



# Great Plains Gazette

Newsletter of the Northern Great Plains Network

Volume 1 Issue 1 - Summer 2013

## Coordinator's corner

Happy field season 2013! We survived the sequester exercises, all the new administrative systems, seasonal hiring pauses and the snowiest and coldest April on record in Rapid City. We are happy to have our USGS Water Science Center partners in Wyoming and North Dakota providing real time data – please check out the story and website on page 4. We were able to hire our vegetation crew and are they out monitoring as we speak. We are also pleased to continue to work with the Rocky Mountain Bird Observatory. We are implementing landbird monitoring at 11 parks this year and all 13 next year, story on page 3. Please welcome our crews and our partners to your parks.

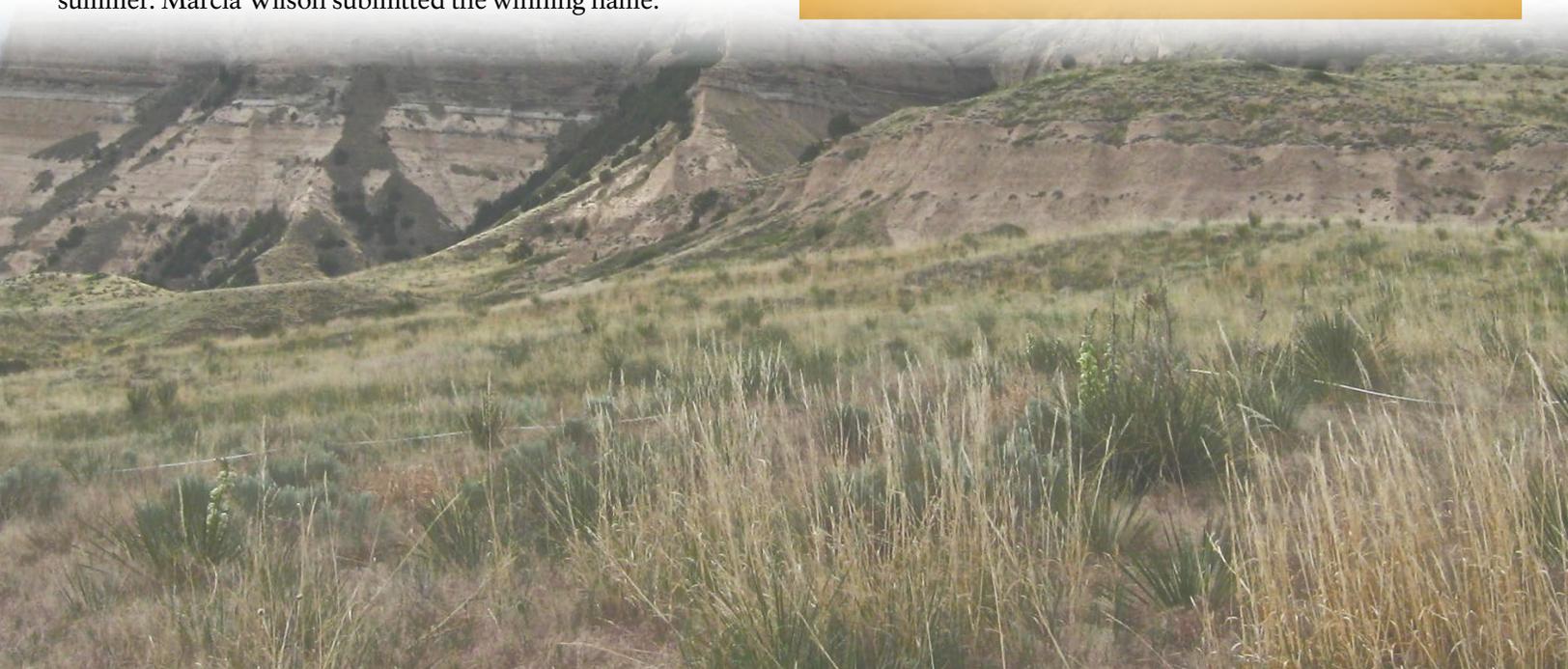
If you haven't had a chance - check out our revised [website](#). I think you will like the park pages which have all the inventory and monitoring information for your individual parks. This includes resource briefs and species lists. Please join us in giving a huge thank you to Steve and Sarah for getting this all together!

