Northern Great Plains Network
Inventory & Monitoring Program

National Park Service
U.S. Department of the Interior

Great Plains Gazette

Newsletter of the Northern Great Plains Network

Volume 1 Issue 2 - Winter 2014

Coordinator's corner

Thank you for working with us this past field season. We had a great year – including a perfect safety record. Thank you for working with our crews to ensure we know where they are at your parks (see "Staff and Safety" on page 4).

We are already preparing for the coming season. We'll start in March with water quality monitoring on the length of the Niobrara River (Agate Fossil Beds National Monument, Niobrara National Scenic River, and Missouri National Recreational River) with our folks from the Wyoming and Nebraska Water Science Centers. Vegetation will ramp up in early May with Wilderness First Aid and other seasonal training. Bird monitoring starts mid-May and will occur at all 13 parks this year. Take a look at the newsletters and annual reports for summaries of last season's field work.

Isabel Ashton will be leaving us in early April. She will be the Continental Divide Learning Center Coordinator based at Rocky Mountain National Park. Her ability to get things done and help summarize data quickly will be missed. A plan is in place to get through the field season and get a new vegetation ecologist hired.

There has been some loosening in the travel cap, so we will try to have a Technical Committee Meeting in March. We will have to limit in person participation due to new rules that limit the number of DOI employees in travel status and in one place. We will try to have a conference line and webinar so that folks that aren't attending in person can still participate.

Last, something I know that many of your park interpreters and partners are going to be excited about is the new and improved NPSpecies (see "Data Management" on page 2). Please check your park Point of Contact (POC) and update as needed. We look forward to another year of monitoring with our parks.

Inside this issue

A new and improved NPSpecies

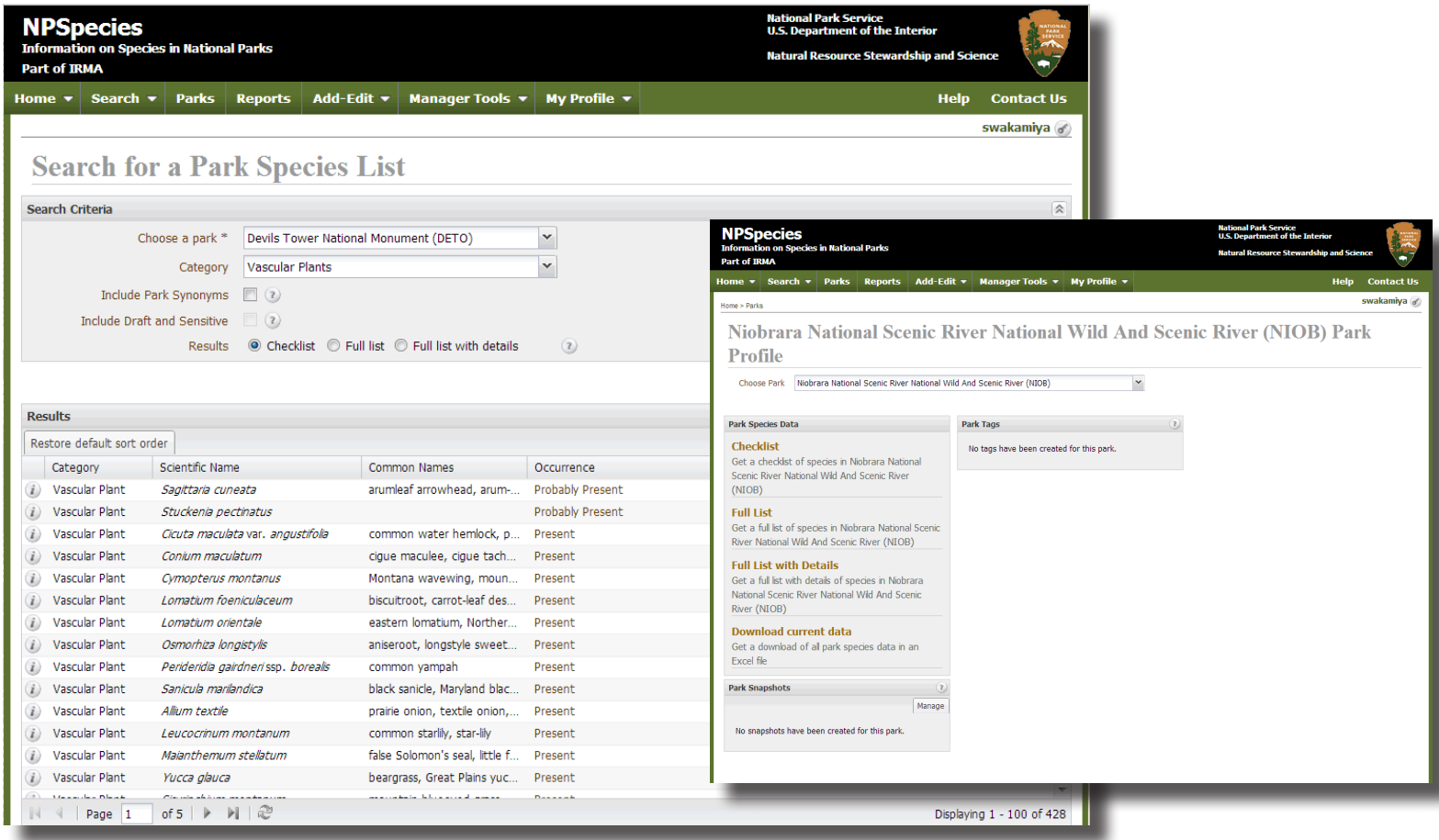
Park species lists are now more open and dynamic

