Ozark Summit 2008: Ozark Streams

Breakout Group Summaries

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List of Commonly Used Acronyms

AGFC: Arkansas Game and Fish Commission

DOI: (United States) Department of the Interior

DOT: Department of Transportation

EPA: (United States) Environmental Protection Agency

MDC: Missouri Department of Conservation

MDNR: Missouri Department of Natural Resources

NGO: Nongovernmental organization

NPS: National Park Service

NRCS: Natural Resources Conservation Service

ODWC: Oklahoma Department of Wildlife Conservation

TNC: The Nature Conservancy

USFS: United States Forest Service

USFWS: United States Fish and Wildlife Service

USDA: United States Department of Agriculture

USGS: United States Geological Survey

Introduction

The Ozark Summit 2008: Ozark Streams was held May 13-15, 2008 in West Plains, Missouri. The meeting was co-hosted by the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the Missouri Chapter of The Nature Conservancy. The meeting was intended to bring together scientists and managers from a wide variety of Ozarks-Region natural resource agencies and organizations. The primary goal was to build a framework for improving the efficiency and effectiveness of scientific investigations and resource management activities focused on Ozark Streams. We hoped to strengthen existing partnerships and develop new ones in order to begin or expand collaborative work on specific topics.

Ninety-six individuals representing six Federal agencies, four State agencies and ten nongovernment organizations attended the Summit (Table 1). Agency representatives from the U.S, Fish and Wildlife Service, the U.S. Forest Service, the National Park Service, the states of Oklahoma, Missouri and Arkansas and The Nature Conservancy made presentations regarding their agencies' highest conservation priorities for Ozark streams focusing on four general topic areas:

- Aquatic species movement
- Riparian habitat/restoration
- Recreational fisheries
- Water quality and quantity

The purpose of the presentations was to identify mutual scientific and resource management issues related to the four general areas in order to inform the work of breakout groups for each topic. On the second day of the Summit, breakout groups met to discuss priorities, information needs and strategies

for collaboration among agencies. A fifth group, "Partnering dollars and projects," discussed strategies for overcoming institutional barriers to collaboration and ways to work together efficiently.

This document is a compilation of summaries prepared by breakout group facilitators describing the discussions and recommendations from each session. Differences in approach reflect the character of the respective groups.

Table 1. Ozark Summit 2008 participants by organization

Organization Type	Organization	Total
Federal Agency	National Park Service	6
	US Army Corps of Engineers	1
	US Fish and Wildlife Service	12
	US Forest Service	3
	US Geological Survey	21
	USDA Natural Resource Conservation Service	3
Federal Representatives Total		46
Nongovernment Organizations	Conservation Federation of Missouri	1
	Eleven Point River Conservancy	1
	James River Basin Partnership	1
	Land Legacy	1
	Layher BioLogics RTEC Inc	1
	Mark Twain Forest Watchers	1
	National Audubon Society	1
	Ozark Underground Laboratory Inc.	1
	Scenic Rivers Stream Team Association	1
	The Nature Conservancy	6
Nongovernment Representatives Total		15
State Agency	Arkansas Game and Fish Commission	7
	Missouri Department of Conservation	21
	Missouri Department of Natural Resources	5
	Oklahoma Department of Wildlife Conservation	2
State Representatives Total		35
Grand Total		96

Water Quality/Quantity Breakout Group

Facilitated and Summarized by Robin Calfee, USGS

Participants:

David Bowles, NPS; Alan Clingenpeel, USFS; Jeff Crosby Land Legacy; Steve Cullinan, USFWS; Shay Erismann, MDNR; James Fairchild, USGS; Gary Gaines, MDNR; Joel Galloway, USGS; Mike Gossett, NPS; Jeff Haas, USFWS; Steve Hensley, USFWS; Blane Heumann, TNC; Mike Hoffman, MDC; Jason Hubbart, University of Missouri; Mark Hudson, USGS; Jeff James, NRCS; Gary Krizanich, USGS; Jeff Lamb, NRCS; Steve Mahfood, TNC; Stephen McMurray, MDC; Daniel Millican, TNC; Jason Persinger, MDC; Jim Petersen, USGS; Barry Poulton, USGS; Rhonda Rimer, MDC; Andy Roberts, USFWS; Mark Sattelberg, USFWS; Lynn Schrader, MDC; Lindsay Tempinson, MDNR.

