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## News in Brief

*Park abbreviations are given on page 2*

### Aquatic Monitoring

Springs were sampled in July. Data analysis and reports for PIPE, GWCA, WICR, BUFF and OZAR are in progress. Staff will sample at TAPR in September. We continue to process samples.

**Invertebrates** — We published the HOME invertebrate monitoring report. We posted the report and the resource summary on our web site.

**Fish** — Staff continue working on fish monitoring reports and protocol revisions for BUFF and OZAR. Fish monitoring at OZAR commences in late September.

### Data Management

Staff are reviewing protocols for the Ft. Collins Inventory & Monitoring Climate Database. We will investigate the possibility of comparing relationships seen in climate data, remotely sensed green-up phenology data and timing of events associated with Vital Signs.

### Exotic Plant Management Team

Staff met with HOSP and contracting staff to continue evaluating feasibility of invasive plant control and shortleaf pine reforestation in old home sites within the park.

### Fire Ecology

Fire Ecology kept busy collecting fire effects data at EFMO, HEHO and TAPR. Great Plains Fire Science prepares for our first board meeting in August.

### Vegetation Monitoring

**Plant Community** — Staff have remained busy in the field. We completed sampling at GWCA, PERI and WICR. In addition, we finished the field portion of accuracy assessments for the draft vegetation inventory maps prepared for GWCA, PERI and WICR.

**Invasive Plant** — Invasive plant monitoring at GWCA, PERI and WICR was postponed due to drought conditions and is rescheduled for 2013.

**Rare Plant** — Staff provided maps of cumulative  
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## What are impaired streams and what can managers do about them?

I have been asked why I consider some of the streams in our Network parks impaired, when the various metrics we calculate (e.g., EPT richness, Hilsenhoff Biotic Index) remain consistent over a number of years and do not show a significant temporal trend. The short answer is that while metrics may remain relatively consistent over a number of years, they can remain consistently poor in quality over time as well.

The Environmental Protection Agency (EPA) defines impaired waters as those too polluted or otherwise degraded to meet water quality standards, established under section 303(d) of the Clean Water Act. States often implement the standards under the EPA authority. The states have listed some of our park streams as section 303(d) impaired waters, but streams not listed may be considered impaired in a broad sense. We may consider streams impaired based on deviation from a historic baseline of conditions.

Water resource experts in parks do not always base our assessment of impairment on water quality. Instead we may base it on undesirable channel conditions, such as heavily eroded or bare banks, heavy siltation, low water or slab bridge crossings in the channel, or other harmful physical disturbances. We base our judgment of impairment on analysis of our data, reports, and an assortment of other supporting information.

We often recommend that parks implement practices, such as establishing and widening of riparian buffers along streams within parks. Buffers would aid in protecting aquatic life, as well as in-stream habitat, from local chemical runoff and sedimentation. Improved buffer zones also help reduce local bank erosion by lowering stream velocity and the amount of water flowing into the stream. While such practic-



*Even with a well vegetated riparian area, the impacts upstream in the watershed cause local problems, such as this deeply cut channel on Cub Creek.*

es have merit, we usually must address stream water quality problems at the watershed level to fully mitigate them. Disturbances in the watershed upstream of the park typically constitute the major source of impact to streams in our Network. Similar problems occur throughout the United States.

Watershed-based approaches to water quality mitigation have become a prominent tool in management of our nation's aquatic resources. Watershed approaches attempt to deal with the declining watershed health by combining public and private efforts to tackle the worst disturbance issues. Interdisciplinary, cooperative partnerships can work to obtain a greater level of protection for streams than can a single entity.

Some parks are actively engaged in working to protect stream watersheds. For example, over the past 15 years, HOME management has worked with the local National Resources Conservation Service and Farm Services Agency to promote conservation in Cub Creek watershed. Many private landowners have enrolled eligible acreage in conser-

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*The Weather Vane is published by the Heartland Inventory and Monitoring Network of the National Park Service. Visit <http://science.nature.nps.gov/im/units/htln/index.cfm>.*

... protecting the habitat  
of our heritage



## HOSP Hosts Hot a Topic in a Cool Way

Despite a summer filled with triple digit temperatures, HOSP hosted a wet and wild educational demonstration for a day care group, Youth Conservation Corps members, and the public.