In 2013, major updates and revisions were made to NPSpecies, the National Park Service's web-based tool for documenting the occurrence and status of species in our National Parks. Historically, NPSpecies was a fairly static species list that required certification (e.g. review from taxonomic or subject-matter experts). The requirement for certification resulted in a backlog of pending list changes and ultimately species lists that were out of date.

The latest version of NPSpecies is more open and park-centric. Species lists no longer require certification and are instead recognized as dynamic lists based on best available data. Each park also has its own specific NPSpecies page (see bottom-right image), which may be viewed at https://irma.nps.gov/NPSpecies/Park. Species lists are still managed by a park Point of Contact (POC; see table on right), but the new system invites scientists, naturalists, park staff members, and members of the public to suggest additions or modifications to park species lists. Additionally, editing permissions may be granted to park staff and cooperators as seen fit by the park POC.

Park	Point of Contacts	Park	Point of Contacts
AGFO	Robert Manasek	MNRR	Lisa Yager
BADL	Brian Kenner	MORU	Bruce Weisman
DETO	Rene Ohms	NIOB	Pamela Sprenkle
FOLA	Steve Edwards	SCBL	Robert Manasek
FOUS	Andrew Banta	THRO	Bill Whitworth
JECA	Mike Wiles	WICA	Barbara Muenchau
KNRI	Wendy Ross		

If you have questions about the new NPSpecies or about updating your park species lists, please contact Stephen Wilson or Sarah Wakamiya. An NPSpecies Overview webinar and a Managing Park Species List webinar are also available for download on the NPspecies Help webpage (https://irma.nps.gov/content/npspecies/Help/).



Exotic Plant Management Team

Partnerships between NGPN and EPMT

In 2013 the Northern Great Plains Exotic Plant Management Team (NGP-EPMT) successfully partnered with the Northern Great Plains I&M Network (NGPN) to improve efficiency within the administrative and data management arenas. EPMT provided funding for 1/4 of a NGPN administrative assistant and shared a NGPN seasonal data management technician. Through this collaboration we were able to accomplish all administrative tasks and improve our data management capabilities. Data management highlights include the creation of new ArcPad field collection forms, geodatabases with the ability to track the amount of herbicide applied per point/polygon, and streamlined reporting into the larger Alien Plant Control and Monitoring (AP-CAM) database. This partnership will continue in 2014.