The primary objective of this breakout session was to examine and discuss issues of concern regarding water quality and water quantity in the Ozark Plateau Ecoregion. Once issues were identified, the group discussed means of developing an Ozark-Regional Strategy to acquire information and initiate collaborative efforts across state and federal agencies.

Eleven issues pertaining to **water quantity** were identified by the group:

1. withdrawals,
2. climate change
3. altered flow regimes
4. extreme flood/drought
5. water demand

6. land use practices and effects on groundwater recharge
7. upstream/downstream conflicts
8. an understanding of recharge basins in karst region
9. water laws and rights
10. species of concern
11. public education/incentives.

Eight issues pertaining to **water quality** were identified by the group:

1. sediment (source/types)
2. nutrients
3. metals (Pb, Hg)
4. organic contaminants such as pesticides and pharmaceuticals
5. bacterial issues
6. habitat loss/degradation
7. climate change
8. groundwater/surface relationships.

The group brings up the point that all of these issues are concerns everywhere, so the question was asked, **"What makes the Ozarks unique?"** The group discussed that the most unique features of the Ozarks were the karst geomorphology and high diversity of endemic species. The group then took a focused approach and began to discuss the most vulnerable aquatic systems (i.e. head ephemeral streams, springs, and losing streams) and vulnerable species (i.e. mussels, darters, and crayfish).

So what are the things we need to know? The following needs were identified:

1. We need better understanding of groundwater/surface interactions- what information is already available? (i.e. recharge maps, losing stream reaches and their geologic substrates)
2. We need information regarding the effects of spatial scales pertaining to issues: Ecoregion, drainage systems, watersheds, local issues
3. We need to ascertain if ecoregions represent adequate spatial stratifications for stream fauna?
4. We need procedures and processes for conducting risk and vulnerability assessments.
5. We need good monitoring/baseline data for future decision-making.

The group then discussed what they would like to see happen next in terms of filling in the data gaps:

1. We must strive to maintain current databases (i.e. Heritage database) because they work and are good resources;
2. There is a strong, consistent need for data integration by way of an internet portal (i.e. FishNet) or a central repository;
3. There needs to be community level data beyond just species of concern (i.e. examining and monitoring fish assemblages among darters and their habitat);
4. Life history requirements of vulnerable endemic species should be studied;
5. There is a need for development of integrated conceptual models;
6. We need a better understanding of the vulnerability of endemic species and aquatic habitats; and
7. We must stress the importance of public outreach and education!

A brief discussion occurred regarding the development of an inter-agency Ozark Initiative or some type of working group to address these issues. This group would involve representatives from each agency

to address critical issues. One individual cited the Ozark Hellbender Working Group as a working example. Target goals could then be defined and researchers could link up.

The group then discussed several currently successful partnerships that could be merged or expanded:

1. EPA-MDNR-MDC (310 projects, Special Area Land Treatment (SALT) projects)
2. NRCS-MDC (habitat initiative)
3. NPS-MDC-USFS (Ozark Scenic Riverways)
4. USGS-MDNR (geology, surface water quality, and groundwater quality)
5. USGS Cooperative Research Study Units (linking universities with government)
6. Missouri Resource Assessment Program (MORAP)
7. Individual working groups, soil and water conservation districts, conservation opportunity areas
8. MDNR-DOT (fish movement)
9. USFS (land base use activities)
10. Tribal
11. Wetland Grants
12. NGOs (Nature Conservancy, Ducks Unlimited, Resource Conservation & Development Councils)

These partnerships could serve as major building blocks to develop an Ozark Initiative.

Current challenges to the above issues:

1. Money and budgets
2. Manpower (effort)
3. Institutional barriers

4. Time
5. Politics (conflicting mission statements)
6. Availability of expertise
7. Data Gaps
8. Public Support and understanding
9. Outreach and Education
10. Public needs and cultural issues

There needs to be a concerted effort on everyone's part to overcome these challenges. USGS, due to its organizational structure and expertise, could be a leader in developing any Ozark Initiative.

