



**T**he 2005 Nonpoint Source Pollution Management Program Annual Report highlights statewide and watershed projects the Arkansas Natural Resources Commission (ANRC) supported during the past year as well as the contributions of some of our key partners, including the Arkansas Department of Environmental Quality, the Arkansas Forestry Commission, the Arkansas Game & Fish Commission, the University of Arkansas' Division of Agriculture and others.

In order for Arkansas' Nonpoint Source Pollution Management Program to be effective, local, state and federal agencies work together to coordinate existing and new programs to reduce nonpoint source pollution and improve the state's water quality. This level of interagency cooperation is one of the major strengths of Arkansas' program and a testament to Arkansas' commitment to improve the state's water quality.

This past year has been productive. ANRC accelerated implementation of new rules to improve nutrient management in nutrient surplus areas, which will result in substantial improvements in water quality over time. More than 149 individuals representing 75 entities served on a task force to update the NPS Management Program for 2006-2010. The task force revised the list of priority watersheds using the draft 2004 303(d) list of impaired waterbodies developed by the Arkansas Department of Environmental Quality as a starting point and updated milestones for the NPS Management Program. Working with local entities, nine element watershed plans were completed and submitted to EPA for review for the Illinois River, Bayou Bartholomew, Upper White River, and L'Anquille River watersheds. Discussions with the Natural Resources Conservation Service in FFY 2005 will result in unprecedented coordination of EQIP and 319 funds in FFY 2006.

As ANRC continues to plan and implement watershed based management programs to reduce nonpoint source pollution, this type of cooperation lays the groundwork for continued success of the Arkansas Nonpoint Source Pollution Management Program. Your participation in the program is deeply appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Randy Young". The signature is fluid and cursive, written over a light grey rectangular background.

J. Randy Young, P.E.  
Executive Director

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# Program Highlights

Four initiatives illustrate Arkansas' commitment to preventing, reducing and managing nonpoint source pollution through its Nonpoint Source Pollution Management Program.

- A science education project aimed at middle school children in 16 counties
- A multi-purpose greenway project in a rapidly urbanizing area
- Implementation of new requirements in nutrient surplus areas
- L'Anguille River farmers' implementation of BMPs begins to show results

These initiatives were selected because they illustrate what can be achieved through targeted investment of limited resources when there is enthusiastic local leadership, effective cooperation and a sound approach.

## If We Could Reach Every Science Teacher In Arkansas

School districts, conservation districts and ANRC partnered to implement *Conservation Education Program in 16 Arkansas Counties (04-600)*, conducting conservation education workshops educators in 16 counties. Each workshop focuses on nonpoint source pollution through study modules: soil, water, energy, vegetation, recycling and pollution. The content is correlated to Arkansas Frameworks, which are based on National Standards, including standards for earth science, life science, physical science, language arts, math, and social studies.



In total, 136 teachers in 42 school districts have been trained in just one year. Each participating teacher received a guide containing the objectives, instructions, and correlation to standards and their school district received a conservation education kit geared to middle school students with educational materials for use in the classroom. Additional requests are coming in from teachers, administrators and conservation districts across the state for the workshop and materials.

Evaluation showed participants were pleased with the structure and content of the workbook and delighted with the educational materials. According to some participants, "This workshop was without a doubt, the most enjoyable and informational workshop I have ever attended." "There were lots of hands-on activities that made each subject understandable and very clear." "I was renewed in science."

If children really do represent the future for water quality, as we so often hear, then it is critical to train teachers to effectively teach them the importance of water quality. There are nearly 60,000 middle school age children in the 16 participating counties, 30% of all middle school children in Arkansas. One observer said, "Imagine the long-term impact if we could bring this workshop to every science teacher in every school district in Arkansas!"



## Urban Greenway Project Blossoms Into Much More

Three years ago, the City of Rogers, the University of Arkansas and ANRC launched a project to demonstrate a greenway approach to managing threatened urban streams, *Demonstration of Greenway Development to Protect Ecological Services in Urban Streams (02-900)*. The Blossom Way project has more than achieved its goals and is gaining national recognition after presentations at nine national meetings and being highlighted in the *Public Works* magazine in November 2005 at [www.pwmag.com](http://www.pwmag.com).

Located in rapidly urbanizing Northwest Arkansas, the Blossom Way arm of Osage Creek is located between Dixieland Drive and 26<sup>th</sup> Street in Rogers adjacent to Rogers High School. Through the Blossom Way Greenway project, the City of Rogers and its partners are turning 3,500 feet of a channelized drainage ditch into a fully restored meandering stream with riffles and forested riparian areas with wildlife habitat, paved trails and recreational access. In spite of the expected impacts from aggressive urbanization upstream of this project, a comparison of annual loadings shows a 7% decrease in the amount of sediment being transported. In addition the stream appears to be adjusting from ephemeral to intermittent with the presence of more consistent and stable stream flow. There are also signs of healthy stream invertebrates such as caddisflies and stoneflies. The restored area not only increases recreational opportunities but also provides an outdoor classroom for Rogers High School and the University of Arkansas. Advertisements for residential lots for sale tout the aesthetic benefits of the greenway. Presumably, developers are charging a premium for these lots.



The project was an effective demonstration at many levels: More than 232 citizens participated in the project design and implementation, including meetings and tree planting. The project shows urban planners and developers how using a greenway approach to urban stream restoration not only improves drainage but also improves water quality and wildlife habitat, creates new recreational resources and enhances property values. The project also demonstrates the huge benefits that can accrue from cooperation across departments in city



government (e.g., street department, city engineer, environmental department, parks and recreation, and school district). Perhaps, most importantly, the project demonstrates how one thing leads to another.

As a result of the project, the City of Rogers has revised and approved its Master Plan to include 54 miles of greenways/trails mostly along urban streams and formed an inter-departmental greenways committee. The City

has budgeted \$500,000 as match for nearly \$3 million in pledged funds to establish the planned greenways, including \$1 million from Wal-Mart. Planning for the trails has led to increased inter-governmental cooperation. Rogers' 54 miles of trails will tie into the Bella Vista Trail System, the Bentonville Trail System to the northwest already in place and will someday connect to the planned Lowell trails to the southeast. The entire Northwest Arkansas trail system will be part of the Heritage Trail running from Missouri to California.

More importantly, this project has caused the city to begin thinking about drainage projects as part of the larger watershed. For example, the street department required an engineering design firm to design for sediment transport and coordinate with the environmental department on a drainage project. The nearby cities of Springdale and Bentonville are also showing interest in these "soft engineering" approaches.

## **New Requirements For Poultry Operations**

After a slow start, a new package of programs enacted by the Arkansas General Assembly in 2003 will soon begin generating results. ANRC drafted Titles 19, 20, 21, and 22 to implement the new laws aimed at improving water quality. Title 19 requires statewide registration of poultry feeding operations with more than 2,500 birds. Title 20 authorizes the Nutrient Management Planner's certification program and Title 21 authorizes a nutrient applicator certification program. Title 22 defines nutrient surplus areas and specifies nutrient management requirements for nutrient surplus areas and non-surplus areas of the state. The new programs can be found at <http://www.aswcc.arkansas.gov/CommissionRules.htm> and a summary is available at [http://www.awag.org/2004%20Conference/Track%201/Baber\\_Poultry\\_Rules.pdf](http://www.awag.org/2004%20Conference/Track%201/Baber_Poultry_Rules.pdf).

While it took longer than expected to gain approval from the Arkansas General Assembly for the details, the legislature embraced the new requirements in the second quarter of FFY 2005. Training of planners and applicators began almost immediately. Statewide registration took effect in 2005 while the remaining new requirements went into effect January 1, 2006.

