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News in Brief

Adjacent Land Use

See article in this edition on Adjacent Land Use, Ways to Capture Change.

Plant Monitoring

Staff developed a folder describing plants of EFMO's goat prairies and restored prairie that will help seasonal personnel to learn the flora of the park.

Invasive Plants

Staff have started developing reference frames for small parks (>300 acres) and have visited seven small parks during the 2005 field season as part of that process.

T&E Plants

Staff is working with USGS to develop adaptive sampling software for Missouri bladderpod monitoring. PIPE and HTLN staff worked together to conduct western prairie fringed orchid flower and capsule monitoring.

White-tailed Deer Monitoring

Staff is assessing sampling methods after the pilot year of white-tailed deer monitoring. Data may contribute to decisions concerning a recent outbreak of hemorrhagic disease at WICR.

Grassland Birds

Paul Lukacs, a USGS statistician, working with I&M staff produced an SOP for analyzing point transect bird data using DISTANCE software.

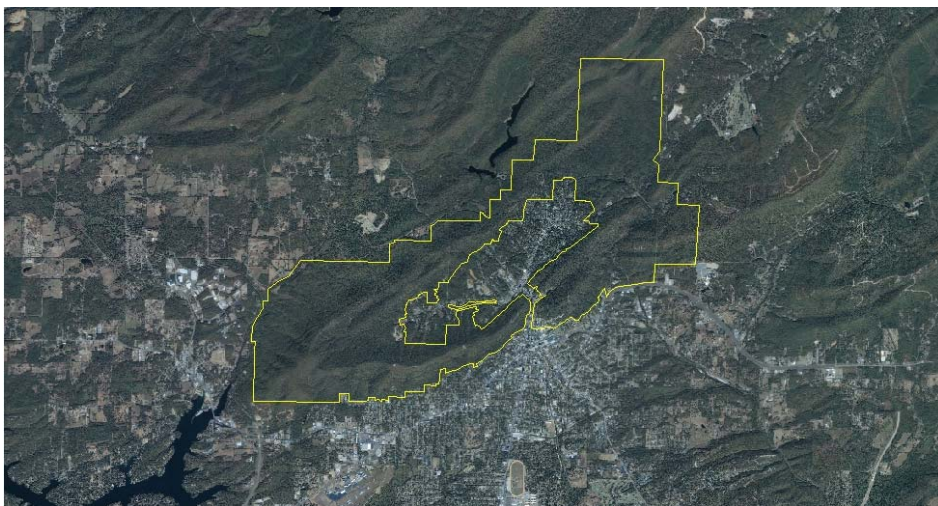
Fish Community Monitoring

Reports (2001 – 2004) of fish monitoring in prairie streams were sent to parks, regional office and state/federal agencies. Big river park monitoring began this fall.

Aquatic Invertebrates

David Peitz will distribute invertebrate monitoring summary reports (1989–2004) to prairie parks and regional office in December. Staff collected pilot data in October 2005 at OZAR using a modified draft spring invertebrate protocol developed by the University of Missouri CESU.

Adjacent Land Use ways to capture change



IKONOS image of Hot Springs National Park, 2001

Land-use change adjacent to parks might have detrimental effects on park natural and cultural resources. This is of concern for small to medium size parks with high park edge to area ratios. Potential impacts from adjacent land-use change include reduced water and air quality, increased invasive plant occurrence, altered animal populations associated with neighboring habitat loss, and diminished quality of viewshed.

Rapid suburban expansion around Hot Springs National Park has the potential to impact water quality resources in the park. Analysis of land-use changes will help park managers identify and spatially quantify the extent of land conversion from “rural” class to “urban” class.

HTLN has worked cooperatively with Drs Robert Weih and Buren DeFee of the University of Arkansas, Monticello to interpret land-use change around Hot Springs National Park. We plan to use aerial orthophoto coverages and IKONOS satel-

lite imagery as tools to analyze land-cover classification and patterns of land-use change. Ultimately, we will develop a land-cover classification at Hot Springs using current satellite imagery and historic orthophoto coverages, summarize land-cover classes for the different time periods, and develop a standardized monitoring protocol for land-use change analysis that will be most effective for small to medium size parks.

Weih and DeFee will focus on aerial photography and high-resolution IKONOS imagery rather than other low resolution satellite imagery, because most adjacent land of interest covers small areas of less than 250,000 acres. NPS WASO land-cover specialists will review the resulting protocol for use on small parks Servicewide.

The Weather Vane is published by the Heartland Network Inventory and Monitoring Program of the National Park Service. Visit www.nps.gov.

Landscape Scale Fire - a change in philosophy

The Effigy Mounds National Monument Fire Management Plan has taken a novel approach to prescribed fire use. They call the approach landscape-scale fire. Instead of selecting key areas of a single vegetation type for prescribed fire, EFMO burns large areas of different cover types.

