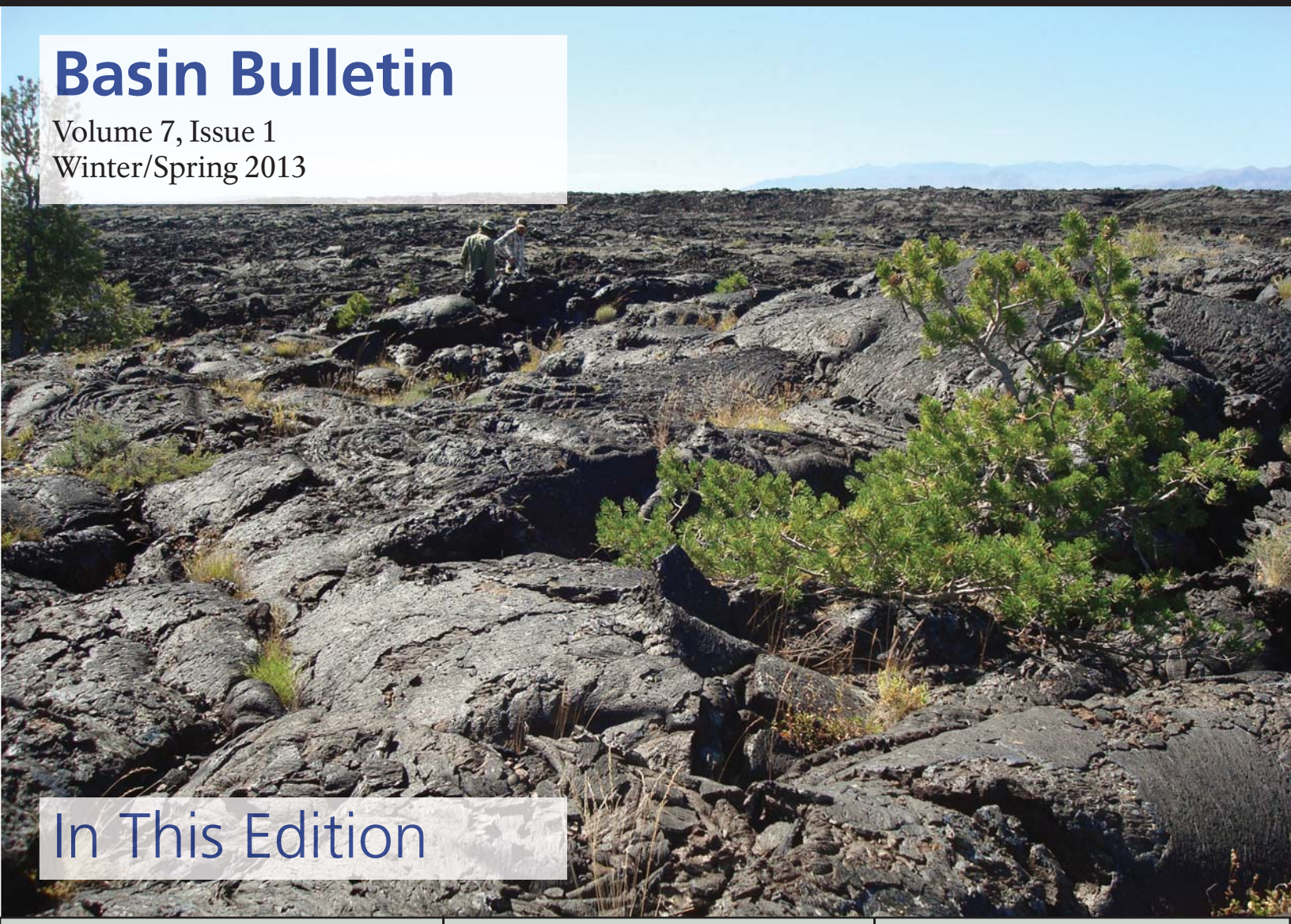
Upper Columbia Basin Network
Inventory and Monitoring

National Park Service
U.S. Department of Interior
Pacific West Region

Basin Bulletin

Volume 7, Issue 1
Winter/Spring 2013



In This Edition

UPPER COLUMBIA BASIN NETWORK
UCBN

PLUS!

