Upper Columbia Basin Network
Inventory and Monitoring

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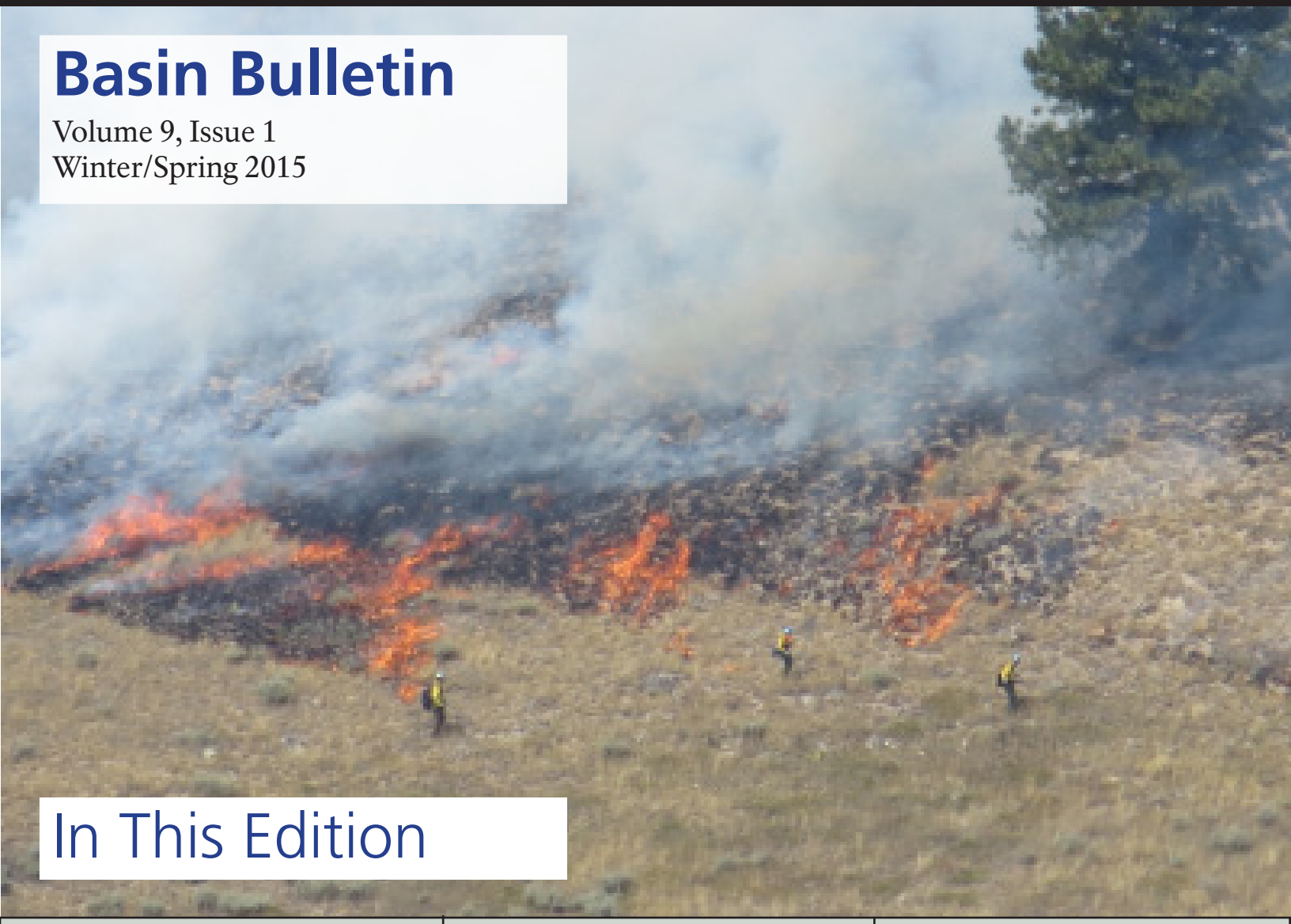
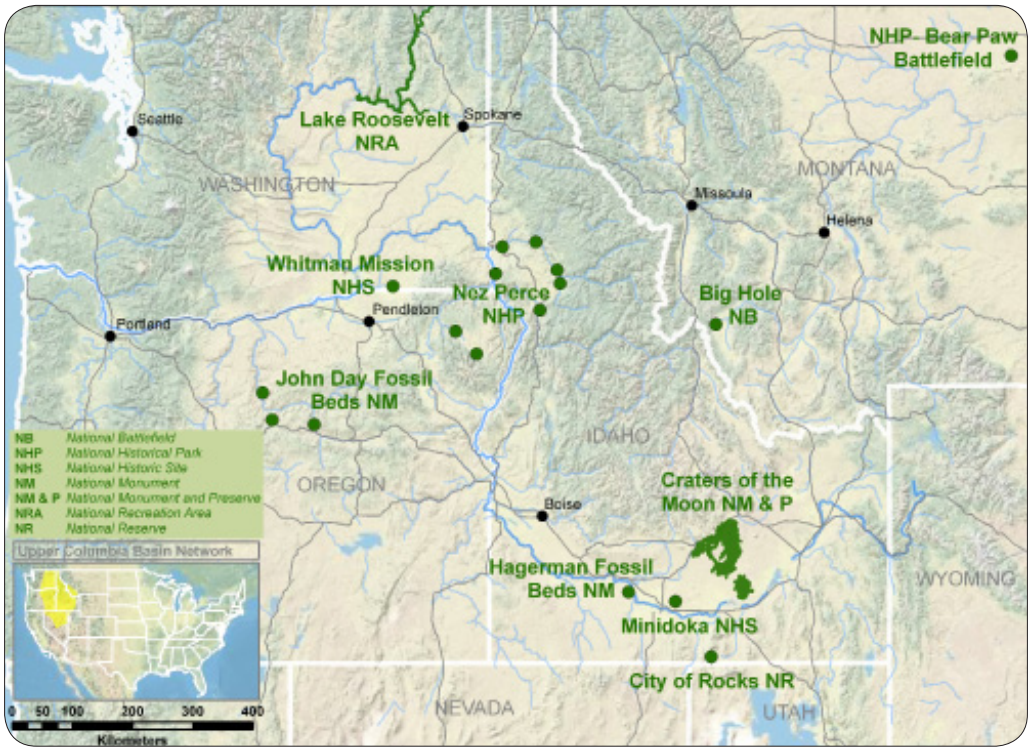