EPMT crew members backpack spraying at Theodore Roosevelt NP.

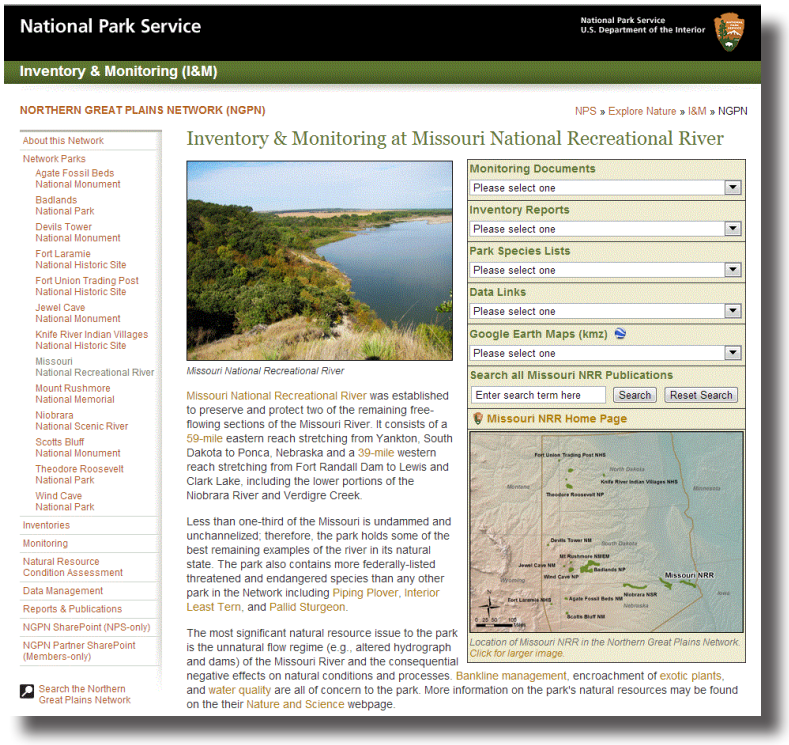
Webpages redesigned

Park-specific webpages on Network website

In case you haven't noticed, the Northern Great Plains Network's (NGPN) webpages have been revamped! The Data Management team has been working hard to switch their webpages into the new Inventory and Monitoring Program's web templates. This was part of an effort to modernize and standardize all I&M Network webpages.

In the new design, park-specific webpages provide one-stop shopping for all inventory and monitoring reports and data produced by the Network for that park. A search box is also provided on each park's page to find publications and data through Data Store, the NPS-wide repository for natural and cultural resource-related documents and datasets. These webpages are dynamically linked to Data Store, so if new reports or data are posted, the webpages are automatically updated.

Protocol-specific webpages that highlight each NGPN Vital Sign also make it easy to search for information by topic rather than by park. We encourage everyone to check out these new webpages and provide us with feedback!



http://science.nature.nps.gov/im/units/ngpn/

Saying farewell...for now!

We'd like to give a big thanks to our seasonal biological technicians without whom our 2013 data would not be collected. They set the bar high with a perfect safety record!


Jessica Moran


Elizabeth Moore


Stephanie Rockwood


Merran Owen


Angela Jarding


Joseph Ladd


Chris Traft

Putting the SPOTlight on safety

Improving network safety

The 14 employees of NGPN are proud to report a flawless safety record in 2013, managing to abide by Kara's "no-paperwork" rule! Not only were there no lost-time incidents, but there weren't even any reportable incidents, vehicle accidents, or near-misses. Not even a significant blister or poison ivy exposure! And that's no small feat considering all the time we spend driving and hiking and all the uncontrollable conditions to which we are exposed throughout the year!