Riparian Habitat/Restoration Breakout Group

Facilitated and summarized by Matthew Struckhoff, USGS

Participants

John Bird, Eleven Point River Conservancy; Paul Calvert, MDC; Louis Clarke, US Army Corps of Engineers; Ange Corson, MDC; Chris Davidson, USFWS; Hope Dodd, NPS; Josh Duzan, TNC; Dennis Figg, MDC; Kelly Irwin, AGFC; Randy Jensen, MDC; Heidi Kuska, USFWS; William Layher, Layher BioLogics RTEC Inc; Dave Mayers, MDC; Justin Mutrux, Scenic Rivers Stream Team Association; Holly Neill, James River Basin Partnerhsip; Stephen ONeal, AGFC; Richard Stark, USFWS; Jill Utrup, USFWS; Allison Vaughn, MDNR; James Vincent, ODWC; Christopher Wilson, TNC; William Zeaman, MDNR.

Definition of Riparian Habitat

- Between the banks
- Toe slope to toe slope
- Upslope terrain having immediate impact on water flow, including typically dry upland headwater areas

The group identified many factors that could potentially be addressed through riparian habitat management, most of which relate to water quality and quantity (few were concerned with terrestrial habitat in the riparian zone, broadly defined by this group to include the floodplain and areas immediately adjacent to headwater areas). In decreasing order of frequency, the factors mentioned were:

1. Sediment

2. Nutrient filtering/inputs
3. Channel stability
4. Water temperature modification
5. Water velocity
6. In channel habitat structure

As sediment management was most frequently identified as an issue, we then attempted to identify a process by which agencies could link riparian habitat management to effects on sediment in stream. The process includes a number of questions that must be asked and the data and information needs that such questions force us to address.

Step 1) Agencies must determine if riparian corridor management will allow them to achieve sediment related goals, or is some other factor more important. For example, are roads a greater determinant of sediment loading than the condition of habitat in the floodplain?

Need: Methods and protocols that allow agencies to assess the relative contribution of various factors to sediment-related problem

Step 2) Once an agency managers have determined that they can achieve sediment-related management objectives through riparian corridor management, they need to identify and rank threats.

Need: Watershed assessment tools that allow the identification of threats and their relative impact.

Step 3) Agencies then must determine the best management action at a particular site, given the identified threats.

Need 1: Identify desired future conditions

Need 2: Site condition assessment tools (geomorphic assessment protocols)

Need 3: Tools that will enable agencies to match best management action to site, given present and desired future conditions.

Step 4) Implementation

Step 5) Assessment of impact of management actions

Need: Appropriate assessment tools, such as:

- Direct measure of sediment loading
- Changes in populations in fauna (mussels, for example)
- Visual surveys of sediment loading via substrate classification, such as used by MO Stream Teams

Need #5 evokes an additional need for determining the most appropriate measurement tools (and to identify what to measure):

- Can a relationship between management action and metrics be shown?
- Can the measurement protocol be deployed across numerous agencies and organizations?
- What does the proposed metric require in terms of resource commitments?

Keys to Success:

- Good methods for assessing site conditions and management effectiveness

- Land-owner buy-in
- Educational programs
- Continued monitoring and feedback

Recreational Fisheries Breakout Group

Facilitated and Summarized by Keith Grabner, USGS

Participants:

John Ackerson, MDC; Steve Filipek, AGFC; Mark Oliver, AGFC; Kenneth Shirley, AGFC; Mike Siepker, MDC; Chris Vitello, MDC; Chris Whisenhunt, ODWC.

The underlying assumption of our discussion was that sport fish can be used as focal species for implementing state comprehensive wildlife strategies (CWS). That which benefits sport fish will also benefit other species, including aquatic species of concern (SOC). For example, actions that benefit smallmouth bass will also benefit crayfish, hellbenders, darters, and/or aquatic invertebrates and will also benefit water quality and quantity. Aquatic resources are interrelated and should be viewed as a system. Thus there are habitat/environmental benefits to using sport fish as focal species.

