



Great Plains Gazette

Newsletter of the Northern Great Plains Network

Volume 1 Issue 3 - Spring 2015

Coordinator’s corner

Thank you again for working with us this past year. We had another great year – including a second year with no injuries. We appreciate you working with our crews to ensure everyone gets back at the end of the day.

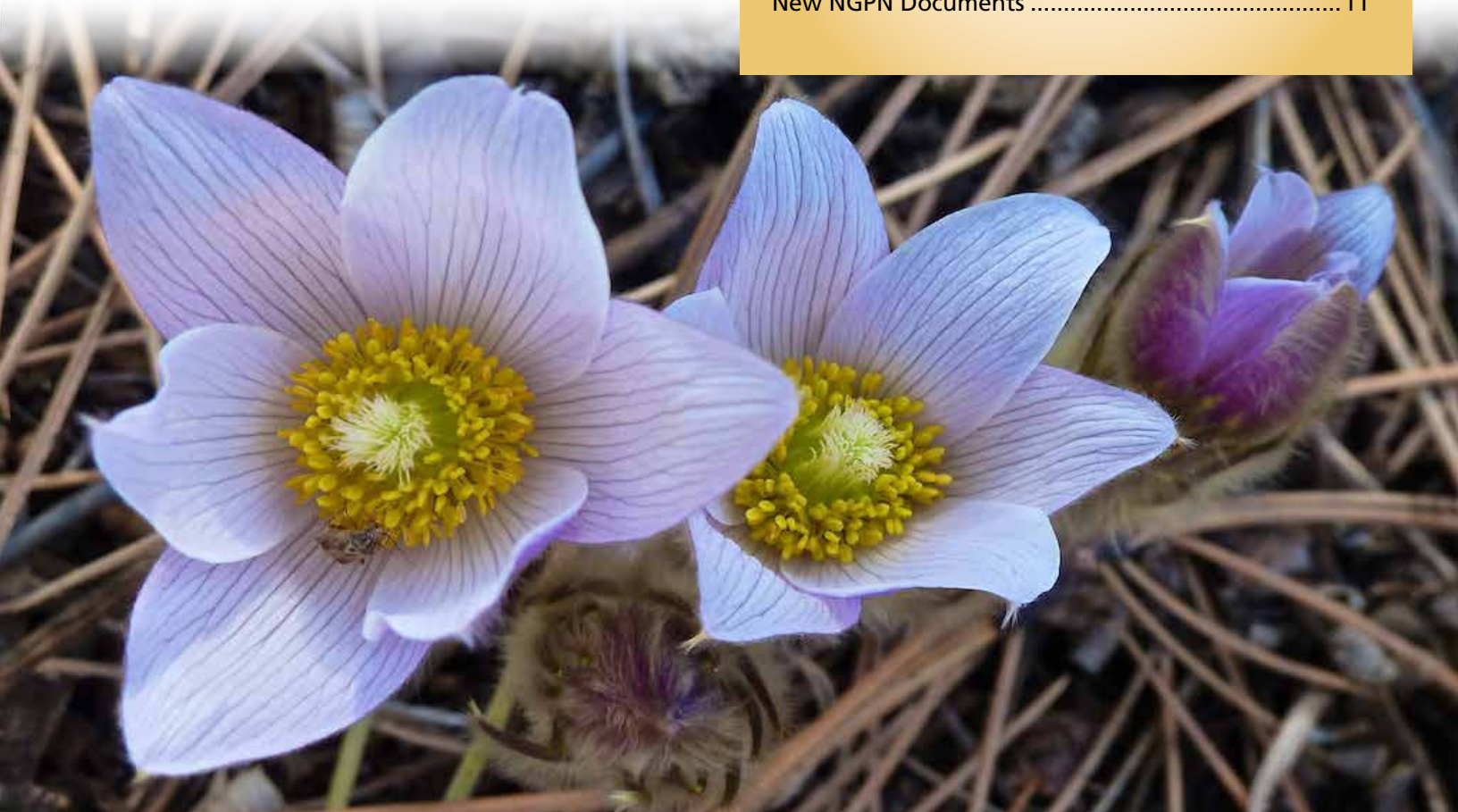
Field season has already started. The sondes are in the water at the Laramie River at Fort Laramie NHS and Bow Creek at Missouri National Recreational River. Real time data is available through the USGS and the Northern Great Plains Network (Network) websites. We are struggling through seasonal hiring to get the vegetation crew on. We have quite a few rehires which will probably save us. Bird monitoring starts mid-May and will occur at all 13 parks this year. Take a look at the resource briefs about birds and vegetation annual reports for summaries of last season’s field work.

