



## INSIDE THIS ISSUE

President's Message

DRC Mentor Program

Carol Bitting - Friend of the Rivers

Buffalo River

Karst

Riparian article

## WELCOME NEW MEMBER

Philip Frame,  
Mountain Home AR

## FISHING BRINGS SMILES TO OUR FACES

The rivers, lakes and creeks of North Arkansas attract millions of visitors each year to experience the joy of fishing, boating, floating and related recreation. The area has an abundance of clear, cold water that supports world class populations of rainbow, brown and cutthroat trout and lakes and creeks with numerous other species of game fish.

As an avid fisherperson, I am aware of the importance of clean healthy water for fish habitat and our recreation and tourism industry.

I also understand we do not own the environment but are borrowing it from our children and grandchildren. Because of young people like Milana and Dominick shown at right, I do my best to protect our waters for the benefit of future generations.

Please join Friends of the North Fork and White Rivers in our efforts through education, cooperation, contribution and service to protect and preserve our streams, rivers and watersheds for future generations.

Thank you.

Steve Blumreich, President  
sblum1326@gmail.com 417-839-0193



*(Brother and sister Milana and Dominick from North Carolina are all smiles after catching this beautiful brown trout on Dry Run Creek next to the Norfork National Fish Hatchery.)*



## FRIENDS OF THE RIVERS AND TROUT UNLIMITED WHITE RIVER CHAPTER DRY RUN CREEK YOUTH MENTOR PROGRAM

Friends of the Rivers and Trout Unlimited White River Chapter started a public outreach youth mentoring program in June on Dry Run Creek. The objective of this program is to introduce youth under the age of 16 to fly fishing for trout while teaching them the importance of healthy water for trout and all living creatures. Over 100 youth from many different states were mentored in June thru August. Those youth who want more time to learn about fishing, aquatic macroinvertebrates and demonstrated a genuine interest in fishing and the environment were awarded a certificate and medal acknowledging their achievement.



*(Cramm & Kyle grandchildren from MO and AR – First time to visit and fish DRC. Earned certificates and medals)*



*(Britney of Fairdealing, MO earned a certificate and medal acknowledging her achievement. First time to visit and fish Dry Run Creek and caught this beautiful 16" rainbow.)*



*(Alex & Joseph, St. Louis, MO, ages 15 have been fishing DRC for 8 years and 3 years. Both have mixed emotions about turning 16 because they will no longer be able to fish DRC.)*



## DRY RUN CREEK YOUTH MENTOR PROGRAM continued



*(Dominick and Milana – Lake Norman, N.C. study aquatic macroinvertebrates – First time to visit and fish DRC)*



*(Mackensie age 15 and family of Weatherford, OK First time to visit and fish DRC)*



*(Connor age 5 and Kenley age 11 with mom Sara from Jonesboro. Kenley caught this beautiful 17" rainbow and Conner had an even bigger brown hooked that broke the line.)*

This mentor program has been enjoyed by many families and introduces youth to the joy and challenge of trout fishing.

If you would like to know more about this program, please call or text Steve Blumreich at 417-839-0193 or email Steve at [sblum1326@gmail.com](mailto:sblum1326@gmail.com)



## FRIEND “ON” THE RIVERS – CAROL BITTING

Over the years Carol has backpacked, horse-backed and canoed the Buffalo River exploring, mapping and participating in biological inventories not only above but below its surfaces in the many caves that frequent the watershed. Carol worked as a biological technician with the National Park Service during the late nineties and early 2000's which helped to further her outdoor resource education while training as a prescribed and wildfire Field Observer. During this time she was involved with A Herpetofaunal Inventory of Buffalo National River by Ray Wiggs & Diana Angelo in which wherever she was Carol constantly kept notes, photographed, gps located and noted the herps for the 2 year study and publication.