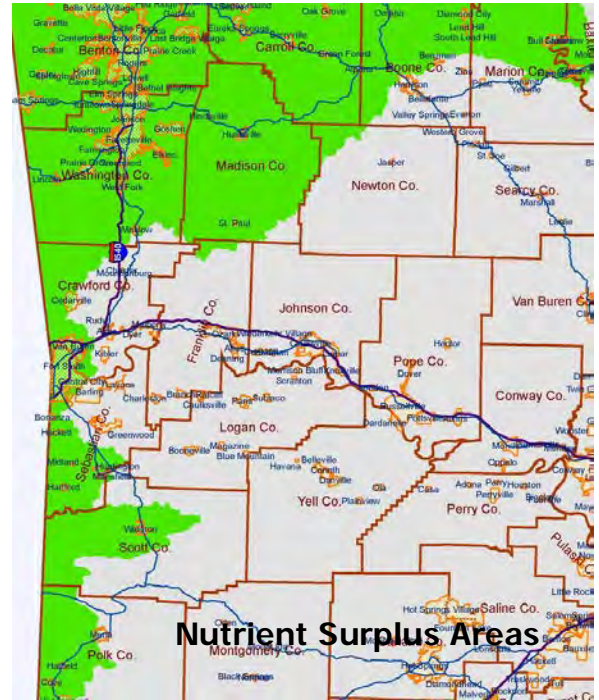
**Statewide Poultry Registration Provides A New Source of Information.** Arkansas will soon have a new source of information for planning. ANRC is working closely with the conservation districts, the University of Arkansas Cooperative Extension Service and poultry processors to get the word out that poultry operations with 2,500 or more birds across the state must now register and provide information annually. The new regulations also provide assurances that the operation-specific information poultry operators submit will be kept confidential. Required information includes the number of birds, type of operation, location, litter management system, type of litter storage system and amount, acreage used for land application, land application practices and amount, amount of litter transferred or used, and processor(s) in which the operator contracts.

As of December 2005, 4,057 poultry operations had registered statewide. ANRC is pleased with the level of compliance thus far. The 2002 Census of Agriculture identified 5,334 poultry operations with layers or meat-type chickens, which includes many operations with fewer than 2,500 birds that are not required to register. With the deadline for initial registration still in the future, Arkansas is well on its way to full compliance. ANRC will utilize data collected through registration to improve watershed models and more effectively focus resources to generate measurable results.

### **Additional Requirements For Nutrient Surplus Areas Will Increase BMP**

**Implementation.** Arkansas defined nutrient surplus areas where additional requirements are being implemented for management of nutrients, primarily poultry litter. Eight watersheds were designated as nutrient surplus areas, including:

1. Illinois River watershed in Benton, Washington, and Crawford counties
2. Spavinaw Creek watershed in Benton County
3. Honey Creek watershed in Benton County
4. Little Sugar Creek watershed in Benton County
5. Upper Arkansas River watershed, including Lee Creek in Crawford and Washington counties, and Massard Creek in Sebastian County
6. Poteau River watershed in Scott, Sebastian and Polk counties
7. Mountain Fork of the Little River watershed in Polk County
8. Upper White River watershed above its confluence with the Buffalo River in Baxter, Benton, Carroll, Washington, Madison, Franklin, Newton, Marion, and Boone counties



Poultry operations and nutrient application sites located in watersheds designated as nutrient surplus areas must now develop a Nutrient Management Plan or apply at a protective rate of application. Nutrient Management Plans will include periodic nutrient content analysis and describe how litter will be used, such as land application at a rate specified in the plan or at the protective rate acceptable to the ANRC. Poultry operators in nutrient surplus areas must use a certified nutrient planner to develop all plans for dry litter and nutrient land application. Poultry operators must become a certified applicator or work under the supervision of a certified applicator to apply litter or designated nutrients. In addition, record keeping is required.

Implementing requirements for Nutrient Surplus Areas has been a cooperative effort between ANRC, the Arkansas Department of Environmental Quality, conservation districts, NRCS, and the University of Arkansas Cooperative Extension Service. These agencies have worked closely together since the new laws were passed in 2003 to develop the draft regulations, develop consensus guidelines for nutrient planning and application and determine what should be included in education programs for certified planners and applicators.

Guidelines for certifying planners and applicators and training programs (Title 21) were developed under the ***Arkansas Excess Nutrient Management Project (03-700)***. Under the auspices of this project, the Cooperative Extension Service coordinated a series of discussions among ANRC, NRCS, ADEQ, and Arkansas Association of Conservation Districts (AACD). These discussions led to the development of the *Arkansas Nutrient Management Planner's Guide*, which consists of 10 chapters and is based on an eight step process for writing a nutrient management plan. As a result of this cooperative approach, the *Arkansas Nutrient Management Planner's Guide* has been adopted by all agencies involved and ADEQ has adopted the guide as its protocol for nutrient management planning for the CAFO program. In addition, these same agencies developed the *Arkansas Nutrient Applicator's Guide*, which also has been adopted by all of the partner agencies.

The Cooperative Extension Service developed a four-day training for nutrient planners based on the *Arkansas Nutrient Management Planner's Guide*. To date, five training sessions have been delivered in the nutrient surplus area. Nearly 90 planners have completed the training. All future plans written in Arkansas will be developed according to the protocol laid out in the guide,



which will result in improved management of nutrients on thousands of acres across nutrient sensitive watersheds in the state.

In addition, the Cooperative Extension Service has developed a 2.5 hour training session for both private and commercial applicators. Extension conducted 35 training workshops, more than two in each county in nutrient surplus watersheds in FFY 2005 with more scheduled in FFY 2006. More than 2,000 private and commercial applicators were trained in FFY 2005, which will have an immediate impact on how and when nutrients are applied in nutrient surplus watersheds in Arkansas.

## L'Anguille Farmers Implement BMPs To Reduce Runoff

Total Maximum Daily Loads were established for siltation/turbidity for the L'Anguille River in 2001. Since then, growing effort has been devoted to educating farmers about management practices that will reduce runoff and improve water quality in this 963 square mile Delta watershed where row crop agriculture dominates land use. Projects include increased monitoring (*04-113, 05-113*) as well as education, demonstration and best management practice (BMP) implementation. Entities that are currently implementing projects include Ducks Unlimited (*01-410*), the St. Francis County Conservation District (*01-510*) and the Cooperative Extension Service (*04-400*). Two new projects were approved in FFY 2005 for technical assistance, education and BMP implementation (*05-600 and 05-700*).



The University of Arkansas' Cooperative Extension Service is striving to educate crop producers in the L'Anguille River Watershed that they can conserve groundwater resources while improving water quality through better management of irrigation water, *Demonstrating the Impact on Water Use and Runoff Water Quality of BMP Implementation for a Rice Rotation in the L'Anguille River Watershed (04-400)*. For this demonstration project, two St.

Francis County farmers have agreed to demonstrate the benefits of BMP implementation. Flashboard risers (see picture above) have been implemented on two fields draining 105 acres (one on each farm) and an outlet pipe has been installed on one farm. Using EPA's STEPL model, Extension estimated sediment 151.6 tons per year without the BMP and 37.9 tons per year with the BMP implemented for a reduction of 113.7 tons per year or 1.1 tons per acre per year.

Water use and water quality data are being collected on fields with and without the BMPs to compare the actual impact. Through a series of field days, training sessions, and other events, more than 845 individuals learned about these environmentally sound and economically viable BMPs in FFY 2005. By integrating information about these BMPs into training on irrigation scheduling, Extension has been able to reach far more producers than it might otherwise. More than 500 producers learned about these BMPs at just two presentations on irrigation scheduling.

Through the *Lower L'Anguille River Watershed Cost-Share Project (01-510)*, the St. Francis and Lee County Conservation Districts have completed conservation plans for 48 farms (compared to the original project goal of 10 conservation plans). These 48 farms treated 9,412 acres of the watershed in St. Francis and Lee counties. Conservation plans have integrated a wide range of BMPs approved for cost share, i.e., no till (14 farms), grade stabilization structures

(22 farms), irrigation water conveyance (12 farms), water control structure (1 farm), pasture establishment (3 farms), and a pond (1 farm) with other management practices, such as conservation crop rotation, nutrient and pest management, and irrigation water management. In addition to BMP implementation, the project has put a high priority on outreach and training, developing brochures, making presentations, and conducting field days.

