

Prairie Zephyr

FALL 2014

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The monarch butterfly is the focus of pollinator protection efforts in the Southern Plains.
PHOTO: Ramona Danette Ulloa

Park Highlights



Protecting Pollinators

With the exception of Antarctica, every continent on the planet, has reported localized pollinator species declines. Monarch butterflies (*Danaus plexippus*) have decreased more than 90% in the last 20 years and the number of monarchs recorded during the 2013-2014 migration was the lowest ever recorded. These alarming statistics recently led the Xerces Society, The Center for Biological Diversity, and the Center for Food Safety to petition the U.S. Fish and Wildlife Service seeking protection for the monarchs under the Endangered Species Act.

In June, the President of the United States issued a memorandum (<http://www.whitehouse.gov/the-press-office/2014/06/20/presidential-memorandum-creating-federal-strategy-promote-health-honey-b>) that calls for development of a national strategy that includes a pollinator research action plan, public education, and public-private partnerships to increase and improve pollinator habitat.

Parks in the Southern Plains are doing their part. Fran Pannebacker at Bent's Old Fort NHS is leading outreach efforts with partners such as Colorado State Extension agents to reach many of the schools in southeastern Colorado through a program called AgFest. She's also working with other parks in the region to pull together existing educational materials and activities to engage visitor groups and schools in pollinator protection awareness and habitat restoration. Arlene Wimer at Lake Meredith NRA is putting together a traveling trunk of materials that can be used for pollinator outreach programs, and is happy to share it with other parks. Ellen Jones at Fort Larned NHS is creating a monarch/pollinator garden in conjunction with a local 8th grade class. Dick Zahm at Washita Battlefield NHS will be developing a monarch/pollinator garden with several local grade school classes.

Bent's Old Fort NHS and Sand Creek Massacre NHS have been engaged in tagging monarch butterflies for the last five years and have seen declines first hand. The

first several years, the number of butterflies captured and tagged were more than four times the amount tagged in the last several years. Although we can't say exactly what caused the decline, we do know that the persistent drought in the region has severely impacted the milkweed and other native plants.

Because pollinators are such an important component of the Southern Plains ecosystems, the network is looking into how pollinator habitat can be worked into current monitoring protocols. For example, vegetation monitoring already includes documentation of all plant species, including pollinator food sources (for both larval and adult stages), but has not previously emphasized these as part of the overall condition of native grassland species. We're planning to hire a graduate student as part of the exotic plant field crew who will conduct a pollinator research project in the region. We'll also share information with our sister parks in Mexico about how monitoring protocols can be used to track pollinator status in both countries.

For more information:

- Contact Fran Pannebacker (fran_pannebacker@nps.gov) to get involved in outreach programs
- Check out the Journey North website (<https://www.learner.org/jnorth/>) to see maps of migration locations and enter data with citizen scientists
- Go to The Xerces Society website (<http://www.xerces.org/>) for pollinator news and resources



Tagged monarch butterfly.

RAMONA DANETTE ULLOA

Monarchs are known for their multigenerational, transcontinental migration from Mexico to Canada and back again. Because of the threats monarchs face, they need very large population sizes to maintain viability and resilience as a species. In the mid-1990s, their numbers hit a recorded high of approximately 1 billion butterflies; last winter, their population was estimated to be just 35 million. While 35 million sounds like a lot, the overwintering population in Mexico is highly susceptible to predators, and a 2002 winter storm in the U.S. killed an estimated 500 million butterflies (that is 14 times the estimated size of the total population today). These delicate insects are impacted by a number of serious threats including habitat loss and fragmentation; the use of herbicides and pesticides; predation; storms and other extreme weather conditions; and climate change—specifically, the shift in climate conditions and increase in the frequency of extreme weather events. According to the Xerces Society, *scientists have predicted that the monarch's entire winter range in Mexico and large parts of its summer range in the states could become unsuitable due to changing temperatures and increased risk of drought, heat waves, and severe storms.*



Monarch food plants include the showy milkweed (*Asclepias speciosa*; left) and white milkweed (*Asclepias variegata*; right).