Mike Prowatzke is headed west to a new job with the Department of Energy, Western Area Power – we miss him already. Isabel Ashton is returning in early April to keep the vegetation

work moving. Angela Jarding is now our assistant data manager. Many of you may know her from the work she has done with us as a seasonal. We’re looking forward to another year of monitoring with you in the parks!

Inside this issue

Bats.....	2,3
Landbirds	4
Water Resources.....	5
Plant Communities.....	6,7
Prairie Dogs	8,9
Staff Updates.....	9,10
New NGPN Documents	11



White Nose Syndrome

New bat monitoring protocol for the parks

White-nosed syndrome was first detected in 2006 in hibernating bats in a cave in New York. Since then the disease has quickly spread as far west as Iowa and has caused the deaths of millions of bats. As a result, the northern long-eared bat will likely be listed as threatened under the Endangered Species Act and other species may follow. In response to the crisis, the National Park Service made funds available for bat protection, education and outreach, and monitoring. In 2014, the Network partnered with the Midwest Regional biologist, Dan Licht, and applied for and received \$25,000 for bat monitoring, and then subsequently received another \$37,000. Jewel Cave and Wind Cave generously donated equipment to help with the effort.

To conduct the monitoring, the Network adopted the North American Bat Monitoring Program (NABat) protocol which is a new nationwide effort based on sampling grids of 10x10 km² cells. Fifteen cells were drawn for the Network at Badlands NP, Jewel Cave NM, Missouri NRR, Niobrara NSR, Theodore Roosevelt NP, and Wind Cave NP. In each cell, four bat re-

corders were deployed for four nights and two nights of road surveys were conducted. Over 100,000 bat recordings were collected in 2014.

The NGPN has become a leader in data collection and analysis for the multi-agency NABat program.



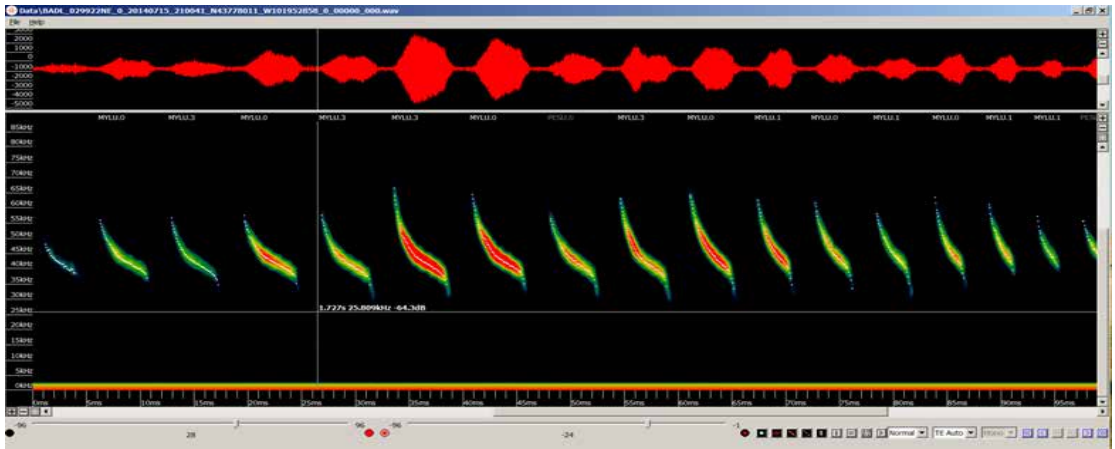
Vehicle with microphone on roof for road surveys.



