

The Weather Vane

The Newsletter of the Heartland Inventory and Monitoring Network

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News in Brief

Aquatic Monitoring

Staff published WICR's invertebrate report. Review of invertebrate reports for OZAR and BUFF is underway. Reports for EFMO and HEHO are in draft. Data analysis for OZAR springs continues.

Bird Monitoring

Review began on HOME and PIPE reports. Final edits are underway on comprehensive report for TAPR. A HEHO bird and vegetation report is in draft. Many parks have identified volunteers for 2010 birding effort --Thanks!

Data Management

Our top activities: 1. create metadata for monitoring databases; 2. develop fish and invertebrate database components for OZAR springs; and 3. complete inventory reports. We will post all vital signs metadata at the NPS portal by the end of FY2010.

Fire Ecology

The fire ecology team has been preparing for the upcoming spring fire season.

Fish Community Monitoring

Fish monitoring reports for TAPR and PIPE are in review. Staff continue to analyze data and write reports for small stream parks.

Invasive Plant Monitoring

We completed reports for HEHO, HOME, and PIPE that detail monitoring during 2006 and 2009.

Plant Community Monitoring

Staff continue to work on reports and update taxonomy in the database. We initiated preparation for the upcoming field season. We will sample TAPR during the first week of June.

Rare Plant Monitoring

Annual status updates for Missouri bladderpod and western prairie fringed orchid have been posted to the network's intranet.

Wetland Monitoring

Biologists at CUVA continue work on pro-

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Fish Monitoring in Springs

Springs are unique, delicate, and complex systems, both physically and biologically. Karst landforms, in which springs are common, result when water dissolves limestone or dolomite bedrock, often creating solution cavities, sinkholes, and cave features. In karst, the groundwater that discharges into springs has close ties to surface water.

Pollutants from streams, sinkholes, or shallow groundwater may enter the karst. Land disturbance can contribute dissolved and suspended solids to the karst groundwater. The porous structure rapidly transfers water through conduits that have little capacity to filter contaminants. This rapid transport and poor filtration of groundwater allows human disturbance or contamination to affect springs. In turn, water quality affects aquatic habitat, and fish community diversity and abundance.

The HTLN initiated a fish monitoring program in six large springs at Ozark National Scenic Riverways (OZAR). We designed this program as the first long-term project to examine fish community conditions, as well as several additional parameters of spring systems. Analysis of monitoring results will tell managers if disturbances in recharge areas are impacting the springs. Additionally, we hope to unveil some of the mechanisms driving community structure in these sensitive and rarely studied systems.

Fish communities living in the six springs monitored contained sculpin species (*Cottus* spp), a group of benthic (bottom dwelling) species sensitive to disturbance, and bleeding shiners (*Luxilus zonatus*), a minnow species requiring clean gravel substrate. Finding these species suggests the springs are not

heavily impacted by disturbance or that the fish communities are able to re-

cover from small disturbances.

Three springs had high fish species richness, several sensitive species, and high fish diversity, all factors associated with high quality habitat and good conditions. These springs also had a comparatively high percentage of habitats with moderate to slow water flow and a large variety of substrate types. In contrast, the three springs with lower fish species richness and diversity had less pool habitat and higher water velocities than in the other three springs.

Preliminary information indicate very healthy fish communities live in the springs at OZAR. We found that the richest fish communities appeared in springs containing a variety of habitats (slow, moderate, and fast flows) and substrate types. Human disturbances that may alter flow or contribute fine solids to the springs could reduce habitat or substrate diversity which may negatively impact fish.

Fish communities in spring environments have been poorly studied, but HTLN has made an attempt to move the science forward. In doing so, we have started asking new questions, such as: Since the springs provide significant flow to the Current River and Jack's Fork, what is the interaction between fish communities of the springs and the fishes inhabiting the rivers. Stay tuned for the answers!

— Hope Dodd & Sherry Middlemis-Brown



Bleeding shiner (*Luxilus zonatus*)



Banded sculpin (*Cottus caroliniae*)

species (*Cottus* spp), a group of benthic (bottom dwelling) species sensitive to disturbance, and bleeding shiners (*Luxilus*

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New Park Inventory Reports

The HTLN completed extensive biological inventories of vertebrates and vascular plants in each network park between 2001 and 2006. These inventories were organized by taxonomic group so that a given survey might include multiple parks for an economy of scale using top researchers in selected taxa.

