



# Great Plains Gazette

Newsletter of the Northern Great Plains Network

Issue 6 - Winter 2017

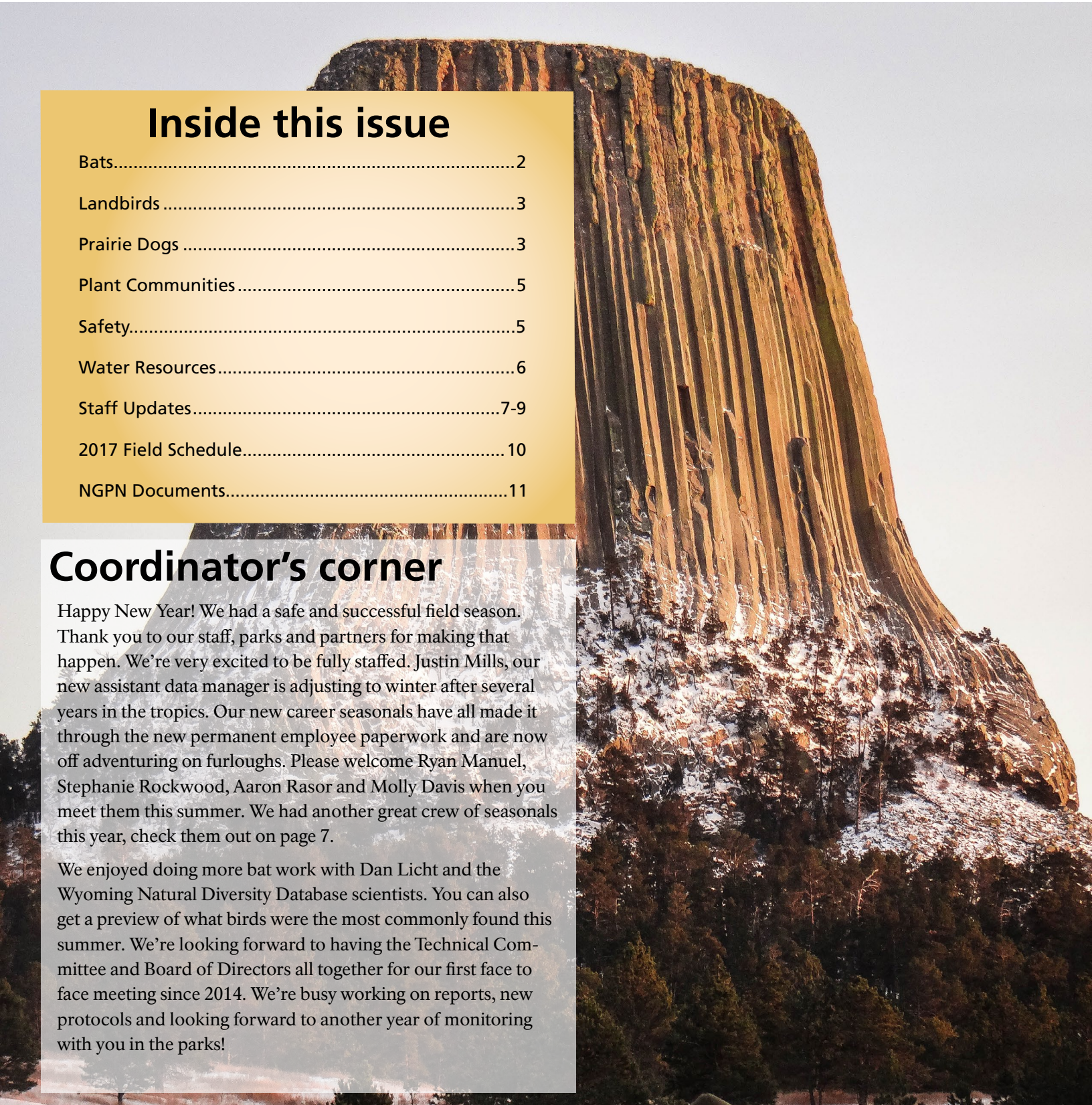
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## Coordinator's corner

Happy New Year! We had a safe and successful field season. Thank you to our staff, parks and partners for making that happen. We're very excited to be fully staffed. Justin Mills, our new assistant data manager is adjusting to winter after several years in the tropics. Our new career seasonals have all made it through the new permanent employee paperwork and are now off adventuring on furloughs. Please welcome Ryan Manuel, Stephanie Rockwood, Aaron Rasor and Molly Davis when you meet them this summer. We had another great crew of seasonals this year, check them out on page 7.