Field Instrument used to record bat echo-location calls.

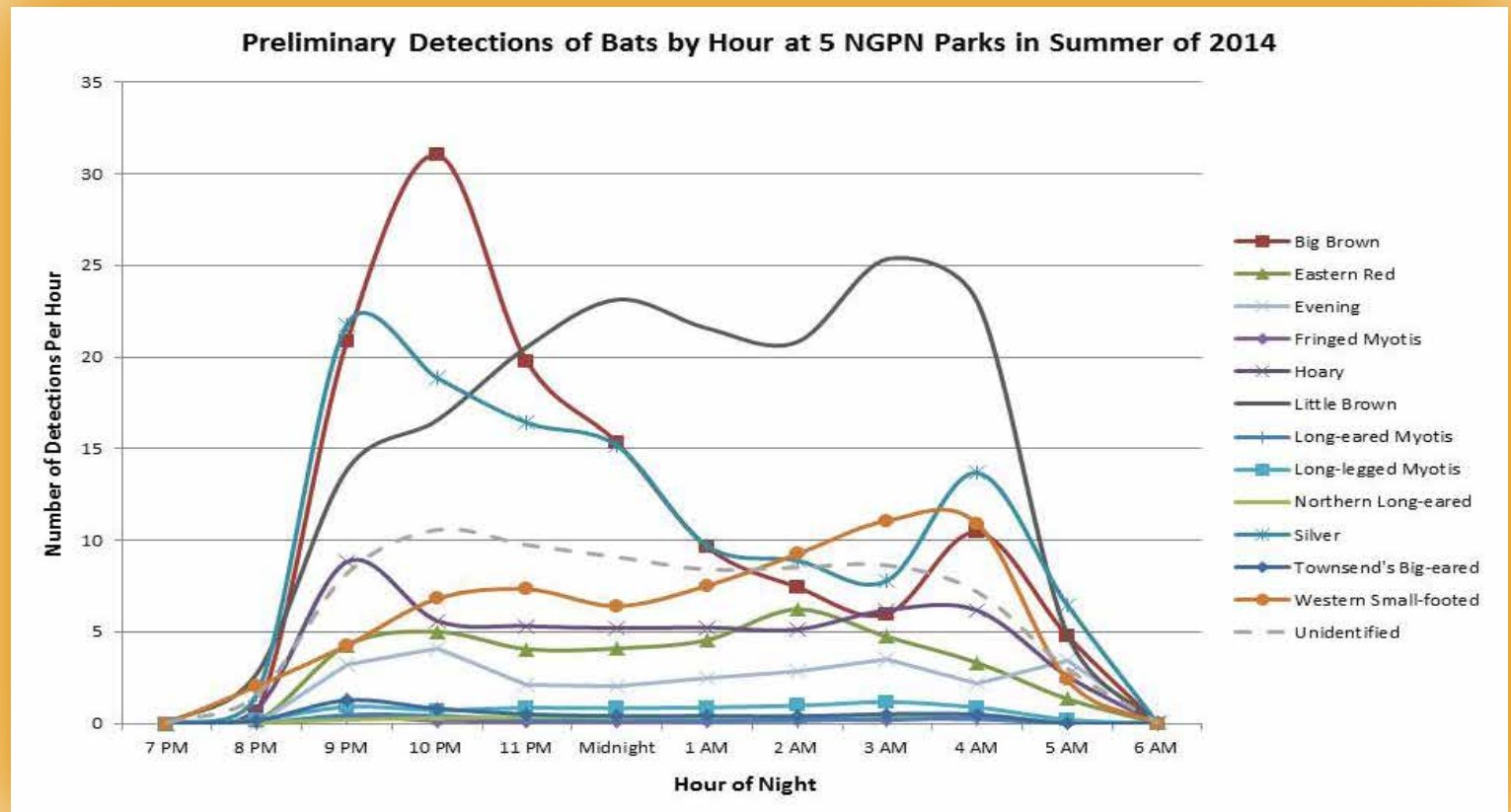
White Nose Syndrome

The recordings were automatically analyzed by software that is designed to identify the species of bat based on its echo-location calls. Although the software is not perfect, in part because some bat species have similar calls, it does allow for the rapid and efficient analysis of large numbers of recordings. Furthermore, improvements continue to be made with auto-identification software.



A spectrogram recording of a Little Brown Bat echo-location.

In 2015, the Network plans to expand bat monitoring to all the parks within the Network. The monitoring protocol for the non-NABat parks will be designed in collaboration with the parks to best meet their needs. Additional fieldwork could also occur at the NABat parks to meet their unique needs. The Network has applied for an additional \$140,000 in funding to extend the bat monitoring program over the next several years and to enhance its education and outreach capabilities.



Monitoring is for the birds

Second year of landbird monitoring

The Network has set up cooperative agreements with Rocky Mountain Bird Observatory (RMBO) to conduct bird surveys at Network parks. Surveys began in May and continued through July 12, 2014. A total of 1,169 point counts were conducted at Network parks by RMBO technicians. For all parks, 25 new species were added to the National Park Service's Species List and seven unconfirmed birds were confirmed as present in the park. Knife River Indian Villages NHS had the largest number of birds species recorded at 87. The Landbird Resource Briefs for each park are available on the Network [website](#).

Park	Most Common Bird Species Detected During 2014 Breeding Season
