstemon monitoring, collaborating with USGS partners on vegetation trend reporting and on the North American Bat monitoring initiative, and continuing collaborative agreements with Oregon State University and the University of Idaho to expand the relevance of our long-term monitoring protocols.

Enjoy the winter, and keep in touch.

UCBN inventory and Monitoring Program Schedule 2016

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
MONITORING									
Aspen						CIRO			
Bats	CRMO	CRMO							
Camas lily				NEPE	BIHO				
Lemhi penstemon and invasive weeds						BIHO			
Limber pine							CRMO		
Riparian Vegetation					JODA	JODA	JODA		
Stream Channel Characteristics					JODA	JODA	JODA		
Sagebrush-steppe vegetation					JODA CRMO	JODA CRMO			
Sage-grouse		CRMO	CRMO						
Water quality					JODA CRMO	JODA	JODA	JODA	JODA



Monitoring activities for which field operations are conducted by park staff.



Monitoring activities for which field operations are conducted by UCBN staff, or by UCBN staff in cooperation with park staff.



Monitoring activities for which field operations are conducted by NPS partners.

New faces in our network

Mandi Wick

Superintendent - Big Hole National Battlefield

Although not a new face, we welcome Mandi Wick in her new role as the Montana Unit Manager/Superintendent of Big Hole National Battlefield (BIHO) located near Wisdom, Montana. The Montana Unit Manager oversees the Bear Paw Battlefield, Canyon Creek, Camas Meadows and the Big Hole National Battlefield units of Nez Perce National Historical Park. She began in her new role on December 2015.

Mandi began her National Park Service career at BIHO, first as a

Visitor Use Assistant and later as a Park Guide under the Student Career Experience Program.

Later, after completing a degree in Sociology, she became the Chief Ranger and served in that position for six years. During her tenure at BIHO, Mandi has served as Acting Superintendent many times and has developed strong positive relationships with the park's Nez Perce tribal members. Additionally, she has used her knowledge and enthusiasm to create new interpretive programs with an emphasis in

reaching out to students and young people.

Mandi enjoys horse-back riding, hiking, skiing and camping with her husband Paul, and three daughters, Nadia (15), Athena (10) and Zophia (2).



Bridging the gap between monitoring and management in the UCBN

Rare plant conservation and weed control in Big Hole National Battlefield

Tom Rodhouse - UCBN Ecologist

It is well known among conservation biologists that making ecological monitoring matter to on-the-ground management is challenging. Really good examples of how monitoring improves decision-making and resource protection, in a concrete and tangible way, are surprisingly hard to come by. Here in the UCBN we have tried to overcome this challenge with all of our projects, admittedly with varying degrees of success. One of the more exciting successful examples is our Lemhi penstemon and spotted knapweed population monitoring program at Big Hole National Battlefield. Since 2009 we have been working very closely with park staff to build a monitoring system that provides immediate and meaningful information back to the park. Our bread and butter data stream are the population estimates we make for both plant species in June of each year. These estimates have revealed that BIHO is home to the largest population of the rare Lemhi penstemon and motivated additional monitoring and conservation efforts.

We have also used these estimates to discover first that spotted knapweed was undergoing a frightening population explosion and then a reassuring curtailment of that explosion following a doubling-down of weed control efforts made by the park and the Rocky Mountain Exotic Plant Management Team (EPMT) beginning in 2012. About that same time we also worked with park staff and the Glacier National Park fire management team to begin outlining a prescribed fire program that would enhance Lemhi penstemon habitat and help the Battlefield maintain the historic open look and feel of the Battlefield hillslopes that get encroached by trees and shrubs. This was an exciting initiative because it illustrated how both cultural landscape and natural resource objectives can be integrated together. By integrating the fire planning with monitoring, we were able to design a study to verify our hypothesis that fire enhances Lemhi penstemon populations by creating bare soil microsites for seed germination.

