

Buffalo River Watershed Management Plan

Recommendations

Background

At the direction of Governor Asa Hutchinson, the Beautiful Buffalo River Action Committee (BBRAC) was organized in August 2016 to establish an Arkansas-led approach to identify and address potential issues of concern in the Buffalo River watershed, including the development of a non-regulatory watershed management plan for the Buffalo River watershed. BBRAC members originally included: Arkansas Department of Environmental Quality; Arkansas Department of Health; Arkansas Agriculture Department; Arkansas Department of Parks and Tourism; and Arkansas Natural Resources Commission (ANRC). Additional state agencies have also become participants in the organization.

The Buffalo River Watershed Management Plan (WMP) is being prepared through the direction of the Arkansas Natural Resources Commission. The WMP:

- Will provide a framework for landowners, communities, and organizations to voluntarily undertake water quality projects in the watershed and improve the ability to solicit and secure funding and assistance for these projects from various government and private sources.
- Will **not** recommend or lead to additional regulations in the watershed.
- Will **not** result in mandatory restrictions on what landowners can do on their property.
- Will **not** address facilities that are already permitted and regulated.
- Will propose voluntary, non-regulatory management practices and actions to sustain and improve water quality within the Buffalo River watershed.

Watershed Vision and Goals

The National Park Service (US NPS) stated purpose for the Buffalo National River is “to preserve, conserve, and interpret a clear, clean, free-flowing river and its Ozark Mountain setting of deep valleys, towering bluffs, wilderness, and pastoral landscapes. It is not one single quality, but the combination of natural, scenic, cultural, and scientific features that are protected for the benefit and enjoyment of present and future generations.” (US NPS 2017).

The overall objective of this watershed-based management plan is to sustain and improve the water resources of the Buffalo River watershed so that the vision for this watershed can be achieved. The vision for the Buffalo River watershed is: The uses of the Buffalo River and its tributaries are sustained as they flow through the rolling hills, fields, forests, pastures, wetlands, and local communities of the Buffalo River watershed, as its residents and other stakeholders work together to improve the socioeconomic and extraordinary natural amenities of the Buffalo River watershed.

Goals

There are three nonpoint source pollution management goals to achieve the vision for the Buffalo River watershed:

1. Keep pollutants out of both surface water and groundwater,
2. Minimize streambank and stream bed disturbance, and
3. Leave no trace behind.

Surface water and groundwater are strongly interconnected in this watershed, and water moves easily between the surface and underground. As a result, pollutants on the land surface and surface waters can end up in groundwater, and pollutants in groundwater can find their way into surface waters far from the original pollutant source.

Land clearing that occurred in the Buffalo River watershed in the early 20th Century is believed to have significantly changed the character of the river and its tributaries, making the channels less stable and the streams more erosive. Maintaining and restoring woodlands along the streambanks stabilizes the channels and slows bank erosion. Clearing wooded streambanks and disturbing the stream channels contributes to bank erosion both upstream and downstream of the disturbed area.

The Buffalo National River has been set aside for the enjoyment and appreciation of the public. The National Park Service works with the public to keep the public areas as undisturbed as possible so that all may have the same experience of the natural beauty that characterizes the river. The guideline for these actions is to “leave no trace behind”.

Recommended Subwatersheds

The Buffalo River watershed has an area of almost 1,400 square miles (~ 900,000 acres) and includes parts of 9 counties. The Buffalo River originates in Newton County and flows into the White River in Baxter County. There are 37 HUC (Hydrologic Unit Code) 12 subwatersheds within the Buffalo River watershed, which represent the typical management units for watershed management. These subwatersheds include the primary tributaries to the Buffalo. Land use, water quality, and geological information was compiled and analyzed to identify tributary subwatersheds on which to focus initial management practices and activities. The six tributary subwatersheds identified through these analyses are (Figure 1):

- Flatrock Creek (Mill Creek)
- Calf Creek
- Bear Creek
- Brush Creek
- Tomahawk Creek, and
- Big Creek (Lower).