AGFO	Red-winged Blackbird, Western Meadowlark, Lark Bunting, and Mourning Dove
BADL	Western Meadowlark, Cliff Swallow, Mourning Dove, and Grasshopper Sparrow
DETO	American Robin, Chipping Sparrow, Brown-headed Cowbird, House Wren, and Violet-green Swallow
FOLA	Rock Pigeon, Mourning Dove, Western Meadowlark, and European Starling
FOUS	Red-winged Blackbird, Western Meadowlark, Bank Swallow, and Franklin's Gull
JECA	American Robin, House Wren, Western Wood-Pewee, Chipping Sparrow, and Northern Flicker
KNRI	Bobolink, Western Meadowlark, Clay-colored Sparrow, Ring-necked Pheasant, and Mourning Dove
MORU	Yellow-rumped Warbler, Violet-green Swallow, Chipping Sparrow, and American Robin
NIOB	Mourning Dove, Dickcissel, Field Sparrow, Brown-headed Cowbird, and Spotted Towhee
SCBL	<u>Annual Survey</u> : Western Meadowlark, Common Grackle, Mourning Dove, and Spotted Towhee
SCBL	<u>Riparian Survey</u> : House Wren, Mourning Dove, Red-winged Blackbird, and Spotted Towhee
THRO	Spotted Towhee, Field Sparrow, Western Meadowlark, Mourning Dove, and Lazuli Bunting
WICA	Western Meadowlark, Spotted Towhee, Grasshopper Sparrow, Mourning Dove, and Chipping Sparrow

All of the Network's bird data are located on RMBO's [Avian Data Center](#). If you would like to look at either 2013 or 2014 bird data for your park, please contact [Marcia Wilson](#) or [Angela Jarding](#) and we can walk you through the steps.

Niobrara NSR was surveyed for the first time in 2014. The Park serves as an east-west avian corridor and supported the largest number of birds detected at 2,377 birds. The Dickcissel was the second most common detected species on the Niobrara River and is a Partners in Flight species of concern. Dickcissel populations declined drastically from 1966 to 1978, but have stabilized at a lower level.