Capulin Volcano NM has the endemic



Capulin subspecies of the Alberta arctic butterfly (*Oeneis alberta capulensis*). Discovered in 1970, we still know very little about the distribution and biology of the butterfly. It is likely a remnant population, forced to higher elevations and northern slopes of the volcano to find its climatic niche. Unfortunately, recent surveys have not located any individuals.

Hummingbirds Indicate Climate Change . . . Capulin Volcano NM Tells the Story

Hummingbirds can tell us a lot about the climate and how it is changing. The presence, absence, and abundance of hummingbirds indicate the overall health of an environment, and changes in their numbers and locations can indicate environmental stresses due to climate. As the climate begins to warm, high-elevation birds are being pushed even higher to find food. In severe drought years, main food plants may not be available at all. By studying where birds are located now and where they have been in the past, we can get a picture of localized and regional climate patterns.

NPS



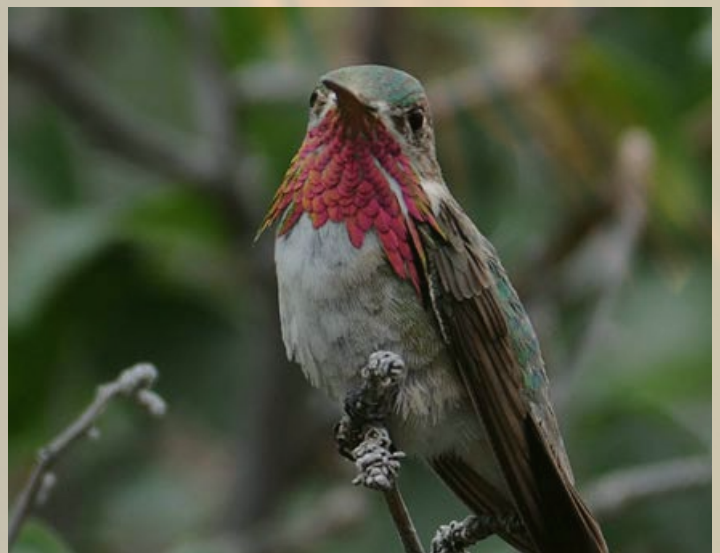
A Broad-tailed Hummingbird is banded and data collected.

Park staff band four species of hummingbirds at Capulin Volcano NM: Broad-tailed (*Selasphorus platycercus*), Black-chinned (*Archilochus alexandri*), Calliope (*Stellula calliope*), and Rufous hummingbirds. The program was started three years ago as a way to educate people about climate change. Hummingbirds are very interesting to visitors, and the participatory nature of the program has been a huge attractant. Volunteers can help capture, feed, and release the hummingbirds, while trained banders do the actual banding and data collection. No set protocol currently exist for training hummingbird banders, so Biologist Zach Cartmell with Capulin Volcano NM staff and volunteers are developing standards for certification and training. The whole process is open to the public (most Fridays May through August), and visitors can observe, ask questions, and children can touch the birds with open palms to feel their heartbeat and release the

birds. Since the start of the program, volunteer hours have skyrocketed; this year the park had close to 1,500 hours of volunteer time!

In addition to working directly with the hummingbird pollinators, the park also identifies the flowers and native plants they use. When each bird is handled for banding, pollen is collected and later analyzed to determine on what plant the bird was feeding. Based on a mini-BioBlitz (25 volunteers for a weekend) flowers were identified and pollen collected to serve as a pollen library. Plant blooming times are tracked along with climate (a NOAA weather station is on site), so the phenology-climate connection can be made along with the hummingbird data.

Park Ranger Lynn Cartmell leads the interpretive and educational aspects of the program. She works with schools in five states (CO, OK, NM, TX, and KS) on climate change programs, and brings Dr. Bruce Molina, climate change expert from the USGS, to the classrooms to talk with the students. Because there is generally no climate change curriculum in the state (particularly OK and TX), she finds that the agriculture and science teachers are very welcoming, receptive, and appreciate the programs. Zach and Lynn are expanding the partnerships in this program beyond Capulin Volcano NM to include public lands along the Sangre de Cristo Mountains such as New Mexico State Parks (Sugarite State Park), USFWS (Maxwell, Bosque del Apache, Rio Mora, and Las Vegas national wildlife refuges), Fort Union NM, and Great Sand Dunes NPP. They are also seeking a university partner to assist with data analysis.