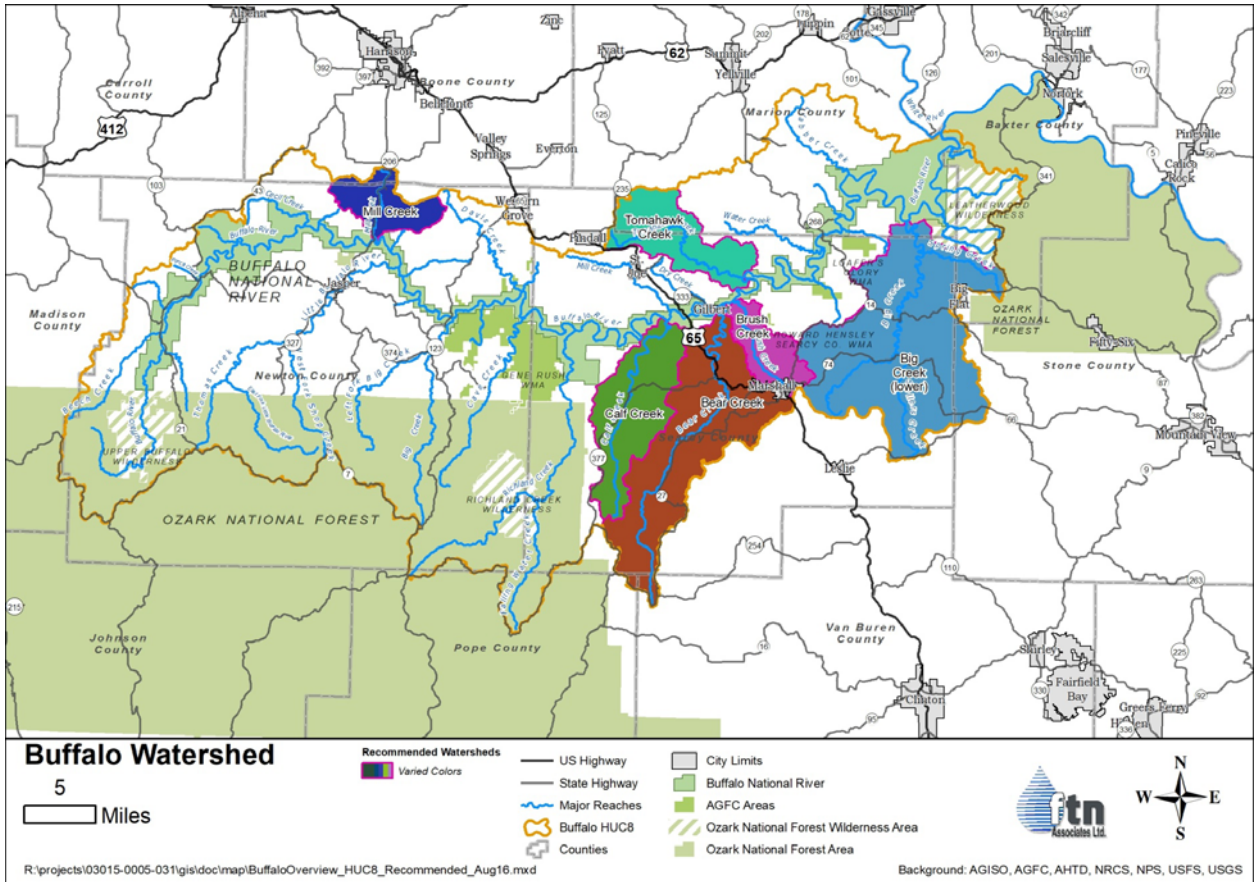


Figure 1. Recommended Tributary Subwatersheds for Initial Focus

Stakeholders voiced concerns about water quality in the Big Creek (Middle) subwatershed because of a permitted confined animal feeding operation in the subwatershed. These concerns are recognized and acknowledged, but ANRC and this watershed management plan, by statute, can address only voluntary, non-regulatory activities.

Recommendations

There are five categories in which recommendations are being made:

1. Recommended Management Practices;
2. Recommended Monitoring;
3. Recommended Studies;
4. Recommended Awareness, Outreach and Education; and
5. Recommended Teams.

These recommendations are intended to address concerns about nutrient and E. coli levels in surface waters and groundwater, as well as concerns about erosion in the watershed, channel instability, excess sediment in streams, and stream water temperatures. Most of the recommendations below were suggested by participants in the stakeholder meetings.