In 2014, Scotts Bluff NM wanted to collect baseline information on the bird community in the riparian habitat along the North Platte River. A line transect with 10 points, spaced 250m apart, was established along the river. Forty seven species were recorded as well as 2 new species for the park: Great-crested Flycatcher and the Tree Swallow.

This coming year, the birds at Missouri NRR will also be monitored with 8 grids in each of the Districts. In addition, Missouri NRR will have the birds surveyed at Bow Creek following the same protocol.



Lazuli Bunting perched on branch. Photo credit: Dave Menke USFWS

Testing the waters

Collaborating with USGS to monitor water quality along the Niobrara River

The second year of water quality monitoring took place in 2014 at three parks along the Niobrara River: Agate Fossil Beds NM, Niobrara NSR, and Missouri NRR.

The USGS Wyoming-Montana Water Science Center began collecting water temperature, dissolved oxygen, pH, and specific conductance at Agate Fossil Beds NM on February 18. The site for placement of the multi-parameter sonde was near Agate Springs Ranch Headquarters. This location was the original site for water monitoring by USGS, the Park, and also the Nebraska Department of Natural Resources. The latter agency also collects streamflow data. The last water quality data for the season was collected at this site on November 17.

Farther down river, the USGS Nebraska Water Science Center deployed a multi-parameter sonde at their USGS Gaging Station 06461500 Niobrara River near Sparks, Nebraska and is within Niobrara NSR. It was initiated on March 26 after the ice had receded off the river and was retrieved on November 16 before winter ice set in.

The third sampling site was at the USGS Gaging Station 06465500 Niobrara River near Verdel, Nebraska and is within the Missouri NRR. The multi-parameter sonde collected data from March 24 through November 12.



Matt Moser from USGS Nebraska Water Science Center deploying a multi-parameter sonde at Niobrara NSR.

For the 2015 field season, the Network has set up inter-agency agreements with USGS Wyoming-Montana and the Nebraska Water Science Centers to collect water quality data. One site will be at the USGS Gaging Station 06670500 Laramie River near Fort Laramie, Wyoming. The other site will be along Bow Creek in Nebraska and was selected by Missouri NRR

staff. Bow Creek is a new site for USGS; therefore, they will be collecting the core parameters with a multi-parameter sonde and also collecting streamflow data.

All 2015 provisional water temperature, pH, dissolved oxygen, and specific conductivity data will be available real-time during the ice-free period for Fort Laramie NHS and Missouri NRR. The Network receives the approved/corrected data the spring after deployment.

Continuous data from all water quality monitoring sites can be accessed from links on the Network's [website](#).

Aquatic invertebrates

In July of 2014, Robert Manasek and Mike Benner from Scotts Bluff NM as well as Marcia Wilson from NGPN joined Lusha Tronstad (Wyoming Natural Diversity Database) at Agate Fossil Beds NM to deploy Hester-Dendy samplers at three legacy sampling sites along the Niobrara River. Mike Benner returned weekly to remove debris dams from the Hester-Dendy ropes stretched across the river.

We returned in August to retrieve the Hester-Dendy samplers and to sample the aquatic invertebrate community using the Hess samplers. Also in August, the Network plant community crew, as part of their riparian sampling at Agate Fossil Beds NM, recorded vegetation at each of the legacy sites.

In 2015, the Network has set up a CESU Cooperative Agreement with Colorado State University to analyze the last 5 years of Agate Fossil Beds NM aquatic invertebrate community data. The analysis will involve comparing the data collected by the artificial legacy methodology (Hester-Dendy samplers) with the data collected by the more quantitative methodology (Hess samplers).



Mike Benner sampling invertebrates with Hess Sampler

Plant Communities

Rain, Rain, Go Away...