Calliope Hummingbird

NPS

Prairie Restoration

Due to human settlement, large-scale agriculture, soil erosion from the Dust Bowl years, persistent drought, and invasive exotic plants, prairie grasslands are some of the most endangered ecosystems in the country. The short-grass and mixed-grass prairies of the southern plains are much reduced from their original extent. Restoring native grasses and forbs (including flowers) restores those natural ecosystems and provides important habitat for pollinators. Over the last few years, a number of Southern Plains parks have been engaged in restoration efforts of their prairie grasslands. Restoration is a long-term endeavor, and progress continues over many years.

This summer, we were thrilled to have two excellent interns that contributed greatly to our restoration efforts. Kaitlin O'Brien and Chelsea Blakely are upperclass undergraduate students at Texas A&M University, in the Ecosystem Studies Department. Kaitlin is studying rangeland ecology and management, Chelsea is getting her degree in ecological restoration, and they both work in the S. M. Tracy Herbarium and are very knowledgeable about plant identification.

This summer they traveled around the southern plains, spending about three weeks at each of four parks, contributing to prairie restoration projects.

- **Chickasaw NRA** is restoring whole fields of Johnson grass. There is a series of old pastures along the creek—at each one, Kaitlin and Chelsea assessed the state/condition of exotic and native species, and made recommendations for restoration. This information will be used to prioritize where to focus restoration efforts.
- **At Lake Meredith NRA**, Kaitlin and Chelsea treated exotic plants, including within the new restoration site. They also scanned every voucher

specimen in the herbarium. These high-resolution images will be used in the collections database, and may be the basis for a web-based herbarium. [Other parks are welcome to use the scanner for similar projects—please coordinate with Arlene Wimer.]

- **At Fort Larned NHS**, Kaitlin and Chelsea made recommendations for native planting in the new parking area, they produced a park brochure, created a nature trail and installed signage identifying plants, and compiled fact sheets about the local plants.
- **At Washita Battlefield NHS**, they removed over 500 young Siberian elms, assisted with other exotic plant control, and weeded and replanted the native garden.



Attention Southern Plains Parks

Capulin Volcano NM is installing two new greenhouses (thanks to the SWEPMPT) to grow plant stock for prairie restoration efforts. They are taking orders for plant species you would like grown, and hope to be up and running by next March. Contact Zach Cartmell to put your order in now and next spring you'll have some starter plants for your restoration projects!

Welcome to Pecos NHP Superintendent Karl Cordova

Karl joins the Southern Plains after serving as Superintendent at Casa Grande Ruins National Monument in the Sonoran Desert Network. He was a biologist at Rocky Mountain National Park for 10 years and has a strong background in natural resources, cultural resources, and community collaboration.

Karl is a 2009 graduate of the NPS's Bevinetto Congressional Fellowship Program, a distinguished two-year developmental assignment in Washington, D.C., where he worked as a staff member for the Senate Committee on Energy and Natural Resources and for the NPS Office of Legislative and Congressional Affairs. The Bevinetto Fellowship was established in 1988 to improve mutual understanding and cooperation between the National Park Service and Congress, and is considered one of the most effective developmental programs in the NPS.



Karl Cordova, then Superintendent at Casa Grande Ruins National Monument, signs a partner agreement with the Director at Paquimé Archaeological Zone in Casas Grandes, Chihuahua, Mexico. Paquimé is one of the largest and most complex archaeological sites in northern Mexico.

After several years of informal exchange, Casa Grande Ruins has entered into a formal partnership that will enhance the ability of both areas to preserve and interpret cultural resources that are perpetually threatened by external factors such as vandalism, erosion, animal damage, and public use, said Cordova.

Network Updates



The Southern Plains Network Workshop will be held **November 5-6** at Pecos National Historical Park.

Come ready to share updates and discuss direction and focus of the network and support to the parks.