We enjoyed doing more bat work with Dan Licht and the Wyoming Natural Diversity Database scientists. You can also get a preview of what birds were the most commonly found this summer. We're looking forward to having the Technical Committee and Board of Directors all together for our first face to face meeting since 2014. We're busy working on reports, new protocols and looking forward to another year of monitoring with you in the parks!





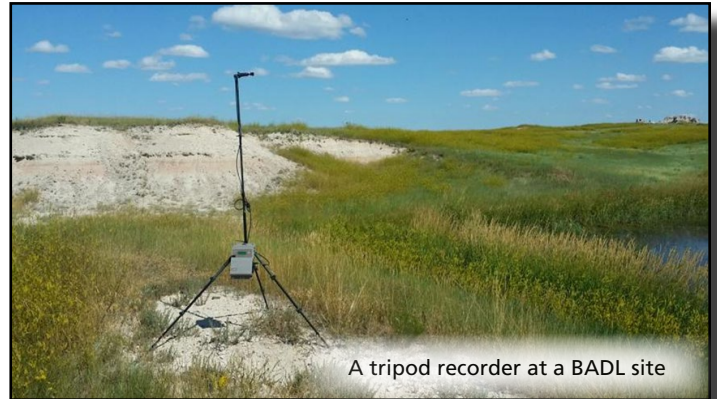
## The Bat's Out of the Bag

### National Program to Monitor Bats Established at NGPN parks

Summer 2016 marked year three of Network bat monitoring. It was the first year that fieldwork was conducted by the University of Wyoming under a cooperative agreement that will run through the year 2020. The U. of Wyoming technician Andrew Pitt—under the leadership of Ian Abernathy—collected data at the six Network parks being monitored using the NABat protocol (BADL, JECA, MNRR, NIOB, THRO, and WICA). The Midwest Regional Biologist Dan Licht conducted monitoring at six other Network parks (AGFO, FOLA, FOUS, KNRI, MORU, and SCBL) using a similar protocol, but not the NABat sampling frame. (DETO has its own bat monitoring program and is not part of the Network monitoring at this time.)

The Network has now collected approximately 1 million bat recordings from 2014 to 2016. The recordings come from 55 NABat stations and 92 non-NABat stations, plus 14 road survey routes. The 2014-16 acoustic recordings have been processed using auto-identification software—a process that takes about a month of computer time. The next step is to analyze the output and complete a 2014-16 Northern Great Plains bat monitoring report. A reviewable draft should be completed in late winter/early spring of 2017.

The preliminary results from the 2014-16 road surveys (conducted only at the NABat parks) show inter-year variability in bat detections, with several sites showing an apparent downward trend. Most notably, a decline in bat abundance could be

