

# The Weather Vane

The Newsletter of the Heartland Inventory and Monitoring Network

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## News in Brief

### Aquatic Monitoring

Staff published a report on aquatic invertebrates at EFMO and drafted a report on spring-communities. Sample processing and data analysis continue. We sample tributaries at OZAR in October.

### Breeding Bird Monitoring

Staff entered and error-checked data from the 10 parks that completed bird surveys this spring. Status reports on birds at EFMO and HEHO near completion. It is never too early to start recruiting for next spring's volunteer birders.

### Data Management/GIS

Staff surveyed thicket locations at HOME this summer. Staff also prepare to conduct land-cover ground-truth work at OZAR this fall and winter.

### Fire Ecology

The fire ecology crew prepares for late season burns at WICR, HOME, HEHO and GWCA. Chris and Sherry will attend an NPS-Fire GIS workshop in September.

### Fish Community Monitoring

Staff complete fish monitoring at PIPE, TAPR and OZAR this fall. We completed a PIPE trend report and drafted reports for small-stream parks. Staff presented results of OZAR spring, and OZAR and BUFF river monitoring at state and regional meetings.

### Invasive Plant Monitoring

Contractors began the invasive plant monitoring at TAPR on 8/16/2010.

### Rare Plant Monitoring

Staff are exploring spatial analysis of the 2010 Missouri bladderpod data from WICR. PIPE staff repaired and re-installed the soil moisture monitoring array for western prairie fringed orchid.

### Vegetation Community Monitoring

Staff continues to enter and verify 2010 field data. Database revision continues. We completed final reports for AGFO and

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## Salamanders as indicators of water quality

HTLN aquatic staff recently discovered Oklahoma salamanders (*Eurycea tynerensis*) in three small, spring-fed streams at Pea Ridge National Military Park. This rare salamander, endemic to central US from northeastern Oklahoma and southwestern Missouri to extreme northwestern Arkansas, inhabits undisturbed, small woodland streams or spring-brooks with thermal constancy.

Oklahoma salamanders are paedomorphic, meaning that the species retains traits usually seen only in juveniles. Adults retain the general appearance of larval salamanders, including the presence of gills, and they live fully submerged in water. They reproduce while in this larval-like state.

Sometimes this condition is referred to as neoteny, which more accurately describes a condition where physical development is slowed, resulting in a sexually mature juvenile or larval form. Occasionally, populations of terrestrial, metamorphic (transforming) and paedomorphic Oklahoma salamanders may all occur in a single location.

Our understanding of salamanders and their biology has advanced since ancient times. Pliny the Elder, a Roman naturalist of the first century AD, believed a salamander's cold body could extinguish flames and its spittle so poisonous that it caused a man's hair to fall off his body. People believed that this creature's presence poisoned wells and orchards. Empirical evidence did not support these assertions, however.

In reality, salamanders are harmless, delicate and highly sensitive to environmental disturbance. Their presence in streams generally indicates high water quality. For example, paedomorphic salamanders typically do not tolerate dissolved oxygen concentrations below 5 mg/L. High specific conduc-



Photo compliments of Michael Cravens, [www.MichaelCravens.com](http://www.MichaelCravens.com)

tance, resulting from urbanization or other human sources, can quickly cause their extirpation (localized extinction) from streams. Paedomorphic salamanders predominantly inhabit streams where springs provide water input with near constant temperature, suggesting that they could be vulnerable to increases in water temperature, such as what might accompany climate change.

The occurrence of Oklahoma salamanders at PERI represents not only a novel find, but it represents a valuable tool and an opportunity for park managers to monitor water quality in PERI streams. A herpetofaunal inventory has not been conducted for PERI. This shows us that without inventories we can miss the presence of unique and rare resources.

The first step to effective conservation is having an accurate inventory of resources you intend to manage. Accurate inventories lead to understanding; understanding leads to good decision-making.

What undocumented natural jewels of biodiversity are residing in your park?