Science Communication

If you are like me, you get a lot of information every day. In fact, you probably get more than me. Many of us spend a lot of time managing that information—answering email, filing documents, maybe putting copies of papers in “To Read” folders or in special piles on our desks for a time when we can get to them. Then, when we need a particular piece of information, we search—our own files, IRMA, the Internet—to find just what we need (sometimes successfully, sometimes not). As a communicator, I constantly think about how to provide just the right information to the right person, at the right time, and in the right way.

At the upcoming Southern Plains Network workshop (to be held at Pecos November 5-6), I’d like to hear what you think about network communications.

What information do you use most? How do you use it? What makes it useful? Are there particular topics for which you would like more information, or specific information? Are there particular materials or information that the network can provide to interpreters to help with outreach to the public?

I’m eager to find approaches and develop materials that work best for you. —Nina Chambers

Natural Resource Condition Assessments

Natural Resource Condition Assessments (NRCAs) are reports that compile known information about park natural resources, provide an assessment of their condition (and trend, if possible), and highlight areas of management concern. The scope of the report is driven by park needs and interests, and the product becomes a good reference document that can inform park planning and management.

The Southern Plains parks have benefitted from what others in the NPS are calling the “Bennetts Approach.” Rob Bennetts often does things differently. When starting the NRCAs for the Southern Plains parks, he changed a few things about the NRCA process and product that really stand out and make them stronger. First, engagement of the parks is crucial—these products must be tailored to park needs, otherwise they will be of little value, no matter how technically strong. The unique part of the approach is the rapid assessment of resources at the park (grasslands, riparian vegetation, night sky, viewsheds, soundscapes) that provide recent, field-based data about the park. In addition, the NRCAs:

- integrate cultural significance and context with natural resources, which is especially important for those primarily cultural-resource parks;
- emphasize management issues and directly address issues important to the park—the “so what?” of the assessment;
- feature summary tables that describe condition, how condition was measured, and the rationale behind the assessment—these tables are consistent with those used for State of the Parks, so when parks have an NRCA, they have a head start on their State of the Parks report, too; and
- include the regional context in which the park exists is considered explicitly, as are landscape stressors, such as climate change.

A team of writers works with the parks, compiles the information, ensures the work is peer reviewed, and keeps these projects on track with high standards for quality and timeliness. The experts in the various NRSS divisions are extremely valuable providing data, thorough review, and expertise along the way. Within the Intermountain Region, 16 NRCAs have been completed, 34 are currently ongoing, and 28 more are scheduled to start in future years.

Talking with Jeff Albright and Intermountain Region NRCA Coordinator, Donna Shorrock, they endorsed the approach used by the Southern Plains for future NRCAs and see them as critical building blocks for the State of the Parks reports and Resource Stewardship Strategies, a key piece of park strategic planning and management. As for where NRCAs can be expanded or improved upon in the future, Donna thinks that integrating landscape-scale analyses and trend reports, exploring possible effects of climate change, and expanding development of management implications are some options to consider. Ultimately, NRCAs need to be practical and useful for parks. Jeff emphasized this idea and described how they can be the nexus of science, public communication, and park strategic management planning.

Have any feedback about the NRCAs? Contact: Donna Shorrock (donna_shorrock@nps.gov)

Status of Southern Plains NRCAs

Alibates Flint Quarries NM and Lake Meredith NRA – *in progress, anticipate a draft for park review by November*

Bent's Old Fort NHS – *in review by the park*

Capulin Volcano NM – *complete* (<https://irma.nps.gov/App/Reference/Profile/2182563>)

Chickasaw NRA – *in progress, anticipate a draft for park review by December*

Fort Larned NHS – *in review by the park*

Fort Union NM – *complete* (<https://irma.nps.gov/App/Reference/Profile/2175552>)

Lyndon B. Johnson NHP – *in progress, anticipate a draft for park review by October*

Pecos NHP – *complete* (<https://irma.nps.gov/App/Reference/Profile/2175554>)

Sand Creek Massacre NHS – *complete* (<https://irma.nps.gov/App/Reference/Profile/2204680>)