Sarah Wakamiya has been a wonderful addition to our staff – the look of the resource briefs and newsletter are all thanks to her. You'll also notice we finally have a newsletter name – Sarah took over the internal review of the list you all sent last summer. Marcia Wilson submitted the winning name.

We are also enjoying having Brennan Hauk, the new Northern Great Plains Exotic Plant Management Team Liaison around. We are already working together on some park restoration planning and seed increase choices. Isabel Ashton, Brennan and Kate Howe with the Midwest Invasive Plant Network are narrowing down the species list from the survey that some of you filled out. Thank you.

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# Administration



## New faces

### *Addition to the Data Management team*

**Sarah Wakamiya** joined the NGPN team as the assistant data manager in October 2012. She spent her previous four years serving as the data manager at the Mid- Atlantic Network. NGPN has already benefitted from Sarah's unique set of web, communication, and database skillsets with a revision of the Network's website and design improvements of protocol resource briefs and the current newsletter. Sarah can be reached at 605-341-2809 or [Sarah\\_Wakamiya@nps.gov](mailto:Sarah_Wakamiya@nps.gov).

## Evolving admin..

### *New systems, programs, and software*

The world of admin for the NGPN has been busy gearing up for the 2013 field season. Network staff has hired 6 new seasonals and one returnee for the summer. As with the rest of the NPS, we are enjoying the ups and downs of FBMS. It seems new information is brought to us every day, sometimes good and sometimes not. But, all in all, FBMS is a system that will deliver information with increased accuracy and efficiency.

The administrative staff has gone through lots of training, both in class and remotely, this year. The use of Sharepoint sites is also becoming a common way for admin folks to communicate, substantially helping the flow of information with up to date news on all of the new processes.

With the transition to FBMS, AFS4, Google mail, and a new travel program, the entire NPS administration will soon look totally different from last year – so be on the lookout!

*Want a view from your desk? Check out the air quality [webcam](#) at Theodore Roosevelt NP!!*



Dawn breaks at Theodore Roosevelt National Park.

## Birds of a feather flock together...

### *Partnering with Rocky Mountain Bird Observatory*

Eleven of the 13 Network parks will have their breeding landbirds surveyed this year. The river parks (Niobrara National Scenic River and Missouri National Recreational River) will be included in next year's surveys. During this year's breeding season, technicians from Rocky Mountain Bird Observatory will conduct point counts at each park. Each point in the sampling frame will be sampled once this season. Technicians will remain at a fixed point for 6 minutes recording all birds they hear or see. Distances to each bird will also be recorded using a range finder.