- Look at our next field season schedule on pg. 4
- Meet our featured park staff on pg. 7
- Learn interesting facts about Western Pearlshell mussels, in our"Featured Creature" section on pg. 8

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Upper Columbia Basin Network Inventory and Monitoring Program

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

Questions about the newsletter?
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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 Program Manager's Corner

The Upper Columbia Basin Network enjoyed another productive year, and is now finalizing our 2013 work plan. Since we did not hold an annual Science Meeting last fall, we're planning a spring meeting for the week of April 15 at City of Rocks National Reserve. I will be in touch with more details soon. Then, early in fiscal year 2014, we will return to a fall schedule for our UCBN Science Meetings.

You can find reports and summaries from our 2012 monitoring efforts on the UCBN website (http://science.nature.nps.gov/im/units/ucbn/reports/), where after incorporating review comments from park resource managers and superintendents, we post all resource briefs and annual reports. 2012 was the fifth and final year for our vegetation inventory project, and vegetation maps and reports are now complete for all UCBN parks. We're working with the US Geological Survey (USGS) to post all reports and Geographic Information System products to the USGS vegetation characterization program website (http://biology.usgs.gov/npsveg/products/parkname.html), but meanwhile anyone seeking a park vegetation map or report not yet available online can always contact us directly. In addition, the natural resource condition assessment project wrapped up in 2012 – all of those reports are available on our website (http://science.nature.nps.gov/im/units/ucbn/otherprojects/nrca/).

Other highlights from 2012 include the State of the Park report for Big Hole National Battlefield (the first report in this service-wide report series), collaboration with John Day Fossil Beds National Monument (JODA) staff and the USDA Agricultural Research Service to develop structured decision-making tools for addressing resource management challenges, and technical assistance to BIHO in assessing prescribed fire as a tool for maintaining the cultural landscape integrity of the open horse pasture as well as potentially stimulating regeneration in the regionally significant Lemhi penstemon population. The UCBN also assisted Nez Perce National Historical Park (NEPE) with pre-restoration measures of vegetation composition in a section of Weippe prairie, and is using sagebrush-steppe monitoring data to help JODA evaluate effects of the large fire that burned over the Clarno unit in August 2011. Tom Rodhouse, our UCBN ecologist, was designated as the Pacific West Region liaison for white-nose syndrome in bats. And the UCBN had a manuscript from our "pikas in peril" project accepted for publication in the Ecological Applications journal.

Our 2013 fieldwork efforts will focus particularly on Craters of the Moon National Monument and Preserve and JODA, although we'll also monitor camas in BIHO and NEPE, Lemhi penstemon in BIHO, and osprey in Lake Roosevelt National Recreation Area. We will continue to work closely with park resource managers and superintendents to thoroughly address safety considerations in all of our field projects, ensuring that all employees are familiar with job hazard analyses, have read and signed readiness review certifications, understand park check-in and check-out procedures, and embrace personal responsibility for safety awareness and the importance of "speaking up" about safety concerns.

The UCBN staff looks forward to visiting the parks and continuing to collaborate with resource managers, superintendents, and interpreters.

Happy New Year!

~ Gordon Dicus, UCBN Program Manager

UCBN crew monitoring Lemhi penstemon on the Horse Pasture at Big Hole National Battlefield.