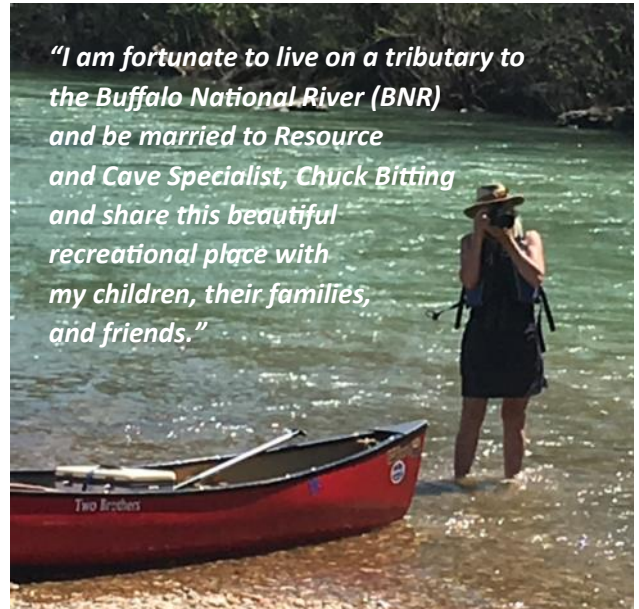
The year C&H Hog CAFO (concentrated animal feeding operation) was permitted in the BNR watershed, Dr. John Van Brahana and Carol decided to study the waters of Big Creek in relationship to the BNR. The team of volunteers became known as Karst Hydrology of the Buffalo National River and have contributed 5 published peer reviewed papers pertaining to the dye trace and other studies including rainfall and its relationship to surface and ground water rise and flow of Big Creek.

The dye was put into a shallow well down gradient of several hog waste spreading fields. Heavy rains that week transported the dye from the well to ground and surface water by underground flow emerging in springs where it was absorbed on a charcoal packet and verified flow from Big Creek to 14 sites within the Buffalo River corridor. Other verified sites included a home toilet from an owners well, Left Fork Big Creek, Big Creek, Lick Creek, Rock Creek, John Eddings Cave, Elm Springs, Lime Kiln Creek, Cave Creek, Ben's Branch, Mitch Hill Spring, Margaret White Spring and many other frequented areas.

Carol, Lin Welford, and Nancy Haller became known as the Three Grandmothers and appealed a permit that allowed the spreading of hog waste on fields aligning left fork of Big Creek, Shop Creek and other streams in the BNR watershed. In addition to being a Friend of the North Fork and White Rivers, Carol is a member of White River Waterkeeper, Karst Hydrology of the Buffalo River team, National Speleological Society, Arkansas Canoe Club, and Buffalo River Back Country Horsemen.

Carol's pictures and the dye tracing of ground water flow along with her public and written comments to Arkansas Department of Environmental Quality (ADEQ) and Arkansas Pollution Control and Ecology Commission (APCEC) regarding the increased pollution of the BNR caused by the C&H hog CAFO spraying approximately 3,000,000 gallons annually of untreated liquid hog waste in the Big Creek and BNR watersheds have been invaluable in the struggle to protect the BNR.

Friends of the Rivers thanks Carol for her dedication and contribution to protecting the Arkansas's crown jewel, the Buffalo National River.



*"I am fortunate to live on a tributary to the Buffalo National River (BNR) and be married to Resource and Cave Specialist, Chuck Bitting and share this beautiful recreational place with my children, their families, and friends."*



# OUR BEAUTIFUL BUFFALO RIVER

## RECENT DEVELOPMENTS

The Buffalo River algal blooms are increasing in density, the number of river miles impacted and their duration, which now extends well into fall and winter months. The algal blooms are not only a nuisance, but also devastating to aquatic life such as macroinvertebrates, fish and turtles. There is also confirmation of algae toxic to humans and pets and increased reports of irritation and illness.

***Arkansas Department of Environmental Quality (“ADEQ”) reports there was a 20 mile stretch of algae last year and now it is 70 miles long getting closer to the White River.***

According to Jessie Green, Executive Director of White River Waterkeepers (WRW) in a July 20, 2018 news release, “Following multiple reports of probable illnesses from suspected contact with harmful algae in the Buffalo National River (BNR), WRW is reminding the public to be mindful of harmful algal blooms (HABs) in rivers, lakes, and streams, and to keep dogs, children, and individuals with compromised immune systems away from these blooms if seen.

ADEQ has recently proposed that approximately 14 miles of the Buffalo River from Hasty to below Mt. Hersey and 6 miles of Big Creek above Mt. Judea near the C&H hog CAFO to the confluence with the Buffalo River be listed as “impaired” – “polluted” and be added to ADEQ’s “Impaired Water Body” list as a 303d Category (4) impairment. Category (4) does not require ADEQ to determine the source of the pollution, however and does not require ADEQ to take corrective action.

**Category 5 listing would require ADEQ to identify the sources of impairment and take corrective action.**

ADEQ has a public comment period open until September 10<sup>th</sup> for comments related to the proposed listing of the Buffalo River and Big Creek being listed as impaired”. Please contact ADEQ and urge them to list the sections of Buffalo River and Big Creek as impaired Category 5. Email comments to: [WaterbodyComments@adeq.state.ar.us](mailto:WaterbodyComments@adeq.state.ar.us). <https://>

Also please join me in [contacting Governor Hutchison](#) at and our state representatives and local quorum court justices of the peace to voice our concerns.