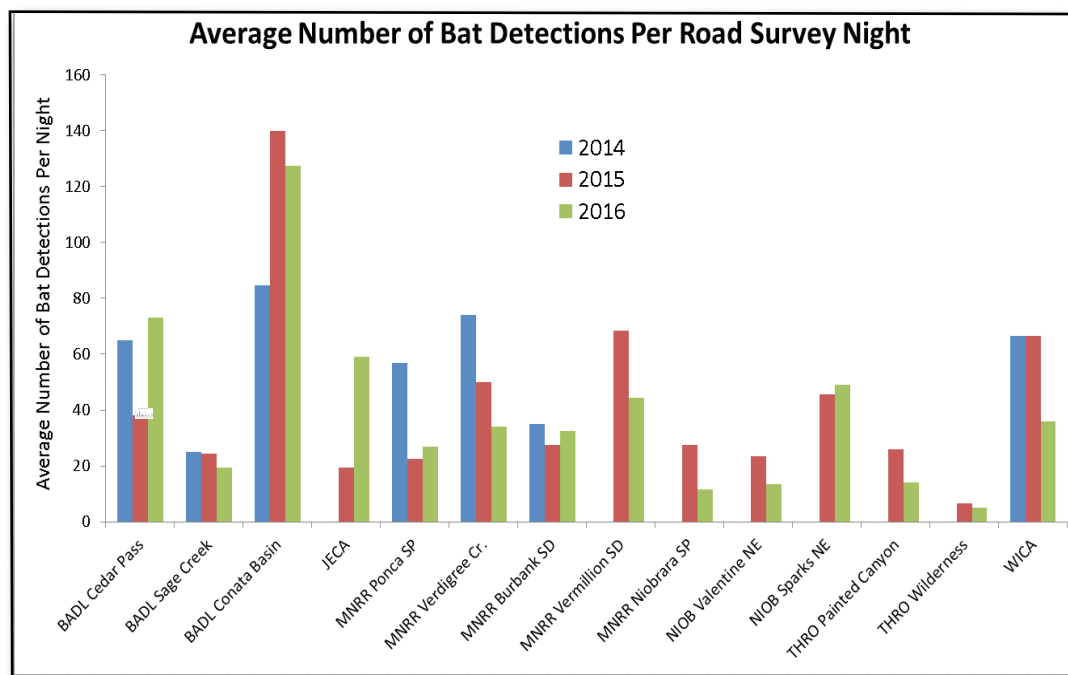


A tripod recorder at a BADL site

occurring at the Missouri National Recreational River. From 2014 to 2016 there was a statistically significant drop in detections based on the road surveys (repeated measures ANOVA,  $P=0.04$ ). The 2014-15 point station data also indicated a decline (the 2016 point station data has not yet been analyzed). However, these between-year differences could simply be natural short-term fluctuations and not part of a long-term decline. This demonstrates why ecological monitoring often requires long time spans.

The Network continues to be a leader in bat acoustic monitoring and might have one of the largest datasets collected under the NABat protocol. However, acoustic monitoring has limitations. For example, acoustic monitoring can't collect demographic information such as the sex, age, reproductive status,

and health of bats at a site. As a result, the Network submitted a proposal for FY17 NPS White-nosed Syndrome (WNS) funding to conduct mist-netting of bats in Network parks. If the proposal is successful, the Network will collaborate with a university to conduct the project. Field work will likely be in 2018-19, and bats captured in the spring will be tested for the presence of the WNS fungus.



# Landbirds and Prairie Dogs

## Birds of a Feather REALLY Flock Together

The Bird Conservancy of the Rockies completed bird surveys at all 13 Network parks in 2016. The surveys began in May when the breeding season and singing was at its peak and concluded by mid-July when singing declines and parents are busy feeding their young.

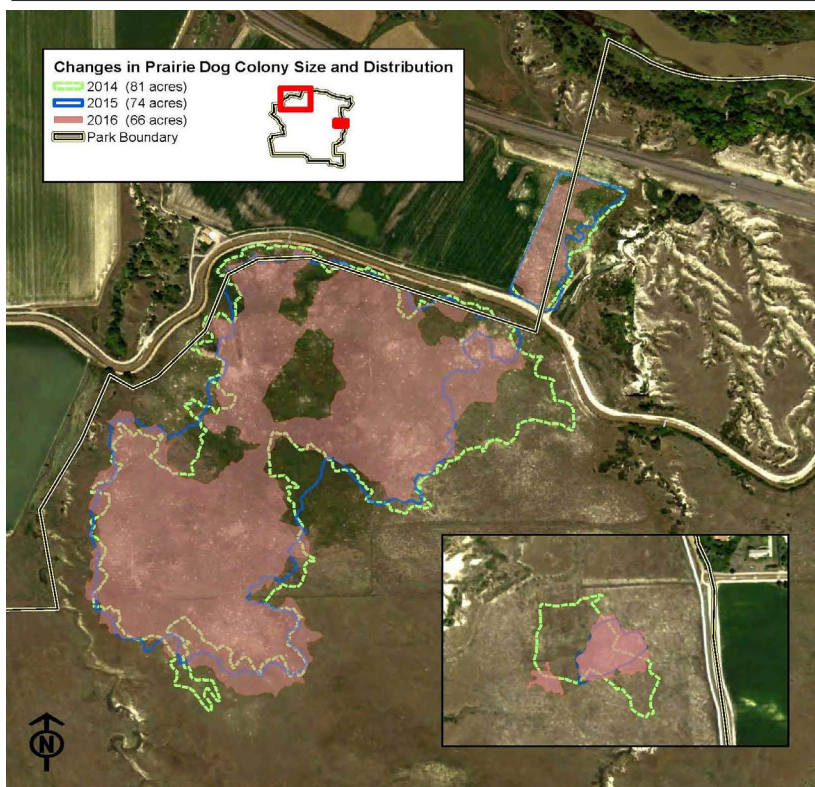


Cliff Swallow; Photo Credit - [Terry Sohl](#)