In This Edition

UPPER COLUMBIA BASIN NETWORK
UCBN

PLUS!

Upper Columbia Basin Network Inventory and Monitoring Program



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

National Park Service
U.S. Department of Interior

UPPER COLUMBIA BASIN NETWORK UCBN

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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The Program's Manager Corner
Gordon Dicus

Happy New Year! It's been an odd winter so far in the Upper Columbia Basin Network (UCBN), with warm temperatures and little snow. I, for one, continue to think snow.

Presently I am finalizing the UCBN 2015 work plan, and the UCBN team is busy completing reports and manuscripts from 2014 monitoring and associated projects and planning for field work. Back in early November, the UCBN hosted two folks from the Inventory and Monitoring (I&M) Central Office to conduct a "360 Review" of our Network data management program (see page 7 of this newsletter). The UCBN assisted with the Craters of the Moon NM&P State of the Park workshop in October; three UCBN Parks have completed State of the Park reports, available at www.nps.gov/stateoftheparks/ (it is also linked on the UCBN homepage at http://science.nature.nps.gov/im/units/ucbn under Quick Links).

Meghan Lonneker, UCBN GIS Analyst, presented a webinar last fall on characterizing development on land parcels adjacent to Lake Roosevelt NRA's boundary; this was a collaboration with landscape ecologists at the I&M Central Office, and presented as part of the I&M webinar series. Look for announcements on future I&M webinars (details on the I&M Central Office sharepoint site, or you can inquire with me).