If you would like to discuss this or have questions regarding your options for responding, please call Sam Cooke, immediate past president of FNWR at 870-307-8922 or me.



**WRW REMINDS THE PUBLIC TO BE AWARE OF HARMFUL ALGAL BLOOMS AND REQUESTS REPORTING OF WATER QUALITY CONDITIONS AND ILLNESSES POTENTIALLY ASSOCIATED WITH SURFACE WATER CONTACT.”**

You can contact Jessie Green at: Jessie J. Green, Waterkeeper & Executive Director, 870.577.5071,

[jessie@whiteriverwaterkeeper.org](mailto:jessie@whiteriverwaterkeeper.org)



Photos courtesy of Carol Bitting



# KARST TOPOGRAPHY: HOW IT IMPACTS OUR LIVES

Most of us know we live in a region with “karst topography.” Karst is an area made of limestone. Limestone, also known as chalk or calcium carbonate, is a soft rock that dissolves in water. As rainwater seeps into the rock, it slowly erodes and results in many underground streams, springs, caverns and sinkholes. These underground waterways contain clear, cold water, however they also carry nutrients and contaminants from the ground above.

The entire “Ozark Plateau” from central Arkansas to central Missouri contains karst.

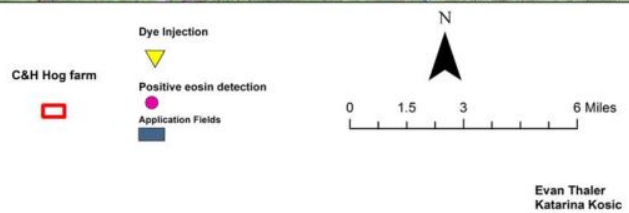
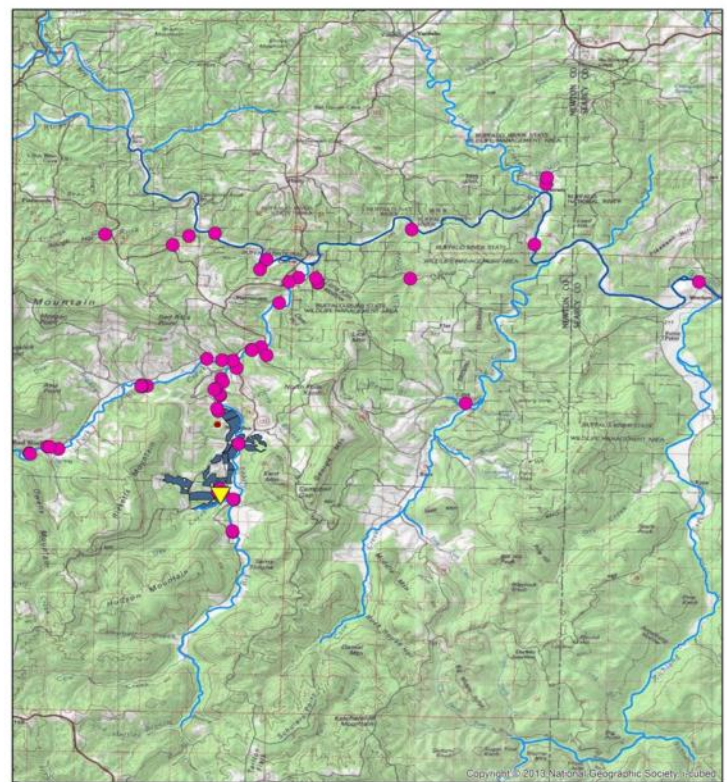
An example of the complexity of karst topography and the effect on our streams and rivers was illustrated by dye tracing completed several years ago in the Buffalo National River (BNR) and Big Creek watersheds. The year C&H Hog CAFO (concentrated animal feeding operation) was permitted in the BNR, Dr. John Van Brahana and Carol Bitting studied the waters of Big Creek in relationship to the BNR. The team of volunteers became known as Karst Hydrology of the Buffalo National River and have contributed 5 published peer reviewed papers pertaining to the dye trace and other studies including rainfall and its relationship to surface and ground water rise and flow of Big Creek. Trace dye was put into a shallow well down gradient of several hog waste spreading fields. Heavy rains that week transported the dye from the well to ground and surface water by underground flow emerging in springs where it was absorbed on a charcoal packet and verified flow from Big Creek to 14 sites within the Buffalo River corridor. Other verified sites included a home toilet from an owners well, Left Fork Big Creek, Big Creek, Lick Creek, Rock Creek, John Eddings Cave, Elm Springs, Lime Kiln Creek, Cave Creek, Ben’s Branch, Mitch Hill Spring, Margaret White Spring and many other frequented areas.