The most pronounced results this year was a record abundance of cliff swallows at 3 parks including Fort Laramie NHS with 1,517 detections, Badlands NP with 1,064, and Devils Tower NM with 204. This was nearly a 5 fold increase in cliff swallow detections from previous surveys at Badlands NP and Fort Laramie NHS. Interestingly, Devils Tower NM had zero cliff swallows the previous year.

Cliff swallows are known to nest in large colonies in the west and can range from 200-3,700 nests at a site. Cliff swallows have also expanded their breeding sites to bridges, buildings, and other human-made structures which may explain this marked increase at these parks in 2016.

Park	Most Common Bird Species Detected During the 2016 Breeding Season
AGFO	Red-winged Blackbird, Western Meadowlark, Mourning Dove, Common Yellowthroat
BADL	Cliff Swallow, Western Meadowlark, Mourning Dove, Red-winged Blackbird
DETO	Cliff Swallow, American Robin, Western Meadowlark, Western Wood-Pewee
FOLA	Cliff Swallow, Western Meadowlark, Red-winged Blackbird, European Starling
FOUS	Red-winged Blackbird, Western Meadowlark, Bank Swallow, Yellow Warbler
JECA	American Robin, Western Wood-Pewee, Mourning Dove, Red-headed Woodpecker
KNRI	Ring-necked Pheasant, Clay-colored Sparrow, Mourning Dove, Brown-headed Cowbird
MNRR	House Wren, Mourning Dove, Dickcissel, Red-winged Blackbird
MORU	Red Crossbill, Yellow-rumped Warbler, Red-breasted Nuthatch, American Robin
NIOB	Mourning Dove, Grasshopper Sparrow, Field Sparrow, American Crow
SCBL	Western Meadowlark, Spotted Towhee, Mourning Dove, Yellow-breasted Chat
THRO	Spotted Towhee, Western Meadowlark, Field Sparrow, Mourning Dove, Yellow-breasted Chat
WICA	Western Meadowlark, Spotted Towhee, Grasshopper Sparrow, Mourning Dove



## The Dogs are Downsizing

The Northern Great Plains Network field crew was walking on eggshells this year hoping not to step in an abandoned prairie dog hole during their June 23<sup>rd</sup> visit to Scotts Bluff National Monument. The area occupied by black-tailed prairie dogs continued to decline in 2016 with 66 acres mapped compared to 81 acres in 2014. The map (left) shows the shifts in colony size and distribution over the past three years.

The colony on the east side of the park continued to persist; however it declined to half the size from when it was initially discovered. Occupied area of the prairie dog colony was determined by marking active prairie dog burrows and the vegetative clip line. An abundance of vegetation made it easy to detect the active clip line, but other times we were searching to connect the dots. It appears that the average and above average rainfall the past three years has contributed to the colonies inability to maintain its borders.



# Plant Communities

## Vegetation Monitoring Season Six Success

*We've Completed Our 6th Season!*



The NGPN vegetation monitoring crew has successfully completed its sixth season of Plant Community Monitoring! During the months of May through September the crew visited a total of 114 long-term monitoring plots in eleven parks across four states. In addition, we tried something new in 2016- NGPN led three botany trainings at DETO, MORU, and SCBL for park staff. We would like to thank all of the people who attended, it is always great to share our love and knowledge of plants with others.

The vegetation program monitors forest structure and health on a five year cycle. In 2016 we repeated park forest monitoring plots at both JECA and MORU. Our focus was on the ponderosa pine forest community. In collaboration with NGP Fire Effects, 120 plots were read, 60 plots at JECA and 60 plots at MORU. We counted the number of seedlings, measured the size of trees, looked for exotic species of concern, and surveyed tree vigor at each site.