Plant community monitoring

Last year at this time we remarked on how great the cool, cloudy weather had been for field work. In 2014, the cool weather remained, but the clouds picked up their game a few notches and dumped rain, rain, and more rain. Grasses were thick and green, mild-mannered plants grew high enough to trip us, and the weeds grew high enough to hide bison—a scary situation! We were forced to postpone part of our work at Badlands NP due to muddy conditions making some plots inaccessible. We came back to sample in mid-July and it was *still green*—at the Badlands, in mid-July! Severe thunderstorms delayed us in most of the parks we visited, rain flooded plots at Theodore Roosevelt NP, and tornado warnings forced us (and all other park visitors and employees) to take shelter at Devils Tower NM. During September forest surveys, we were again rained on at Knife River Indian Villages NHS but at least it kept the ravenous mosquitoes at bay!

This year was the fourth year of implementation of the plant community monitoring protocol. We spent the season short-staffed, as two crew members left for other jobs; the first one only two weeks into the season and the second in mid-August. Despite the difficulties, we still made it to 100 sites to collect vegetation data and managed a second consecutive year without injuries!

Currently, we are working to get seasonals hired for the 2015 field season, and have posted 2014 annual reports on the Network website. Analysis showed that for all but one of our 11 parks, we found more total species per park in 2014 than in any other year. Theodore Roosevelt NP, where we didn't get to as many plots, was the lone exception. It's always reassuring when the numbers reflect what you're seeing in the field!



Wildflowers at Badlands National Park.

Plant Communities

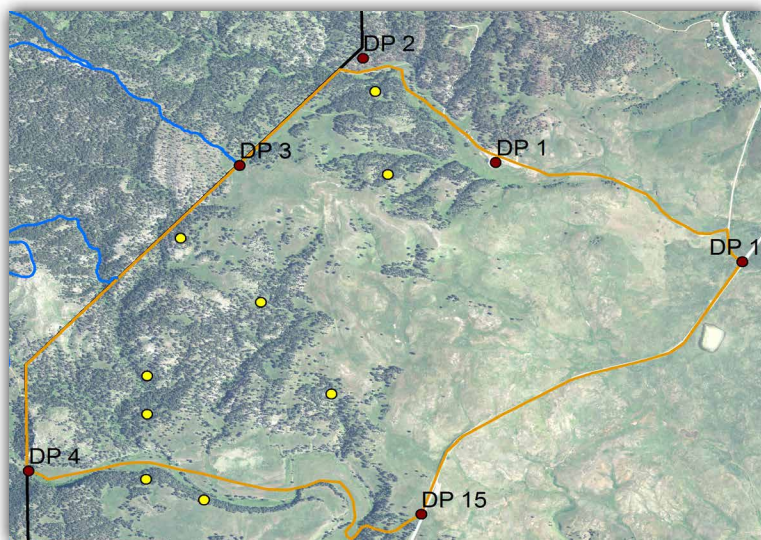
Fire on the Plains

Cooperating with NGP Fire Effects

The Northern Great Plains Fire Ecology Program and the Network have been successfully monitoring vegetation together for the past four years. Being the last network funded gave us an advantage in observing other I&M program successes and struggles before developing our protocol. We were able to tailor our program to integrate with the pre-existing Fire Ecology Program. The result was that both programs use the same plot layouts, sampling techniques, study design, and databases. The programs can use each other's data, and if one team runs out of time at a plot the other team can help complete data collection. In addition, both programs collaborate in pre- and post season meetings, botany training, and unknown plant id sessions.

Red-carded NGPN employees were able to assist with prescribed burns at both Jewel Cave NM and Wind Cave NP during the Fall of 2014. Following the burns, the NGPN crew surveyed burn severity plots with Dan Swanson, the fire ecologist at Wind Cave NP. While somewhat related to our regular monitoring, these surveys are usually not undertaken by our

crew; but the experience and new skills furthered their understanding of how vegetation data can be used.



Wind Cave NP Cold Brook burn boundary. Yellow points indicate burn severity plots that are incorporated in the NGPN database.



Head fire moving interior from the control line.