--- David Bowles, Nolan Moore, and Kevin Eads

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... protecting the habitat  
of our heritage



## Rare butterfly flutters by

Some people call them flying flowers. Butterflies intrigue children and adults alike with their bright colors and gay flight from flower to flower. As with birds and other species, scientists list some butterflies as species of management concern. Experts advise concentrated conservation action be taken for species of management concern, because population numbers or distribution have declined significantly in recent years and the species may become imperiled.

Steve Craig and Amy Short found a butterfly species of management concern at Wilson's Creek National Battle-



field. They have been photographing the swamp metalmark (*Calephelis muticum*) for two years, having found a rich supply of these butterflies within the park. Two of their photos accompany this article.

The swamp metalmark's color ranges from red to brown. Dark bands decorate the middle, upper-side of their wings, and the fringed wing edges are light in color. They lay eggs on the underside of leaves of their host plants, swamp thistle (*Cirsium muticum*) and tall thistle (*Cirsium altissimum*). The larvae overwinter as 4th or 5th stage instars, having molted three or four times before winter.

The adult swamp metalmark tends to eat nectar from yellow colored flowers and will stay at one flower for long periods. They occur in swamps, bogs and wet meadows in Michigan, Wisconsin, Ohio, Arkansas and Missouri. Swamp metalmark have been recorded in 23 Missouri counties, according to [www.butterfliesandmoths.org](http://www.butterfliesandmoths.org) (4 Aug 2010). Experts consider the Ozark



Mountains of Missouri to be a stronghold for populations.

Swamp metalmark has a wingspan of about one inch, so they do not have a big showy presence, but they provide colorful charisma as they flutter-by from flower to flower. Next time you are at Wilson's Creek NB keep an eye out for this special little critter.

— Ashley Dunkle

Photographs are compliments of Amy Short and Steve Craig.

Life history information from Scott, James. A. 1986. *The Butterflies of North America: A Natural History and Field Guide*. Stanford University Press, Stanford, California.

## Did you wonder?

*Why aren't Inventory and Monitoring networks organized along regional boundaries?*



Each color represents a region of NPS.

(Continued from page 1)

SCBL, and are drafting reports for HOME and PIPE. Staff prepare for sampling at TAPR in October.

### Wetland Monitoring

Staff are wrapping up field season and protocol revisions. We also began work with CUVA resource management on a Great Lakes Regional Initiative contract for wetland restoration.

### White-tailed Deer Monitoring

HTLN staff are in the early stages of planning for the 2011 survey season.

For the most part, regions are subdivided into multiple networks for implementing vital signs monitoring. Organizers thought that combining all parks in a region into one network would combine many diverse ecosystems, making it impossible to share similarities in monitoring. There are only six regions, but 32 networks.

Networks usually group ecologically similar parks, sharing common approaches and expertise. The HTLN does not embrace that concept well. Perhaps delineation of networks began on both coasts and moved inward. When organizers got to the middle, the group of parks left became the Heartland. Most other networks have an eco-regional name. The HTLN encompasses six eco-regions, 15 parks and 8 states, making our network one of the most diverse and interesting in the program.



### Park Acronyms

ARPO= Arkansas Post National Memorial  
 BUFF = Buffalo National River  
 CUVA = Cuyahoga Valley National Park  
 EFMO = Effigy Mounds National Monument  
 GWCA = Geo. Washington Carver Nat. Mon.  
 HEHO = Herbert Hoover Nat. Historic Site  
 HOME= Homestead Nat. Mon. of America

HOCU = Hopewell Culture Nat. Historical Park  
 HOSP = Hot Springs National Park  
 LIBO = Lincoln Boyhood National Memorial  
 OZAR = Ozark National Scenic Riverways  
 PERI = Pea Ridge National Military Park  
 PIPE = Pipestone National Monument  
 TAPR = Tallgrass Prairie National Preserve  
 WICR = Wilson's Creek National Battlefield

## HTLN Biennial Meeting, July 20-22

### **A Successful Meeting!**

David Larsen, Servicewide Interpretation and Education Training Manager, spoke to meeting participants on science interpretation and education – the theme of this biennial meeting. Dave reminded us that currently NPS has 5,000 interpreters, including seasonal employees, and each has the opportunity to make a difference with visitors. The interpreters are the front line with the public and the principle education force. They must be the face of our science communication efforts.