NGPN also improved its safety practices by sending Spot II Satellite Messengers (see photo on right) with all our field crews in 2013. These small 5 oz. devices allow us to summon

emergency help via satellite even in areas of non-existent cell phone/radio coverage, which is a very relevant concern in several of our parks. We also use them to send routine "we've arrived safely at <GPS coordinates>" messages to office staff several times per day, which they can easily display on a map. This not only lets the office know where we are, but it also has the bonus of making the office staff really jealous of our travels!

Landbird monitoring takes flight

First year of landbird monitoring implementation

The Northern Great Plains Network (NGPN) established a cooperative agreement with the Rocky Mountain Bird Observatory (RMBO) to conduct the point counts at Network parks. Eleven of the 13 NGPN parks were surveyed for birds during the 2013 breeding season. The surveys began at Badlands NP on May 22nd with surveys continuing at the parks through July 11th. For 2013, a total of 909 point counts were conducted.

All of the Network's bird data are located on RMBO's Avian Data Center (http://rmbo.org/v3/avian/ExploretheData.aspx). If you would like to look at the 2013 bird data from your park, please contact Marcia Wilson or Sarah Wakamiya and we can walk you through the steps.

Preliminary results indicated that the Western Meadowlark was one of the most common species at 8 of the parks surveyed. The results for Agate Fossil Beds NM were similar to earlier surveys conducted at the park in 2010 where the Western Meadowlark and the Red-winged Blackbird were the most abundant species.

Park	Most Commonly Detected Bird Species During 2013 Breeding Season
AGFO	Western Meadowlark, Red-winged Blackbird, and Grasshopper Sparrow
BADL	Western Meadowlark, Grasshopper Sparrow, and Mourning Dove
DETO	American Robin, Brown-headed Cowbird, and Chipping Sparrow
FOLA	Western Meadowlark, Mourning Dove, and House Wren
FOUS	Western Meadowlark, Red-winged Blackbird, and Grasshopper Sparrow
JECA	House Wren, American Robin, and Western Wood-Pewee
KNRI	Bobolink, Yellow Warbler, and Western Meadowlark
MORU	American Robin, Yellow-rumped Warbler, and Red-breasted Nuthatch
SCBL	Spotted Towhee, Western Meadowlark, and American Robin
THRO	Spotted Towhee, Western Meadowlark, and Grasshopper Sparrow
WICA	Western Meadowlark, Spotted Towhee, and Grasshopper Sparrow

Great News! The Landbird Monitoring Protocol and Standard Operating Procedures for the Chihuahuan Desert, Northern Great Plains, Sonoran Desert, and Southern Plains Networks were recently published and are now available on the NGPN website.

We also had an interesting surprise at Knife River Indian Villages NHS. The RMBO technician recorded 219 detections of Bobolinks at the park indicating it may be an important breeding area for the species. The next highest number of detections of Bobolinks was 12 at Theodore Roosevelt NP. The Bobolink has been identified as an important species of concern for this region. Another important species of concern for the Northern Great Plains is the Grasshopper Sparrow which was also well represented at several of the Network parks.

Western Meadowlark singng at Badlands NP. Photo credit: Dan Licht

Sondes away!

Collaborating with USGS to intiate water quality monitoring

This past year, water quality monitoring was initiated by the USGS at three Network parks: Knife River Indian Villages NHS (KNRI), Theodore Roosevelt NP (THRO), and Devils Tower NM (DETO).

KNRI was the only Network park selected to monitor water quality that did not have any legacy data: the closest gaging station was at Hazen, ND. The USGS North Dakota Water Science Center initially deployed the multi-parameter sonde on April 4 in the Knife River under the Highway 37 Bridge. Starting in mid-April and running through early June, the sonde was becoming silted in on a regular basis thus, affecting the readings. In early June, the USGS hydrographer, Kevin Baker, changed the position of the sonde so that it hung on a steel chain from the bridge and was housed in a steel cylinder (it took two people to lift the sonde up out of the water for calibration!).