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The saying, “we all live downstream” may have to be modified when describing how water flows through karst. What we do “downstream” may also impact people “upstream”.

Please help keep our creeks, streams, rivers and lakes clean and healthy.

*Remember, we are borrowing them from our children, grandchildren and their children.*



# PROTECT THE RIVER OR LAKE -- & STILL HAVE A VIEW

Compiled and written by Bruce and Joan Burr

Living near a stream, river, or lake in the Ozarks provides both rewards and responsibilities. How we care for the land is especially critical due to the karst nature of this region. The fractured limestone rock formations beneath the land becomes sponge-like when we have rain and then the water collects underground in aquifers and reappears not only in well water but in downstream springs and streams. The beautiful setting is indeed a blessing, but responsible stewardship goes hand-in-hand with the blessing.

Here are some points to keep in mind, especially relating to trees, native grasses, and native shrubs in a riparian area (the definition of riparian is the interface between land and a river, stream, lake, or other body of water; or the land area adjacent to a body of water where the vegetation and soil are directly affected by the body of water).



Figure 1: View through trees showing river and pasture



Figure 2: Limited grassy area to river

Views of the water can still be beautiful when filtered **through trees** or framed **by trees**. Tree roots help stabilize the bank. To remove a living tree below the high-water mark requires a permit from the Corps of Engineers. Above the high-water mark, the landowner has jurisdiction. Above are photos showing how some area landowners have obtained a view while preserving trees.

## PLANTING TO RESTORE A RIPARIAN BUFFER ZONE

The riparian buffer zone near the water would ideally include the vegetation as wide as the stream width itself. A diverse mix of native grasses, shrubs, and trees is recommended to protect stream-banks from erosion, filter pollutants and sediment from runoff, slow floodwater, provide wildlife habitat, and enhance recreational use of the water. Technically, the buffer zone may be wider than the actual riparian zone and could be defined as the land interface that **influences and/or is influenced by** the adjacent water.

**NATIVE GRASSES:** Native warm-season grasses filter sediment from runoff and support wildlife. Their deep roots (much deeper than cool-season grasses such as fescue) prevent erosion and are drought-resistant. Examples are big bluestem, little bluestem, broom sedge bluestem, indiagrass, switchgrass, side oat grama, and eastern gamagrass. Planting these grasses from seed may appear to be more expensive than planting fescue, but since their root system can penetrate to soil depths of 10 feet or more they are far more effective stabilizers/filters and are far less likely to require reseeded, once established.





Figure 3: River cane and birch in buffer zone



Figure 4: Natural foliage where Cotter Spring Creek flows into White River

**NATIVE SHRUBS AND TREES:** Shrubs and trees retain fertilizer nutrients to help prevent algae blooms, buffer pesticides, stabilize banks, and protect livestock and flooding damage. Alder, buttonbush, willows, and elderberry are native shrubs well-suited to riparian zones. Well-adapted native trees include sycamore, dogwood, persimmon, hackberry, ash, sweetgum, sassafras, oaks, hickory, box elder, birch, locust, and wild plum.

#### **A TECHNIQUE FOR ROOTING TREE CUTTINGS:**

This technique works for growing native willows and sycamores even in difficult planting situations such as rocky slopes. It involves cutting branches during the dormant season into 18-inch lengths and immediately driving them approximately 14 inches into the ground with some bud scars on the portion above ground. Detailed instructions can be found on page 36 of the referenced landowner's guide *Living with Land and Water in the Ozarks*.

#### **WORST CASE SCENARIO**

If erosion along a bank is severe enough, it may require Property and Stream Modifications such as riprap. Such modifications are regulated by Arkansas Game & Fish (AGFC), Arkansas Department of Environmental Quality (ADEQ), and the U.S. Army Corps of Engineers (USACE). Good advice can be sought at the local AGFC office.

#### **Booklet References:**

*A Riparian Area Assessment Guide for Streamside Landowners*, MP499, 26 pages, (also called Stream\*A\*Syst) published by University of Arkansas Division of Agriculture Research & Extension

*Living with Land and Water in the Ozarks: A Landowner's Guide to Streamside Living*, 48 pages, published by The Upper White River Foundation with support of The Community Foundation of the Ozarks, 2010