Many of you are familiar with the Pikas in Peril project funded several years ago through the NPS Climate Change Response Program. The project's genetics component is producing two new manuscripts, authored by researchers at Oregon State University and University of Colorado, and by Tom Rodhouse, UCBN Ecologist, and Mackenzie Jeffress, former UCBN Research Associate responsible for the early workload to initiate and implement pika monitoring in the UCBN and partnering Parks. One manuscript describes the influence of habitat availability and gene flow on pika population trajectories under global climate change conditions, the other examines how landscape configuration and climate affect pika connectivity (movement among patches of favorable habitat). These journal articles will be made available on the UCBN website (science.nature.nps.gov/im/units/ucbn/publications.cfm), as will some new resource briefs that distill the research findings and interpret the implications. One more new publication will be an NPS Natural Resource Report presenting a John Day Fossil Beds NM management plan based on earlier work by Tom Rodhouse and Shirley Hoh, JODA Integrated Resource Manager, with USDA Agriculture Research Station staff to apply an ecologically-based invasive plant management approach to invasive weed treatment strategies and efforts to protect native plant communities.

The UCBN team looks forward to conducting work in the Parks this summer, and to opportunities to meet with Park staff and other collaborators.

The North American Bat (NABat) Monitoring Program receives award!

Please join us in congratulating the NABat Program who has received the United States Forest Service 2015 "Wings across the Americas Conservation Award," in the Research Partnership category. The NABat work group is a multi-agency, multi-national effort designed to address the lack of large-scale long-term monitoring data for North American Bats. This program attempts to track changes in the distribution and abundance of all 47 North American bat species that are shared among the United States, Canada and Mexico. This work group includes scientists of multiple agencies, including our UCBN Ecologist Tom Rodhouse. The main focus of their work has been on sampling design and statistical design in preparation for analysis of upcoming bat monitoring data. The awards ceremony will be held this March during the North American Wildlife Resources Conference in Omaha, Nebraska. Congratulations to Tom and the rest of the NABat Team! Thank you for the great work you are doing for bat conservation!

UCBN Inventory and Monitoring Program Schedule 2015

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
MONITORING										
Bats	CRMO	CRMO								
Camas lily				NEPE	BIHO					
Lemhi penstemon and invasive weeds					BIHO					
Limber pine						CRMO	CRMO			
Riparian Vegetation				BIHO CIRO	BIHO CIRO	BIHO CIRO	BIHO			
Stream Channel Characteristics				BIHO CIRO	BIHO CIRO	BIHO CIRO	BIHO			
Sagebrush-steppe vegetation					CIRO JODA	CIRO				
Sage-grouse		CRMO	CRMO							
Water quality					BIHO CIRO	BIHO	BIHO	BIHO	BIHO	
Aspen										
INVENTORIES										
Vegetation mapping	All UCBN parks. Final maps and reports completed.									

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.

Prescribed Fire at Howitzer Hill

Steve Black - Superintendent - Big Hole National Battlefield

Fire is an important part of the ecosystem of the west, but for many years it has been lacking at Big Hole National Battlefield (BIHO). There are many reasons why we would not burn, but if we look deep into the science, there is no reason to continue this exclusion.

Big Hole was created in 1910 for the events that took place in August, 1877; but, why were the Nez Perce people here in the first place? This was a well-known stopping point on the journey east to Bison country. The Nez Perce used this spot as a gathering place for camas and lodge pole pines, and fire created the large hillside pastures to graze their herds of horses. We, both the U.S Forest Service (who first managed the park) and the National Park Service, have largely excluded fire from the landscape, removing a valuable tool for keeping the trees at bay and the plants that need fire to thrive.

A few years ago, BIHO staff, along with Resource Management staff from Nez Perce National Historical Park and the Upper Columbia Basin Network began discussing and then planning for a small prescribed fire to test its effects on our rare plant species, Lemhi Penstemon. Also, we wanted to see if we could stop tree encroachment into the hillside pastures. We knew that we could not do this alone and that is when we brought in Glacier National Park's Fire Program.