The last water quality data for the season at KNRI was collected on October 17th, and the sonde was pulled by USGS. In addition to collecting water quality data, USGS also took water samples from the Knife River, which will be analyzed by the North Dakota Department of Health for *Escherichia coli* levels.

The USGS North Dakota Water Science Center began collecting discharge data in the Little Missouri River near Medora, ND in the early 1900's. The Little Missouri River at Medora, ND Gaging Station was selected as the site for long-term water quality monitoring for THRO. The multi-parameter sonde was deployed by the USGS North Dakota Water Science Center from April 5th through November 6th of 2013.

At DETO, the USGS Wyoming Water Science Center deployed a multi-parameter sonde in the Belle Fourche River on March 21st of this year. The equipment was deployed through November 19, 2013.

All provisional water temperature, pH, dissolved oxygen, and specific conductivity data were available real-time during sonde deployment and can be accessed from links on our DETO, KNRI, and THRO webpages. The Network will receive the approved/corrected data from both USGS Water Science Centers in February of 2014.

USGS staff hauling up the steel chain and sonde housing for routine calibration on the Highway 37 Bridge in KNRI.

Aquatic invertebrates

Continuing invertebrate monitoring

During the first week of June, Marcia Wilson and Sarah Wakamiya from NGPN joined Dr. Lusha Tronstad at Agate Fossil Beds NM to deploy Hester Dendy samplers at the 3 legacy sampling sites along the Niobrara River. We returned a month later to retrieve the Hester Dendy samplers and to sample the aquatic invertebrate community using Hess samplers. Both types of samples were taken to the University of Wyoming where the Wyoming Natural Diversity Database (WYNDD) staff will identify the invertebrates.

Sarah has been working hard developing new datasheets and an aquatic invertebrate database for the Network. In early September, we visited Lusha at WYNDD to consult with her on methodology, development of the database, and analysis.

This year, Lusha also published several reports from inventory work she conducted in 2011 at 4 Network parks (see "Aquatic Invertebrate Inventory Reports, 2013" on page 10).

Sarah, Marcia, and Lusha (left to right) test out dance moves in their waders.

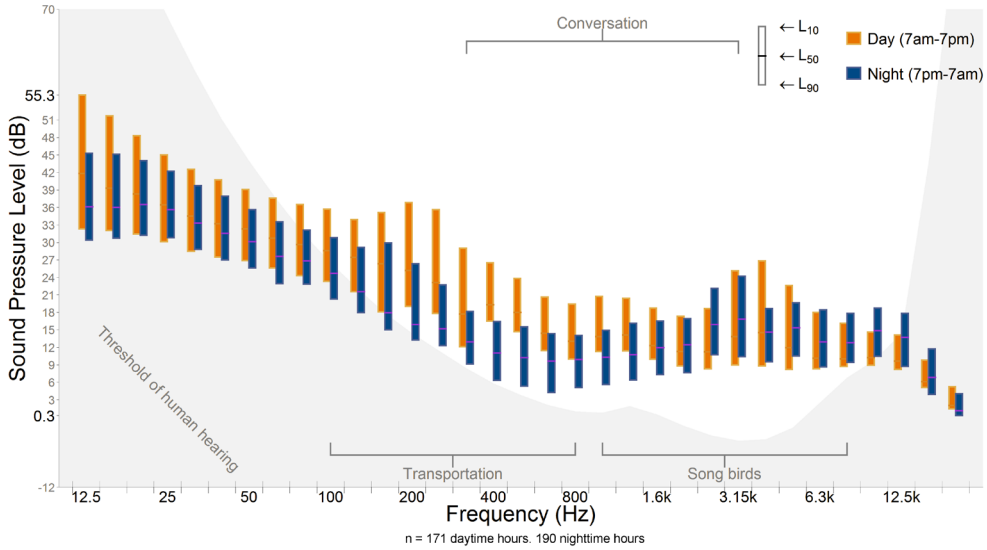
What's that noise?