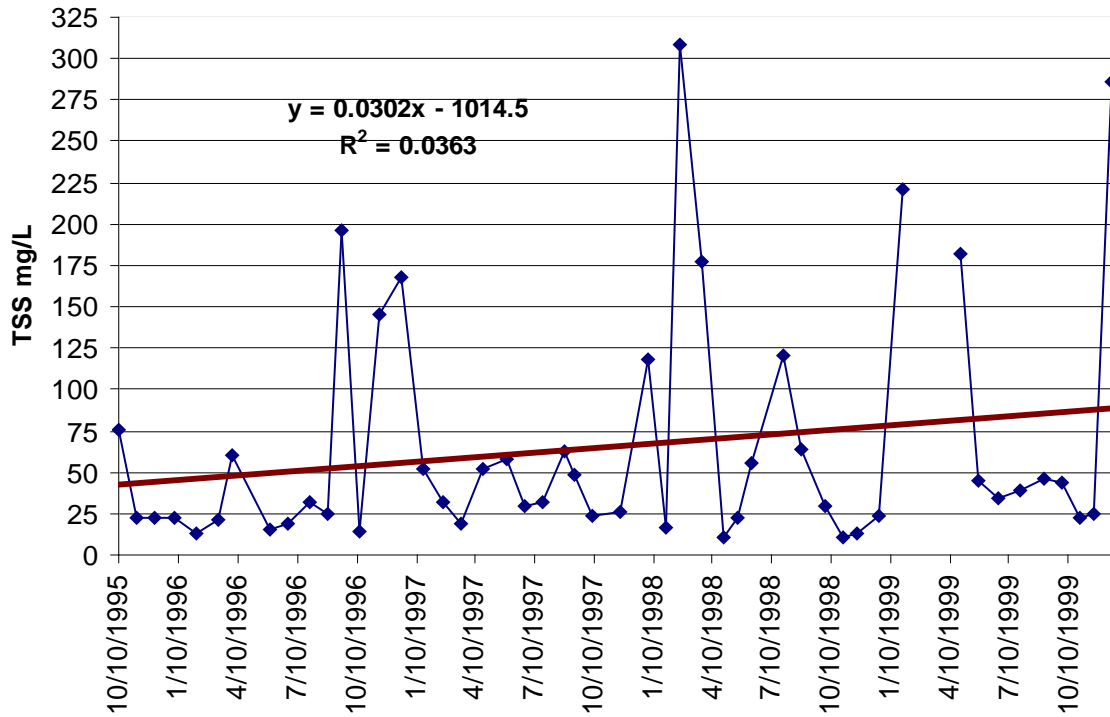
Beginning in the summer of 2001, Ducks Unlimited (DU) cooperated with the ANRC to address sediment loading in the L'Anguille River. DU's *L'Anguille Watershed Partners Project (01-410)* seeks to reduce sediment loss from row crop agriculture in the L'Anguille River watershed by a calculated 200,310 tons through installation of 429 water control structures on farms that will drain 15,000 acres over a period of 15 years.

Landowners willing to manage water control structures and perform other beneficial practices such as minimum- or no-tillage of straw after harvest were contacted. Since the beginning of the project, the project has provided cost share for 243 water control structures on 9,760 acres in the L'Anguille River watershed. On an ongoing basis, Ducks Unlimited biologists promote beneficial practices and effective management of control structures to area landowners. Ducks Unlimited biologists also conduct compliance visits to farms to ensure that program goals are met and discuss management strategies with landowners. The project removes a critical constraint (i.e., the cost of water control structures) that has in the past kept rice growers from using sustainable post-harvest management practices.

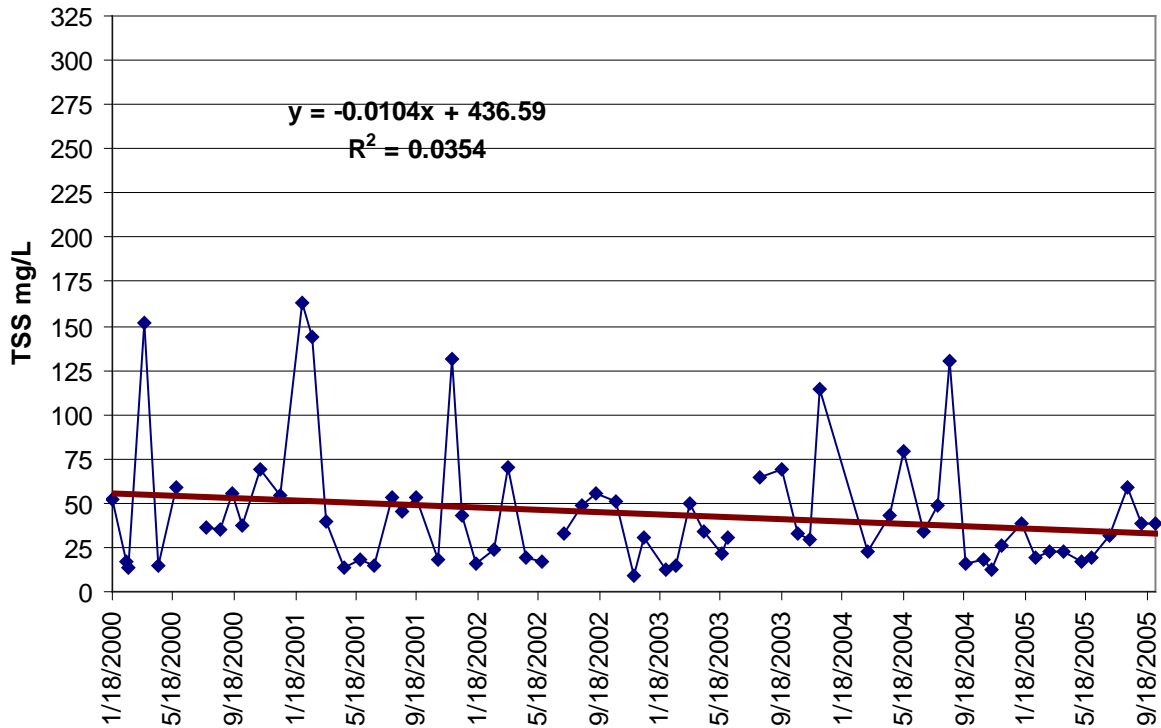
This project is built on DU's proven success through other partnerships, including the Arkansas Partners Program (APP) and the Arkansas Rice Program (ARP). These programs provide cost share for water control structures directly to growers or instruct landowners on the importance of beneficial post-harvest management practices. More than 143,000 acres of agricultural lands and wetlands have been enhanced through APP since 1993 and 400,000 acres of post-harvested rice fields have been benefited through ARP since 1998. Collectively, these projects are critical to continue addressing sources of NPS pollution in fragile riverine systems of eastern Arkansas.

Preliminary analysis suggests that together these efforts may be making a measurable difference in total suspended solids (TSS) in the L'Anguille River. Looking at monthly monitoring data for TSS on the L'Anguille River near Marianna shows a different picture from 1995-1999 and from 2000-2005, when investment in BMPs accelerated. TSS is decreasing slightly and the number and intensity of months when TSS is above 175 mg/L is decreasing, which suggests that BMP implementation may be beginning to make a measurable difference.

**TSS Levels From October 1995 through December 1999 on the L'Anguille River near Marianna (ADEQ monitoring station FRA 10, planning segment 5b)**



**TSS Levels From January 2000 through October 2005 on the L'Anguille River near Marianna (ADEQ monitoring station FRA 10, planning segment 5b)**





# Program Overview

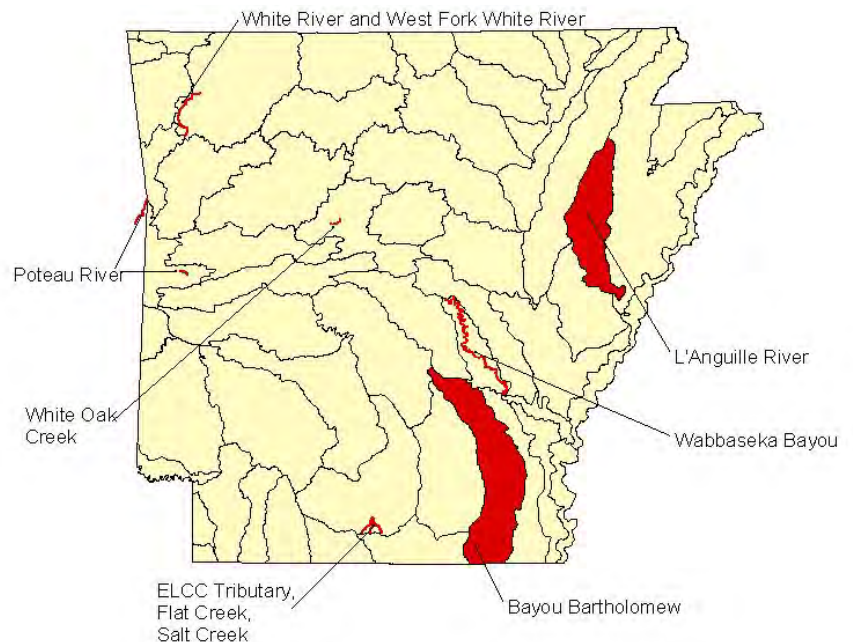
Arkansas' current NPS Management Program was developed in 1997 and covers the period 1998 through 2002. An amendment was prepared in 2002 to provide interim guidance for 2003-2004.