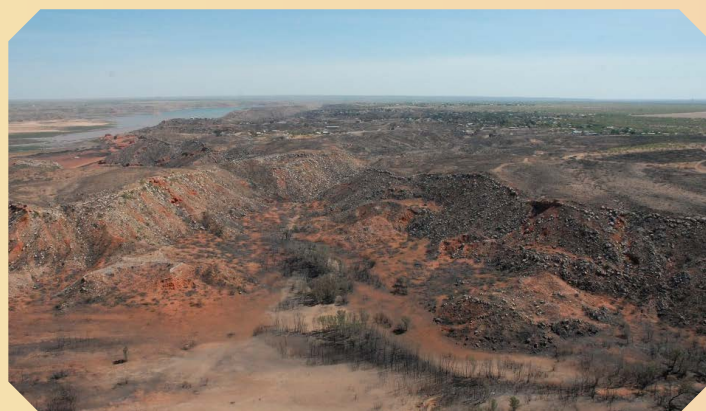
Washita Battlefield NHS – *complete* (<https://irma.nps.gov/App/Reference/Profile/2206483>)

Field Updates



NPS

Tomye has been traveling much of the summer conducting riparian and grassland rapid assessments for NRCAs along with Fred Smiens from Texas A&M, Ecosystem Studies Department. Tomye reports that most parks in the region have gotten some rain and appear to be coming out of drought conditions (except Sand Creek Massacre NHS, unfortunately). She notes that the native plant species are coming back with the additional rain and recovering without allowing the exotics to increase. Although data are still coming in and being analyzed, Tomye's observations of native plant condition is encouraging.



NPS, BRUCE FIELDS

The grasslands monitoring crew—Jeremiah Bonilla, Denise McFather, fire ecologist Richard Gatewood, and exotics crew lead Jonathin Horsley—did a great job this year. Thanks to all the parks for participating in the monitoring and filling in on short-handed crews—above and beyond the call of duty, your participation meant so much. Park staff are always welcome in the field, but this year they saved the day.



NPS



NPS



NPS, TOMYE FOLTS ZETNER

Some images from the field: Monitoring at Sand Creek Massacre NHS (above, left); results from the Fritch fire at Fritch Canyon, Lake Meredith NRA (above right, top); Jeremiah Bonilla studies his vegetation plot (above right, middle); and grassland monitoring with Fred Smiens (above right, bottom).

Collaboration

Southwest Network Collaboration

The Southwest Network Collaboration (SWNC) is a joint effort between the Sonoran Desert Network, Chihuahuan Desert Network, Southern Plains Network, and U.S. Fish and Wildlife Service (USFWS). As a collaborative, the programs share monitoring protocols, data collection and field crews, data management, and reporting. The goal of the SWNC is to improve effectiveness and efficiency across all three networks and create synergy between the NPS and USFWS I&M Programs.

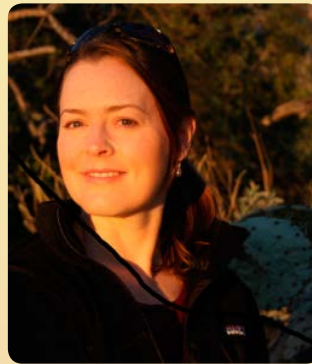
Data Visualization

One of the collaborative's benefits is the coordination of the Data Management Team made up of the data managers from all three networks. Heidi Sosinski (SOPN), Mark Isley (CHDN), and Kristen Beaupre (SODN) who share skills and best practices and together tackle some of the common data management problems facing the networks. The team has primarily been focused on databases—building databases for each of the vital sign protocols.

Recently, Mark Isley was in Colorado learning about modeling and data visualization. If you caught any of the webinars hosted by Brent Frakes, you saw some examples of data visualization tools. The IMD

Central Office is working on a number of efforts to help networks manage large amounts of data and make reporting results to the parks faster, easier, and more meaningful. See the example below from the National Capital Region Network on water quality.

What makes the visualization tools possible is standardized data submitted to the Data Store. Once multiple data sets are converted to a common format (SQL Server), data can be acted on by the data visualization tool (R-Shiny) and results displayed.