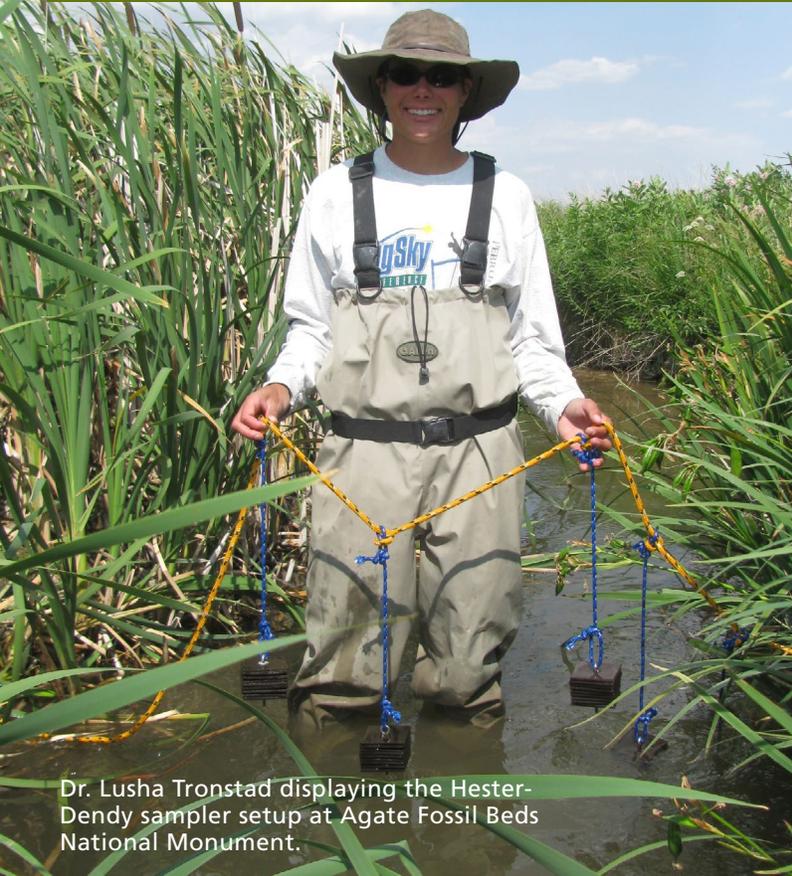
The Network is implementing the sampling design developed for a regional bird monitoring program, "Integrated Monitoring in Bird Conservation Regions" (IMBCR). The multi-scale IMBCR design consists of nested strata, with each individual stratum (i.e. park) producing its own estimates of species' densities and occupancy rates as well as contributing to esti-

mates for higher order strata such as states and Bird Conservation Regions. The sampling unit is a 1-km<sup>2</sup> cell containing 16 evenly-spaced point counts with 250 meter spacing between points. Large parks (> 29,000 acres) will have 15 grids sampled whereas the small parks (< 4,000 acres) will have between 3 and 6 grids sampled. In the larger parks, spatially-balanced samples were selected using a Generalized Random-Tessellation Stratified (GRTS) sampling algorithm. The centroid of each grid cell was used as the sampling frame for GRTS.

Fort Union Trading Post NHS (FOUS) is too small to have the required number of IMBCR grid cells fit within its boundary. So, this park will be sampled using a uniform grid of points established across the park with the points 250m apart. Unlike the rest of the parks, occupancy estimates for FOUS will be based on three visits to each point during the breeding season.



A Rocky Mountain Bird Observatory technician conducts a point count at Wind Cave National Park.



Dr. Lusha Tronstad displaying the Hester-Dendy sampler setup at Agate Fossil Beds National Monument.

## Catching invertebrates

### Comparing sampling methods

The ecosystem quality of the Niobrara River at Agate Fossil Beds National Monument (AGFO) has been measured for 15 years using aquatic invertebrates colonizing the artificial substrate of Hester-Dendy samplers. However, previous studies have demonstrated that the Hester-Dendy samplers may bias results toward certain insect orders. Additionally, large debris dams formed upstream of these samplers in the Niobrara River, which can potentially alter results. Hess samplers, on the other hand, collect invertebrates that live in the emergent vegetation and in the sediment providing a better picture of the natural density and diversity of invertebrates. Furthermore, the results can be compared to other ecosystems.

In 2010, Dr. Tronstad from the Wyoming Natural Diversity Database (WYNND) began a study to compare the aquatic invertebrates collected using the traditional Hester-Dendy samplers with those collected using a Hess sampler. This comparison will continue in 2013. The Hester-Dendy samplers will be deployed at the three AGFO legacy sampling sites in June and retrieved 4 weeks later in July. During the July trip, we will also sample the aquatic invertebrate community using the Hess sampler at the legacy sites. Samples from both methods will be preserved in 80% ethanol and taken to the University of Wyoming where WYNND staff will sort the invertebrates from the debris and identify them.

## Data at your fingertips...

### Collecting real-time water quality data

The NGPN is monitoring water quality in wadeable streams and rivers at seven Network parks. The sites will be monitored on a rotational basis (i.e. every 3 years). This year, the Network initiated water quality monitoring (pH, water temperature, dissolved oxygen, specific conductivity, and stream-flow) at three parks.

