



Buffalo National River supporters gather in 2015.

Why is KHBNR needed?

In 2012, a 6,500-hog Confined Animal Feeding Operation (CAFO) was built. Ten of the hog waste spray fields lie beside Big Creek that flows into the Buffalo National River, about 6 miles away.

After unprecedented public objections to the first CAFO of its size in the Buffalo National River watershed, the Arkansas legislature authorized up to \$740,000 of State funds for a study to test the water that the C&H CAFO could affect.

Area residents and stakeholders had no say on the study's scope or on the team that would conduct it.

The University of Arkansas Division of Agriculture (UADA) entered a Memorandum of Agreement (MOA) promising to: *"Undertake and complete a study of the **potential for water quality impacts** within the Buffalo River Watershed **from animal wastes produced by the permitted CAFO C&H Hog Farm, and its operations within the watershed.**"* UADA formed the Big Creek Research Team, adding the Extension Agency to become BCRET.

Has BCRET's mission changed?

The title of their quarterly reports suggests so:

*"Demonstrating and monitoring the **sustainable management of nutrients on C&H Farm** in Big Creek Watershed."*

KHBNR formed to develop scientific studies that aid in monitoring the **potential impacts of C&H hog waste** within the Buffalo River Watershed.

KHBNR Study Design — Expanding What We Need to Know

KHBNR monitors **water quality** in rivers, creeks, springs, wells and cave streams with a suite of data collection that includes:

- ◆ **Dissolved oxygen (DO).** A clean, healthy stream has plenty of dissolved oxygen that allows fish and other key aquatic species to thrive. Low oxygen levels indicate nutrient overload.
- ◆ **E. coli.** Presence of E. coli bacteria indicate that water has been contaminated by fecal material and could contain dangerous pathogens.

To fully understand **water dynamics** – water moving through karst – KHBNR also conducts tests and procedures to determine where, when, and how water and liquid waste move on the ground, go underground, and come back up again.

- ◆ **Dye tracing** helps to define the natural boundaries where water flows and the rate at which it can move throughout the watershed. KHBNR dye tracing has already shown water traveling as far as 2,500 feet per day, while most groundwater moves only 10-15 feet per year.
- ◆ **Trace constituent analysis** can reveal both the mineral "fingerprints" of formations through which water has flowed, and also minute amounts of elements such as copper and zinc isotopes, which are major additives to pig feed and would show up in their excrement.

Descriptive place names on USGS topographic maps such as Dry Creek, Sinking Springs and Dry Branch indicate we have long understood that in karst areas, water can disappear underground and reappear in unexpected places.

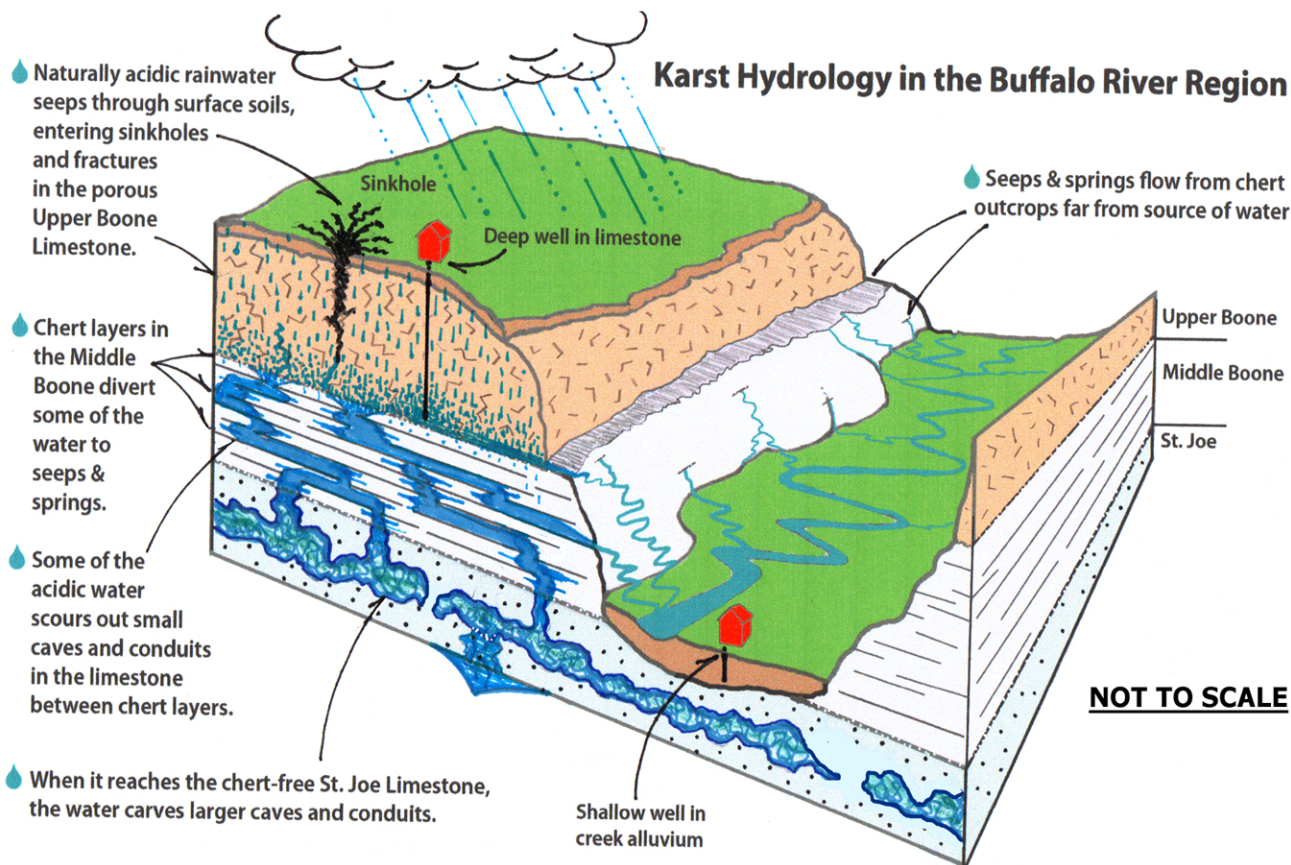


Illustration by Tom Dureka