The data collected this fall will provide a baseline for continued monitoring of JECA and MORU ponderosa pine forests. We plan on producing a report to share with the parks and public in the spring of 2017. Our hope is that these data help park managers better understand current conditions and future trends in the health of the ponderosa pine forests within the Black Hills.



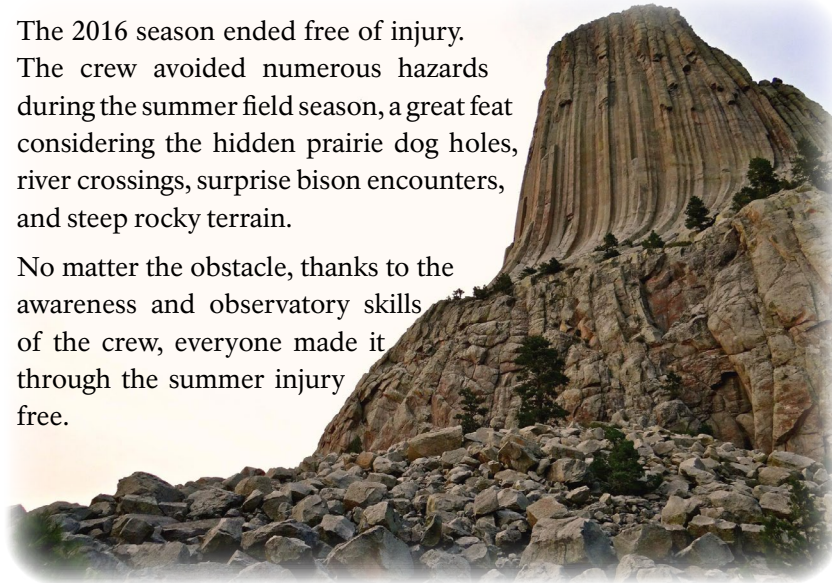


# Spot on Safety

## Prevent Getting Hurt, By Staying Alert

The 2016 season ended free of injury. The crew avoided numerous hazards during the summer field season, a great feat considering the hidden prairie dog holes, river crossings, surprise bison encounters, and steep rocky terrain.

No matter the obstacle, thanks to the awareness and observatory skills of the crew, everyone made it through the summer injury free.



## When it Comes to a Storm, Know How to Perform

The Black Hills and Northern Great Plains are home to dramatically variable climate and weather patterns. Phenomena such as drought and extreme temperature variations influence longer-term interannual climate fluctuations while Chinook winds and temperature inversions can cause rapid and extreme changes in air temperature. On January 22, 1943 a record-setting temperature oscillation occurred in Spearfish, SD when the temperature rose from -4°F to 45°F in only two minutes, and only two hours later fell from 54°F to -4°F over 27 minutes. While this is an extreme example, it illustrates the importance of being prepared for a wide spectrum of weather conditions when working and recreating in the hills and plains. Dressing in layers, packing a jacket with your gear even when it's warm, and staying properly hydrated will allow you to regulate your body temperature and stay comfortably safe outdoors.



Weather rapidly fluctuates at Badlands NP



## Aquatic Macroinvertebrates Monitoring

### *Collecting Macroinvertebrate Samples*

Aquatic macroinvertebrate sampling occurred at Agate Fossil Beds National Monument (AGFO) on July 18th and 19th. This monitoring effort was led by Dr. Lusha Tronstad from the Wyoming Natural Diversity Database (WYNDD) at the University of Wyoming. Darren Thornbrugh the Aquatic Ecologist from NGPN and park staff from SCBL and AGFO assisted Dr. Tronstad and her crew with sampling efforts.

Field work was completed at three set sampling locations along the Niobrara River. Site physical habitat measurements, stream flow, site water clarity and water chemistry measurements were collected at all sites. Macroinvertebrates were collected using a Hess sampler, and Hester-Dendy samplers were deployed in July and allowed to colonize until retrieval on August 17th.

In addition to Hester-Dendy and Hess samples a composite sample of aquatic macroinvertebrates was collected using a D-net following EPA National Rivers and Streams Assessment methodology for wadeable streams. This was a test project to evaluate the functionality of [EPA](#) methodology for macroinvertebrate community collection and composition at AGFO. The macroinvertebrate community monitoring was very successful and received very favorable weather for summer in western Nebraska. The crews shared some good company, stories, good food, some inspiring quiet solitude, and beautiful sunsets. Thanks to the AGFO staff for their warm hospitality and wonderful accommodations- it always makes the stay very welcoming. We look forward to visiting again next sampling season.