Meet Loretta Johnson

Loretta is the U.S. Fish and Wildlife Service Zone Biologist, and our FWS partner in the SWNC. She is based in Tucson and leading the development of the USFWS inventory and monitoring program

for the Sonoran and Chihuahuan Deserts. Prior to joining the USFWS, she earned a PhD in wildlife sciences at Texas Tech University. Her research focused on anthropogenic changes to the landscape and their influence on habitat availability and biodiversity in the Southern Great Plains.

National Capital Region Network Stream Water Quality



Select Stream Data

Park:

Stream:

Water Parameter:

Years to Display:

Thresholds

- ☒ Show Water Quality Threshold Line
- ☒ Indicate Points with Poor Water Quality

Trends and Seasonal Patterns

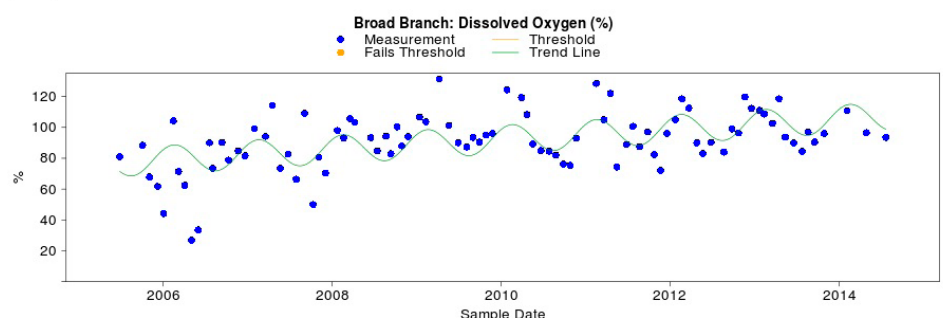
- ☒ Show Seasonal Patterns and Trends
- ☐ Indicate Outliers Not Used in Analysis

Downloads

Graphics Options

- ☐ Show Graphics Options

Plot [Raw Data](#) [Project Information](#) [Citations & References](#)



Threshold:

There is no water quality threshold for this parameter.

Trend Analysis

There is a significant increasing trend of 3.28 % per year.
There is a seasonal pattern in the data. The peak is February 16 and the low point is August 17.

Southern Plains Network, Southern Plains Fire Group and Southwest Exotic Plant Monitoring Team

The Southern Plains Fire Group and Southwest Exotic Plant Monitoring Team work in collaboration with the Chihuahuan Desert and Southern Plains networks to improve our capability to report and interpret information in a more interdisciplinary way. This allows us to look at vegetation, exotic plants, and fire together to understand the interactions among them and provide more useful and meaningful information to parks.

Jeremiah Bonilla, now leads the fire effects monitoring, oversees the field crew, and participates in data collection and analysis. The crew has been supporting the fire program nationwide, with trips to Zion and Lassen national parks, and to the fires in Oregon. Close to home, in May they worked on the fire at Lake Meredith NRA and Alibates Flint Quarries NM that burned 1,455 acres of NPS land, about 700 acres of state and private land, and 225 homes and 143 out buildings near the NPS boundary. This year's field season (May-September), covered all parks except Fort Larned NHS. Adjustments in the extent of monitoring had to be made due to a short-handed field crew and limited budget. The FY2015 budget will be similar to FY2014; some

funding will be available for monitoring, but the group will still be somewhat constrained in resources. The collaboration across networks really helps maximize resources and the ability of this group to function.

Jonathin Horsley's, exotic plant crew lead, term is about to end; a GS-6 shared position (between CHDN and SOPN), will be advertised soon.