Civic Engagement is a critical part of public communication and education. To employ good civic engagement, we must start with ourselves; we must ask, “How can I contribute?” Next we define the relevance of the issue to stakeholders. Then, we involve our short-term and long-term partners in the effort. The audience, not the expert, decides what is meaningful.

People generally do not understand how science works. They want to see clear cause and effect, but science is cautious to claim more than it can replicate. Science starts off doubting everything, presents a hypothesis, and then tests the hypothesis several times. The interpreter must connect the hypothesis and findings to a place and an experience for the visitor to absorb the message. Visitors are looking for where they enter into the story.



*Dave Larsen discusses science education and interpretation, July 20, 2010*

### **In the rest of the meeting**

Each program area within HTLN Vital Signs Monitoring reported highlights and progress at the biennial meeting. Interpreters and resource

managers gave presentations, paired with the related HTLN program areas, that offered examples of turning scientific findings into popular understanding. Parks gave 14 examples in short Show-n-Tell type presentations, and two presentations shared results of teacher workshops bringing understanding of science in parks to students.

The HTLN staff digitally recorded the entire biennial meeting. Kevin James consolidated the two and one-half days into one DVD. The HTLN will distribute the DVD to Heartland parks and will post it on the HTLN website.



### **Exotic Plant Management -- Scoping**

The Exotic Plant Management Team (EPMT) initiated Internal Scoping for the Heartland Exotic Plant Management Plan (EPMP) and Environmental Assessment (EA) at the biennial meeting.

Often, interpreters have a solid grasp of public and visitor concerns or issues that may not occur to resource managers. Therefore, Craig Young and Sherry Middlemis-Brown requested that interpreters as well as park resource managers and subject matter experts participate in the scoping.

The internal scoping examined basic needs of parks for exotic plant management, brainstormed activities that could contribute to alternative actions, and finally listed potential concerns or resource issues that exotic plant actions could affect.

A follow up to Internal Scoping will include each park developing a Civic Engagement Plan with EPMT support. Civic engagement involves the parks' relationships with stakeholders and partners, and cannot be accomplished through a centralized group in a remote

location. Civic engagement can range from informational articles and letters to public meetings.

A session for interpreters provided time for parks to develop their civic engagement plans. The EPMT developed a toolkit from which park interpreters could select media that best reaches stakeholders. The kit contained templates and text explaining the plan and planning process. Parks would plug park specific information into the templates for news releases, letters, articles, or other informational formats.

The EPMT and parks will conduct consultation with agencies, such as State Historic Preservation Offices and the U.S. Fish and Wildlife Service.

In addition to the activities at the HTLN biennial meeting, the entire EPMT planning process can be followed through the Planning, Environment and Public Comment software (PEPC) as public information becomes available.

### **Technical Committee (TC) Workshop**

Gary Sullivan facilitated discussion of the following issues:

1. The TC tabled development of a strategy to provide each network park with a condition assessment that identifies current conditions and strategies.
2. The TC relinquished development of a strategy for exotic species treatment to the Exotic Plant Management Team.
3. The TC recommends that a water-quality working group develop a strategy to prevent degradation and to restore impaired streams.
4. The TC recommends a disturbed-lands working group to identify acreage and determine costs to implement a program.

The following people volunteered for existing committees:

- Science Communication: Sherry Middlemis-Brown and Sarah Allely
- Exotic Species: Steve Rudd, Nolan More and Jessie Bolli

Finally, the TC began discussion on changes to the network Charter. The TC decided to continue discussion by conference call.

## Communication Corner

### Sobering News

The HTLN remains a leader in science communication. Interpreters from HTLN parks attended the biennial meeting and continue to be an important part of the HTLN mission.

No doubt we're making progress in integrating science into interpretation and education, but a lot of ball dropping happens after our meetings. The web page workshop at the 2008 Biennial Meeting netted the following from 15 park websites.