This is a creative way to simultaneously meet the long-term monitoring goals of the NPS Inventory and Monitoring Program and address park-specific management questions about the utility of fire in this resource area through effectiveness monitoring. Most recently, we have begun to work with the NPS Biological Resources Division to integrate the weed control data from the National Invasive Species Information Management System (NISIMS) into our assessments of population trend in order to answer park questions about the effectiveness of herbicide application on the knapweed population. NISIMS receives data from EPMTs from around the country. We have also facilitated NISIMS to take park herbicide application data so that the work being done by park staff will be accounted for. We are now in a position to develop robust assessments of the impacts of fire and weed control on both plant populations, in addition to tracking how longer-term factors such as changing climate is affecting them. We are very pleased with the collaborative nature of this project and are very excited about recent conversations with the US Forest Service and Montana Natural Heritage Program about collaboration beyond the park borders, which will provide invaluable context for a deeper understanding about Battlefield resources.



Lemhi penstemon (*Penstemon lemhiensis*) plant west of the Visitor Center at BIHO



Prescribed fire at the Horse Pasture at BIHO, conducted in the Fall of 2014

Extension of UCBN monitoring protocols to additional parks

Gordon Dicus - UCBN Program Manager

As the UCBN finalizes the last of our long-term monitoring protocols (see our [website](#)), we continually strive to reach a broad audience and to expand the utility of our monitoring data. One example is our collaboration on sagebrush steppe vegetation monitoring with the Greater Yellowstone Network (GRYN), which lead to implementation of our sagebrush steppe monitoring protocol at additional parks (Grand Teton and Yellowstone National Parks). We're presently working with Great Basin National Park (GRBA) and the Mojave Desert Network to assess use of our white pine monitoring protocol to collect data and manage impacts on GRBA white pine species (limber pine and bristlecone pine).



Limber pine (*Pinus flexilis*)



Bristlecone pine (*Pinus longaeva*)

Under current implementation, our white pine monitoring focuses on limber pine in UCBN, whitebark pine in Klamath Network (KLMN) and Sierra Nevada Network (SIEN), and foxtail pine in SIEN. In addition to providing GRBA with data on growth rates, disease impacts, mortality and seedling survival within white pine stands, implementing the white pine protocol at GRBA would allow analysis of limber pine at a more regional scale rather than only at UCBN's Craters of the Moon National Monument and Preserve (CRMO). Other potential collaborations with GRBA staff include implementation of our sagebrush steppe vegetation monitoring protocol, and perhaps our aspen monitoring protocol. Within the UCBN, we are also working with City of Rocks National Reserve staff to evaluate modifying the white pine protocol to collect data within pinyon pine and juniper stands, particularly focusing on timing and abundance of seed cone production.



Pinyon pine (*Pinus edulis*)

Another excellent example of extending one of our protocols involves pika monitoring. As we

developed the pika monitoring protocol for CRMO, we worked with KLMN to also include Crater Lake and Lassen Volcanic National Parks, and Lava Beds National Monument. The potential sensitivity of pika to climate change impacts led to a funding award from the Climate Change Response Program, which allowed us to partner with several universities on a [Pikas in Peril](#) research project. The project used data from our pika monitoring parks in UCBN and KLMN, plus parks in GRYN and Rocky Mountain Network, to identify climatic and habitat factors shaping current pika distributions, assess habitat connectivity and gene flow, and evaluate climate change vulnerability of pika populations in each park.



American Pika (*Ochotona princeps*)

These extensions of our monitoring efforts facilitate collaboration and expand the scope of our monitoring results. As long as we can continue to fit such ambitions into realistic, achievable work schedules of our limited staff and budget, we will strive to fulfill the promise presented by these opportunities.

Data Visualization and Emerging Technology in the UCBN

Kirk Sherrill and Eric Starkey - UCBN Data Manager and Aquatic Biologist

With the ever increasing amount of inventory and monitoring (I&M) data available for use, the I&M program has recognized the importance of developing tools that increase awareness of and facilitate utilization of these data for the benefit of informed resource management.

As example, numerous collaborative data visualization and data dissemination efforts are under way at the UCBN. See website (<http://science.nature.nps.gov/im/units/ucbn/datavisualization.cfm>). These efforts are being performed in a collaborative environment with other I&M networks, the national level I&M (WASO) program, the NPS Natural Resource Stewardship and Science (NRSS) directorate and other collaborating partners.

