



Current Events



The Newsletter of the Arkansas Stream Team

Volume 12, Number 1

January – March 2008

News from Region I (Ozark Highlands and Boston Mtns.) Stream Team Coordinator, Dave Evans...

“Rain, rain go away, come again another day.” No such luck...yet! Flooding has hit Arkansas with a vengeance. County after county in the state are dealing with the aftermath of unusually high stream flow levels. Widespread damage is occurring around the state with numerous people suffering from washed-out, low-water stream crossings, landslides, significant streambank erosion, huge piles of debris, and even whole houses being washed away. As of right now, more rain is forecast for this part of the state (Harrison and the surrounding areas), maybe as much as another three inches. This additional rain will be falling on saturated ground and, as a result, the majority of it will immediately run off into the already swollen streams and rivers.



Crooked Creek in Marion County

When people speak about a 50-year flood, or a 100-year flood, or a “whatever” year flood, they are talking about the return interval of that volume of water. In other words, on average (a very important concept) how often will that water level occur in that stream or river? Just because a 100-year flood occurs this year, that doesn't mean that it'll be 100 years before it occurs again...remember "on average".



Kings River in Madison County

For example, the South Fork of the Little Red River at Clinton (Van Buren County) had an 8½-year flood in 1972, a 3-year flood in 1973, a 10½-year flood in 1974, and a 7-year flood in 1975. The Elk River in southwest Missouri had a 13-year flood in 1943, and a 16½-year flood in 1945. Spavinaw Creek, in western Oklahoma (near the Arkansas state line), had a 21½-year flood in 1974, and a 43-year flood the next year. So, as you can see, just because a particular flood level occurs, in any given year, doesn't mean that it will not occur again for a while, or even be exceeded in the immediate future.

I've been looking at the USGS (US Geological Survey) gage data for 16 different creeks and rivers in my part of the world, and the results are somewhat bleak. Site after site, from Benton County in the west, to Stone County in the east, are reporting near-record flow volumes. A few sites have even been hit by two or three additional, slightly high-flow levels, beyond the high flows that occurred on the 18th and 19th of March.

There are 11 USGS sites in my list that have records exceeding 40 years. The data from these sites are more valuable in determining historic flow volumes than data from sites with only nine or 10 years of records. The records at two of these sites - the Buffalo River near St. Joe in Searcy County, and the Elk River in southwest Missouri, have records in excess of 65 years.

Of these 11 sites, six had recent flood levels that were the 3rd or 4th highest on record. Flow volumes at two of the five remaining sites were the 6th and 10th highest ever recorded at those sites. The volume of water passing some of these sites is truly staggering! For example, in March of this year, the Buffalo River at St. Joe had a flow of 134,000 cubic feet per second (cfs). That means that every second enough water passed that gage site to completely fill eight - 2,100 square foot houses with water. Another way of looking at that volume of water is to visualize that water on a ¼ acre suburban lot...it would be almost 12½ feet deep...and that's just one second of flow. By-the-way, that flow level was the third highest recorded in 68 years at St. Joe.

The data indicate that 1982 was the year of record for a number of streams and rivers in north central Arkansas. The Buffalo River at St. Joe had a flow of 158,000 cfs, or over 15% higher than occurred last month. The Strawberry River in Sharp County had exactly that same flow in that same year. The South Fork of the Little Red River at Clinton had a flow of 67,900 cfs. North Sylamore Creek in Stone County had a flow of 25,200 cfs. But, all of these sites are dwarfed by the December 1982 flood that occurred on the Middle Fork of the Little Red River. That USGS site, near Shirley in Van Buren County, recorded a flow volume of 241,000 cfs...almost 60% higher than the record flows on the Buffalo and Strawberry Rivers. That amount of water would fill over 14 - 2,100 square foot houses every second, or it would be over 22 feet deep on that ¼ acre suburban lot.



Osage Creek in Carroll County



Richland Creek in Washington County

The March storms produced new records at two sites. Osage Creek in Benton County (with nine years of data) recorded a new record of 3,540 cfs, the old record was 2,980 cfs. Richland Creek in Newton County (they have 10 years of records) almost doubled their previous high-flow volume. That site recorded a flow of 27,600 cfs, and the previous record was 15,000 cfs.

As bad as the recent flooding has been, history shows that worse events have occurred...and, I'm not talking about Noah's flood!