## TMDL and Priority Watersheds

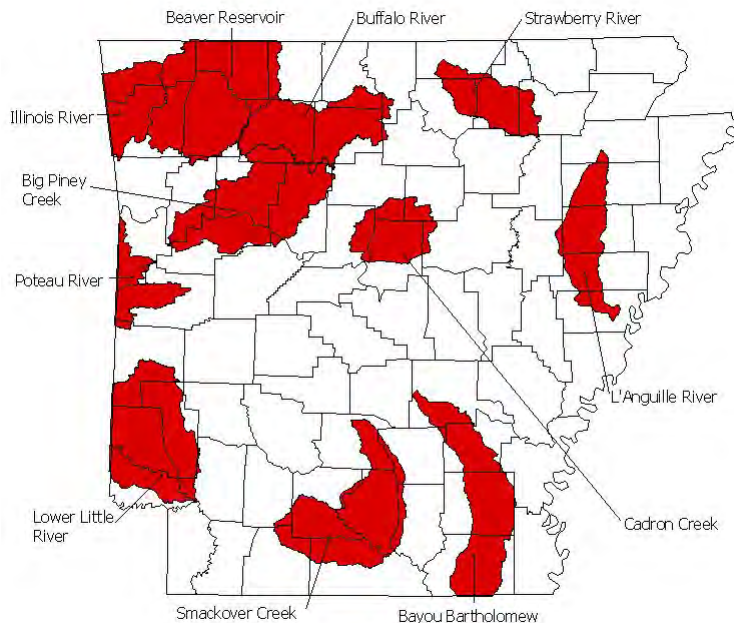
Arkansas' nonpoint source pollution management program considers the entire 8-digit watershed as a priority watershed if any segment has an established Total Maximum Daily Load related to nonpoint source pollution, excluding mercury. The map to the right shows the location of watersheds with completed TMDLs and TMDLs in draft, related to nonpoint source pollution excluding mercury. Draft TMDLs that do not require a pollutant reduction are not shown.

In addition to watersheds with nonpoint source related TMDLs, Arkansas selected priority watersheds through a unified assessment conducted in 1997.

## Watersheds with NPS-Related TMDLs Completed and In Draft



## FFY 2005 Priority Watersheds



For the purposes of the 2005 Management Program, priority watersheds include:

- Illinois River
- Upper White River
- Buffalo River
- Strawberry River
- Big Piney Creek
- Cadron Creek
- Poteau River
- Lower Little River
- Smackover Creek
- L'Anguille River
- Bayou Bartholomew



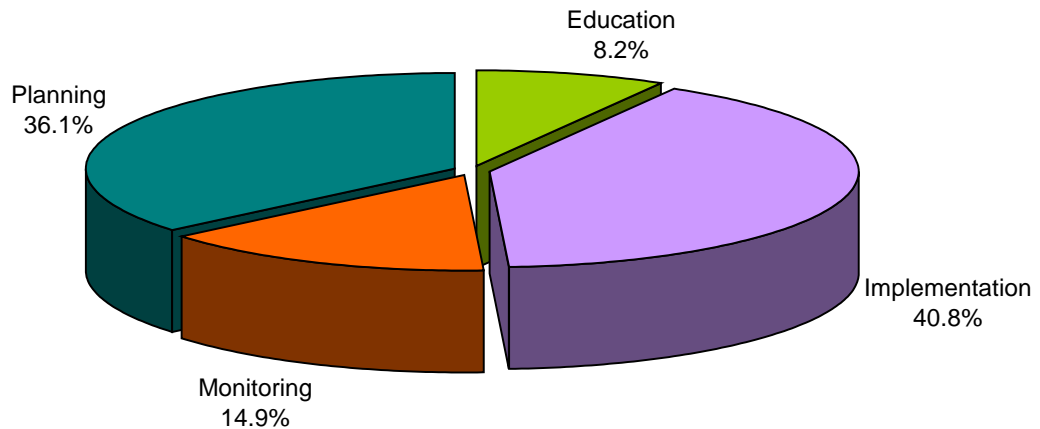
## FFY 2005 Expenditures

Arkansas' NPS Management Program is administered through projects. FFY 2005 projects were selected based on the 1998-2004 program update. The agencies and nonprofit organizations that carry out projects provide non-federal match for federal funds.

In FFY 2005, ANRC and its partners spent \$7.1 million dollars to reduce and prevent nonpoint source pollution in Arkansas. This included \$3.8 million in federal Clean Water Act Section 319 funds which were matched by \$3.3 million in non-federal funds. Federal and non-federal expenditures by month can be found in Appendix A.

The pie charts below show how federal funds disbursed for projects were allocated between planning, monitoring, education and implementation. A list of projects, their status, and primary goal can be found in Appendix B, Project Status.

### Allocation of FFY 2005 Project Expenditures of CWA 319 Funds



## Cost Share, BMP Implementation and Load Reduction

Five projects included a cost share element in FFY 2005. Cost share consists of funds paid to landowners and land users to implement and maintain carefully targeted best management practices (BMPs). BMPs eligible for cost share are selected and pre-approved on a project-by-project basis consistent with the current management plan. ANRC works with each of its project holders to identify appropriate and economically feasible BMPs that landowners are willing and able to implement. Each of these projects is targeted at pollution prevention and/or load reduction in a particular watershed. The table on the following page shows 319 funds paid to landowners as cost share and the landowner reported investments in BMPs by project in FFY 2005.

Project#	County	Federal Funds Used For Cost Share	Private Match Received	Total
01-510	St. Francis Co.	\$31,927.60	\$50,299.51	\$82,227.11
02-400	Stone Co.	\$15,123.00	\$22,688.00	\$37,811.00
04-200	Boone Co.	\$8,196.77	\$11,788.77	\$19,985.54
04-200	Carroll Co.	\$111,940.00	\$155,532.00	\$267,472.00
04-200	Madison Co.	\$61,105.34	\$101,366.30	\$162,471.64
04-300	Benton Co.	\$16,517.98	\$30,978.71	\$47,496.69
04-500	Fulton Co.	\$56,047.00	\$82,881.00	\$138,928.00
Totals		\$300,857.69	\$455,534.29	\$756,391.98
Percentage		39.8%	60.2%	100.0%

Reported BMPs implemented in FFY 2005 by project are can be found in Appendix C. The table below summarizes BMPs implemented and the number of farms on which each practice was implemented in FFY 2005.

NRCS Code	BMP	Number of Farms Where Implemented In FFY 2005
312	Waste Mgt Systems	12
313	Waste Storage Facility	44
314	Brush Management	20
316/317	Animal Mortality Facility	6
342	Critical Area Planting	4
344	Seasonal Residue Management	5
351	Well	1
378	Pond	12
382	Fencing	66
391	Riparian buffers	42
393	Filter Strip	77
394		6
410	Grade Stabilization/Pipe Drops	11
430DD	Pipe	4

NRCS Code	BMP	Number of Farms Where Implemented In FFY 2005
449	Multiple Inlet	1
511	Forage Harvest Mgt	77
512	Pasture and Hay Planting	57
516	Pipeline	13
528	Prescribed Grazing	181
560		2
561	Heavy Use Area	1
580	Streambank Protection	3
587	Water Control Structures	6
590	Nutrient Management	181
595	Pest Management	104
612	Tree Planting	29
614/642	Trough/Tank/Well	33
633	Waste Utilization	142
645	Upland Wildlife	27
786	Alum Treatment	84
na	Proper Vegetative Planting Practices	28
na	Improved Grass Cutting Practice	28
na	Proper Watering Practice	28
na	Litter Hauling	39

Implementation of these BMPs resulted in estimated load reductions shown below.