Sagebrush Steppe Vegetation Visualizer (VegViz)

(<http://www.vegviz.org/>)

Web portal for data visualization and data export of Sagebrush Steppe monitoring data across the UCBN and Greater Yellowstone (GRYN) networks. This is a multi-year project going into the second year of development. Collaborators include the UCBN, GRYN, National I&M program and Walking Shadow Ecology. Stay tuned for further details on VegViz functionality.

Aquarius Web Data Portal - Water Chemistry

(<https://irma.nps.gov/aqwebportal/>)

NRSS data portal for graphical display and download of water chemistry data. Hourly measures of dissolved oxygen, pH, specific conductance, temperature, and turbidity are available from 13 monitoring stations across the network.

Functionality of the portal is expected to grow, with the release of a new version expected soon!

The Climate Analyzer

(<http://www.climateanalyzer.org/ucbn/map.html>)

The Climate Analyzer data portal provides climatic data across UCBN parks, promoting its use for monitoring activities and subsequent analyses. Data sources harvested and available for display and analyses include climatic data from the National Weather Service (COOP/GHCN data), NRCS Snow-Telemetry (SNOTEL), Remote Automated Weather Stations (RAWS), and Hydrological data from USGS stream and lake gages. Climate Analyzer has been developed by Walking Shadow Ecology, and is currently used by numerous I&M networks and parks.

The UCBN is now on Facebook!

We made our online appearance last November. We have mostly shared parks' events, but soon enough we will be starting to conduct fieldwork! So make sure to like us to learn more about our field schedule, new findings, interesting sightings and current events or happenings in our network.

Follow us at:

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Featured Creature

Western screech owl

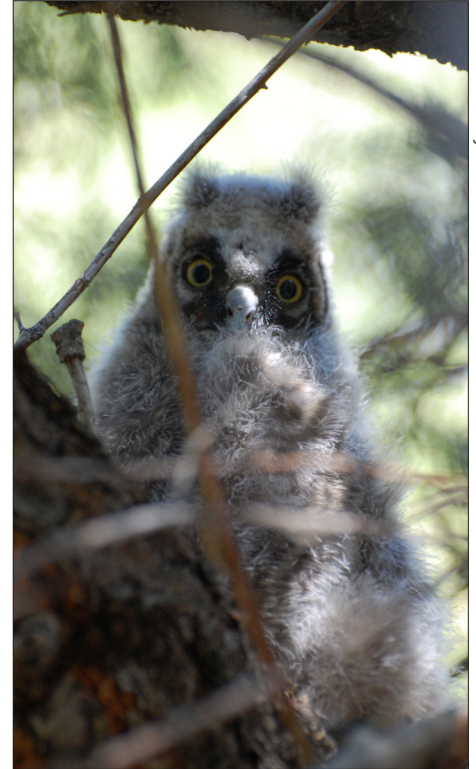


Western Screech owl at Whitman Mission National Historic Site

Western screech owls are native to North and Central America. They are widespread species ranging from woodland areas to urban and suburban parks from southeast Alaska to Western Mexico. Their preferred habitat are riparian areas, which sustain abundant prey. Their diet consists of small mammals, amphibians, reptiles and insects.

Al St. John

These owls lay between 2-5 eggs and incubation lasts about 26 days. Nests are located in cavities in trees or poles and both parents care for young until sometime after fledging. Western and Eastern screech owls were considered the same species until recently (1980); their call is what makes them unique. In addition, Western and Whiskered screech owls look very much alike; however, the latter is smaller. Western screech owl populations are stable, but they are vulnerable to habitat loss due to urban development. They have been heard and observed in the parks in our network, so keep your eyes open and your ears sharp around wooded areas.



NPS/Eric Starkey

Western Screech owlet observed at City of Rocks National Reserve

Who is Who?

Can you identify each species of these very close relatives?

- A. Western screech owl (*Megascops kennicottii*)
- B. Whiskered screech owl (*Megascops trichopsis*)
- C. Eastern screech owl (*Megascops asio*)



James R. Woodward*



Brian E. Small*



C.W. Moynihan*



*(All photographs obtained from the National Audubon Society website)

Species information obtained from:

<https://www.audubon.org/field-guide/bird/western-screech-owl>

https://www.allaboutbirds.org/guide/Western_Screech-Owl/lifehistory

<http://www.owlinstitute.org/western-screech-owl.html>

Answers: C, A, B