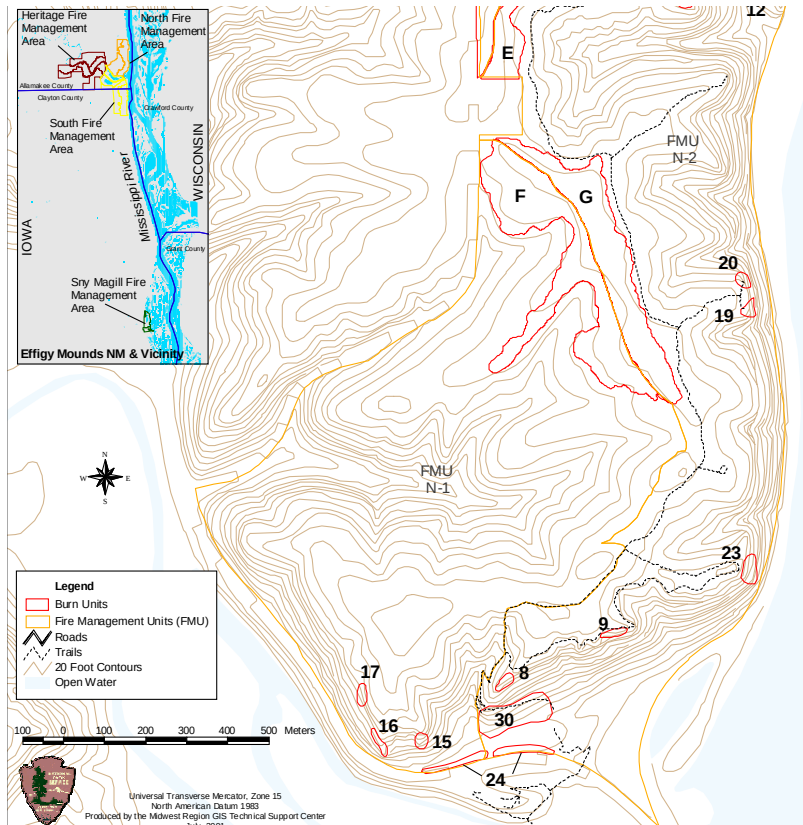
Landscape-scale fire works on large, contiguous tracks of land. It behaves more like natural wildland fire or fires set by native people than classic prescribed fire. Fire is started within a burn unit and allowed to run through a large area with varying fire behavior and effects. The goal is to restore a varied landscape.

EFMO burned 250 acres in 2004. They plan to burn 300-600 acres during each prescribed fire. The key is that managers do not focus the prescribed fire on a particular land-cover feature, but rather to an area, and natural processes determine the rest.

EFMO covers 2,526 acres of Mississippi River woodlands and prairie. It contains a unique land cover called "goat prairies" where underlying rock, steep slopes, and fire allow remnant prairies to persist. EFMO has restored old fields to prairies, using fire as a tool. In absence of fire, the upland oak forest has under-gone succession as sugar maple density increased. Bottom-lands and riparian occur along the rivers. The landscape is varied and portions need restoration to recover the native vegetation.

Rodney Rovang, EFMO's natural resource manager, is confident that landscape-scale fire will return park vegetation to an appearance like that of the mound builders' time. Fire suppression might have contributed to forest succession and loss of diversity in the uplands. According to the HTLN Status Report for EFMO vegetation communities, nearly 1,200 acres are transitioning into mixed hardwood forest. Fire will slow forest succession and serve as a principal control for exotic species.

The HTLN has monitored grass-



Red enclosed polygons indicate historical burn units. In the 2004 landscape-scale prescribed fire, the park burned the entire FMU N-1, shown within the yellow perimeter line. For more information: Status Report, 2003-2004 Vegetation Community Monitoring in Fire Management Unit N-1, HTLN 2005.

land sites at EFMO since 1997. In cooperation with the Fire Program, HTLN began monitoring fire effects in 2003. This monitoring found that sugar maple regeneration in the white oak-red oak forest declined from 1569 trees in 2003 to 50 trees in 2004 after one landscape-scale fire.

Yellow River State Forest lies upstream, immediately adjacent to EFMO. The park plans to work on a cooperative agreement that will permit large-scale prescribed fire to encompass both the park and the state forest. Under this agreement, contiguous forest would receive treatment without artificially ending at a boundary line.

According to Rovang, the principal difference between previous prescribed fire use at EFMO and landscape-scale prescribed fire involves a change in philosophy. Continued fire effects monitoring by HTLN will help managers to determine the success of this new approach.

More on the Web

For information of remote sensing of land-use:

<http://earthobservatory.nasa.gov/Library/LandCover/>

http://science.nps.gov/im/monitor/docs/Landscape_monitoring_update_2004_10.doc

More on vegetation monitoring, upland oaks, and fire:

<http://www.nature.nps.gov/im/units/htln/pdf/ConceptDesignForDistribution.pdf>

http://science.nps.gov/im/monitor/docs/MillerM_2004_SCPN_Dryland.pdf page 22

<http://oaksymposium.uaex.edu/abstracts.asp>

Completed monitoring plan:

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