



Current Events



The Newsletter of the Arkansas Stream Team

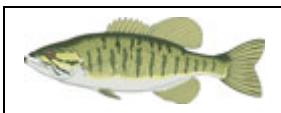
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October – December 2008

End-of-Year Report from Region I (Ozark Highlands and Boston Mtns.) Stream Team Coordinator, Dave Evans...

The last quarter of 2008 saw a significant amount of work done on a project that has been in the works for over three years - Blossom Way Creek, in Rogers. Phase I of this project was begun in 2003 and completed in 2004. Phase II of this multi-pronged project was begun in late 2005 and involved watershed assessment, stream restoration, water quality monitoring, and several public presentations. A number of organizations were involved including the University of Arkansas Department of Biological and Agricultural Engineering, the Watershed Conservation Resource Center (WCRC), Nelson Engineering and the city of Rogers, in addition to the AGFC Stream Team program.

The goal of this \$500,000-plus project was to demonstrate best management practices and methods for protecting streambanks in urban areas. Presenting an alternative to the use of concrete-lined channels in urban areas was the primary goal. The NPS (Non-Point Source) pollution problems being addressed were channel incision and accelerated bank erosion caused by increasing impervious surfaces in a rapidly urbanizing area. As most of you are probably aware, northwest Arkansas has been one of the fastest growing areas in the United States for the last several years.



The city of Rogers wastewater treatment facility staff performed chemical water analysis downstream of the site, beginning in 2003 and ending in late 2007. Analyses of these data by Nelson Engineering showed “a downward shift in phosphorus concentrations at the site during both base and storm-flows.” Total suspended solids (TSS) showed “storm-flow concentrations dropping by more than two-thirds and base-flow concentrations dropping to less than five percent of pre-construction levels.” However, nitrate-N (nitrogen) levels approximately doubled during this period and may be related to the increased use of fertilizers on newly established lawns in the watershed.

According to the results of the WCRC watershed analysis, in excess of 57% of the watershed is classified as “urban or built-up land.” From a stream health point-of-view, one of the major problems with an urbanized area is impervious surfaces, i.e. roof, roads, etc. – areas that prevent water infiltration into the ground. According to the Impervious Cover Model (Schuler 2004), a watershed can have four categories of percentage of impervious surface. WCRC found that the Blossom Way Creek watershed had an estimated 20% impervious surface. This means that Blossom Way falls into the “impacted” category and streams in this category “generally suffer from degraded water quality, loss of riparian cover and channel enlargement. However, these streams are generally good candidates for restoration.”



Pre-construction



*Sod/Top-Soil
Removal*



*Connecting the New
and Old Channels*



*Filling-in the Old
Channel*

The actual restoration project was designed by graduate students from the University of Arkansas and AGFC. This design involved restoring sinuosity and bank stability to the lower third of this multi-phased project site. A new flood plain was constructed beside the existing channel, and a new channel was dug in this flood plain. Because the new channel would intersect with the old channel, in four different places, plugs had to be installed in order to divert the water into the new channel. Actual construction only took about two weeks; however, due to this year's seemingly endless string of storms and two hurricanes that moved across the area, it took over two months to finish the construction phase.



*Channel Plug
and
Upstream Newbury Riffle*



After a Heavy Rain

The project is basically done, with the exception of planting some trees and shrubs in the constructed flood plain, and making some minor repairs to the upper portion of the project. This was a real learning experience for everyone involved.

End-of-Year Report from Region II (Delta) Stream Team Coordinator, Stephen O'Neal...

of Sound Scientific Practices to Achieve Sustainable/Healthy Ecosystems. The three focal points often overlap and intertwine, and are an effective mix of the elements needed to perpetuate the recruitment of citizens into participating in the enhancement and use of the state's natural resource base. Through these activities, citizens increase their awareness of the spectacular resources that Arkansas has within its borders. And through that hands-on awareness, the program is helping to perpetuate a strong fishing, hunting and stewardship paradigm promoted overall by the Arkansas Game and Fish Commission (AGFC).

2008 was a great year for Region II Stream Teams in spite of tornadoes, floods, and record snowfall (nature dictated many of the headlines in the *Natural State* for sure this past year). In broad terms, the activities of the Stream Team Program for 2008 in Region II can be broken down into the three tenants of the Program: *Education, Stewardship and the Promotion*

The emphasis placed on education cannot be understated in Region II; not only for the impacts it will have on future users of our aquatic and terrestrial resources, but for the current users, as well (and for resources that the Agency endeavors to manage and conserve). To that end, 2008 was a productive year with Stream Team presentations held at libraries, schools, university settings and 11 public relations events. A conservative estimate of 13,000-plus citizens were exposed to the program via the Stream Team/Herpetological display that has grown in popularity and demand over the past nine years.