Bird Monitoring

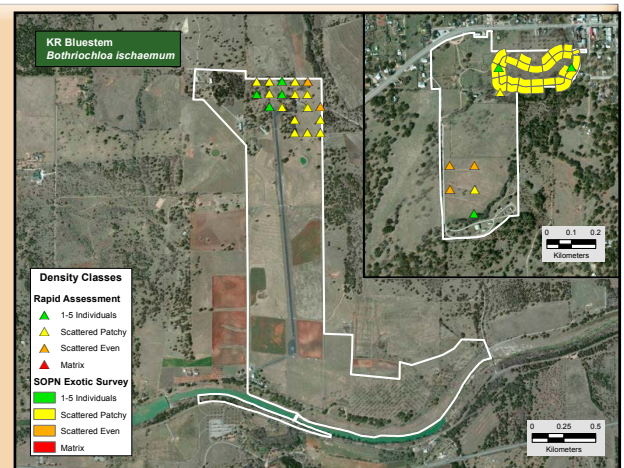
SOPN, SODN, and CHDN are working with the Tucson Audubon Society to monitor birds across the Chihuahuan and Sonoran Deserts and

Southern Plains. We extend a warm welcome to the new crew lead, Moez Ali. Moez grew up in Nairobi and began birding at a young age, exploring Kenya's national parks with his naturalist father. He moved to the U.S. in 1999 and pursued a degree in biology. The great birding opportunities in Southeastern Arizona drew Moez to Tucson in 2003, and he now leads bird watching tours for the Tucson Audubon Society and conducts breeding bird research for the University of Arizona and the National Park Service.

Invasive Exotics

Heidi Sosinski has been leading efforts within the SWNC data management team on automating the reporting and mapping of exotic species. The location and details about invasive exotic plants are critical to Southern Plains park managers. Heidi has been working on ways to make this reporting faster and easier to get information out to the parks—within days of field data collection, rather than waiting months for a published report.

First, all field data are collected electronically in the field. The data collection is set up to maximize efficiency and data quality. Once the data are collected, they are downloaded into a database that can be used to produce maps that show invasive species occurrence in the park. These maps can be delivered to the parks for quick management response. The database can also be accessed to download tables and a brief report to go along with the map. This application can be used in rapid assessments as well as long-term monitoring. The value of automated reporting and visualization is that more effort can then be used to take the application of data further, such as analyzing interactions among vital signs (exotic species and climate, for example) or other value-added analysis and interpretation. This tool is currently in development; look for more information coming soon.



Example of automated exotics mapping for Lyndon B. Johnson NHP.

Inventory & Monitoring Updates

Meet Kirsten Gallo, IMD Chief

What do you care about? I can tell you what Kirsten Gallo cares about; she cares about people connecting to nature and the role of the National Park Service to enhance that connection.

You instinctively monitor the things you care about. This was a point Kirsten made at a recent meeting, and it perfectly sums up why IMD leadership is a natural fit for her. She cares about the people who make up the I&M Program, about the difference I&M can make to parks, and about the many (300 million) people who are touched by the parks every year.

As a person, and as a leader, Kirsten is inspiring. She consistently looks for possibility—the possibility for growth, new and creative approaches, and to make a difference—a *real* difference. She is about *transformational* learning, not just education; *co*-creation, not her ideas alone; and a *commitment* to excellence. She respects and mentors her colleagues and nourishes a creative, productive, and fun workplace.

Kirsten earned a doctorate degree in Ecology from Utah State University and started her career with the U.S. Forest Service. She was previously the Chihuahuan Desert Network program

manager. During her eight-month detail as IMD Deputy Chief, Kirsten increased communication, cooperation, and transparency within the division. She re-energized the program while emphasizing the original I&M Program goals, progress made, and the challenges that lie ahead.

Monitoring is critical to the stewardship mission of the National Park Service. Kirsten's vision for the I&M Program is that it will be a shared science program for parks. She has a great vision of what the I&M Program can become, and talented people to help achieve that vision.

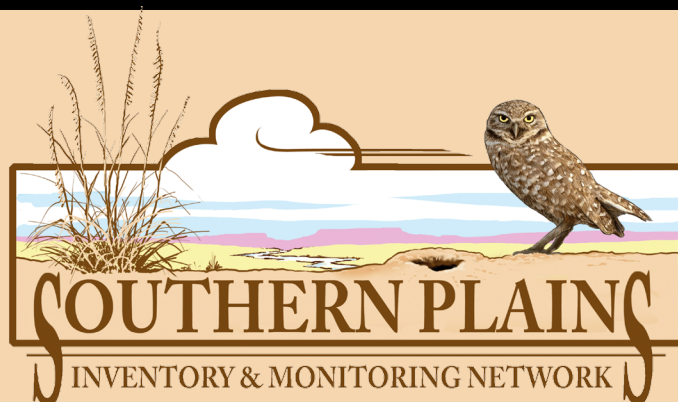


JIM DISNEY

IMD Workgroup Updates

Following a recent IMD survey that identified key areas for improving the I&M Program, workgroups were formed to tackle those issues. At the recent IMD Leadership Team meeting each group reported their progress. Following are quick updates on each.