In order to accomplish this, NGPN setup two interagency agreements. The USGS Wyoming Science Center is monitoring the Belle Fourche River at Devils Tower National Monument (DETO). The USGS North Dakota Water Science Center is monitoring the Knife River at Knife River Indian Villages National Historic Site (KNRI) and the Little Missouri River at Theodore Roosevelt National Park (THRO, Medora USGS gaging station). Water data will be collected at each site during the ice-free season (March/April through October). All real-time water quality and gage height data for the network parks are available at <http://science.nature.nps.gov/im/units/ngpn/monitor/waterquality.cfm>.



A USGS staff member installs a water gaging station at Devils Tower National Monument.

## Round two!

### *Plant community monitoring completes second year*

Last year marked the second year of full implementation of the plant community monitoring protocol. The busy field season sent us to 11 parks, where we surveyed 115 regular plots, just 1 plot short of our aspirations! We also visited 90 forest plots in Wind Cave National Park, including 10 plots in their newly acquired 5,000-acre property. Additionally, we conducted a successful pilot study of riparian area monitoring at Agate Fossil Beds National Monument and assisted Wind Cave National Park in surveying their established riparian plots.

Isabel and Mike took a brief visit to Missouri National Recreational River in September 2012 to learn about their vegetation monitoring programs. We are exploring how we can assist their vegetation inventory and monitoring efforts in the future. Throughout the year, we periodically received help from the staffs of various parks, for which we are always grateful, and we continued to work closely with the Fire Effects Program, especially when surveying and installing forest plots.

2013 will bring new challenges to NGPN's vegetation program. While our second year ran more smoothly than the first, we also benefitted from having the majority of our field crew return, providing stability to our dynamic program. Unfortunately (for us, anyway), our 6 seasonal crewmembers from 2012 are all off to greater endeavors. So, Isabel and Mike are running around teaching 6 new crewmembers everything they need to know about plant identification and vegetation sampling protocols as we all hit the road again!

This year will be the third year of monitoring, and we are starting to get a handle on ironing out the wrinkles in the new protocol. In 2013, we hope to sample 116 regular plots in the 11 parks and 70 forest plots in Devils Tower National Monument, plus a number of riparian plots at Agate Fossil Beds National Monument and Wind Cave National Park. See "[Mark your calendars!](#)" to see when the vegetation crew will be coming to your park.



Plant community monitoring crew members hike to a sampling location at Knife River Indian Villages National Historic Site.

# Prairie Dogs



Prairie dog at Scotts Bluff National Monument.