UCBN Inventory and Monitoring Program Update - January 2013

Project	Parks Included	Status
2013		
Inventories		
Vegetation Mapping	All UCBN parks	Final maps and reports completed.
Monitoring		
Aspen		Protocol approved August 2009. No additional data collection until 2015.
Bats	CRMO	Protocol in development. Expected submission for review in late Spring 2013. Pilot data collection scheduled for February - March 2013.
Camas	BIHO, NEPE	Protocol approved October 2007. Data collection schedule for May 2013 (NEPE) and June 2013 (BIHO). Annual reporting scheduled for November 2013.
Lemhi penstemon and invasive weeds	BIHO	Protocol in development. Expected submission for review in late Winter 2013. Pilot data collection scheduled for June 2013.
Limber Pine	CRMO	Protocol approved May 2012. Data collection scheduled for CRMO in July - August 2013. Annual reporting scheduled for November 2013.
Osprey	LARO	Protocol in revision, re-submitted for review in April 2012. Pilot data collection scheduled for LARO in May and July 2013.
Pika	CRMO	Protocol approved February 2011. Data collection scheduled for CRMO in August - September 2013. Annual reporting scheduled for December 2013.
Sagebrush-steppe Vegetation Monitoring	CRMO, JODA (Clarno)	Protocol approved September 2009. Data collection scheduled for CRMO and JODA in May - July 2013. Annual reporting scheduled for October 2013.
Stream Channel Characteristics	JODA	Protocol approved December 2010. USFS data collection scheduled for JODA in 2013. Annual reporting scheduled for March 2014.
Riparian Vegetation	JODA	Protocol approved November 2011. USFS data collection scheduled for JODA in 2013. Annual reporting scheduled for March 2014.
Water Quality Monitoring	CRMO, JODA	Protocol approved February 2009. Data collection scheduled for CRMO and JODA in 2013. Annual reporting scheduled for December 2013.
Science Communication and Science Support		
Science Communication Strategy	All UCBN Parks	Implement various components of science communication strategy with UCBN parks. Products will include the UCBN newsletter, resource briefs, annual reports, and informational posters.
Natural Resource Condition Assessment	All UCBN Parks	Final reports available for all parks.

Inventory and Monitoring Projects happening in UCBN parks

John Day Fossil Beds National Monument (JODA) and Craters of the Moon National Monument and Preserve (CRMO)

This new Basin Bulletin series will focus on several parks at a time and highlight upcoming projects, monitoring, and events. This coming summer (2013), there is a lot happening at John Day Fossil Beds (JODA) and Craters of the Moon National Monument and Preserve (CRMO).

Monitoring crews conducting sagebrush steppe and water quality monitoring at JODA.

At JODA, our field crews will be monitoring sagebrush steppe vegetation in the Clarno unit, following recovery from the 2011 fire. Monitoring is usually completed in one week, and involves location of monitoring points using a GPS, placement of 1 m^2 quadrats, and identification of plant species. Data collection includes estimation of percentage of ground cover of sagebrush species, native and non-native invasive grasses, perennial forbes and exposed soil. The results provide information about the condition of the sagebrush ecosystem in this park.

The Network will also be conducting water quality monitoring in both John Day River and Bridge Creek. Our aquatic biologist will deploy a continuous water quality monitor in June and visit the park once a month until November to download hourly measures of temperature, dissolved oxygen, specific conductance, pH, and turbidity. In addition, each month he will recalibrate the instrument and evaluate data quality. Also at JODA, Stream Channel Characteristics and Riparian Vegetation monitoring will be conducted by the Forest Service PACFISH/INFISH Biological Opinion (PIBO) field crew. They will visit the sites in late May or early June to identify sample reaches. This visit is then followed by sampling and collection of macroinvertebrates in mid-August.

At CRMO, our crews will be monitoring sagebrush steppe vegetation. Monitoring will occur in a period of 6 weeks. Our aquatic biologist will also collect hourly water quality data for 24 hrs. and will collect aquatic macroinvertebrate samples.

CRMO park staff will lead monitoring of pika this summer. Staff will be out in the lava fields setting up the monitoring plots (12 m circumference) and listening and looking for pika sign. This fieldwork will be conducted in September only over the course of 3 weeks, and it usually consists of monitoring approximately 100 sites.

Temperature loggers will record data in potential pika habitat all summer and be removed by the end of the month.

So, if you are around these parks this summer and see people in the field (or in the river), that's us checking on the status of the natural resources in your park. Stop by, we would be glad to give you an update on our inventory and monitoring activities!

Park staff setting up plots and collecting data for pika at CRMO. Aquatic Biologist deploying Hydrolab in Little Cottonwood Creek.

Making sense of I&M non-sense: Sagebrush steppe vegetation monitoring

Tom Rodhouse - Ecologist, Upper Columbia Basin Network

Editor's Note: In this first installment in our new series, making sense out of I&M nonsense, our intrepid terrestrial ecologist Tom Rodhouse will try and de-mystify some of the jargon used in reporting sagebrush steppe vegetation monitoring. Stay tuned as we try and demystify other aspects of I&M science in future newsletters. If you have specific questions, please let us know and we can address them.

Healthy sagebrush steppe, bluebunch wheatgrass and forbs at Lake Roosevelt National Recreation Area.

