The Weather Vane

The Newsletter of the Heartland Network Inventory and Monitoring Program

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News in Brief

Aquatic Monitoring

We conducted spring-sampling in July and initiated invertebrate sampling at TAPR. Sample processing and data entry continues. Draft reports for GWCA, PIPE, HOME and WICR are complete with OZAR and BUFF draft reports nearly complete. Analysis continues on contaminant metals data.

Black-tailed Prairie Dogs

Staff monitored population sizes and extent of two prairie dog colonies at SCBL. We continue work on a prairie dog monitoring summary report and transitioning of monitoring to Northern Great Plains Network.

Bird Monitoring

Staff continue data entry for this past field season. Data will pass through quality assurance with reports drafted soon.

Fire Ecology

Staff tested a revised protocol for biomass sampling at WICR and TAPR. We distributed fire occurrence geodatabases for TAPR, EFMO, HEHO and PIPE. Program funding continues through October 2010.

Fish Community Monitoring

Staff completed fish monitoring at PIPE and TAPR in late summer. Sampling at OZAR begins in October. Staff continue to analyze data and write reports.

Invasive Plant Monitoring

In July, staff completed monitoring at HEHO, HOME, and PIPE.

Plant Community Monitoring

Staff has entered and verified all data collected during the 2009 field season. Data validation began. We revised the vegetation monitoring protocol (see More on the Web). Staff thanks Gareth Rowell for updating the VegMon database with improved data entry QA/QC.

Rare Plant Monitoring

A new article on the Missouri bladderpod was published and is available at http://science.nature.nps.gov/im/units/htln/articles.cfm.

Monitoring Unusual Habitats — Intriguing discovery of fairy shrimp at Pipestone National Monument (PIPE)

Numerous small, temporary pools perch on the surface of rock formations at PIPE. Following precipitation events, these depressions collect and hold water, in which a rich biotic assemblage can develop.

Life in such small temporary waters can be harsh because of temperature extremes, low dissolved oxygen and high concentrations of suspended and dissolved solids, but the organisms inhabiting them are adapted to tolerate these stressors.

A male fairy shrimp, Eubranchipus vernalis. Photo credit: Vernal Pool Association, an organization dedicated to the conservation of vernal pools and their biota.

The PIPE staff, in cooperation with HTLN, developed a program to monitor these unusual rock pool communities. Recent surveys by Gia Wagner and Seth Hendriks revealed that three fairy shrimp species and a broad diversity of other aquatic invertebrates periodically inhabit the pools. One of the fairy shrimp species is common to the Midwest and occurs in the area, but the other two species represent new distributional records for Minnesota.

Fairy shrimp are crustaceans that exclusively inhabit temporary, fishless waters. We encourage you to read about the biology and life cycle of these fascinating animals at: http://www.vernalpool.org and http://en.wikipedia.org/wiki/Fairy_shrimp

We tend to overlook monitoring of wetland and temporary water communities, despite their importance and uniqueness. To understand and protect resources associated with wetland and temporary waters in network parks, we must conduct inventories of plants and animals occurring in them.

PIPE provides an example of the importance of monitoring distinctive habitats. In addition to newly discovered fairy shrimp, several rare wetland plant species inhabit areas surrounding the rock pools. We encourage managers to take a close look at temporary waters in their parks this coming spring. Who knows, maybe you will find fairy shrimp or other unique inhabitants.

David Bowles and Gia Wagner

Continued from News in Brief

Wetland Monitoring

HTLN biologists presented their progress and monitoring program plans to managers at CUVA and adjacent Metroparks.

White-tailed Deer Monitoring

Staff are starting to plan for the 2010 surveying season that begins the first week of January.

DOI News Feed

RSS

In April of 2010, America the Beautiful Quarters Program begins production of quarters with tails-side designs showcasing a national park or other federal preserve from each state, territory, and the District of Columbia. Five HTLN parks will be highlighted, HOME, TAPR, HOSP, EFMO, OZAR. See More on the Web for details.