Region II Coordinator, Stephen O'Neal, giving one of his Stream Team presentations.



The educational component involving water quality monitoring is well established by the Stream Team Program, and is a very important hands-on responsibility for school groups and citizen organizations alike. In 2008, 11 field trips in nine counties were performed focusing on water quality testing, which included chemical, physical, and biological parameter measurements and analyses. These outings are a great way to get individuals interested in our aquatic resources and provide rich opportunities to discuss future fishing and hunting traditions, land use paradigms, and stewardship principles; all the while, applying knowledge attained in a classroom to practical application in the field.



Water Quality Monitoring

One of the fastest growing components of the program is the ever-increasing number of stewardship projects that are being channeled into the workload. These high-profile streambank remediation projects are the majority time need from a Region II perspective. Perhaps this is due to the positive attention they garner, or to the fact there are few individuals performing this type of work in Arkansas—only a handful in the entire state. Further, the United States Army Corps of Engineers (ACOE) and the United States Fish and Wildlife Service (USFWS) are contacting Stream Team Program personnel to review all riparian and hydrogeomorphological projects before approving them (18 in Region II for 2008). In addition, they refer all private inquiries regarding streambank stabilization to one of the four regional Stream Team coordinators in the state. All of these factors

combine to produce a tremendous number of requests for site visits, plan developments, survey outings, and in-office development of plans for riparian area remediation, streambank erosion abatement, thalweg management systems and fisheries habitat improvement projects. Beyond the aforementioned ACOE and USFWS review visits, 41 site visits were conducted in 2008 resulting in survey work and plan developments on 27 of those properties.

The total amount of time needed to perform the surveys and engineering-quality calculations and produce the detailed drawings, layouts, cost estimates, pictures, maps, soils information, topography analysis, GIS (Geographic Information Systems) detail and relevant information suitable for submission to the ACOE is four-to-five days for *each* plan. The Stream Team Program and the AGFC have a good reputation with the ACOE, USFWS, ANRC (Arkansas Natural Resources Commission), NRCS (Natural Resources Conservation Service), and ADEQ (Arkansas Department of Environmental Quality) when it comes to the detail of these plans, and that reputation has been a beneficial factor relating to interagency projects. Once plans are developed, the true challenge of securing additional funding for these projects is addressed. In Region II proposals for USFWS Partners for Fish and Wildlife funding cost shared over \$27,000 to install fish habitat structures, instream thalweg management systems, and created new riparian areas on four individual projects. That amount was in addition to nearly \$17,000 in private and state monies that were already allocated for those particular projects.

Another large project associated with the stewardship focus is the South Fork Spring River LIP (Landowner Incentives Program). This federal funding source was applied for and secured in the amount of \$198,000 with a 75% federal cost share for streambank stabilization, fisheries habitat improvements and riparian area establishment on the South Fork of the Spring River. Two of the projects on the South Fork were completed in 2008 resulting in over a one-fourth mile of instream fish habitat improvement and bank stabilization/restoration.



Instream fish habitat improvement and bank stabilization/restoration at work.

As the Fisheries Division lead for the Bayou Meto CREP (Conservation Reserve Enhancement Program), I am pleased to report the acreage cap on the program had to be raised three additional times (over 5,000 acres enrolled in the watershed) in order to accommodate the demand for the program. The ultimate goal of the project, to enroll acreage adjacent to the Bayou Meto watershed in order to improve water quality, enhance fisheries and create terrestrial wildlife habitat, are coming to fruition as planned and efforts will now be going into the monitoring phase to make sure the areas are managed properly, trees are functioning as buffering components and annual surveys of the fishery will be documented as well—with the invaluable expertise of Stream Fisheries biologist, Jeff Quinn; once again proving that large, biologically significant projects are accomplished best via the *Team* approach.

In an effort to provide a specific example of how education, stewardship and practicing sound scientific principles comes into harmony, the White County Homeschool Stream Team made a monumental effort by planting 1,050 trees on a streambank in Randolph County recently. In less than 24 hours, the same area that was 12 above the surface of the water, was buried in over eight 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. Survival was over 95%!

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.

The newly established riparian area will also help to slow erosion from flood events by several different means. Sometimes we are asked, “Why are you planting trees, riparian shrubs and native grasses if you 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 enter the soil, 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, this is true as 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 from the soil and into the tree itself. 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 ground as opposed to running off—a staggering 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 trees, 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 saw 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) and resistance is met—the energy required to pet the cat is increased.