Pollutant	Load Reduction in FFY 2005	Cumulative Load Reduction <sup>1</sup>	Unit
Phosphorous	50,178	150,651	lbs/yr
Nitrogen	176,008	399,775	lbs/yr
Sediment-Siltation	24,199	41,229	tons/yr

<sup>1</sup> Cumulative load reduction is the cumulative life of project total of projects with expenditures in FFY 2005.



# Planning & Modeling

## 2006-2010 Management Program Update

Significant regulatory and voluntary program changes that have occurred since the current plan was developed coupled with significant changes in Arkansas' landscape and continued improvements in BMPs. These changes caused ANRC and its partners to decide in FFY 2004 to undertake a major update of Arkansas' Nonpoint Source Pollution Management Program. The bulk of the review and update took place in FFY 2005.

In response to significant federal policy and regulatory changes that have occurred since the current plan was developed in 1997, ANRC needs to adapt its NPS management program. Some of the policy and regulatory changes that make program changes necessary include:

- EPA implemented new rules for confined animal feeding operations and animal feeding operations (CAFO/AFO).
- EPA's Phase II Stormwater regulations went into effect substantially increasing the number of municipalities and construction sites required to obtain NPDES permits.
- EPA accelerated implementation of the TMDL program nationwide.
- EPA issued new guidance for Section 319(h) of the Clean Water Act on October 23, 2003, which guides planning and implementation of states' nonpoint source pollution management programs.
- The 2002 Farm Bill expanded existing conservation programs and established new programs.

Regulatory and organizational changes also have occurred at the state level, including:

- Arkansas enacted significant new regulations defining nutrient surplus areas and establishing requirements for nutrient plans and application of nutrients in surplus areas.
- Arkansas enacted regulations requiring poultry operations to register.
- The 2005 General Assembly renamed the Arkansas Soil and Water Conservation Commission the Arkansas Natural Resource Commission. In separate legislation, the 2005 General Assembly combined the Arkansas Plant Board, the Arkansas Livestock and Poultry Commission, the Arkansas Forestry Commission and the Rural Development Commission to form the Arkansas Department of Agriculture.

In addition to regulatory changes, a wide range of voluntary programs have been implemented since 1997 to promote voluntary use of best management practices, such as:

- Arkansas has developed guidelines for silviculture best management practices. The Arkansas Forestry Commission monitors and reports implementation of these best management practices every other year. Implementation has increased steadily since monitoring began.
- Arkansas has developed best management practices for resource extraction. The Arkansas Department of Environmental Quality monitors implementation of these best management practices.

- Entities providing training on best management practices for animal agriculture meet regularly and work together to promote consistency of their messages and coordination of efforts.
- Local elected leaders in Northwest Arkansas have formed a coalition to work together under the auspices of the Northwest Arkansas Regional Planning Commission with technical support from the University of Arkansas Cooperative Extension Service to reduce urban sources of nonpoint source pollution and comply with new MS4 regulations.

To get started, ANRC assembled a core team to provide the analytic basis for updating the management program. Under the auspices of a project to *Update Arkansas' NPS Management Program (04-130)*, Dr. Marty Matlock, Department of Biological and Agricultural Engineering, University of Arkansas, led the core planning team, which included representatives of the Cooperative Extension Service, Arkansas Natural Resources Commission, and ComMetrics, Inc., a consulting firm that specializes in public involvement.

ANRC invited wide-ranging stakeholders to become part of the NPS Management Program Task Force in July 2004. Over the course of FFY 2005, more than 140 persons representing 79 different organizations participated in the development of Arkansas' 2005-2010 Nonpoint Source Pollution Management Program Update. This was accomplished through four meetings of the Nonpoint Source Task Force and more than 27 individual consultations with agencies, nonprofit organizations and watershed groups that have programs to reduce or manage nonpoint source pollution. In addition, Conservation Districts provided input through a mail survey.

Given that funding has not been sufficient to fully treat any 8-digit HUC watershed in Arkansas, the core team proposed a two-stage qualitative risk assessment process to focus nonpoint source efforts toward sub-watersheds within identified priority 8-digit HUC watersheds. Watersheds that were selected as priority watersheds through the risk assessment process are eligible for section 319(h) funding from EPA "incremental funds." In addition, ANRC also has entered into discussion in FFY 2005 with other state and federal agencies to target their efforts towards these same watersheds (see section on Inter-Agency Cooperation).

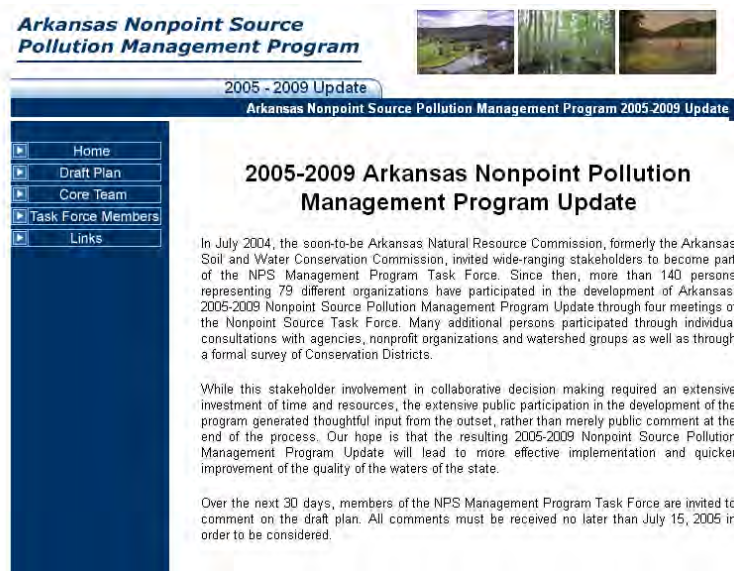
Phase I of the process was a qualitative risk based assessment of all of the 8-digit HUC watersheds in the state. The task force selected parameters relevant to nonpoint source pollution where data were readily available (e.g., water body impairment, human health impacts, population, land use, land use change, biotic impacts, potential human exposure, concentration of livestock, cropland, construction, density of unpaved roads and priority of a bordering state). The relative importance of each parameter was determined through discussion of the task force.

The available data for each selected parameter was compiled in a database and presented using GIS maps. Finally, a matrix was developed that compiled all of the parameters by watershed. The watersheds were then ranked into quintiles according to the values assigned by the task force. ANRC then selected eight watersheds from the top quintile as priority watersheds. For each of these priority watersheds, a nine element watershed management plan will be initiated by ANRC and subsequently developed in cooperation with local agencies and working partners.

For each of the priority watersheds, the Biological and Agricultural Engineering Department at the University of Arkansas is developing and testing Soil and Water Assessment Tool (SWAT) models. These models identify the relative contribution to watershed discharge and loading of sediment, phosphorus, and nitrogen for sub-watersheds within the 8-digit HUC watershed. The sub-watersheds were then divided into quintiles by the relative load and this analysis was used to develop milestones for priority watersheds and will help select sub-watersheds for emphasis as nine element plans are put into place.



Phase II of the risk assessment will be completed as the nine-element plans for priority 8-digit watersheds are completed. Information generated through modeling of the priority 8-digit watersheds on pollutant loading, and a second risk assessment will be used to identify areas for focus within the 8-digit watershed. The sub-watersheds that have the highest risk of impairment as indicated by the SWAT model and the risk assessment will be combined with analysis from other sources to focus for implementation of nonpoint source management measures and programs.



Out of this collaborative process, a draft plan was developed, reviewed by the task force in a multi-stage review, and submitted in draft to EPA, Region 6 for comment in August 2005. FFY 2006 projects were selected based on milestones and priority watersheds included in the draft update. The draft plan will continue to be honed until it is approved by EPA. The draft plan can be found on the [Internet](#).