With this approach, sport fish can be used as focal species -a charismatic focal species- providing the benefit of including constituents (sporting groups) and potential funding assistance for implementing or monitoring CWS related management. Additionally, using sport fish as a focus provides a way to communicate CWS goals with landowners and the general public in a way that SOC may not. Therefore, there are social and financial benefits to using sport fish as a focal species.

Using sport fish as a focal species will provide habitat/environmental, social, and potentially financial benefits. Within a state CWS, sport fish may not be mentioned specifically as SOC but there are benefits to using them as focal species that may help achieve larger CWS goals and may help communicate those goals to the public.

Using sport fish as focal species required that we identify logical groupings of sport fish and the issues that can affect them. We identified three groups of sport fish that occur within the Ozarks: Ozark stream sport fish, Ozark reservoir sport fish, and trout. We began listing issues that affect Ozark stream sport fish. S**ome** of the issues we identified are: water quality and quantity, irrigation, nutrient loading, oil and gas exploration, mining impacts, impoundments, watershed management/land use, sand and gravel extraction, and invasive species. The issues affecting Ozark stream sport fish would be very similar to the issues affecting reservoir sport fish and trout. The extent or impact of these issues may vary by sport fish group but issues are similar.

Once issues were identified the next question confronted by our group was how to evaluate the extent of the impact and how to address the impacts of each issue. Our conversations remained very process oriented; we did not discuss specific issues but we spoke in general terms of how to work together to determine the impacts and actions that are needed.

To address the impacts and solutions to various issues, we agreed that some form of an education/research/data sharing mechanism was needed. We decided that an Ozark Natural Resources Conference would be an effective way to share ongoing work and results of past work. It would provide opportunity to develop multi-state and multi-agency projects and a forum for sharing conservation successes and failures. An Ozark Natural Resources Conference would be a forum for highlighting what we know and it could be used to identify what we do not know. Some of the topics that we thought were appropriate for this meeting include: what are the habitat modeling needs for sport fish and how do they relate to SOC listed in the CWS, impacts of exotic species, and how does focal sport fish management benefit the rest of the aquatic system.

As information is assembled on sport fish needs, management, and the effects of these actions on the larger aquatic system, a broader conservation effort could evolve. We discussed a broad conservation effort, modeled after the MDC's Conservation Opportunity Areas; we identified this effort as recreational fish community opportunity areas. The information shared in an Ozark Natural Resources Conference could be used to identify areas that are strategically situated for inclusion into a larger conservation efforts. Focusing this effort on recreational fish will enable the development of partnerships between local, state, and federal agencies, sport fish groups, NGOs, and landowners. The recreational fish conservation opportunity areas would represent an approach to total aquatic system management nested under the umbrella of a charismatic sport fish species.

The sport fish breakout group spent its time discussing how sport fish could be used to facilitate implementation of the CWS. Sport fish are a priority for state fish and game agencies and can act as a rallying point for larger conservation issues.

Aquatic Species Movement Breakout Group

Facilitated and summarized by: Jeff Spooner, USGS

Participants

John Bird, Eleven Point River Conservancy; John Calfee, MDC; Joanne Grady, USFWS; Dave Knuth, MDC; Doug Novinger, MDC; Brian Wagner, AGFC.

Topic

We changed the name of the topic from Aquatic Species Migration to Aquatic Species **Movement**, suggesting that the word movement is more inclusive, and because migration suggests some systematic process. Our focus was on **stream crossings**.

Data Needs

We identified two general types of data that are required:

1) Data about the crossing:

- location of the crossing
- type of crossing (general design, type/size/number of openings)

2) Data about the crossing site

- stream characteristics up and down stream of the crossing (depth, width, flow, profile)

Data Uses

We anticipate the data being used to:

- Simulate the removal of the crossing
- Plan for the replacement of the crossing, whether its replacement is planned, or unplanned (for example following a high flow event)

Data Gaps

We identified three types of data gaps:

- Regionally inconsistent quantity, quality or availability of data
- Regional information about species or natural communities
- A stakeholder community

Short-term Objectives

We recommend identifying a group to assess the current availability of data, and suggest the following series of questions to guide that assessment:

- Who has done what?
- How did they do it?
- Why did they do it?
- Where did they do it?
- When did they do it?
- What have they done with the data that they collected?