All of us working together were able to develop a prescribed burn plan with four burn plots that would be burned in a specific order. We wanted to see how fire would do on the hillside and see if we could mimic a late season burn without burning down the surrounding forest. Staff from the Glacier National Park Fire Program made numerous trips to the park over the following few years to help develop the burn plan. Revisions were done, the plan was modified accordingly and we hoped to do our first burn in September 2013. Many things impeded the burn and plans were pushed back a year. This past September we finally put fire on the ground and burned 13 acres of Howitzer Hill. Many people from different agencies were involved in our small fire, amongst them, the U.S. Forest Service, Glacier and Big Hole firefighters and Job Corps trainees on their first prescribed burn.

The fire was a success and initial surveys suggest that the Lemhi Penstemon really liked the low intensity burn running through it. Of course the park is now covered in snow and we will have wait until next summer's monitoring to see the full results. However, plans are already afoot for next year's burn on the Horse Pasture, which will be even more complex.

Prescribed burn at Howitzer Hill in Big Hole National Battlefield, September 2014

Making sense of I&M non-sense: Data Management

Kirk Sherrill - Data Manager, Upper Columbia Basin Network

What does a data manager do and what is data management anyways? In this brief I am going to introduce a few concepts with supporting examples that are intended to provide insight on the nebulous concept of data management.

Data is information collected about something that is of interest. For example, to determine water quality you might collect dissolved oxygen and temperature measurements. Most data collection at the UCBN occurs in the field. The process of recording the data is usually accomplished: 1) manually by hand onto paper or 2) digitally via entry to a computer device.

At the UCBN we primarily collect digital data because digital collection tends to be more efficient and accurate. Digital field data collection is usually quicker than collection onto paper. With paper collection an additional step is required to transcribe the data into digital format which is timely and introduces the opportunity for inevitable transcription error. Once data is in digital format the data is then more accessible for analysis and subsequent archival and storage.

Digital data collection is more ccurate, because pre-defined, standardized and systematic processes are put in place to achieve quality assurance (QA) and quality control (QC) requirements. QA focuses on insuring data is accurately recorded at the time of collection. A QA check can be as simple as insuring that consistent names are given for a species or that data readings are all in the same units. QC steps are usually performed post data collection and are intended to identify data that has been erroneously collected. A common QC check is to verify that an outlier data entry has not occurred; where an outlier is a recorded value, this is extreme relative to all other data entry values. As example if you were collecting daily precipitation a value of 10 inches might be identified as an outlier because it represents an unusually large daily rainfall amount. Sampling events with outlier data are investigated with regards to data validity and subsequently flagged so they are appropriately used in subsequent analyses.

At the UCBN we have recently purchased two field going hand held PC tablets (see below) which will be added to the UCBN field data collection arsenal (awesome power)!

Left: **Tremble Yuma 2 PC Tablet with the new Water Quality Monitoring database entry form running.**

These hand held tablets are the equivalent of a desktop computer; The tablets are battery powered, small in size and made to handle arduous outdoor environments, making them ideal for field work.

We are currently developing new data entry forms for Water Quality and Lemhi Penstemon monitoring efforts. The overall goal of pairing these new forms with the PC tablets is to facilitate efficient and high quality data collection.

Being on the data management topic, the National I&M program continues to offer assistance for parks in their efforts to migrate data to the Integrated Resource Management Applications (IRMA). IRMA is a centralized web-based data application that is designed to store and make readily available data and information related to NPS natural and cultural resources. An example of this effort was when Craters of the Moon (CRMO) undertook IRMA migration assistance in 2012; this has likely contributed to CRMO currently having nearly 1,500 IRMA records (references) of which ~ 73% have an associated digital file! If you are interested about the number of IRMA records for your park; and or if IRMA migration assistance is of interest please let me know.