This collaborative process resulted in the added benefit of promoting improved cooperation and coordination among state, federal, and local entities with programs to

prevent and reduce nonpoint source pollution. The 2005-2010 Update proposes to institutionalize the task force in order to promote continuous improvement. An evaluation of the planning process is currently underway to document its lasting benefits.

The draft update proposes to convene the task force every other year to review progress toward milestones and update the management program. Updating the management program priority watersheds and milestones on a regular basis will keep the program relevant to the ever-changing environment in which the program is implemented.

## Watershed Planning in TMDL and Priority Watersheds

Watershed assessment, modeling and planning is an important element of Arkansas' NPS management program. In most cases, developing watershed plans is a cooperative effort between ANRC and local watershed groups. In watersheds where there are active and effective watershed groups, it is more likely that there will be plans in development or in place. A number of plans were developed and/or submitted to EPA for review in FFY 2005.

## Status of Priority Watershed Plans, 2005

Priority Watershed	Watershed Group	Locally Developed Watershed Action Plan	Nine Element Plan	Number of reaches with NPS TMDL <sup>1</sup>
Bayou Bartholomew	Bayou Bartholomew Alliance	X	Working Draft	7
Illinois River	Illinois River Watershed Partnership		Working Draft	
• Lake Fayetteville	Lake Fayetteville Watershed Partnership	X		
L'Anguille River	L'Anguille Watershed Coalition	X	Working Draft	7
Lower Little River	Lower Little River Watershed Coalition	X		
Upper Saline River			Start 7/1/2005	
• Middle Fork	Alliance For An Improved Middle Fork			
Upper White River	Upper White River Basin Foundation		Working Draft	
• Kings River	Kings River Watershed Partnership	In Progress		
• Leatherwood Creek	Leatherwood Creek Group			
• West Fork of the White River	West Fork of the White River Group	Working Draft		

1 Completed TMDLs only

Several projects supported watershed planning during FFY 2005.

- *Watershed Restoration Plan for the Upper Saline River Watershed (04-152)*
- *Watershed Restoration Plan for the L'Anguille Watershed (03-140)*
- *Optimizing BMPs, Water Quality and Sustained Agriculture in the Lincoln Lake Watershed (01-1100)*
- *Development of a Decision Support System and Data Needs for the Beaver Lake Watershed (02-1200)*
- *Develop a Nine Element Watershed-Based Plan for the Bayou Bartholomew Watershed (04-151)*
- *The Cache River Watershed — Water Quality Assessment and Source Identification Project (01-610)*
- *Poteau River Agricultural Watershed Project (02-300)*

## **Watershed Modeling**

ANRC partnered with the University of Arkansas, Department of Biological and Agricultural Engineering to develop SWAT models for priority watersheds through a multi-phase approach. Models for the Upper White River and Illinois River have been calibrated and are in the process of being validated -- ***SWAT Modeling of the Illinois River Watershed (02-1400) and Development of a Decision Support System and Data Needs for the Beaver Lake Watershed (02-1200)***. The goal of these projects is to develop a Soil and Water Assessment Tool (SWAT) model and calibrate/validate the model for low flow and high flow conditions as well as monthly variations in Phosphorus loads. These models will enable ANRC and its partners to more effectively evaluate the effects of alternative watershed management scenarios on P transport and resulting P stream loads.

Models for other priority watersheds are in the initial stages of development, ***GIS Database Development and Watershed Modeling in the Arkansas Priority Watersheds (04-120)***.





# Monitoring and Evaluation

## ADEQ Monitoring and Reporting

Monitoring is an important part of Arkansas' NPS management program. ADEQ has sole responsibility for assessing the waters of the state. ADEQ uses monitoring data to assess the waters of the state "to the extent that appropriate information is available" and issues two major reports on a roughly biennial basis: the *Water Quality Inventory Report* required by Section 305(b) of the Clean Water Act and the *Inventory of Impaired Water Bodies* required by Section 303(d) of the Clean Water Act.

ADEQ issued the draft *2004 Inventory of Impaired Water Bodies* in February 2005. There are 59 stream segments totaling 1,009.9 stream miles listed in Category 5a; those stream segments are truly impaired and require TMDL development. Primary causes of impairment and the number of stream segments affected include: silt, 30 segments; total dissolved solids, 11 segments; copper, nine segments; pathogens, eight segments; nitrates, five segments; zinc, five segments; chlorides, four segments; dissolved oxygen, three segments; and total phosphorus, organic enrichment, temperature, aluminum, and lead, one segment each. Some segments are impaired by more than one cause. Of the 10 lakes listed, six are impaired by nutrients and two are impaired by chlorides; pathogens and silt are impairing one lake each.

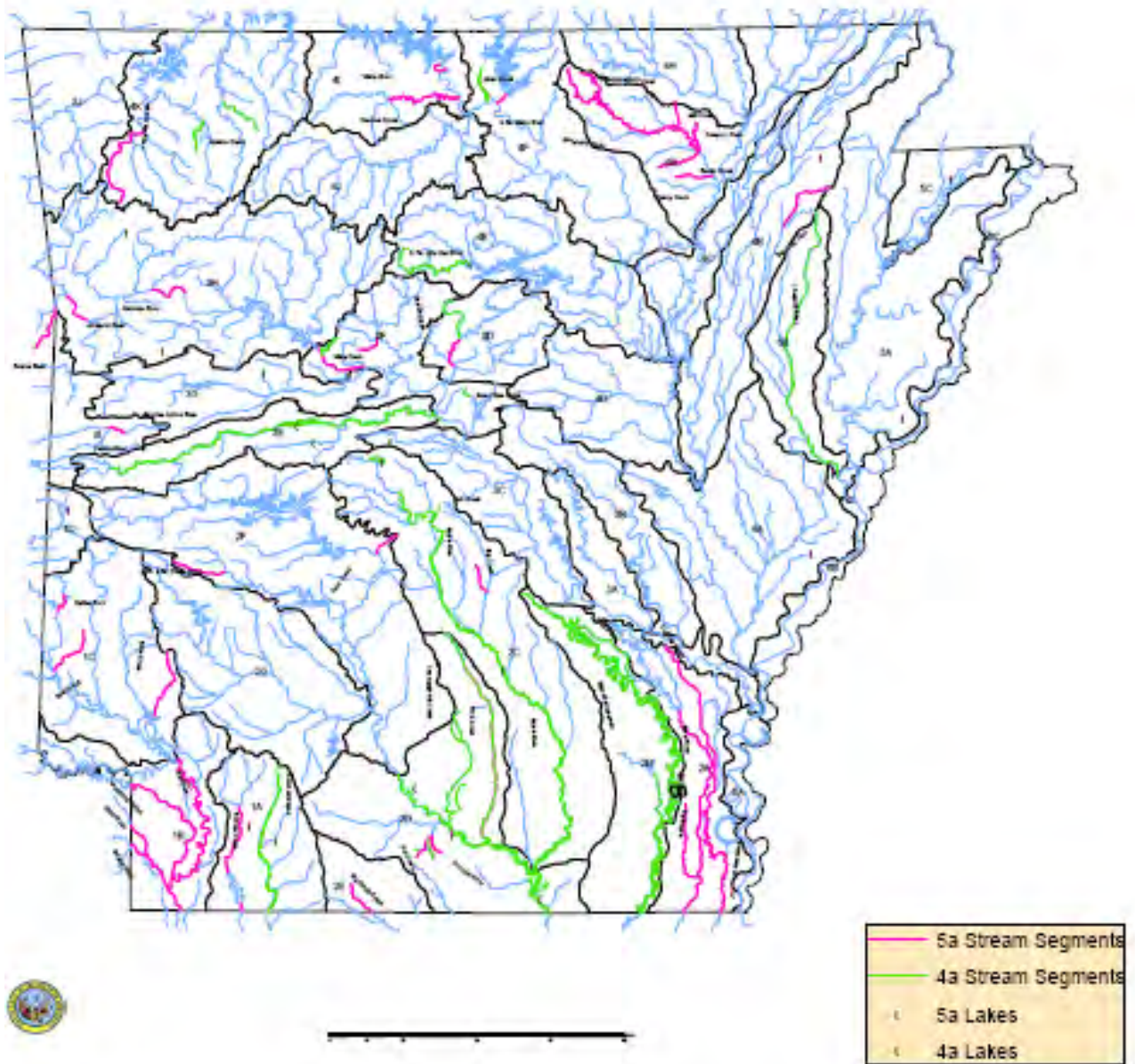
To date, 62 TMDLs have been developed for Arkansas' waterbodies. These waters are listed in Category 4a. Of the Arkansas streams with completed TMDLs, 10 are major agriculture related, two are minor agriculture related, five resource extraction, five municipal point source, three industrial point source and the rest are mercury related. Another 20 TMDLs are currently being developed, and approximately 24 TMDLs were in the planning stages for development for fiscal year 2005. Of these, 11 draft TMDLs have been issued. Two are for point sources and nine are for turbidity caused by surface erosion.