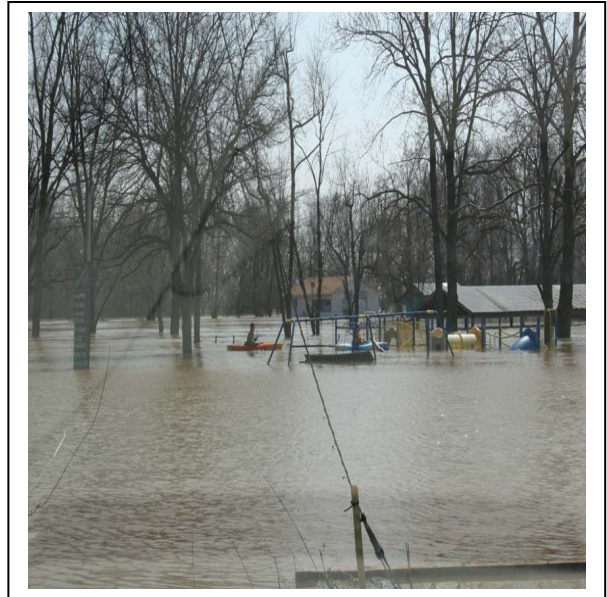
If you're interested in looking at stream flow data (both current and historic) on various Arkansas streams, go to www.usgs.gov and then click on "Real Time Water Data," or another area of interest.



News from Region II (Delta) Stream Team Coordinator, Stephen O'Neal...

Stream Team efforts still march on. Our thoughts and prayers go out to all of those affected by the severe weather in the state.

The *White County Homeschool Stream Team* made a monumental effort by planting 1,050 trees on a streambank in Randolph County recently and, in less than 24 hours, the same planting area that was 12 above the surface of the water, was buried in over 8 feet of water—the river had jumped more than 20 feet from the torrential rains which fell in southern Missouri and northern Arkansas! Needless to say, we didn't worry too much about getting the newly planted trees watered—the river did that for us, and in epic style. Fear not, the trees did not wash away but, rather, had their feet filled-in completely with newly deposited sediments and a thorough soaking.



The flood waters in Randolph County were historic.

The 600 foot-long area was completely replanted with a riparian area 100 feet wide—this area will soon be a great travel corridor for numerous wildlife species, and an excellent place for quail and turkey to rear their brood. Once the area has been established for a few years, it will function as a massive filter capturing overland flow sediments, pesticides, and other non-point source pollutants which would otherwise go directly into the water after a good rain.



The White County Homeschool Stream Team works diligently to plant over 1,000 trees in just a few hours to revitalize a streambank in Randolph County near Pocahontas.

Some of the larger-rooted trees had to be planted with the power auger—a couple of the parents step-up to the plate and put the auger to the test.



The newly established riparian area will also help to slow erosion from flood events by several different means. Sometimes we are asked, “Why are we planting trees, riparian shrubs, and native grasses if we are in the *fisheries* business?” The reasons are wide and varied. The benefits are far reaching and go beyond simple aesthetics.

As rainfall enters the soil it reaches a saturation point and, at that stage, no more water can go into the ground, so the water runs off and increases the severity of a flood event as the rains continue. If, however, there are roots in the soil, they will immediately take up moisture to replace liquid lost through evapotranspiration (a winning word in “Scrabble,” too) which occurs in the tree itself via photosynthesis. Even in the winter, water is taken up into the tree because colder air is less humid, the tree loses humidity to the environment and the roots are up-taking moisture to replace that fluid loss. In the early spring, when most flooding occurs, the trees start to “run sap” in preparation for leaf-out and blossoming, so their roots are pulling water as fast as possible. In this “small” way, tree roots help during severe rain events—imagine millions of soldiers on the banks with siphons pulling water from the soil to keep the rain water soaking into the soils, as opposed to running off—an unimaginable amount of water is captured and stored in this process.

Trees along the river or stream also slow flood waters down simply by their physical presence. When flood waters strike the trees, in the very small region around the plants, the water is forced to go around the stems or trunks and, when that redirection occurs, energy is dissipated. If you have ever tried to pet a cat backwards, you can see the effect. It is more difficult to pet the cat against the grain of the fur—the hair stands up (which in this elementary example are trees resisting the force of water). The energy required to pet the cat is increased, and what you end up with is a fuzzy looking cat with a bad disposition (the bad disposition translated to our riparian area is the equivalent of the trees experiencing the pressure of the water and actually slowing the water velocities down). By the way, unless your cat is heavily sedated, or in an overly tolerant mood, I don’t recommend performing the kitty experiment—just take my word for it!