We have taken a close look at how to make biological inventory information more accessible on a park-by-park basis. Michael H. Williams, a bio-inventory specialist

and former NPS employee, began to bring together diverse biological inventories of vertebrates and vascular plants from many sources into a simple, organized, informative package.

WASO Inventory and Monitoring staff in Ft. Collins initiated the process of evaluating biological inventories last year. They proposed a series of inventory-based analyses that would examine species numbers in relation to size of park units. These analyses would require certified species-list reports organized on a park-by-park basis.

It seemed clear that park-based reports presented an opportunity to describe how inventories were created and their strengths and limitations.

The HTLN park inventory reports are now finished. Each one describes the inventory process: (1) how “expected species lists” were created using historical occurrence data and

related information, (2) the incorporation of existing inventory data and new field surveys, and (3) the roles of data certification and the NPSpecies database.

Each report characterizes the occurrence and abundance of birds, fishes, mammals, amphibians, reptiles and vascular plants at the park level.



Speckled King Snake from herpetofauna (amphibian and reptile) inventory, 2002
Ray Wiggs, Arkansas Game and Fish

The reports rank non-native plants according to their level of invasiveness and rank rare species (either present or historical) according to State Heritage and Conservation Data Center systems and by state and federal

threatened/endangered listing status.

Each report also contains a section on “Key Findings of Management Interest.” This section includes unique or interesting observations of species and their habitats, new or rarely seen occurrences of species, and new baseline surveys that could contribute to management of major species groups in the park.

We will post the new reports soon. See the web address in More on the Web.

— Gareth Rowell

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toloc revisions and resume well monitoring, voucher collections, and field season preparations in late March. We posted an announcement for a summer STEP intern.

White-tailed Deer Monitoring

Surveying season 2010 went with little trouble. Ice and snow prevented completing two ARPO surveys and one at PERI. Deer numbers were up from 2009 at ARPO, down at PERI, and unchanged at WICR.

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

News

New and Improved Website

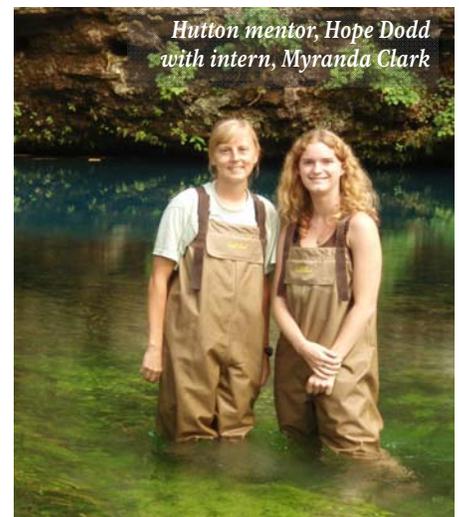
Lanna Jin, Student Conservation Association intern, has revamped the HTLN website for easy reference and navigation. Each page contains tabs to pages that hold expandable inset windows. The new format allows visitors to see all topics and subtopics on a single screen view. Check out our link in More on the Web.

Lanna Jin—Web Master Extraordinaire

Lanna hails from NC and earned a B.A. in Environmental Economics & Policy from UC Berkeley in 2008. She worked in a field ecology internship with the US Geological Survey in 2009 on vegetation in the Mojave Desert and small mammals in the Sierra Nevadas. She currently serves the HTLN as a Natural Resources Information and Management Intern. This fall, Lanna goes off to graduate school in U. of Toronto's Ecology & Evolutionary Biology Dept. Lanna accomplished work with HTLN in vegetation and bird community data analysis, HTLN website overhaul, and photo slide conversion.

A picture Worth 1,000 Words

Hope Dodd and Myranda Clark, Nixa, MO high school intern (T WV, vol 5[4]), made the news in a report on American Fisheries Society Hutton Junior Fisheries Biology Program, page 97 of Fisheries, vol 35(2) [below]. The program uses mentors to encourage students in underrepresented groups to consider a career in fisheries science and management.



Hutton mentor, Hope Dodd with intern, Myranda Clark

More on the Web

New look for our web site! <http://science.nature.nps.gov/im/units/htln/>

You can view metadata describing NPS datasets at <http://nrinfo.nps.gov>

Inventory tracking database: <http://science.nature.nps.gov/im/tracking/InventorySearch.aspx>

New inventory reports: <http://science.nature.nps.gov/im/units/htln/inventories.cfm>

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