The fact that the trees are slowing the flowing waters down is evidenced by sediment accrual 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 buildup over time.

Another benefit afforded by healthy established riparian areas is 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. 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, they are the best places to fish around if they become unearthed and go into the waterway. At that stage, our riparian area plantings have now become instream aquatic habitat.

That is the Stream Team Program utilizing *Education, Stewardship and Science* for the benefit of the resource and the people who enjoy those resources.

**Region III (Gulf Coastal Plain)
Stream Team Coordinator...**

Region III Stream Team Coordinator, Kevin Atkins, has moved out-of-state. The news from Region III will continue once this position has been filled.

End-of-Year Report from Region IV (Ouachita Mountains and Arkansas River Valley) Stream Team Coordinator, Jim Ahlert...

Two streambank renovation projects were completed during this period. The Ligon Project on the Little Maumelle River in Pulaski County was completed in October, and the Myers Project on the Little Red River near Pangburn was completed in December. We used four rock vanes and bank sloping to solve the erosion problem on the Little Maumelle River near Ferndale. The Myers Project was completed by the use of large rocks placed on the bank in a stair-step fashion. This method works well in a tight situation where bank sloping is not an option. Bank sloping in these areas would require the removal of some of the riparian zone. The riparian zone at this site was primarily made up of large trees we did not want to lose.



*Little Maumelle River
Site Before Construction*



*The Installation of Four Rock
Vanes and Bank Sloping on the
Little Maumelle River*

Several site visits were made with landowners on streams to assess their bank erosion problems. Site visits were made on Board Camp Creek and Big Creek in Polk County, Glazypeau Creek and the Middle Fork of the Saline River in Garland County, and the Little Red River in White and Cleburne Counties.

Steve Filipek and I, along with representatives from the U.S. Forest Service, toured the Buckhorn OHV Trail on the Ozark National Forest in Crawford County. The Forest Service is restricting off-highway vehicles to specially designated trails within the forest, and the Buckhorn Trail system is one of the trails so designated. We are helping them with the design of two stream crossings that, when completed, should minimize the impact OHV vehicles have on the streams during crossings.

Water quality monitoring was conducted on Gulpha Creek and Bull Bayou Creek in Garland County, and Prairie Creek in Polk County. I assisted the St. John's Stream Team with the monitoring on Gulpha Creek and Bull Bayou Creek. St. John's has been monitoring these two creeks for seven years and has contributed important water quality data to the statewide database. The Mena High School Stream Team conducted its first outing with me on Prairie Creek to analyze water quality. This is a new Stream Team, and the students enjoyed the chance to get out of class and take part in collecting water quality data on a very cold day in December.



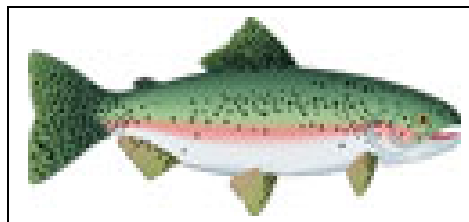
*St. John's Stream
Team Members
Collecting Aquatic
Macroinvertebrates*



*Mena High School
Stream Team Students
Conducting Water
Chemistry Tests*

In November, I took part in the "Arkansas Has It All" workshop held at the Ferndale 4-H Center. Local teachers from across the state took part in the workshop where they were introduced to the various programs offered by the Arkansas Game and Fish Commission. Andrea Daniel, Fisheries Division staff biologist, and I conducted the Stream Team Program portion of the workshop. We, along with several of the teachers, conducted water quality monitoring on Ferndale Creek. Several of the teachers were interested in getting a Stream Team Program started in their schools in order to get their students involved in these outdoor activities.

The Arkansas Watershed Advisory Group/Stream Team Conference was held in Little Rock the last two days of September and the 1st of October. It was an outstanding conference with a large attendance. The participants were treated to excellent presentations addressing various aspects of concern, and took part in field trips where they witnessed improvements made to streams by various agencies and organizations.



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: _____

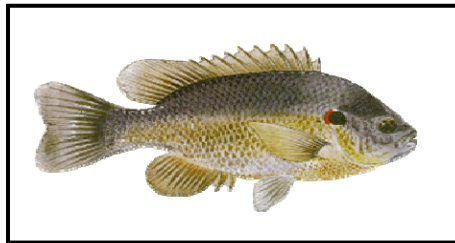
E-Mail: _____

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!



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