*Perform the cat test
at your own risk!*

The fact that the trees are slowing the flowing waters down is evidenced by sediment build-up immediately around the base of trees in areas which have recently experienced flood waters. If you go out and look for this, quite often you will find piles of sand and leaves in a ring around the trees. This is one of the reasons why some banks are higher in elevation than the surrounding area, due to this sediment build-up over time.

Another benefit afforded by healthy established riparian areas is that, during high water events, many of the shrubs, bushes, and grasses in the riparian area will simply lay down when the force of the water runs over them. The plants that do bend and lay flat against the soils are extremely beneficial, as they are essentially laminating the bank and protecting the soil from being washed away. Imagine applying a film of Saran Wrap to the bank—the water flows over the sheet of plastic and the soil underneath is left undisturbed. This is what happens when plants lay flat against the soil during high water occurrences. Once the flood waters recede, the plants simply pop back up and continue to grow.

So, yes—we do plant trees and shrubs where appropriate. And, yes—that vegetation serves the wildlife and terrestrial species that use these areas as travel lanes, direct habitat, food sources and, of course, we humans enjoy them aesthetically. But don't forget they play a vital role in the overall health of our Natural State's aquatics by directly benefiting aquatic game and non-game species and, as any good Fisheries biologist will tell you, are the best places to fish around, once they do become unearthed and go into the creek. At that stage, our riparian area plantings have now become instream aquatic habitat, and that's a whole different topic we can address at a later date.



Not only do downed riparian trees make excellent fish habitat, they are also favored basking areas for aquatic snakes and turtles.

Speaking of instream inhabitants, Bill Posey, our State Malacologist (mussel biologist)/Commercial Fishing Biologist, recently donned his dry suit to perform a mussel survey on the South Fork of the Spring River. Ozark Broken-ray and Ozark Pigtoe mussels were the most encountered species along with Threeridge and Ouachita Kidneyshells, Ellipse and Rainbow mussels, Purple Wartyback and Monkeyface mussels, and Mucket and Rabbitsfoot (or is that Rabbitsfeet?).

No federally listed endangered species were found, and that simple fact allows for a “green light” on the progress of this project site to allow for streambank stabilization, instream habitat work, and a revegetation effort of the bank itself. Once again, the Stream Team thanks Bill for his willingness to comb the chilly depths for freshwater mussels, which stand to benefit from bank stabilization and instream habitat work. In return, these mussels filter the water, cleaning it of contaminants and nutrients. So, it’s a ‘win-win’ situation for all.



That's not a partially submerged tree trunk, that's AGFC's Bill Posey searching for freshwater mussels.

The Brinkley High School EAST Lab received a Stream Team mini-grant check to help them acquire a HACH water quality testing setup, and other materials they will use to monitor the health of their chosen waterbody—Bayou DeView. We look forward to working with them in the future, and expect great things from them as they get to know their adopted watershed.



Brinkley students from the EAST Lab accept a check to assist them in acquiring the equipment they will need to perform water quality tests.

News from Region III (Gulf Coastal Plain) Stream Team Coordinator, Kevin Atkins...

Welcome to spring in south Arkansas everyone. It started in a rather bizarre fashion here in Camden, as we all managed to catch

quite an unusual early March snow down in this part of the state. The snow caught the daffodils quite by surprise! Hopefully, everyone across the state, especially in northern Arkansas, is attempting to dry-out after our recent flooding.

The year got off to a bit of a slow start, but things quickly picked up from there. Planning has started for the joint Arkansas Stream Team – Arkansas Watershed Advisory Group Conference to be held over Halloween weekend in October (mark this on your calendar), and the Lake Saracen Restoration Project is also picking up some headway and starting to gain some real momentum.



A daffodil in the early March snows.

Lake Saracen (Pine Bluff)

We have conducted another round of tree-thinning on Lake Saracen, and the lake is starting to look pretty good. We have opened up some nice views to the lake, without impacting the stability of the shoreline, and the partners have been awarded a grant from the Arkansas Highway and Transportation Department to start construction on phase-one of the walking/biking/fishing trail that is slated to circumnavigate the lake.