Gathering baseline soundscape data

This summer, staff from the NGPN, Homestead National Monument (HOME), and Scotts Bluff National Monument (SCBL) responded to a request from Agate Fossil Beds National Monument (AGFO) to help set up and deploy acoustical monitoring equipment. An increase in hydraulic fracturing (e.g. fracking) operations in the surrounding region has raised concern about the park's natural soundscape and the potential impact to visitor experience and interpretative programs. In particular, the park is expecting an increase in transportation noise as water is hauled through the park to fracking operations.

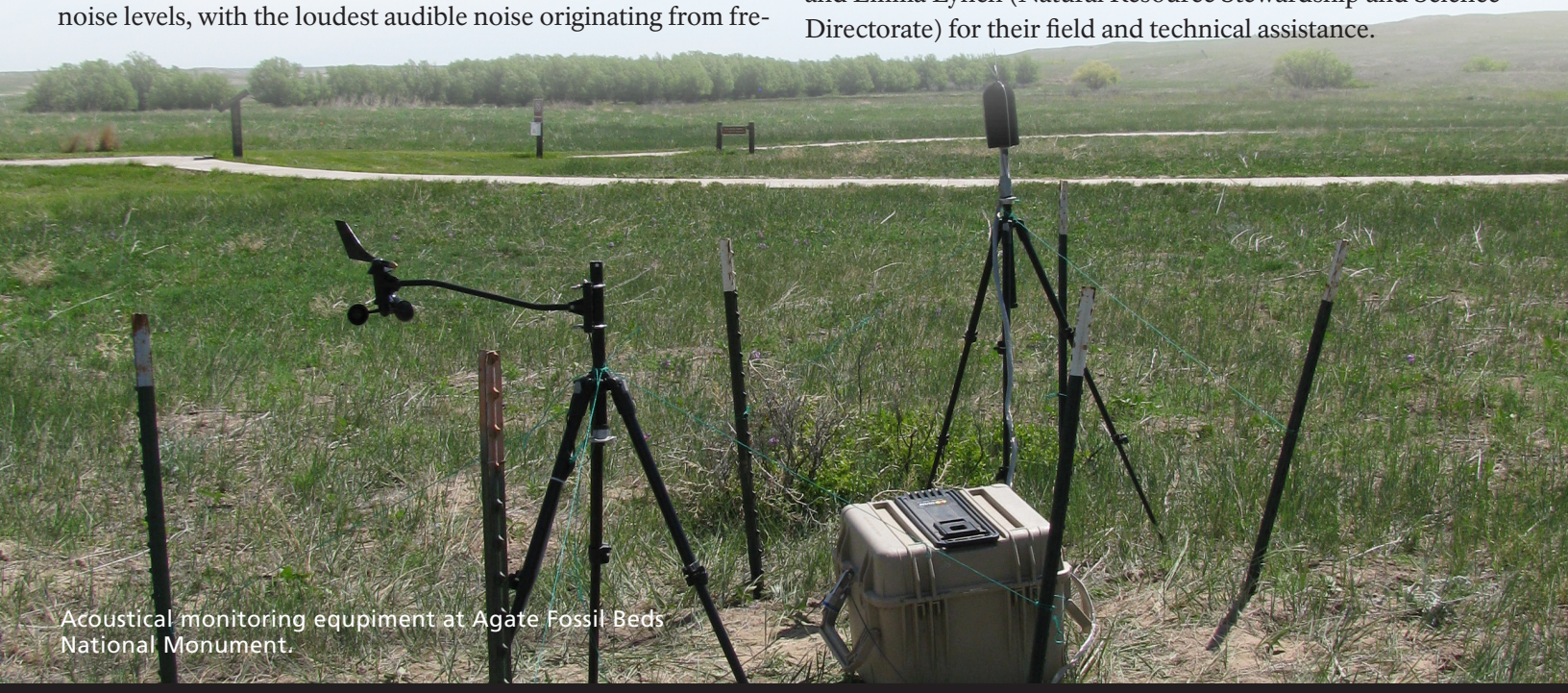
A sound level meter, digital audio recorder, and meteorological sensors were deployed at the park for approximately 32 days between June and August of 2013. The equipment was placed near the visitor center to help capture the natural ambient sound conditions during the park's peak visitation period. Water transportation efforts for fracking operations were minimal during this period, providing a good opportunity to collect baseline data.