Macroinvertebrate Monitoring



AGFO Macroinvertebrate Monitoring



# Staff Updates

## 2016 NGPN Seasonals

We would like to give one final thank you to our seasonal biological technicians whose tireless efforts provided the network with another year's worth of valuable data!



Daina Jackson

This summer was Daina's fourth season with NGPN and first as the GIS/Data Management seasonal. Her favorite part of the job was discovering new remote parts of each park.



Joseph Ladd

This summer was Joseph's third season with NGPN. He loved the constant challenge the job provided him with and the chance to visit beautiful remote areas of the parks. This winter Joseph plans on relaxing in Western WA with friends and family.



Lee Mickelson

Lee hails from Northwest Montana, and he loves that people are willing to pay him to hike around and look at the cool things that grow in the dirt. This was Lee's 3rd season with NGPN. This winter he will be moving back to Montana and traveling the West.



Molly Davis

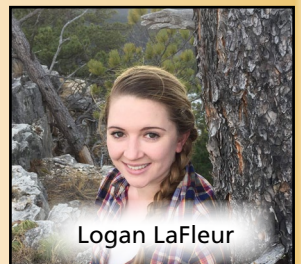
This was Molly's first season working for NGPN. Though, not new to the area, she has previously worked for Wind Cave NP, Badlands NP, and the U.S. Forest Service studying native plant restoration, the effects of wild-fire on cavity nesting birds, and the nutrition requirements of elk.

This was Kristyn's first season with NGPN and with the National Park Service. She previously worked for the US Forest Service in Boundary Waters Canoe Area Wilderness of Superior National Forest, MN. She also has worked as a Wildlife Technician for USGS in Mobridge, SD.



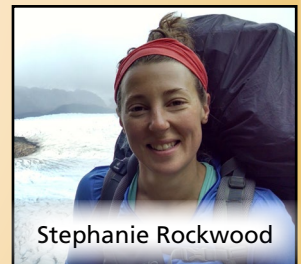
Kristyn Rugg

This summer was Logan's second season with the NGPN. Many of you followed Logan's work this summer in the Great Plains Monthly Monitor.



Logan LaFleur

This was Stephanie's fourth season with NGPN. Her seasonal land management career has allowed her to work in various American landscapes in multiple states, doing work in plant and wildlife habitat management. Over Winter she will be beginning life as a permanent employee.



Stephanie Rockwood

Will had a fantastic time in his second season with the Network. He enjoyed the opportunity to see all of the amazing parks up close and first hand. Will plans on staying in the area this winter and pursuing a career in natural resources.



Will Vogel



2016 Vegetation Crew at Botany Training

## New to the Network

*Welcoming New Faces*

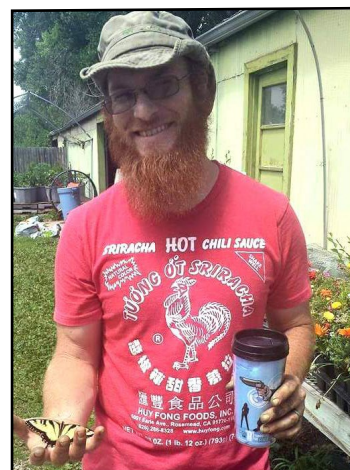
### Justin Mills

We are excited to introduce Justin Mills to the Network. Justin started with NGPN in December as the Assistant Data Manager, after five years as a biotech for War in the Pacific NHP and the Pacific Island I&M Network on Guam. He has a B.S in Environmental Science from University of Oregon and a M.Sc. in Fisheries Science from Oregon State University, specializing in spatial data analysis for salmon and steelhead conservation. On Guam, his duties were primarily water quality data collection and geospatial analysis, but ranged from real estate research and IT support to youth outreach programs and budget management. When not thinking in R or fixing computers, he enjoys electronics building/programming, sewing, and doing handyman things.