Tree-thinning taking place along the shores of Lake Saracen.

Ouachita/Caddo River Watersheds

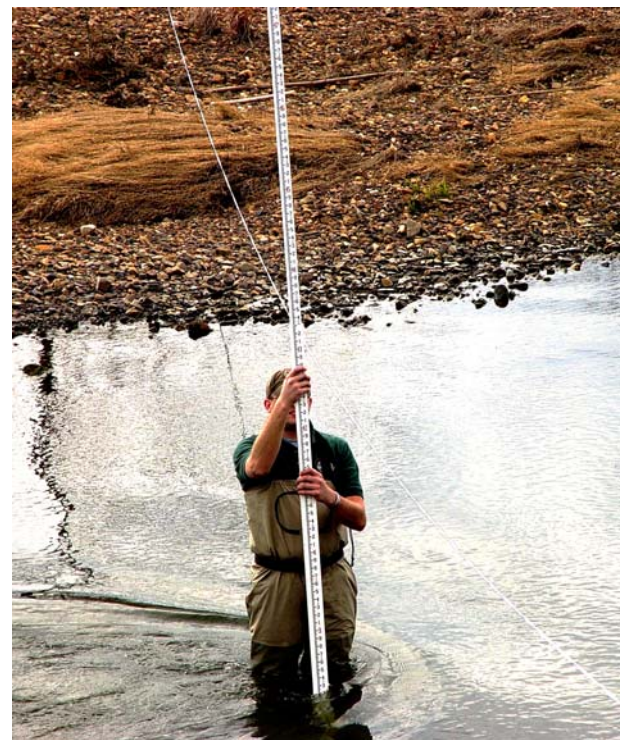
I have finished the plan for the bank stabilization work to be done on the Ouachita River, on land owned by Morgan Hill, Inc. of Arkadelphia, and things look to be in order to get the project underway.

Several site visits were conducted to look at and monitor streambank erosion on land owned by Tom Shepherd of Caddo Valley, on the Caddo River a mile downstream from the DeGray Lake Dam. Mr. Shepherd's project looks to be a unique and challenging project to tackle; and, he is eager to get work started as soon as possible. His land sits on the outside of a very tight and narrow bend in the river, and has had two previous stabilization projects, done by other agencies, fail. Further complicating matters, is the fact that a perched wetland sits atop of the bank behind the worst of the erosion on site. The wetland's outflow is actually worsening the erosion as, at times of moderate flow, it runs straight out of the middle of the bank as groundwater while, at times of high flow, it pours out over the top of the bank.

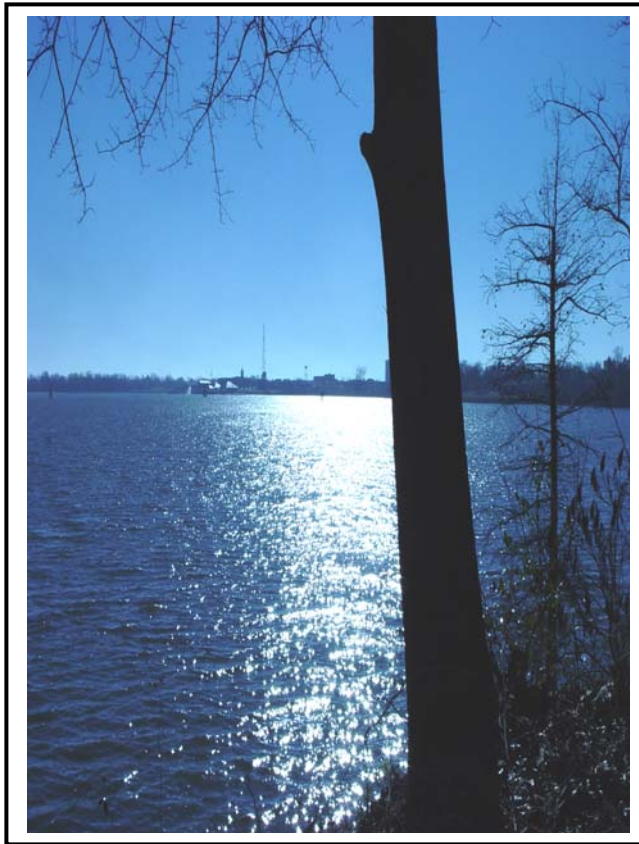
The survey is completed and Mr. Shepherd's plan is nearing completion.