360 Review of Network Data Management Program

Gordon Dicus - UCBN Program Manager

The I&M Program's Central Office initiated a 360 Review process in the fall of 2014. The intent is to work with Network staff to assess their overall data management practices, highlight priority issues, and develop recommendations. The Central Office completed the first two pilot 360 Reviews in 2014, one of which was here at the Upper Columbia Basin Network. Brent Frakes and Lisa Nelson spent a week with the UCBN staff. We reviewed data management workflows, evaluated the structure and function of some protocol databases, reviewed national-level applications and tools, and discussed ways to improve collaboration between the Network and the Central Office. The timing was good since the new UCBN Data Manager, Kirk Sherrill, had started work in mid-August. Helpful results include new tools for diagramming protocol workflows, re-focusing staff effort on thorough annual project close-out procedures and assessments, procedures for evaluating database design and function and useful recommendations for database improvements, and re-energizing collaborative efforts between the Network, the Parks, and the Central Office. Examples of collaboration are working with the national-level invasive species information management system (NISIMS) to capture Park weed treatment actions and correlate them with monitoring results; partnering with the Central Office to use the Climate Grid Analysis Toolset (CGAT) to summarize climate data for correlation with data from our protocols such as pika monitoring; developing centralized, robust SQL Server databases that not only serve as secure repositories for monitoring datasets, but also feed new analysis and data visualization applications available to a variety of users. This 360 Review allowed the UCBN focused discussions that benefited from Central Office expertise and perspectives, and the process gave the Central Office fresh exposure to Network workflows, challenges, and decision making.

New faces in our network

Kirk Sherrill

Upper Columbia Basin Network Data Manager

We welcomed Kirk to the Upper Columbia Basin Network (UCBN) this past August. He has a broad natural resource management and geospatial science background. His professional experience includes working as a geospatial science professional for the Bureau of Land Management, National Park Service and, most recently, with the U.S. Geological Survey Science Center in Fort Collins, Colorado.

Kirk has a B.S. in Natural Resource Management and a M.S. degree in Geospatial Sciences from Colorado State University, where he also served as a research associate at the Center for Ecological Applications of Lidar.

Kirk's aspirations with the UCBN are to utilize his expertise in GIS and data management within a team context for the benefit of scientific study, resource inventory and monitoring; helping to facilitate informed resource management planning.

In his free time Kirk enjoys spending time with his wife, two dogs and cat, reading, yoga, and exploring the outdoors via biking, skiing, running, or hiking.

"Featured Creature"

Lemhi penstemon pollen wasp *(Pseudomasaris vespoides)*

Pollen wasps, or *Masarines,* look very similar to the more common *vespid* wasps, such as yellowjackets. Physically, the main characteristic that differentiates them is their clubbed antennae. Their behavior, on the other hand, is what sets them apart. Pollen wasps are solitary, feed on nectar and collect pollen to feed the young, while *vespid* wasps scavange on meat and sweets and usually are seen in groups.

A genus of the *Masarines* is the *Pseudomasaris*. All species of *Pseudomasaris* are specialized in collecting pollen from a limited number of plants. *Pseudomasaris vespoides* is a pollinator of lemhi penstemon, a species ranked at risk of extintion due to habitat loss. Both the Lemhi penstemon and the pollen wasp are sensitive especies that have coexisted for thousands of years. They both depend on each other for survival; as penstemon plants benefit from its pollination, increased seed production and improved genetic diversity, and the wasps benefit by obtaining the pollen needed for their larvae.

Pseudomasaris vespoides is found in South Dakota, Idaho, Montana, Colorado, New Mexico, Utah, Nevada and California.

The Upper Columbia Basin Network recently posted a lemhi penstemon monitoring video showcasing this important plant and its relationship with the *Pseudomasaris vespoides* pollen wasp. You can find it on the NPS Inventory and Monitoring YouTube Channel at https://www.youtube.com/watch?v=EqppGx7Wv-s , or on the UCBN multimedia page at http://science.nature.nps.gov/im/units/ucbn/multimedia.cfm

Lemhi penstemon pollen wasp (*Pseudomasaris vespoides*) at Big Hole National Monument. Photos by Michael Durham.

Species information obtained from:
http://www.bentler.us/eastern-washington/animals/insects/wasps/pollen-wasp-pseudomasaris-vespoides.aspx
http://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/masarines.shtml
http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8564065&fileId=S0008347X00065160

Check out pollen wasps and yellowjackets up close

Can you circle their differences and tell which one is which?

A

B

Answers: A=Yellowjacket, B=Pollen wasp