As part of Vital Signs monitoring of stream health, the HTLN monitors water quality, habitat, and fish and invertebrate



David Bowles points out aspects of a catfish, held by Deana Hughes.

community composition. David Bowles, aquatic program leader, and Hope Dodd, fisheries biologist, facilitated the demonstration. Several NPS staff assisted, including Jan Hinesey, Myranda Clark, Allison Keefe of HTLN and Deana Hughes of HOSP.

Steve Rudd, HOSP resource manager, felt that the event was an opportunity for the public to learn about Gulpha Creek, which runs through the park and the city.

In April, HOSP invited the HTLN to participate in Park Palooza with a demonstration table dedicated to aquatic communities as indicators of stream health. The July program took participants even more deeply into the subject of stream



Myranda Clark assists Hope Dodd with the backpack electrofishing equipment.

health. The HTLN staff seek to add educational opportunities into their sampling trips as well.

### Abbreviations

NPS = National Park Service  
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  
HTLN = Heartland I&M Network  
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

According to HTLN coordinator, Mike DeBacker, "We can't do science in a vacuum and hope to preserve these resources in perpetuity. For continued support of the NPS, the public must understand and appreciate our natural resources and the role of science in their stewardship."

## Impairment: Two Agencies, Two Mandates

The Clean Water Act of 1972 (CWA) provided the basis for the Environmental Protection Agency (EPA) definition of impaired waters. These waters are too polluted or degraded to meet the water quality standards set by states, territories, or authorized tribes. Under section 303(d) of the CWA, the governmental bodies that establish standards also must develop lists of impaired waters.

Although CWA standards provide a guideline for the NPS, determination of *resource impairment* differs from EPA's definition. The NPS will take no action that harmfully impacts the integrity of park resources or values that would violate the 1916 NPS Organic Act's mandate that park resources and values remain unimpaired. This places the emphasis on integrity of *resources* and *values*, which may set a higher bar than CWA standards alone.

These are two different approaches to the concept of *impairment* with EPA looking at parameters compared to a standard and with the NPS conserving resources and values for the enjoy-

In the words of Tanaka Shosu, as recounted by the late Dave Larsen, "The care of rivers is not a question of rivers, but of the human heart."

— Sherry Middlemis-Brown  
with input from Stephen Rudd and Mike DeBacker

ment, education and inspiration of this and future generations. Whereas, the NPS cannot always fix water quality issues, particularly those originating outside parks, it can contribute to improvement of conditions or at very least ensure that it does not contribute to further degradation.

— Sherry Middlemis-Brown

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tive Missouri bladderpod presence and abundance to assist with the trail planning process at WICR.

### Wetland Monitoring

We have had a very dry but productive summer at CUVA! We completed field delineations of 60 wetlands and installed vegetation survey plots and groundwater monitoring wells at 30 plots. We hope to complete the remaining 30 wells by the end of September. In addition, we stabilized 13 wells and installed 3 staff gauges. We completed breeding bird surveys at 21 wetland sites and continue measuring basic in-field chemical parameters at those sites.

### Wildlife Monitoring

**Breeding Birds** — We continue to enter and proof breeding bird data. All 11 parks monitored for breeding birds had some survey this year thanks to a host of volunteer birders.

**Whitetail Deer** — We continue to work with the Missouri Department of Conservation on urban deer issues and ways to better combine our monitoring efforts to achieve a region-wide assessment of deer numbers.

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vation programs that may benefit water quality in Cub Creek. Maintaining and advancing these relationships will continue to benefit Cub Creek for the foreseeable future. Other parks may wish to pursue similar relationships with partners to protect and leverage improvements to streams in their parks.

— David Bowles

## More on the Web

HTLN website: <http://science.nature.nps.gov/im/units/htln/index.cfm>

HTLN reports: <http://science.nature.nps.gov/im/units/htln/articles.cfm>

EPA impaired waters: <http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/index.cfm>

NPS impairment: <http://www.nps.gov/policy/MP2006.pdf>, page 158