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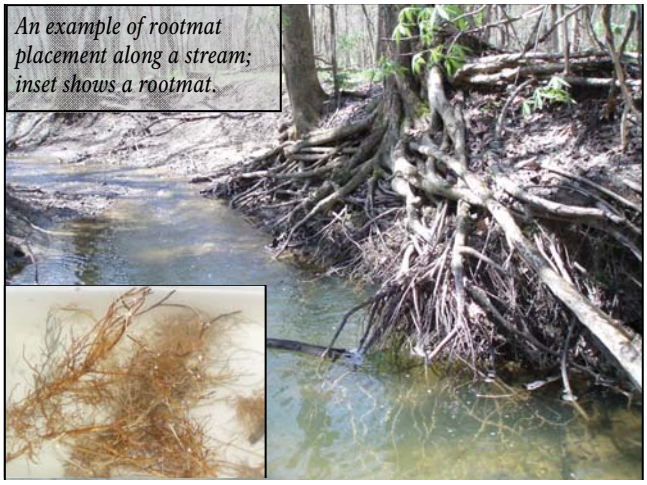
Stream Habitats — Getting to the Root of the Matter



An example of rootmat placement along a stream; inset shows a rootmat.

Undercut banks, overhanging vegetation, root wads, and rootmats give stream banks structural diversity associated with good fishing. These structures create refuges, where stream current slows and small prey hide from large predators. For this reason, we can surmise that bank structures are important in determining aquatic community composition. Therefore, resource managers may want to consider plant species and placement, when doing riparian restoration if they hope to achieve a rich and plentiful aquatic community.

Stream bank erosion reveals tangles of fibrous roots called rootmats. Previous studies suggest that they may be important and unique habitats for aquatic invertebrates, but we have little quantitative evidence supporting rootmat value within stream ecosystems.

Sonia Bingham's research at Cuyahoga Valley National Park (CUVA) characterizes the role of rootmats as habitat for aquatic invertebrates. Through her findings, the park can assess how impacts to these habitats affect stream communities.

Sonia collected a total of 138 invertebrate taxa from rootmat samples. Most of the taxa were "gathering collectors" that gather organic material that dropped out of the water column. This suggests that fine particulate organic matter may be a dominant food source within or near rootmats.

Invertebrates representing four other feeding guilds (predators, shredders, scrapers and filtering collectors) were also consistently found at the sites. This indicates that rootmats create an environment with multiple benefits to a stream ecosystem. Different woody riparian species provide different habitat types, the quality of which is influenced by several environmental variables.

Of the species examined, sandbar willow, black willow and sycamore ranked high in invertebrate abundance and richness, while green ash and ironwood generally ranked low. The invertebrate composition and feeding guilds also differed among certain tree species, with willow rootmats being similar to each other and different from ironwood, green ash and sugar maple.

Sonia's results confirmed the importance of rootmats as a habitat by comparing invertebrate species composition, diversity, and feeding guilds between rootmats and adjacent riffle samples. Riffles have a reputation as the most productive in-stream habitat type. However, rootmats had similar values as riffles for five invertebrate community metrics related to diversity and abundance. The two habitats appear to provide distinctly different functions in stream ecosystems, because species composition and dominant feeding guilds differed significantly between the them.

The results of the study at CUVA support the idea that rootmats have an important function within stream ecosystems. Life history traits for different plant species may also influence the quality of the rootmats they create. Therefore, resource managers at CUVA and elsewhere should carefully consider riparian vegetation in restoration efforts, where in-stream habitat improvement is a goal.

Sonia Bingham and Sherry Middlemis-Brown

BOD News

Meeting of August 24, 2009

The Board of Directors endorsed the Phase I: Implementation Alternatives recommendations for the Heartland Exotic Plant Management Team (EPMT) as a framework for ongoing planning. The EPMT anticipates funding in fiscal year 2010.

The BOD recommends that interpretation managers be invited to the next HTLN biennial meeting, tentatively August 4-5, 2010 in Springfield, MO. Some components of the meeting may be a workshop on writing exotic plant treatment work orders, an interpretive workshop, and other training.

HTLN will target mid-November for completion of the monitoring work plan and the EPMT Phase II recommendations.

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*

Communication Working Group to Begin Planning

The HTLN will revitalize the communication planning group to identify actions to enhance communication, interpretation, and education. The group includes interpreters and resource managers from network parks. If you wish to participate in planning next year's work and the HTLN Biennial Meeting, join us by contacting Tom_Richter@nps.gov or Sherry_Middlemis-Brown@nps.gov. Hope to hear from you!

More on the Web

Publications from HTLN: http://science.nature.nps.gov/im/units/htln/articles.cfm

Vegetation Monitoring Protocol: http://science.nature.nps.gov/im/units/htln/library/monitoring/protocols/VegCom_Protocol_2009.pdf

Vernal Pool Association: http://www.vernalpool.org

America the Beautiful Quarters: http://www.usmint.gov/mint_programs/NSQuartersProgram/index.cfm?flash=yes