Once a waterbody segment is added to the 303(d) list, the State has 13 years to either complete a TMDL for the listed parameter or develop additional data or refine the water quality standards that will result in the de-listing of the waterbody segment. Arkansas' proposed 2004 303(d) list has 192 stream segments listed. It is expected that with the current revision of the state's water quality standards, Regulation No. 2, 74 of these stream segments will be de-listed. Improved quality assurance/quality control techniques are expected to aid in the de-listing of the 39 stream segments listed in Category 5c. Additional water quality and aquatic life sampling of the 48 stream segments in Category 5d will help determine the validity of listing these streams as impaired.

In addition, ADEQ maintains a downloadable database of water quality monitoring data collected since the last quarter of 1990, including data from the ambient network, the roving network, the Buffalo River National Park Service Stations, and other water quality monitoring stations that have data generated more than just once or twice. It includes the lake stations as well. Locations for ADEQ monitoring stations are available on the ADEQ website at [WQ02-10-1](#).



## Draft 2004 Impaired Water Bodies



## ANRC Supplemental Monitoring

ANRC maintains a limited long term supplemental monitoring program in selected watersheds. ANRC's monitoring supplements but does not duplicate ADEQ monitoring. In 2005, ANRC monitored the following.

- *Illinois River 2004 Pollutant Loads at Arkansas Highway 59 Bridge (02-1600)*
- *Water Sampling, Analysis and Annual Load Determinations For TSS, Nitrogen and Phosphorus at the L'Anguille River Near Palestine (04-111)*
- *Water Quality Sampling, Analysis and Annual Load Determinations for TSS, Nitrogen, Phosphorus at the Washington County Road 195 Bridge on the West Fork of the White River (04-112)*

- *Water Quality Sampling, Analysis and Annual Load Determinations for TSS, Nitrogen, Phosphorus at the Washington County Road 76 Bridge on Ballard Creek (04-113)*
- *2004 Pollutant Loads, Kings River near Berryville, Arkansas (04-114)*
- *Water Quality Sampling, Analysis and Annual Load Determinations for Nutrients and Sediment at the Arkansas Highway 45 Bridge on the White River just above Beaver Lake (04-115)*
- *Lee Creek Watershed Water Quality Monitoring Project (04-800)*
- *Bayou Bartholomew Monitoring Project (04-116)*

U.S. Geological Survey, U.S. Army Corps of Engineers, and other entities also maintain monitoring stations in selected water bodies across the state.

## Special Studies

The Water Division of the Department of Environmental Quality initiated a water quality survey on the Middle Fork of the Little Red River in central Arkansas in July, 2004, *Physical, Chemical, and Biological Assessment of the Middle Fork Little Red River Watershed (02-1500)*. A portion of the river near Shirley, Arkansas was assessed as not maintaining the aquatic life designated use and the primary contact recreation use. This assessment was determined with minimal data. The purpose of this special survey is to develop the necessary data to determine the appropriateness of the 2004 assessment and/or to determine the extent of the non-attainment.

## Monitoring as a Component of Projects

In addition, monitoring is included as a component of some implementation projects (e.g., *Developing Resource Management Systems for Golf Courses in Washington County, Arkansas: Phase I (04-700)*; *Demonstration of Greenway Development to Protect Ecological Services in Urban Streams (02-900)*; and *Optimizing BMPs, Water Quality and Sustained Agriculture in the Lincoln Lake Watershed (01-1100)*).

## BMP Monitoring

ANRC also supports and encourages monitoring of BMP implementation. The Arkansas Forestry Commission (AFC now part of the Arkansas Department of Agriculture) released its most recent biennial monitoring report on implementation of silviculture BMPs in FFY 2005. AFC performs a biennial assessment of implementation of voluntary BMPs. The most recent survey was completed in July 2004, when statewide BMP implementation was 88%, up five percent from the 2001 average. Private non-industrial forestlands scored 80%, a significantly lower implementation rate than any other ownership group. Federal lands scored 99% BMP implementation while state lands scored 96% and industrial lands scored 93%. The implementation rate was statistically higher on private non-industrial forestlands when 1) professional forestry assistance was used; 2) the landowner expressed familiarity with BMP guidelines; 3) the landowner required a written sales contract; and 4) the landowner required implementation of water quality BMPs during the forest operation. A new BMP survey instrument, consistent with BMP guidelines published in 2002, was used so results cannot be compared to previous surveys. The 2004 survey instrument groups silvicultural BMPs into four major categories: Streamside Management Zones (SMZs) which rated 84%; Harvesting, which rated 96%; Roads which rated 84%; and Regeneration which rated 84%. By physiographic region, Delta regions scored 93% (a significantly higher score than the other three regions);

Ozark region scored 86%; Ouachita region scored 90%; and Southwest region scored 89% for BMP implementation.

In addition, ADEQ regularly monitors BMP implementation as part of its inspection program for resource extraction. As part of their routine inspection program, the department provides permit holders with a report on their compliance with voluntary BMPs, developed several years ago with funding from the 319 program.

## **Development and Evaluation of BMPs**

With 319 funding, Arkansas State University is conducting research to evaluate the effectiveness of silviculture BMPs, *Silvicultural Best Management Practices Effectiveness Monitoring (01-300)*. For each of the eight harvest sites, two sampling stations (pool/riffle combination) were established immediately upstream of the proposed cut and one immediately downstream of the proposed cut, for a total of 24 sampling locations per sampling period. These locations were sampled twice per year for two years in winter and early spring, starting the season *before* timber harvest begins at each site allowing sampling *before* and *after* the harvest when BMPs have been completed. This sampling protocol allowed for temporal variations and testing for both short-term and long-term effectiveness of silvicultural BMPs based on statistically defensible data. Pre- and post-harvest sampling is completed. Data analysis is underway. Results are expected to be available in FFY 2006.

Another project aims to determine BMPs for preventing or minimizing nonpoint source pollution in streams due to prescribed fire, *The Effectiveness of BMPs in Reducing Nonpoint Source Pollution from Prescribed Fire (04-900)*. Once determined, the most appropriate and effective BMPs will be promoted among agencies and organizations that frequently conduct prescribed burns in expectation that they will voluntarily implement the recommended BMPs.



In Arkansas, education about how to reduce and prevent nonpoint source pollution is a cooperative effort that includes government, universities and nonprofit organizations. ANRC’s philosophy is to encourage NPS education whenever and wherever possible. This section provides a few examples of the education that is taking place.

### 319 Education and Outreach Projects

Two projects and three mini-grants were provided solely education and outreach in FFY 2005. The *Middle School Conservation Education Project (04-600)* was described in the highlights section of this report. The *Beaver Lake Watershed Public Awareness and Education Project (01-1200)* generates community awareness of nonpoint source pollution potential impacts through public education programs throughout the Beaver Lake Watershed. BMPs to reduce urban nonpoint pollution are promoted through newspapers, television and radio. In addition, more than 2,350 adults have been reached through workshops, meetings and presentations. Some 10,350 youth from kindergarten through college have learned about watersheds, water quality and urban nonpoint pollution prevention through hands-on interactive learning programs over the life of the project.

Mini-grants have proven to be a cost-effective tool to promote education and outreach. For example, through its **St. Francis County Watershed Awareness Project (04-111)** the St. Francis County Conservation District purchased equipment necessary to produce full cover brochures, fact sheets, and other visual and interactive aids. With this new capacity, the conservation district produced and distributed more than 750 full color brochures and fact sheets. The district also purchased a groundwater model to demonstrate the mechanics of groundwater availability, movement, and pollution; a lighted display unit to exhibit information and a projector to provide more visual presentations to indoor groups. With these new tools, the district was able to make more than 15 presentations to more than 500 individuals of all ages.