### Aaron Rasor

We welcome Aaron as a new NGPN Permanent (Career Seasonal) employee on the vegetation crew. Previously he worked as an Interpretive Ranger for the National Grasslands Visitor Center in Wall, SD. While there, he planned and implemented a xeriscaping project of the grounds to resemble an expanse of natural native mixed-grass prairie. Aaron has worked as an adjunct instructor of Biology and Algebra at Oglala Lakota College; as a seasonal Greenhouse and Nursery assistant; as a Data Archivist and Research Technician on the Great Plains Riparian Protection Project, Pine Ridge Swift Fox Reintroduction Project, Pine Ridge Aquatic Ecosystem Project, and Pine Ridge Environmental Protection Program. He was also an active United States Infantry Marine (1998-2002 Honorable). In his off-time, Aaron enjoys hiking and spending time with his wife Lynn, two kids, Stormi and Eridani, and dogs, Maze and Baloney.





## Familiar Faces

*Celebrating Returning Staff & Position Advancements*

### Stephanie Rockwood

We are pleased to welcome Stephanie into one of our new Permanent (Career Seasonal) positions. Stephanie has previously worked with NGPN for four consecutive seasons, three of which as a seasonal crew lead. She has a B.S. in Biology & Ecology from Northern Michigan University. When she is not avidly keying out plants, she enjoys time well spent in the mountains, traveling, gardening, and when she can, getting some turns in on her kayak.



### Ryan Manuel

We welcome Ryan, another previous NGPN employee into one of our new Permanent (Career Seasonal) positions. Ryan began working with the Network in 2011 as a seasonal vegetation technician, returning in 2012, and again in 2014 as a seasonal crew lead. He spent his time away working a variety of field research positions including Fire Ecology, Botany, Forest Ecology, and Fisheries Science. After his recent move from SCPN in Flagstaff, AZ, he's looking forward to delving back into the NGPN plant communities and surrounding recreation of the Black Hills.



### Molly Davis

Molly started with the Network in May of 2016 as a seasonal, and is excited to join the National Park Service as a permanent employee. Her past experience includes working for Wind Cave NP, Badlands NP, and the U.S. Forest Service studying native plant restoration, the effects of wildfire on cavity-nesting birds, and the nutrition requirements of elk. She has a B.A. in Biology from Reed College, Oregon. In her spare time, she enjoys hiking and exploring the outdoors with her husband and two children, Hunter and Sarah.





# Monitoring Schedule

## 2017 Field Schedule

*When you can expect to see us and our partners at your park!*

	BATS	BIRDS	EPMT	FOREST / RIPARIAN	PLANT COMMUNITY	LEGACY	WATER
AGFO	Jun	May-Jul	Aug	Aug (Riparian)	Jun	Jul-Aug (Macros)	Mar-Nov
BADL	Jun	May-Jul	Jun-Oct		Jun		
DETO		May-Jul	Sept		Jul		
FOLA	Jul	May-Jul	Aug	Aug (Riparian)	May-Jun		
FOUS	Jul	May-Jul	Jun-Sep		Jul		
JECA	Jul	May-Jul	Jul		Jul		
KNRI	Jul	May-Jul	Jul		Jul		
MNRR	Jul-Aug	May-Jul					Mar-Nov
MORU	Jun	May-Jul	Jul		Jul		
NIOB	Jul	May-Jul					Mar-Nov
SCBL	Jul	May-Jul	Sept		May	Jun (Prairie Dogs)	
THRO	Jul-Aug	May-Jul	Jun-Sept		Jul-Aug		
WICA	Jul	May-Jul	Aug	Aug (Riparian) Sep-Oct (Forest)	Jun-Jul		







## 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
NGP EPMT	Northern Great Plains Exotic Plant Management Team
NGP FE	Northern Great Plains Fire Effects
NGPN	Northern Great Plains Network
NIOB	Niobrara National Scenic River
NABat	North American Bat Monitoring Program
SCBL	Scotts Bluff National Monument
THRO	Theodore Roosevelt National Park
USGS	U.S. Geological Survey
WICA	Wind Cave National Park



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# NGPN Documents

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

## Reports

[Plant Community Monitoring Data Series Reports 2016](#)

Agate Fossil Beds NM

Fort Laramie NHS

Scotts Bluff NM

[Plant Community Monitoring Summary Reports 2011-2015](#)

Badlands NP

Knife River Indian Villages NHS

Wind Cave NP

## Save The Date: March 15-16th

Technical Committee and Board of  
Directors Meeting