Prairie Dogs

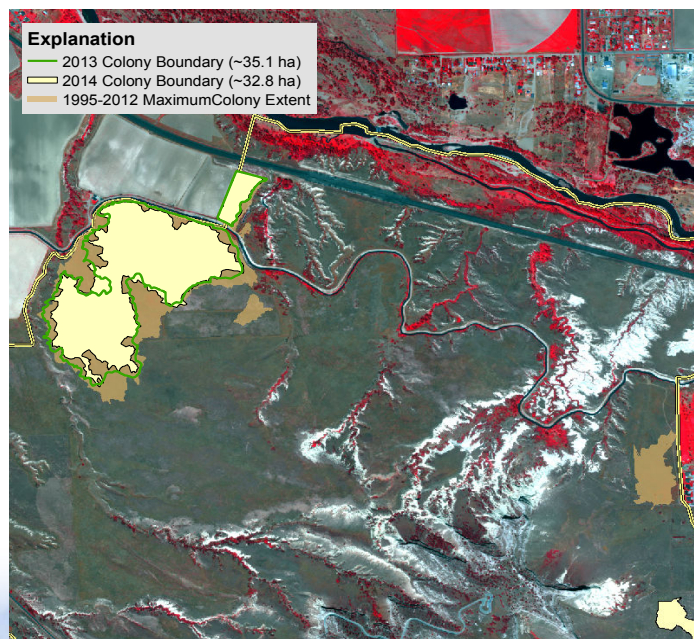
Exploring new territory

Prairie dogs find new ground

Black-tailed prairie dogs at Scotts Bluff National Monument were surveyed on June 24, 2014. A new area (~1.9 ha) of prairie dog holes was discovered in a part of the Monument that had been mowed exposing the holes. The picture below shows the landscape where new holes were discovered. It is unknown whether prairie dogs are currently active at the site; but will be determined in 2015.

Precipitation for the year was nearly 3.5 inches above average and effects from the previous year's drought were diminished. The area occupied by prairie dogs has continued to decline with approximately 32.8 ha mapped in 2014.

Repeat photography at the same photo point between 2013 and 2014 (next page) showed a substantial difference in vegetation height and composition between years. Increases in vegetation may explain the decline in area occupied because prairie dogs cannot maintain (clip) vegetation low enough to keep a visual for predators. The Network will continue to monitor area occupied through mapping, precipitation analysis, and repeat photography.



New site where prairie dog holes were found at Scotts Bluff NM.

Prairie Dogs and Staff Updates

Repeat photography at the same photo point between years.



New Hires



Angela Jarding filled the assistant data manager position in October. She worked as a seasonal for the Network for three years, and is excited to join the National Park Service as a permanent employee.

She has been accepted into the NPS Fundamentals program and will be attending training at the Grand Canyon in June. Angela specializes in GIS and GPS systems and has been busy this winter developing GIS landbird maps, creating briefs, and updating the webpage. Angela splits her time between the Rapid City office and Wind Cave National Park, and can be reached at Rapid: 605-341-2809, Wind Cave: 605-745-1176 or angela_jarding@nps.gov.

Angela has a B.S. and M.S. in Wildlife Sciences from South Dakota State University. She lives on a ranch near Hot Springs, SD with her husband and two girls, Sydney and Sage. In her spare time, she enjoys biking the Mickelson Trail, hunting, and ranching with her family.

Isabel Ashton is returning to the Network after a year as the Director of the Continental Divide Learning Center at Rocky Mountain National Park. From 2008-2011, Isabel was an ecologist



with the Rocky Mountain I&M Network where she coordinated efforts to monitor climate and alpine plant communities. Prior to joining the NPS, she was a Research Associate at the University of California, Irvine where she studied the influence of global change on alpine plant communities at Niwot Ridge Long-Term Ecological Research Site. She can be reached at 605-341-2806 or Isabel_ashton@nps.gov.

Isabel is a native of Brooklyn, NY and has a B.A. in Environmental Biology from Columbia University. She earned a Ph.D. in Ecology and Evolution from Stony Brook University in 2005. She is married to husband, Kurt, and has two small boys, James and Ian. In her spare time, she enjoys master's swimming and spending time outdoors with her family.