Erosion on Mr. Shepherd's land on the Caddo River.



Surveying channel cross sections on the Caddo River.



*An early morning view, looking
across Lake Saracen toward
Saracen Landing and
downtown Pine Bluff.*

**News from Region IV (Ouachita Mountains and
Arkansas River Valley) Stream Team Coordinator,
Jim Ahlert...**

I participated in the Mulberry River cleanup that took place on March 1. The cleanup has been an annual event for the last several years, and is sponsored by the Turner Bend Store and the U.S. Forest Service. Each year a large number of volunteers give up their Saturday to help remove trash from the Mulberry River and its access roads and access areas. Approximately 100 people turned out for this year's cleanup. Some of the people floated the river and removed trash from areas not accessible by road, while others cleaned up the canoe access points. Others removed litter from along Forest Service roads and Highway 215, which borders the stream. Some of the items picked up included car tires, metal table, automotive parts, glass and plastic bottles, baby diapers, and cardboard packaging material. At the end of the day the volunteers were treated to a cookout, courtesy of Turner Bend Store.



Terri Robbins, a member of the Arkansas Canoe Club, picks up trash along Highway 215.



Part of the trash the volunteers picked up from the Mulberry River and access roads.

The new Witt Stephens Jr. Central Arkansas Nature Center, currently under construction in Little Rock, will have a visual display of the work the different AGFC Divisions are involved in. The Arkansas Stream Team Program segment was filmed in March. The Stream Team segment will depict a stream renovation project that was conducted on Spadra Creek, in the middle of Clarksville. The Mulberry River cleanup was also filmed to denote the importance of volunteers who give up their time to help take care of the streams and rivers in Arkansas. The work we do with schools is also very important, and the film crew wanted to film some of the work done with schools that involves water quality. St. John's School, in Hot Springs, is very active in conducting water quality work on two streams near Hot Springs. The timeline was very short to get this done, and St. John's volunteered to help us conduct water quality sampling on Gulpha Creek on a cold and blustery day. A "Bug-Kick" was conducted by the students to collect macroinvertebrates, which are good indicators of water quality. They also used a water quality kit to determine water chemistry. The students did an excellent job, and the people filming the activity were impressed with their dedication.

Part of a day was spent with the Acorn School Stream Team in conducting water quality sampling on the upper Ouachita River, near the community of Acorn in Polk County. This Stream Team does an excellent job of monitoring the Ouachita River, which is close to the school. This headwaters section of the river is considered pristine, and an excellent smallmouth bass stream, and they are helping to preserve this by their work.



Acorn School Stream Team measuring flow in the Ouachita River.



St. John's students checking for macroinvertebrate (aquatic insects, crayfish, scuds).

The second phase of a streambank renovation project was completed on the Ouachita River, near Sims in Montgomery County, during January. This section of eroded bank was approximately 315 feet long and 12 feet high. The first phase was completed last year and encompassed 700 feet of bank along the Ouachita River. The second phase of the work was completed by the use of large rocks that were placed along the bank in a stair-step fashion. This method enables us to stabilize an eroded bank with minor sloping of the original bank face. Sloping can, at times, remove beneficial riparian vegetation that may already be present along the top of the bank. In this case, that was not necessary.

I assisted Kevin Atkins, Region III Stream Team Coordinator (Camden), and Assistant Chief Steve Filipek, with survey work on the Caddo River, near Arkadelphia. I also conducted site visits with landowners on the following streams during this period: Cadron Creek-Faulkner County, Little Red River-Cleburne County, and Spadra Creek-Johnson County.

I spent one day with Mike Armstrong, Chief of Fisheries, touring some of the streambank renovation projects in Region IV. We visited a site on the Mulberry River, near Mulberry, where we used a combination of large rock and smaller rock to renovate a 600-foot section of eroded bank. This project was unique in that we used the remains of an old cotton gin, located on the property, to help restore the bank.

We also visited the Spadra Creek Project in downtown Clarksville. On this project, we incorporated two Newbury riffles, and a large rock retaining wall, to achieve a pool setting their city wanted. We also visited a recently completed project on the Ouachita River where we used three different methods of bank rehabilitation. On this project, we stabilized the shoreline on the upper section with a *longitudinal peaked stone toe protection dike* (LPSTP), and then incorporated two rock vanes into this structure to divert the flow of water away from the shoreline. On the lower section, we used the stair-stepped rock construction method to stabilize this vertical bank.