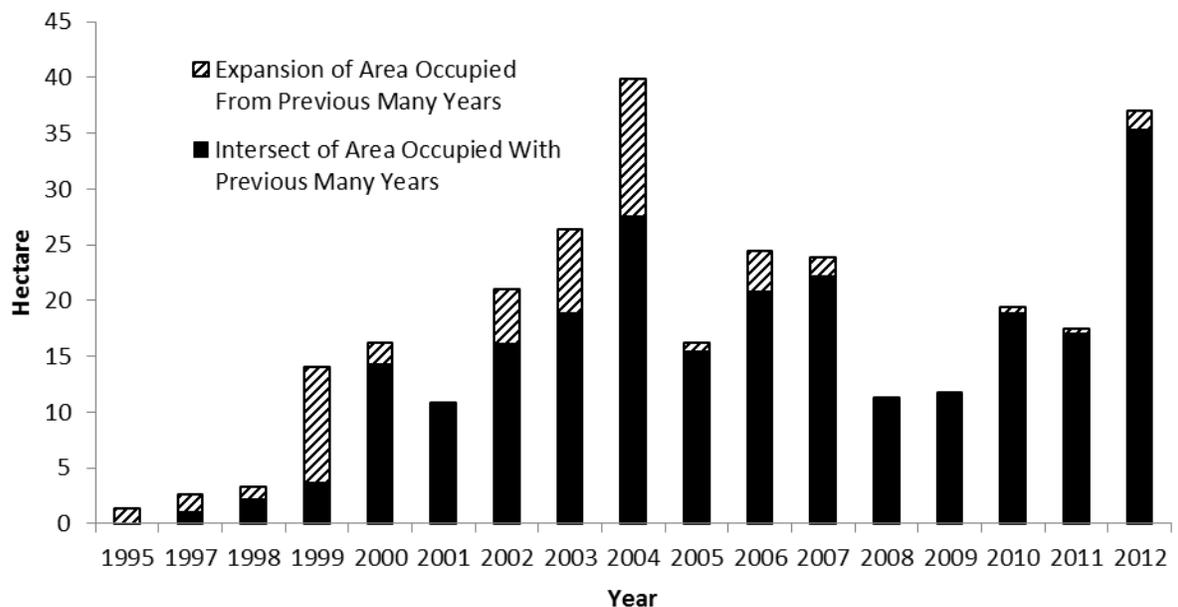
## Shifting dog towns

### Looking at prairie dog occupancy

For the 18th consecutive year, the black-tailed prairie dog colony at Scotts Bluff National Monument (SCBL) was delineated and mapped to estimate the total area occupied within the Monument. On June 27, 2012, approximately 37 hectares were occupied, which is markedly more than the 17 hectares occupied on July 11, 2011. Much of this expansion is likely attributed to the drought conditions that impacted much of the Northern Great Plains including SCBL. Although the occupied area approximately doubled in size from 2011 to 2012, there was little expansion into areas that have not been mapped in the previous many years since 1995.

This year, Northern Great Plains Network and SCBL staff will delineate and map the occupied area of black-tailed prairie dogs at SCBL in late-June to early-July. In addition, a multi-year spatiotemporal report investigating trends in occupied area and relationships with past land use and habitat characteristics will be available in late-Spring.

Stacked bar chart representing the proportion of colony size for a given year that was occupied at least once during previous surveys (black bar) and the proportion that expanded into new areas that had never been occupied before (hashed bar).