1. HOME, HEHO - good park specific content, discussion of HTLN with website link
2. HOCU - some park specific content with discussion of HTLN, but no website link
3. PIPE - mentions volunteer bird monitoring program, but not HTLN or website link
4. GWCA, ARPO, BUFF, OZAR, EFMO, CUVA, LIBO, HOSP, TAPR - no mention of HTLN or website link
5. PERI, WICR - no nature and science tab on the navigation panel

Thank you, HEHO and HOME, for strongly supporting the communication effort. We should also mention that LIBO recently completed a bulletin board incorporating HTLN and exotic species in the message. Other parks have done similar displays as well. Many parks have used the Science in Parks banners.

### Essentials for your park's Nature & Science web pages

The Nature & Science sections of park websites are organized sort of like an encyclopedia: there is a page for Animals, for example, with subpages for Birds, Reptiles, Mammals, Fish, etc. While this taxonomy might be useful for cataloging resources it is probably not the best arrangement for interpreting the natural resource management work done in our parks.

If your park has natural resources, your park's website should have a Nature & Science section that provides succinct answers to the following:

1. What are your park's fundamental natural resources?
2. What is their national significance,

or how do they contribute to the park's national significance?

3. What is their relevance to the visitors?
4. What are the challenges related to preservation or restoration of the park's fundamental natural resources?
5. How do the park's natural resource management activities attempt to meet those challenges?
6. How does science like Vital Sign Monitoring support the park's natural resource management activities?

This doesn't have to be all on one web page but can be distributed throughout the pages in the Nature & Science section. At the very least, your

Nature & Science home page should include answers to the first three questions, plus:

- A link to NPS Nature & Science website.
- A link to Heartland I&M Network website.
- At least one crisp, well-composed photograph of your park's natural resources or of park staff, scientists, or volunteers in action managing those resources.

Adding these items requires the simplest functions of the website's content management software. Your park's web coordinator should be able to add this content with ease.

— Adam Prato

*Example of a park page on Nature & Science.*

**PLAN YOUR VISIT**  
**PHOTOS & MULTIMEDIA**  
**HISTORY & CULTURE**  
**NATURE & SCIENCE**  
Animals  
Plants  
Environmental Factors  
Natural Features & Ecosystems  
**FOR TEACHERS**  
**FOR KIDS**  
**PARK NEWS**  
**PARK MANAGEMENT**  
**SUPPORT YOUR PARK**

**Nature & Science**  
nature & science includes:  
**Animals**  
**Plants**  
**Environmental Factors**  
**Natural Features & Ecosystems**

**Herbert Hoover** filled his childhood days with outdoor experiences. He swam and fished in Wapsinonoc Creek. He played in the nearby woodlot. He gathered fall nuts in the forest. These experiences gave Herbert Hoover an **appreciation of nature** that persisted throughout his life.

**Natural Resources**  
Herbert Hoover National Historic Site covers 187 acres of rolling ridges and swales which once supported **prairie**, savanna, and forest. Today farms and pastures cover the Iowa countryside but elements of the state's old **natural beauty** fill out the landscape commemorating Herbert Hoover's life. Eighty-one acres of **reconstructed tallgrass prairie** grasses and wildflowers sway in the breezes at Herbert Hoover NHS. A small, quiet **stream**—a tributary of Wapsinonoc Creek—still meanders through the prairie and past the small **cottage** where President Hoover was born.

**Inventory & Monitoring**  
Natural resources inventory and monitoring at Herbert Hoover NHS **more...**

**Prairie Restoration Volunteer Projects**  
Volunteer to restore native tallgrass prairie on National Public Lands Day. **more...**

**Tallgrass Prairie**  
The 81-acre restored

### More on the Web

PEPC intranet <https://ea.nps.gov/WhaleComF5D00A65D3F7391043D71F44FCA6/WhaleCom0/SecureeanpsgovPortalHomePage/> or PEPC Internet <http://parkplanning.nps.gov/>

I&M Networks <http://science.nature.nps.gov/im/index.cfm>

Want to find a park website? Use <http://www.nps.gov/<park acronym>>

Find HTLN at <http://science.nature.nps.gov/im/units/htln/>

Species of concern [www.fws.gov](http://www.fws.gov)

Missouri conservation concern [www.mdc.mo.gov](http://www.mdc.mo.gov)

*Butterflies and Moths of North America* [www.butterfliesandmoths.org](http://www.butterfliesandmoths.org)