

# The Weather Vane

The Newsletter of the Heartland Network Inventory and Monitoring Program

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## News in Brief

### GIS/Data Management

Staff implemented monitoring databases for prairie stream fishes and invertebrates. HTLN maintains 12 active monitoring databases with two additional databases in development.

### Plant Community

Staff will implement use of a newly constructed training tool to calibrate foliar cover estimates this field season. Preparations for field season continue.

### Invasive Plants

We distributed monitoring reports to 10 parks. Managers interested in using search units to record control activities may contact Craig Young.

### Rare Plants

We estimated Missouri bladderpod population sizes for Manley Woods, North Bloody Hill, Walnut, and Wire Road glades at WICR to exceed 251, 400, 162, and 23,891 plants, respectively.

### White-tail Deer Monitoring

Reports on our 2007 monitoring at ARPO, PERI and WICR underwent internal review and should be released to the parks soon.

### Grassland Birds

The 2007 field season commenced May 16 at TAPR with ARPO, LIBO and HOCU scheduled for early June. We sample ARPO and LIBO for the first time this year. We will release AGFO and HEHO reports after internal review.

### Fish Community Monitoring

Staff completed fish and stream habitat sampling at GWCA and WICR. Fish monitoring at BUFF began in late May. A final draft of the river fish protocol is in US Geological Survey review.

### Aquatic Invertebrates

Staff finished peer review edits to the draft river invertebrate protocol. River invertebrate sample processing is in progress. Initial draft of a spring communities protocol is nearly complete. Draft hellbender, geomorphology and contaminant metals protocols have been received and reviewed.

## Consolidated Weather, Climate and Stream Flow Data

Weather and stream flow act as critical factors limiting condition and distribution of plants and animals. This makes stream and weather data crucial to interpreting monitoring results and the physical and chemical properties within a habitat.

The HTLN, together with Missouri State Climatologist at University of Missouri-Columbia and the Missouri Agriculture Extension Service, has developed a

single, easy to use portal (web page) for systematic posting and retrieval of weather and stream flow data. We identified four to six National Weather Service stations within 40-km of participating parks. Similarly, we identified three to four US Geological Survey gauging stations for stream flow data. Stations chosen for inclusion in this project have near continuous data records for as many as 30 or more years.

Park staff and other interested parties will soon be able to access the data through the HTLN web site [http://www.nature.nps.gov/im/units/htln/overview/heartland\\_overview.htm](http://www.nature.nps.gov/im/units/htln/overview/heartland_overview.htm) or the Missouri Agricultural Electronic Bulletin Board <http://agebb.missouri.edu/>. You can find the data currently through a developmental link at <http://ag3.agebb.missouri.edu/npsdata/>. Data are updated weekly with a two week lag time for quality control processing.

Nationwide, scientists emphasize the importance of weather and climate data in interpreting monitoring results. In May, the Western Regional Climate Center in cooperation with NPS released an inventory report identifying weather stations sur-

rounding HTLN parks, data available at each station, and a summary of climatic conditions across the network. You can find this report at <http://www.wrcc.dri.edu/nps/reports.php>. You will find additional information about NPS collection of climate and weather data at <http://science.nature.nps.gov/im/inventory/climate/wrcc/index.cfm>.

Resource managers and interpretive

Layout of HTLN weather and stream flow web page.

NPS Climate/Streamflow Data Archive - Microsoft Internet Explorer

Address: <http://ag3.agebb.missouri.edu/npsdata/>

National Park Service  
Climate/Streamflow Data Archive

Select National Park to begin: Arkansas Post National Memorial

Select data type:  
 Weather Station  
 Streamflow Gauging Station

Select Weather Station: ARKANSAS POST

Station ID: 030240  
Name: ARKANSAS POST  
Latitude: 34.0166667  
Longitude: -91.3333333  
State: AR

Available date range for this station is: 01-01-1974 through 04-30-2007

Begin Date: January 1, 1974  
End Date: April 30, 2007

Retrieve Records

staff may discover park-specific uses for weather, climate and stream flow data. Current and historic weather patterns may contribute to understanding the park environment. The data can also contribute to planning strategic vegetation restoration efforts (see *Finding a reference condition*, page 2). The HTLN staff uses the weather and stream flow data to better interpret monitoring results by taking into consideration varying environmental conditions that affect data and results.