Preliminary analysis of the dataset shows fairly low ambient noise levels, with the loudest audible noise originating from frequencies associated with transportation. The acoustical measurements taken during this effort will help the park monitor their natural soundscape, evaluate the impact of transportation noise to visitor experience and natural resources, and provide a good resource for shaping park management plans.



Day and night time sound pressure levels for various frequencies at Agate Fossil Beds National Monument during the summer of 2013.

Special thanks go to Jesse Bolle (HOME), Patty Bean (SCBL), and Emma Lynch (Natural Resource Stewardship and Science Directorate) for their field and technical assistance.



Acoustical monitoring equpiment at Agate Fossil Beds National Monument.

Prairie Dogs

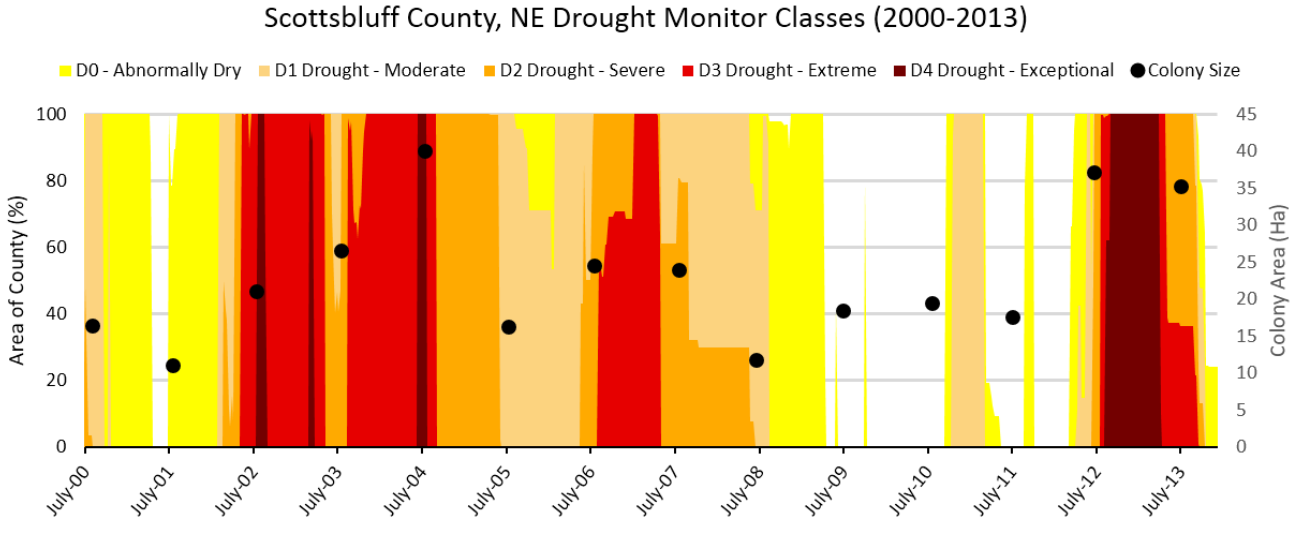
Parched prairie dogs

Looking at drought and colony size

Black-tailed prairie dogs at Scotts Bluff National Monument (SCBL) were surveyed on July 10, 2013. The colony occupied approximately 35 ha, which is slightly less than the 37 ha occupied in 2012, but more than double the size in 2010 and 2011. This expansion in 2012 and 2013 is likely attributed to the drought conditions that impacted much of the Northern Great Plains including SCBL. The U.S. Drought Monitor (see graph on bottom) revealed that while Scottsbluff County, Nebraska was no longer in exceptional drought (D4 class) during the 2013 survey, it was still in extreme (D2) to severe drought (D3).