This assessment should focus on identifying gaps and overlaps in data content, availability and format.

Mid-term Objectives

We recommend that the group be more formally established as an interagency working group that:

- Agrees on a baseline of common measurements
- Defines common objectives
- Identifies and prioritizes watersheds and crossings within those watersheds
- Develops a data management plan

Long-term Objectives

We envision a:

- Complete inventory of in-stream barriers to aquatic species movement
- Priority for replacement or removal
- Monitoring plan to use following replacement or removal
- Education and outreach program that focuses on the needs of policy makers, local communities, and the people who remove or replace the structures
- Connection to national in-stream and watershed initiatives
- Regular exchange of information between stakeholder groups.

Partnering Dollars and Projects Breakout Group

Facilitated by: Amy Buechler, Conservation Federation of Missouri and Esther Stroh, USGS

Summarized by: Esther Stroh, USGS and Jack Arnold, USFWS

Participants

Thomas Aley, Ozark Underground Laboratory Inc.; Jack Arnold, USFWS; Michael Crump, USFS; Mark DePoy, NPS; Frank Derchia, USGS; Dan Drees, MDC; Kurt Homeyer, TNC; Carl Korschgen, USGS; Michael Mac, USGS; Thomas Owen, USGS; Stanley Ponce, USGS; Lisa Ruller, NRCS; Charles Scott, USFWS; Allison Shipp, USGS; Michael Slifer, USGS; Jim Stefanov, USGS; Della Streaty-Wilhoit, NPS; Kristine Swanson, USFS; Dalia Varanka, National Audubon Society; Kim Winton, USGS.

Integrated Ecosystem Database

The group started with a nearly immediate suggestion to develop an integrated, georeferenced ecosystem database that could be organized in a variety of ways, such as by watershed or topic. The database would also include a list of subject matter experts. A gatekeeper would be needed for this ongoing task. Furthermore, the group recognized the challenge of differing methods and levels of quality in any data that might be served.

Communication and Organization Mechanisms

There was general agreement that success among cooperators on any projects - large or small - will be enhanced by routine communication tools. A rather long discussion followed regarding what an over-arching organization might look like; there are many existing models from which to choose (e.g., Missouri River Natural Resources Committee, Upper and Lower Mississippi River Conservation Committees). Points that were discussed included whether a top-down or bottom-up approach would be

more successful. Although there was no consensus on the actual structure of an overarching group, all participants agreed that having participation and buy-in from private organizations and landowners is critical. Everyone agreed that there is strong private and public interest in the Ozark ecoregion.

We discussed ways in which an overarching group might be established (e.g., via Memoranda of Understanding) and whether a consultant might be useful. Some questioned whether an over-arching body is needed, or if it should come before more grassroots organization efforts. There was general agreement that on-the-ground success had to first be demonstrated before building an organization, and that there must be societal relevance to our efforts in order to get general public support for them.

The need for communication was strongly felt; many ideas were suggested. An overarching group could provide coordination at many levels, including facilitating information sharing, and organizing an information database. The ideas that engendered the most general support, and which could be useful with or without an overarching organization include an informational website, development of fact sheets to target different audiences, and a newsletter for partners/cooperators. The key message/goal of all of these would be maximizing efficiency by working together, and to show that we are spending government money wisely.

Action Items

We made a list of action items for follow-up after the Summit:

- Establish a framework or organizational structure to facilitate sharing of technical information, coordinate activities, and help avoid duplication of effort.
- Launch a website/ftp site to point to/share data and other information (USGS/FWS should take the lead on facilitating the sharing of information)

- USGS/FWS make initial make initial contacts with State Fish and Wildlife Agencies to form a small core coordinating group.
- Develop a map of collaborative Ozark-based project partnerships already in place
- Develop fact sheet(s) to target different groups (agencies, public, etc.)
- Utilize NRCS Resource Conservation and Development areas (RC&D) to reach out to private landowners and communities.