The **I&M Inventory Workgroup** has drafted a strategy to complete the vegetation, soils, and geology inventories and address on-going inventory needs of I&M parks. The **Achievement and Accountability Workgroup** has created an annual checklist to track and rate accomplishments. The checklist will be used for two primary purposes: as an internal communication tool between the network program manager and their regional program manager, and to define what it means to be a successful network. The **Communications Workgroup** has two subcommittees—one focused on best practices for communicating monitoring information to scientists, and the other focused on using monitoring information in education and outreach. They have developed a white paper with initial ideas that they are refining. The Excellence in Science Committee is made up of three workgroups. **Stellar Science in the NPS Workgroup** is drafting a best practices guide that describes what excellent scientists do and what excellent science means. The **Integrating Science into National Parks Workgroup**, led by Rob Bennetts, is creating a resource guide and toolbox that describes the main components of the decision-making process, and how science can be used in each. The **Developing Excellent Scientists and Staff Workgroup** is developing strategies that help attract, develop, and retain excellent scientists and technicians in the I&M Program.



Southern Plains Parks

Alibates Flint Quarries National Monument (ALFL)

Bent's Old Fort National Historic Site (BEOL)

Capulin Volcano National Monument (CAVO)

Chickasaw National Recreation Area (CHIC)

Fort Larned National Historic Site (FOLS)

Fort Union National Monument (FOUN)

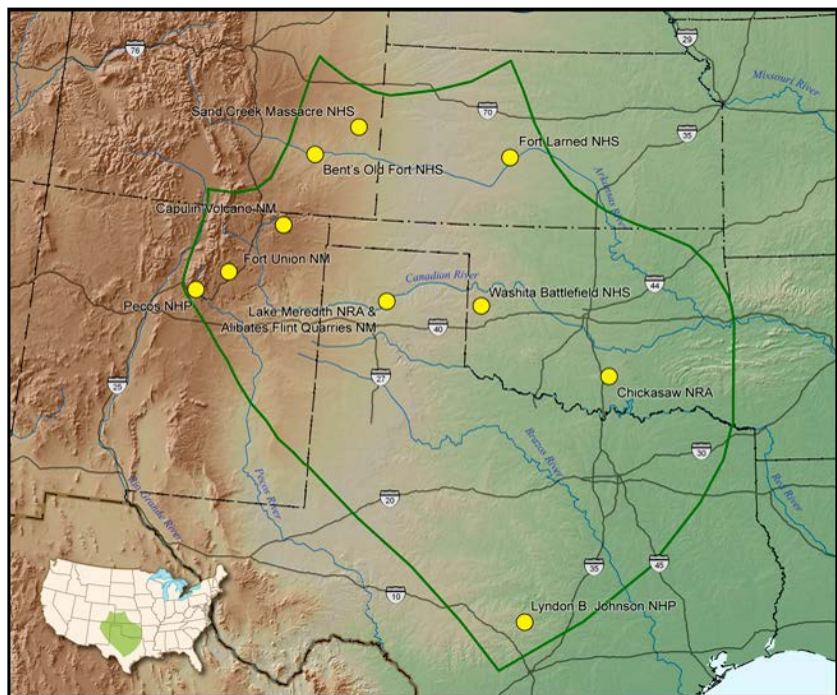
Lake Meredith National Recreation Area (LAMR)

Lyndon B. Johnson National Historical Park (LYJO)

Pecos National Historical Park (PECO)

Sand Creek Massacre National Historic Site (SAND)

Washita Battlefield National Historic Site (WABA)



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Have ideas
you'd like to see
in future issues of
the newsletter?
Contact Nina