— David

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... protecting the habitat of our heritage



## “Water, water everywhere . . . “ Science partnerships at Cuyahoga Valley NP

### Ohio EPA Use Classifications for Headwater Streams in Cuyahoga Valley National Park (CUVA)

Primary headwater streams drain less than one square mile of land, but feed into larger streams and rivers. They have important ecological functions and may supply unique habitat for cool water adapted native fauna. Headwater streams interact with the landscape, which can impact their flow and water quality. Their low water volume inadequately dilutes pollution and does not mitigate disruption of stream flow.

The preservation of watershed, riparian and associated stream ecosystems is a fundamental part of CUVA’s enabling legislation. Although progress has been made to improve water quality in the main stem of the Cuyahoga River, smaller tributaries and headwater streams have received little attention. Headwater streams flow into tributaries to the Cuyahoga River and contribute to river health.

The park proposed to locate and select a group of primary headwater streams in the park and classify these streams by applying Ohio’s primary headwater stream assessment process. The park is developing a GIS stream segment database and is documenting the microbial communities



Two interns and a Student Conservation Association member implement the headwater stream assessment.

present at these sites.

Stream classification, as required by the Clean Water Act, refers to designating types of public use based on the stream’s past, present, and future potential uses. Appropriate stream classifications for primary headwater streams at CUVA include Class III-PHWH cool water adapted native fauna, Class II-PHWH, warm water adapted native fauna or Class I-PHWH, ephemeral stream, seasonally dry.

Additionally, information from this project will contribute to an assessment of watershed health using modeling and GIS analyses. It will help the park prioritize watersheds in need of protection from development occurring adjacent to park boundaries. The project is a cooperative effort between CUVA, Cleveland Metroparks, and Case Western Reserve University.

*Thank you to Meg Plona for information on these CUVA projects.*

### HTLN Annual Meeting

August 15—16, 2007  
Springfield, Missouri

Inviting HTLN park resource managers and lead interpreters.

August 15: concurrent meetings

August 16: communication workshop

Call Mike DeBacker for details and registration  
417-732-6438 x 269

### Finding a reference condition

Resource managers restoring a landscape to a pre-settlement composition must ask the question, “How do we know what it looked like before people scientifically documented the landscape?” Rarely can we find reference sites that have never been influenced by “modern” stressors. Even changes in air quality have impacts on seemingly remote examples of natural landscape.

Sometimes, the original surveyors that preceded widespread land settlement were

naturalists. They recorded their observations in journals. Some of these journals held a wealth of natural history. Rarely do these entries document local ecology in as detailed a way as is needed for a reference.

The HTLN, under Kevin James’ initiative, began compiling historic quantitative data on species composition. Kevin then crosswalks these data to the methods used in HTLN monitoring. This process makes the data comparable and contributes information to establishing a reference condition for restoration. According to Kevin, making the data comparative is the real challenge.

The HTLN hopes to help parks with defining desired conditions based on a

### USGS tests new technology

Common chemicals, such as medicine, caffeine, and household products, flush down drains and into sewage treatment facilities. Unfortunately, most treatment facilities cannot cope with removing these low-concentration chemicals that end up in our waterways. Just as a double espresso impacts your body, some chemicals, even when diluted, become contaminants that may impact aquatic ecosystems and human health.

Traditional testing methods cannot detect contaminants at very low levels, but they may affect human health and plant and animal communities. The United States Geological Survey (USGS) developed the Polar Organic Chemical Integrated Sampler (POCIS). According to the USGS, this portable instrument “is so sensitive that if you breathe on it, it can detect the coffee you had for breakfast.”

The USGS is testing the POCIS at 18 sites on Tinkers Creek, a major tributary to the Cuyahoga River. Fewer than expected numbers of fish live in Tinkers Creek, but scientists have not found harmful chemicals by using traditional assessment methods. They suspect that low concentrations of contaminants are affecting fish health.

Detection of low level contaminants in Tinkers Creek will allow resource managers to consider this environmental stress when planning management actions. Verifying the effectiveness of the POCIS will have broader implications as use of this new device expands beyond the borders of CUVA and the Cuyahoga River watershed.

historic conditions. Although the environment changed over time and pre-settlement conditions may never be achieved, this study will better define the reference conditions for landscape restoration.

### More on the Web

#### Weather and stream flow data:

<http://science.nature.nps.gov/im/inventory/climate/wrcc/index.cfm>  
<http://water.usgs.gov/waterwatch/>

#### More on contaminant detection:

[http://www.peopleandwater.gov/usgs/usgs\\_03-30-07\\_usgs-tests-new.cfm](http://www.peopleandwater.gov/usgs/usgs_03-30-07_usgs-tests-new.cfm)

#### Executive summaries on monitoring:

<http://www1.nature.nps.gov/im/units/htln/monitoring/monitoring.htm>