So what is it about scientists and their fancy words?!? I myself am often baffled when I read other scientist's work, yet I have become somewhat legendary in the UCBN for making things much more complicated than needed – for example using **forb** to describe all those pretty wildflowers out in the sagebrush **steppe** (the dry, mostly tree-less plains of parts of Europe, Asia, and western North America – which in our case is often dominated by sagebrush). Ironically, scientific terminology is actually meant to improve communication, but how rarely that seems to work out… Take the word flower, for example. It could refer to the actual blossom on a flowering bush, like the Hydrangea in your garden, or it might be used to refer to the entire plant of a wildflower. So we use the term **forb** to specifically refer to the broad-leaved, non-woody (we call that **herbaceous**) flowering plants, excluding grasses, sedges, and rushes (we refer to those collectively as **graminoids**). We could just call them wildflowers, I suppose, but that leaves us open to confusion too, for what about those small forbs that don't produce showy blossoms…? You see the problem, right? We try and be clear, but I'm afraid we often just end up chasing our tail…As a group, **forbs** are important to the health of sagebrush **ecosystems** (the interacting collection of plants, animals, and other critters, along with the soil, weather, and other non-living aspects of the environment). Having lots of different kinds of forbs, especially those deep-rooted, long-lived **perennial** (plants that live longer than 2 years) forbs native to our region help sagebrush steppe be **resilient** (able to recuperate) to disturbances like fire and **resistant** to weed invasion. The presence of **graminoids**, such as the native **bunchgrasses** that grow in tufts or clumps, like bluebunch wheatgrass, is also very important. In the field, we estimate the **cover** (the coverage of the plant over the soil) of forbs and **graminoids**, as well as many of the weeds and other plants, as a way to describe how much of the good stuff we have, and whether we're growing more or less of it in our UCBN steppe **ecosystems** over time.

Here is another helpful term:

Quadrat – we use this term to describe the small square plastic frames that we place on the ground during surveys to focus our cover estimation. Using **quadrats** of the same size allows us to make comparisons between different plots of ground in UCBN parks. The quadrat, sometimes referred to as a **plot**, is the basic unit of measurement (**sample unit**) for analysis and reporting.

Dan Esposito, UCBN biotechnician, collecting sagebrush steppe data within a quadrat.

New faces in our network
Shelley Hall
Superintendent at John Day Fossil Beds National Monument, Oregon

Shelley Hall, John Day Fossil Beds National Monument Superintendent.

Shelley Hall is the new superintendent at John Day Fossil Beds National Monument, following Jim Hammett's retirement after serving as the park's superintendent for 18 years.

Originally from Maryland, Hall has worked for the National Park Service for 29 years in a variety of jobs, primarily natural and cultural resource management. Most recently, she was the Chief of Natural Resource Management at Cape Cod National Seashore in Massachusetts since 2010. Most of her career was in western parks, including Washington's Olympic National Park (1992-2004), Kenai Fjords National Park in Alaska (2004-2010) and Craters of the Moon National Monument, Idaho (1988-1992). Shelley has been active in several networks, including South West Alaska Network and Northeast Coastal and Barrier Network.

She is a wildlife biologist by training, with a Bachelor's degree from Michigan State University and a Master's degree from the University of Washington. Her MS thesis examined marbled murrelet use of suitable nesting habitat within and adjacent to Olympic National Park.

In her spare time, Hall enjoys most active outdoor hobbies including hiking, running, and skate skiing. She also likes to travel; recent trips include the Galapagos Islands, trekking in Peru and climbing Mt. Kilimanjaro. Her partner, Dan, will be joining her in Oregon in the near future.

UCBN goes bilingual
Paulina Tobar-Starkey - Science Communication Specialist Upper Columbia Basin Network

Hola a todos!

The Upper Columbia Basin Network will start translating selected communication materials to Spanish. We have finished translating the photomonitoring resource brief for Whitman Mission National Historic Site. Our second translation project is the UCBN brochure, and we hope to have it available for all parks by this summer.