Staff Updates

Seasonal Staff...

We'd like to give a big thanks to our seasonal biological technicians without whom our 2014 vegetation data would not be collected.



Francis Sewell working at BADL



David Pinigis at a rejected plot



Ryan Manuel posing for a rejected plot



Left to Right: Francis Sewell, Ryan Manuel, Stephanie Rockwood, Mike Prowatzke, Kate Legner, and Lee Mickelson

Farewell.....Mike Prowatzke is Headed West

Well, he may be too late to join the gold rush, but at least he'll be in the right place, about 25 miles from Sutter's Mill, site of the original gold discovery that sparked the famous migration to California. After 15 years with the NPS, Mike Prowatzke was offered a "golden" opportunity as a biologist with the Department of Energy, Western Area Power Administration in Folsom, CA. His new duties will include surveys and assessment of threatened, endangered, and sensitive species (plant and animal) as well as ongoing monitoring of the federal power company's activities in order to mitigate their effects on these species.

Mike will miss many things about the Black Hills and the Great Plains, but he is very excited to be headed back to California, where he took his first NPS job, right out of college. He looks forward to having the recreational opportunities of Lake Tahoe and Sierra Nevada in his backyard. We thank Mike for 4 years

with NGPN and wish him the best of luck. Mike's backpacking knowledge, safety leadership, and plant knowledge will be missed.





Acronyms

AGFO	Agate Fossil Beds National Monument
BADL	Badlands National Park
DETO	Devils Tower National Monument
FOLA	Fort Laramie National Historic Site
FOUS	Fort Union Trading Post National Historic Site
JECA	Jewel Cave National Monument
KNRI	Knife River Indian Villages National Historic Site
MORU	Mount Rushmore National Memorial
MNRR	Missouri National Recreational River
NGPN	Northern Great Plains Network
NIOB	Niobrara National Scenic River
NABat	North American Bat Monitoring Program
RMBO	Rocky Mountain Bird Observatory
SCBL	Scotts Bluff National Monument
THRO	Theodore Roosevelt National Park
USGS	U.S. Geological Survey
WICA	Wind Cave National Park



Northern Great Plains Network
231 East St. Joseph Street
Rapid City, SD 57701
<http://science.nature.nps.gov/lim/units/ngpn/>

The Great Plains Gazette is a publication of the Northern Great Plains Inventory & Monitoring Network. All photos in this document are courtesy of the National Park Service unless otherwise noted.

Network Coordinator
Kara Paintner-Green

Editing and Design
Angela Jarding

Contributors
Kara Paintner-Green
Mike Prowatzke
Marcia Wilson
Stephen Wilson
Angela Jarding
Dan Licht
Dan Swanson

New NGPN Documents

Available for download on our [website!](#)

Resource Briefs

[Monitoring Highlights 2013](#)

Agate Fossil Beds NM
Badlands NP
Devils Tower NM
Fort Laramie NHS
Fort Union Trading Post NHS
Jewel Cave NM
Knife River Indian Villages NHS
Scotts Bluff NM
Theodore Roosevelt NP
Wind Cave NP

[Landbird Monitoring Results 2014](#)

Agate Fossil Beds NM
Badlands NP
Devils Tower NM
Fort Laramie NHS
Fort Union Trading Post NHS
Jewel Cave NM
Mount Rushmore NMEM
Niobrara NSR
Knife River Indian Villages NHS
Scotts Bluff NM
Theodore Roosevelt NP
Wind Cave NP

Reports

[Plant Community Monitoring Annual Reports 2014](#)

Agate Fossil Beds NM
Badlands NP
Devils Tower NM
Fort Laramie NHS
Fort Union Trading Post NHS
Jewel Cave NM
Mount Rushmore NMEM
Knife River Indian Villages NHS
Scotts Bluff NM
Theodore Roosevelt NP
Wind Cave NP

[Water Quality Monitoring Protocol 2014](#)