Ornate box turtles were once again observed during the annual prairie dog colony survey.

Prairie dog town at Scotts Bluff NM.



Drought monitor classes for Scottsbluff County, NE from 2000-2013.

Colored areas indicate % of county in drought class with yellow shades indicate mild drought-levels while redder shades indicate extreme drought levels.

Dots indicate colony size from early-July surveys.

Data Source: The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.

New crew, great weather, and high efficiency

Year three of plant community monitoring

Last year marked the third year of full implementation of the plant community monitoring protocol. The field season sent us to 11 parks, where we surveyed over 100 sites! Our field crew was all new to the network, but they did a great job and learned the plants and our methods quickly. All the data were entered and checked for quality before they left us in early November. We already published a most of the annual reports describing our results, which are available on our website. We expect the rest of the parks to be completed this winter. Please take a look at your reports and let us know if you find them useful.

In general, this year was remarkably pleasant. Cool temperatures and cloudy days were a welcome change from the hot and dry summer of 2012. Some spring and summer rains allowed for vegetation to recover from the 2012 droughts, and we found more wildflowers in bloom. Unfortunately, cheatgrass and Japanese brome also benefitted from the wet spring and were very abundant this year compared to 2012.

One of our biggest accomplishments was completing a large survey of forest health at Devils Tower National Monument. In collaboration with park staff and the Northern Great Plains Fire Ecology Program we visited 75 plots in the park and helped to staff the park's fire engine. Thanks to the large crew and some data management support we were able to do all the work in half the time we expected.

Season Highlights

- Discovering coyote pups in Badlands NP
- Finding a fossil sticking out of the wall in Agate Fossil Beds NM
- The Little Missouri River rising from ankle deep to thigh-high in just a week
- Five field crews working simultaneously at Devils Tower NM
- A season ending with a perfect safety record!

Plants Gone Digital!

The Northern Great Plains Network is very excited to announce the release of the Rocky Mountain Region Digital Herbarium. Developed and hosted by the University of Wyoming Libraries, the digital herbarium is a collection of high-resolution vascular plant specimen images and record label information available through an online search interface.

The digital herbarium includes records from existing herbarium collections from Devils Tower National Monument, Fort Laramie National Historic Site, Jewel Cave National Monument, Mount Rushmore National Memorial, Wind Cave National Park, and several other Rocky Mountain Region parks are included in the collection. These collections can provide valuable information about current and historical park flora and are now easily discoverable for research, education, and conservation.

Access the digital herbarium at https://www-lib.uwyo.edu/digitalherbaria/index.php!

Wildflowers at Wind Cave National Park.

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*
HOME	*Homestead National Monument*
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*
NRSS	*Natural Resource Stewardship and Science Directorate*
POC	*Point of Contact*
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*
WYNDD	*Wyoming Natural Diversity Database*

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New NGPN Documents

Available for download on our website!

Protocols

Four-Network Landbird Monitoring Protocol
- All NGPN parks

Reports

Aquatic Invertebrate Inventory Reports, 2013
- Devils Tower NM
- Fort Laramie NHS
- Knife River Indian Villages NHS
- Theodore Roosevelt NP

Landbird Monitoring Annual Report, 2011
- Badlands NP

Plant Community Monitoring Annual Reports, 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
- Wind Cave NM

Prairie Dog Monitoring Multi-Year Report, 2013
- Scotts Bluff NM

Water Quality Monitoring Design, 2013
- Missouri NRR

Articles

Sturdevant, J. T., S. K. Wilson, and J. Bragg. 2013. Use of high-resolution airborne laser scanning for the analysis of archeological and natural landscapes on the northern Great Plains. Park Science 30(2):22–25.