Upper Columbia Basin Network
Programa de Inventario y Monitoreo
Foto-monitoreo
Sitio Histórico Nacional Whitman Mission
Importancia: Restauración del hábitat de ribera del parque para peces y otras especies de animales
Objetivos del monitoreo
Situación actual y futura
Aplicaciones para el manejo del recurso
2006
2007
2008
2010

To ensure accuracy in our translation, our Spanish communication materials are and will be reviewed by a senior translator contracted by the Pacific West Regional Office. The UCBN has decided to translate documents on an "as needed" basis, so if you are interested in having any of our materials translated to Spanish, we will accommodate your requests after our brochure is finalized. We are eager to reach a diverse audience and spread the word about inventory and monitoring.

Adiós!

"Featured Creature"

Western Pearlshell

Western pearlshell found in the Kettle River at Lake Roosevelt National Recreation Area.

The western pearlshell (*Margaritifera falcata*) has been documented widely in western North America; it is the most common mussel species in the Pacific Northwest. The range of the western pearlshell mussel extends from Alaska and British Columbia south to California and east to Nevada, Wyoming, Utah and Montana.

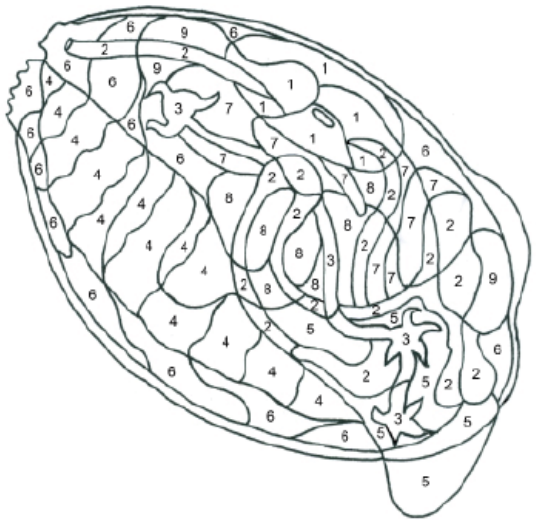
This species inhabits cold creeks and rivers with clean water and sea-run salmon or native trout. Documented host fishes include: cutthroat trout, rainbow/steelhead trout, Chinook salmon, and brown trout, and a number of other fish are considered potential hosts.

The average life span of this mussel is approximately 60-70 years; although some individuals are thought to have lived more than 100 years. Because this species is sedentary, sensitive to environmental changes, and long-lived, it can be an excellent biological indicator of water quality. Freshwater mussels that live in dense beds, including the western pearlshell, provide an important water purification service; they can filter suspended solids, nutrients and contaminants from the water column and collectively improve water quality by reducing turbidity and controlling nutrient levels. Some Native American tribes historically harvested this animal and used it for food, tools and adornment.

The western pearlshell has been extirpated from northern NV, from most areas in northern UT, and there are numerous examples documenting its decline. In addition, there are reports of populations that apparently have not reproduced for decades. Populations of such a long lived species may appear stable, when in fact they are not reproducing. However, this mussel is still abundant in many areas, and we lack the information on historical abundance that would be necessary to document the level of decline that has probably occurred over the past century. There is a need to document the current distribution and abundance of this species, so that if populations decline in the future, those declines can be documented and protection for vulnerable populations can be provided.

Western pearlshell mussels are known to exist in Lake Roosevelt National Recreation Area within the Kettle River. Given the range of this species, you might find empty shells or live individuals in your park. Please let the UCBN know if you spot these or other mussels in your streams.

Species profile modified from the Xerces Society for Invertebrate Conservation:
http://www.xerces.org/wp-content/uploads/2008/09/xerces-status-review-margaritifera-falcata-2012.pdf



Take a look inside a mussel!

Color the image on the left by number and see the different organs inside it, including a beating heart that pumps "hemolymph" (mussel blood).

1 = Red - Heart (this pumps the blood)
2 = Blue - Stomach and intestines (these absorb food)
3 = Green - "Ganglion" (this controls the mussel's action)
4 = Purple - Gills (this is how the mussel breathes)
5 = Yellow - Foot (this is how the mussel moves)
6 = Orange - Mantle (this makes the shell)
7 = Light blue - Kidney and liver (these help process waste)
8 = Pink - Genital gland (this helps the mussel reproduce)
9 = Light green - Adductor mussels (these hold the shell closed)

Activity courtesy of US Fish and Wildlife Service