

News in Brief

GIS/Data Management

The network contributed to a new remote-sensing website for NPS. Detecting land-use changes around parks depends on effective remote sensing and image interpretation.

Invasive Plants

Staff finalized an invasive plant monitoring scope of work for seven parks: ARPO, GWCA, HOME, LIBO, PERI, TAPR, and WICR.

T&E Plants

Staff modified a Missouri bladderpod monitoring design at WICR based on results of sampling simulations by USGS.

White-tailed Deer Monitoring

Staff used WASO's new Natural Resource Technical Report formatting style to complete deer monitoring reports for ARPO, PERI and WICR. The network will release these reports in June.

Grassland Bird Monitoring

A University of Nebraska—Lincoln proposal to conduct bird research at HOME and PIPE during 2007 and 2008, if funded, forms a partnership with HTLN, allowing us to add four additional parks (ARPO, GWCA, HOSP, and PERI) to breeding bird sampling between 2007 and 2009.

Fish Community Monitoring

The network sent the OZAR fish-survey species list to park staff and the state Department of Conservation. Fish sampling and habitat assessment begins at BUFF in May and at WICR and GWCA in June.

Aquatic Invertebrates

Staff continue processing aquatic invertebrate samples from BUFF and OZAR. Visits to HOME and PIPE allowed refinements to invertebrate protocol for prairie streams. Ozark invertebrate protocol development continues.

Habitat conditions impact fish communities

Prairie streams offer a harsh environment, often flooding in spring and then drying up during late summer. Some fish have adapted to these conditions and their populations recover rapidly after natural disturbance. However, man-induced disturbance can present additional environmental stressors that can limit recovery of species sensitive to change. When making decisions, managers must consider all environmental factors that influence fish communities, including disturbances that alter and amplify the harsh conditions of a prairie stream.

Network staff have assessed fish communities and aquatic habitat status and trends at PIPE and TAPR since 2001. Although both parks exist in prairie ecosystems, their fish communities differ in response to environmental factors.

Biologists found that dissolved oxygen, water temperature, and substrate size (stream bed particle size) affect species richness (number of species) and fish abundance at PIPE. High dissolved oxygen concentration related to high species richness,



Processing fish after seine haul.

while high temperature related to large numbers of fish. The temperature-abundance relationship might be attributable to the presence of thermally tolerant species. Stream reaches with small-size substrate showed both high species richness and high fish abundance.

At TAPR, investigators found that springs influenced fish community structure. Stream reaches with springs had poor species richness, but high fish abundance. Springs moderate the tendency for flows to diminish during dry summers by providing a constant source of water, enabling a large number of fish to inhabit these reaches.

Continued monitoring of fish communities and environmental conditions where they live will help managers to understand factors affecting aquatic resources in prairie parks. It will allow HTLN biologists to detect trends in fish community change, aiding park management in resource stewardship.



Measuring parameters, such as pH

Dam Bear Creek!

Nearly every river in the lower 48 states is now regulated by dams, locks, or diversions. The Buffalo River is one of the few remaining free-flowing rivers. Park vigilance and good science ensured that the river's free-flowing status remains intact.

Buffalo National River provides a case of NPS science and monitoring playing a key role in decision-making. In 1996 rising water demand resulted the U.S. Army Corps of Engineers (Corps) permitting the construction of a dam on Bear Creek, a large tributary of Buffalo River, to create an impoundment and provide a consistent water supply for Searcy County.

Park managers joined with the U.S. Geological Survey (USGS), U.S. Fish and Wildlife Service, University of Arkansas, and other natural resource organizations to predict the impacts of the proposed impoundment on Buffalo River.

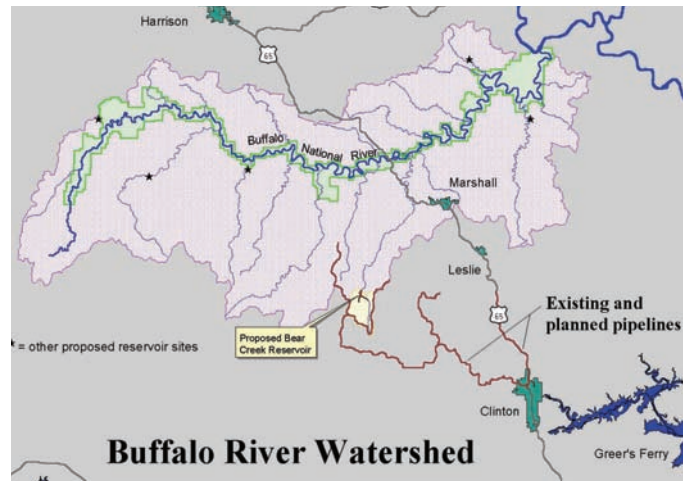


Resulting studies refuted Corps findings and showed that up to 25% of Buffalo River flow below the Bear Creek confluence is attributable to the creek at certain times of the year. This flow was threatened by the reservoir construction.

Additionally, the ecology of Buffalo River could be impacted by other factors, such as increased concentration of pollutants and disrupted fish migration.

National and local environmental groups filed suit against the Corps in response to these findings. The Corps revoked the permit and agreed to wait for the Secretary of Interior's Determination of Effect, as required under Buffalo National River's enabling legislation, before permitting future development.

Long-term monitoring and research provide critical information that contribute to decision making by the park managers and surrounding land owners. The national river manages a mere 11% of Buffalo River watershed with other governmental agencies and private landowners controlling the rest. Solid science presented to controlling interests can sway their deci-



sions on management practices and help to protect resources.

The HTLN plays a role in augmenting the good science already in place at the national river. Managers expect the data to show general, cumulative changes over time. Historical data provide a foundation for predicting probable impacts of land-use change on the condition of the river.

Buffalo National River and partners were successful in using good science to prevent a potential threat. Using proper procedure improved relations with the Corps and local water providers, making agencies aware of the protections afforded this unique river. Continued monitoring and research will allow managers of the Buffalo National River and other watershed stewards to make the best possible decisions in land use and water resource management in the future.

Partners

- Missouri State University has become an important partner in designing and implementing vital signs monitoring. In an effort to further foster that relationship, staff use our new outreach products at meetings with Missouri State University administrators to provide an overview of HTLN activities and to report on the collaborative projects between HTLN and the university.
- The network is working with Rickie White (Nature Serve), Kelly Kindscher (Kansas Biological Survey), and Ester Stroh (USGS) to develop collaborative proposals for baseline vegetation mapping in several parks, including TAPR and WICR, for the next fiscal year.
- The network will present two papers at the 20th annual North American Prairie Conference in Kearney, Nebraska July 23 - 26.

More on the Web

Science on Bear Creek:

<http://pubs.usgs.gov/sir/2004/5244/SIR2004-5244.pdf>

Updated HTLN website:

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

HTLN Reports:

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

Annual Network Meeting
Aug 1-2