Recommended Management Practices

Recommended land use management practices are provided for three land uses – pasture, forest, and ecotone (transition area from one land use type to another, such as pasture to streambank or pasture to forest) management.

Recommended pasture management practices:

- Nutrient management plans,
- Livestock stream exclusion/controlled access,
- Forest/non-forest riparian buffers,
- Pasture planting/management,
- Prescribed/rotational grazing,
- Silvopasture establishment, and
- Ponds/sediment basins.

Recommended forest management practices:

- Pre-harvest planning – skid trails, landings;
- Streamside management zones;
- Roads – water bars, diversion ditches, grade control;
- Revegetation following harvest;
- Prescribed burns; and
- Trail management.

Recommended management practices for ecotones:

- Gamebird habitat restoration,
- Streambank restoration/stabilization, and
- Filter strips/native plants.

In addition to land use management practices, karst sinkhole identification and treatments, unpaved roads erosion management, invasive or destructive species control, and identification of failing on-site wastewater treatment systems (e.g., septic systems) are also recommended. Karst sinkhole treatments include cleaning trash from sinkholes and minimizing pollutant sources around the sinkholes.

Recommended Monitoring

- Support existing monitoring and enhance those programs.
- Add total suspended solids as a constituent for analysis in the water quality samples already being collected.

- Consider adding a station at the county road downstream of Dogpatch Springs so that loading from Dogpatch Springs can be assessed.
- Support the Buffalo National River and ADEQ in developing an algae monitoring program to assess algal species and densities in the Buffalo River and its tributaries.
- Develop a trash index and implement a trash monitoring program for tributaries.

Recommended Studies

- Initiate microbial source tracking for E. coli in Flatrock Creek subwatershed, including Dogpatch Springs contributions, using quantitative polymerase chain reaction and host-specific markers.
- Support the Buffalo National River program in its diel (24 hour) monitoring of dissolved oxygen and evaluation of relationships with nutrient loading in the Buffalo River and its tributaries.
- Conduct LiDAR analysis in recommended subwatersheds, starting with Calf Creek, to assess streambank erosion using the NRCS LiDAR data that will be available in March 2018. Ground truth the LiDAR data at selected locations through Watershed Implementation or Stream Teams.
- Quantify ecosystem services in recommended subwatersheds, starting with Bear Creek subwatershed, using both market and non-market valuation approaches for better understanding and appreciation of the value of these services and quality of life in the Buffalo River watershed.

Recommended Awareness, Outreach, and Education Programs

- Support existing Buffalo National River awareness, outreach and education programs, such as
 - Leave No Trace,
 - Day-By-The Buffalo,
 - Stream and cave ecology camps,
 - Bioblitz Citizen Science, and
 - At The Waters Edge.
- Support existing Buffalo National River partners and programs, such as
 - Buffalo National River Partners,
 - Ozark Unlimited Resources,
 - Park Neighbors and Partners,
 - NorthArk/UCA Learning Center, and
 - ASU Learning Center.

- Support existing education and outreach programs by
 - Cooperative Extension Service,
 - County Conservation Districts,
 - Arkansas Unpaved Roads Program,
 - Arkansas Grazing Lands Coalition
 - Rural water utilities, and
 - Nonprofit interest groups.

Recommended Teams

- Watershed Implementation Team(s) for each recommended subwatershed to champion implementing recommended practices & activities, monitor progress, and adapt to changing conditions.
- Stream Team(s) to help monitor water quality and promote streambank restoration / stabilization, as well as encourage wildlife habitat initiatives and alternative sources of revenue.

Recommendation Process

These recommendations are provided for stakeholder review and comment and will be discussed at the Stakeholder Meeting in Jasper, AR on Thursday, October 12, from 1:00 until 3:30 pm in the Carroll Electric Community Room. The Carroll Electric facility is on the north end of Jasper, just off Highway 7, near Subway. The meeting is free and everyone is welcomed to attend.

Comments received will be considered and used to prepare a draft report for review. Following receipt of review comments on the draft report, the comments will be considered and a final report prepared for submission to EPA for acceptance.