I also participated in a meeting with personnel from several different agencies in the planning of the Arkansas Stream Team/AWAG Conference for later this fall. The Arkansas Stream Team and Arkansas Watershed Advisory Group Conference will be held in Little Rock this fall (October 31 – November 02) and should be one of the best ever.

I also attended a meeting with Arkansas Rural Water Association, in Mena, and presented a presentation on the work we did on Spadra Creek. I attended the Off Highway Vehicle Trails meeting, in Russellville, with the U.S. Forest Service. The Forest Service is trying to manage the use of these vehicles in the forest with minimum impact on the environment. We have been asked to help with some of the erosion problems that have developed over the years by their usage.

HAS ANYTHING CHANGED?

Please let us know if your address, phone numbers or e-mail information has changed.

Name: _____

Address: _____

City, State, and Zip Code: _____

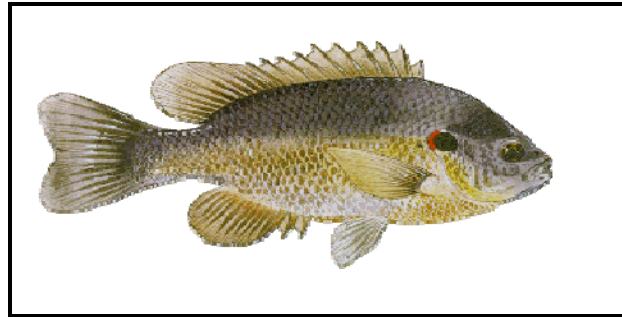
Home Phone: _____ Work Phone: _____

E-Mail: _____

Mail to: Stream Team Coordinator
2 Natural Resources Drive
Little Rock, AR 72205

OR E-Mail to: sfilipek@agfc.state.ar.us

For those reading a Stream Team newsletter for the first time, Stream Teams are groups of citizens from 6 years old to 96+ who care enough about Arkansas' water resources to form or join a team and adopt a stream or other water body in the state for the purpose of keeping it clean and healthy. Started in 1996, there are now over 500 Stream Teams statewide that carry out a variety of activities in the quest of keeping our state's water more natural. These teams conduct litter pick-ups, repair eroding streambanks on willing owners' land, plant trees to restore degraded riparian areas, work with local leaders to better manage their watersheds, and a variety of other activities aimed at conserving one of the most valuable of Arkansas' natural resources, its water. Anyone out there who hasn't already joined this winning team and is interested in joining the Stream Team, or learning more about this grassroots way to conserve our state's water resources, can contact Steve Filipek at the AGFC (501) 223-6371, or e-mail him at sfilipek@agfc.state.ar.us. There is no cost to join. Classes on how streams work, what animals live in and around them, and how a healthy stream functions, are offered each year at a reasonable rate.



NEWSLETTER AVAILABLE VIA E-MAIL.

In an effort to conserve resources, Stream Team members with current e-mail addresses were notified of the option to receive the newsletter via e-mail. If you have not received an e-mail notification and would like to receive the newsletter via e-mail, please notify Steve Filipek at sfilipek@agfc.state.ar.us, or at (501) 223-6371.

► **NEWSLETTER UPDATE:** *Easier access (a direct link) to the Stream Team Newsletter has been made available on the Internet:*
<http://www.agfc.com/streamteam>

The Process of becoming a STREAM TEAM...

1. Express an interest and request more information: **Send your name, address, and phone number to:**
STREAM TEAM PROGRAM COORDINATOR
Arkansas Game and Fish Commission
2 Natural Resources Drive
Little Rock, AR 72205
2. Sign up. You will get the newsletter and be counted among Arkansas' STREAM TEAM members. This will also get you in the network of those wanting to help out Arkansas' waterways.
3. Adopt a stream. To become more involved in the program you can adopt a stream. Select a stream that you or your group are particularly concerned about. For example...the creek on your land, your favorite fishing hole, or the stream you drive over every day to work or school.
 - A. Inventory your stream with help from STREAM TEAM coordinators.
 - B. Decide what you want to do---trash pick-up, habitat improvement, water quality monitoring, and/or whatever is of interest to you!

Steve Filipek/Debra Dickson
Stream Team News Editors
Arkansas Game and Fish Commission
2 Natural Resources Drive
Little Rock, AR 72205