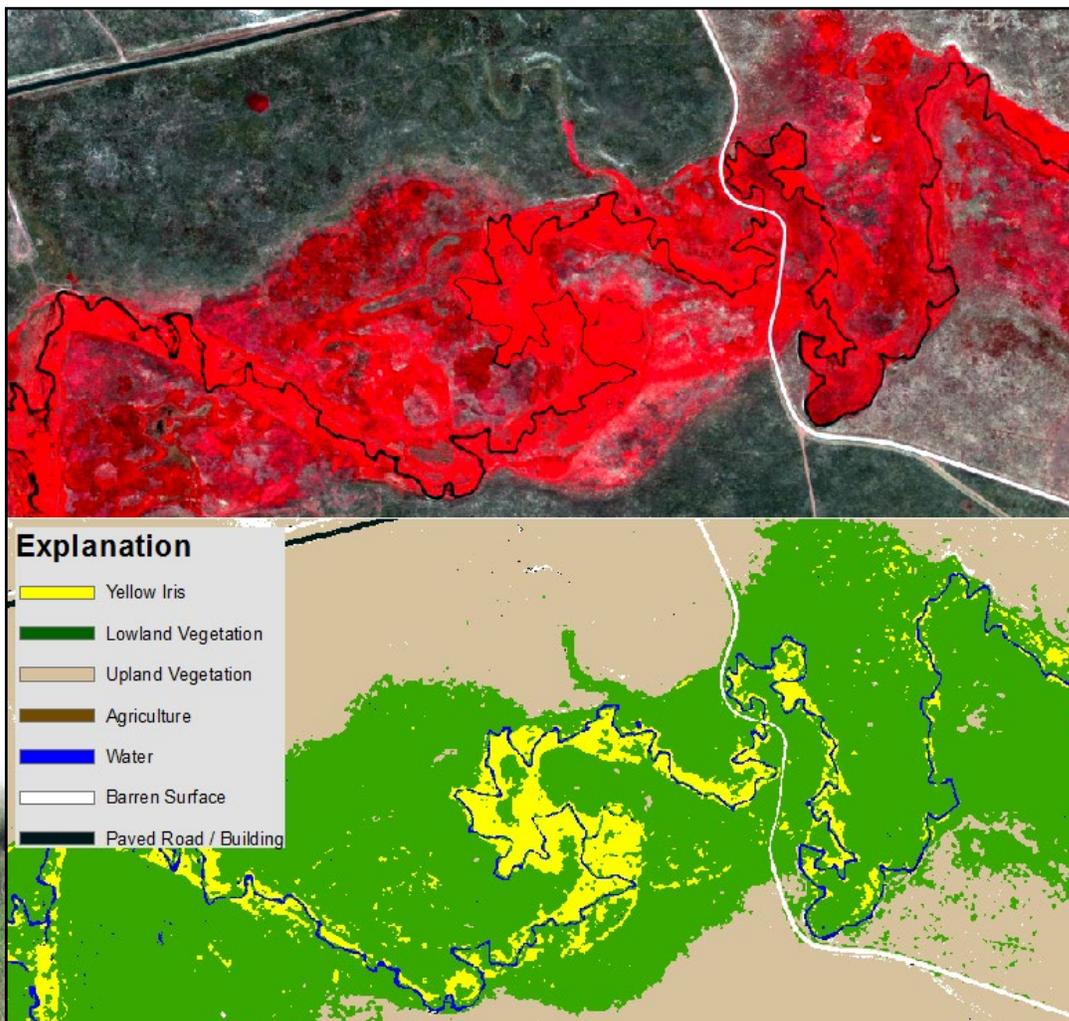


## Pretty but invasive

### Assisting a network park to map an invasive plant

In response to a technical assistance request from Agate Fossil Beds National Monument, Northern Great Plains Network staff utilized an opportunistic satellite imagery acquisition to estimate the area of invasive yellow iris (*Iris pseudacorus*) along the Niobrara River. The land cover classification was developed from 0.6 meter, WorldView-2 satellite imagery collected on June 4, 2012 and refined using field training data sets acquired on June 21, 2012.

While this effort resulted in a classified map with approximately 57 acres of yellow iris, the accuracy assessment focused on how well the yellow iris and lowland vegetation



classes were described. The classified map showed low error rates for both the yellow iris (i.e., producers accuracy = 86% and users accuracy = 76%) and lowland vegetation (i.e., producers accuracy = 79% and users accuracy = 87%) classes.

Example errors included dense, shrubby plant species such as western snowberry (*Symphocarpus occidentalis*) and currant (*Ribes* spp.) being incorrectly classified as yellow iris. Also, if yellow iris was truly intermixed with other species such as willow (*Salix* spp.) then this typically resulted in the pixel being classified as lowland vegetation.

Yellow iris along the Niobrara River at Agate Fossil Beds National Monument. Upper Right: Yellow iris in flower.

# Mark your calendars!

	March	April	May	June	July	August	September	October
AGFO			Plants			Plants - Riparian		
				Aquatic Invertebrates				
BADL				Plants				
			Birds					
DETO				Plants		Plants - Forest		
				Birds				
								Water Quality
FOLA				Plants				
				Birds				
FOUS				Birds	Plants			
JECA					Plants			
				Birds				
KNRI				Birds	Plants			
								Water Quality
MNRR								
MORU				Plants				
				Birds				
NIOB								
SCBL			Plants	Birds				
								Prairie Dogs
THRO - North				Birds	Plants			
THRO - South				Birds		Plants		
								Water Quality
WICA					Plants	Plants - Riparian		
				Birds				



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

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Network Coordinator  
 Kara Paintner-Green

Editing and Design  
 Sarah Wakamiya

Contributors  
 Jo Harkins  
 Kara Paintner-Green  
 Mike Prowatzke  
 Marcia Wilson  
 Stephen Wilson

## New NGPN Documents

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

### Briefs

#### Monitoring Highlights, 2012

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

### Reports

#### Invertebrate Monitoring Annual Reports, 2010, 2011

Agate Fossil Beds NM

#### Plant Community Monitoring Annual Reports, 2012

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