Through the *Lake Maumelle Nonpoint Source Pollution Education Project (04-110)*, the Pulaski Conservation District’s goal was to educate landowners in the Lake Maumelle watershed on the sources and effects of nonpoint source pollution to encourage citizens to implement best management practices. The district partnered with Central Arkansas Water to develop, print, and mail a brochure to landowners in the watershed. Of the 366 residences in watershed area, 11.5% of the residences were surveyed to determine the impact of the mailing. Sixty-four percent of the respondents were aware of the mail outs and 38% of the respondents had studied the brochures and were aware of NPS pollution concerns.

Middle-school students working with teachers and conservation district volunteers built an outdoor classroom in Morrilton, *Conway County Outdoor Classroom (04-102)*. When a drainage problem was encountered after heavy rain, students help design and build a dry creek



bed, which taught the students how nonpoint pollution occurs and how conservation measures can prevent it. The district has shared photos of its outdoor garden with other districts across the state, saying "every school should have an outdoor classroom."

Demonstration, education and outreach about how to reduce and prevent nonpoint source pollution is a component of many 319 grants. These projects are aimed not only at farmers but also at golf course managers, urban homeowners, and others. The table below illustrates the number of events, estimated participants reached and other outreach activities.

Project	Number Educational & Outreach Events	Est. Number Participants	Other Outreach (newspaper, newsletter, etc.)
Urban Illinois River (02-900)	4	272	
Urban Illinois River (03-400)	3	65	
Demonstration Poultry Waste (03-1000)	1	35	
Poultry Litter Transport (03-1100)	11	157	
Resource Management of Golf Courses (04-700)	6	34	3
Carroll Co. Table Rock Tributaries (02-600)	7	40	5
West Fork White River Watershed Coordination (03-500)	24	1181	
Beaver Lake Decision Support System (12-1200)	7	425	
Upper White Cost Share: Carroll Co (04-200)	3	24	12
Bayou Bartholomew NPS Abatement (02-1100)	55	8458	
L'Anguille Partners (01-410)	5	150	
Lower L'Anguille Cost Share (01-510)	1	52	
Demonstration Rice Rotation L'Anguille (04-400)	24	410	1
Clay Co Sediment Prevention (03-200)	5	37	
Spring River (04-500)	2	114	
Upper Little Red River (02-400)	2	153	
Upper Saline Watershed Restoration (04-152)	5	66	
<b>Total</b>	<b>165</b>	<b>11,673</b>	<b>21</b>

These reflect just a small portion of the NPS education that took place in Arkansas in FFY 2005. Agency partners also offered significant education and outreach aimed at engaging and educating target audiences and the public in general.

### ADEQ Watershed Outreach and Education

ADEQ's Watershed Outreach and Education Section coordinates the Arkansas Watershed Advisory Group (AWAG), a notable example of inter-agency cooperation, makes available Project WET, a water education program for teachers and provides water quality education in communities in collaboration with local partners. In addition, ADEQ provides technical support to many state and local education and outreach efforts. Some examples of ADEQ's FFY 2005 education and outreach include:



- Representatives of watershed groups and cooperating state agencies meet quarterly to share information through AWAG. Typically, about 25-30 individuals participate.
- The AWAG newsletter highlights a different watershed group each quarter.
- AWAG hosted a 3-day training workshop for coordinators of watershed groups.
- Project WET conducted 35 workshops and made 59 presentations in FFY 2005, reaching 1547 participants.
- ADEQ co-hosted or presented at seven stormwater prevention seminars around the state.
- ADEQ staff presented and/or staffed educational booths at numerous public functions, ranging from watershed awareness days to Flower & Garden Shows to homebuilders association meetings and participated in many of the nutrient planning and applicator trainings conducted by the University of Arkansas Cooperative Extension Service.

### **University of Arkansas Cooperative Extension Service**

The University of Arkansas Cooperative Extension Service conducts extensive water quality education and outreach on an ongoing basis. In FFY 2005, their primary emphasis was delivering training for certification for nutrient planners and applicators (see highlights section). On an ongoing basis, the University of Arkansas Extension provides:

- Training for nutrient planners
- Training for nutrient applicators
- Training for certification for pesticide applicators
- Training, demonstration and outreach on agricultural and forestry BMPs
- Urban\*A\*Syst, Farm\*A\*Syst and Home\*A\*Syst programs online
- More than 55 nutrient management fact sheets online
- Educational and outreach support to Regional Planning Commissions on stormwater management in Northwest Arkansas and the Pine Bluff area

### **Arkansas Game & Fish Commission Stream Teams**

Stream teams are a critical component of water quality education in Arkansas. More than 500 stream teams have been formed with sponsors ranging from Ducks Unlimited to local school teachers to state agencies. In FFY 2005, local stream teams conducted activities, including: water quality monitoring, volunteer training workshops, litter clean up, classroom presentations, storm drain stenciling, streambank stabilization, streamside tree plantings, and improvement of fish and wildlife habitat. The stream team program also holds a well-attended annual conference and recognizes individuals and organizations making a difference in conserving Arkansas' water resources.



Photo: Courtesy of AGFC

### **Arkansas Forestry Commission and Partners**

Working with a wide range of industry partners, the Arkansas Forestry Commission (AFC) provides leadership for education on best management practices for water quality. AFC and the Arkansas Timber Purchasers Association conducted 17 workshops for loggers attended by 477 loggers. In addition, AFC hosted several BMP workshops for private non-industrial forest landowners.



Arkansas relies on the cooperation of many public and nonprofit entities at the federal, state and local levels in order to manage nonpoint source pollution. While these cooperative efforts are too numerous to present in this report, notable examples are described below.

### **New Levels of Coordination With NRCS**

In FFY 2004, the USDA Natural Resources Conservation Service in Arkansas changed its scoring system for ranking individual EQIP projects to give greater emphasis to projects that improve water quality. This change opened the door to increased coordination of EQIP and 319 projects.

Discussions were undertaken between NRCS and ANRC in FFY 2005 that will increase coordination of funding in FFY 2006 when special EQIP funding will be made available to partner with 319 funding in the L'Anguille River watershed for projects that help achieve Total Maximum Daily Loads (TMDL) of pollutants. Announcements of additional TMDL and priority watersheds where funding will be better integrated are expected soon.

At this time, it is not possible to identify projects where both EQIP and Section 319 funds are invested due to confidentiality requirements enacted by Congress in the 2002 Farm Bill. However, NRCS and ANRC are in discussion to develop a system where this information can be shared at the watershed level without violating the confidentiality of individual farmers. It is our hope that this process will be in place in time for the FFY 2006 annual report.

### **New Urban Partnerships**

The Northwest Arkansas Regional Planning Commission organized a regional education effort among the 15 municipal small storm sewer systems (MS4s) in Benton and Washington Counties affected by EPA Phase II Storm Water regulations in FFY 2005. The 15 participating MS4s include the cities of Bentonville, Bethel Heights, Elkins, Elm Springs, Farmington, Fayetteville, Greenland, Johnson, Little Flock, Lowell, Springdale and Rogers along with Benton and Washington Counties and the University of Arkansas.

By working together, these entities were able to contract with the University of Arkansas Cooperative Extension Service to develop and conduct storm water public education and involvement efforts. While the partnership started with education and public involvement, regular meetings create opportunities for ongoing discussion about how to improve water quality on a watershed scale in this rapidly urbanizing area of northwest Arkansas. One of the ideas under preliminary discussion is a regional stormwater utility. While there are no promises, regular discussion is a first critical step.



Photo: Courtesy of ADEQ



## Illinois River Watershed Partnership

More than 50 community leaders from the Arkansas portion of the Illinois River participated in a summit where they voted to form the Illinois River Watershed Partnership. Community leaders included poultry integrators, Wal-Mart, developers, builders, transportation industry, financial institutions, farmers, elected officials, and others. A steering committee is working on drafting the mission, vision and bylaws. Several delegates pledged their financial support as well. This partnership has the potential to provide leadership for improved management in the watershed and to reach across state borders to develop effective working partnerships with community leaders in the Oklahoma portion of the watershed.

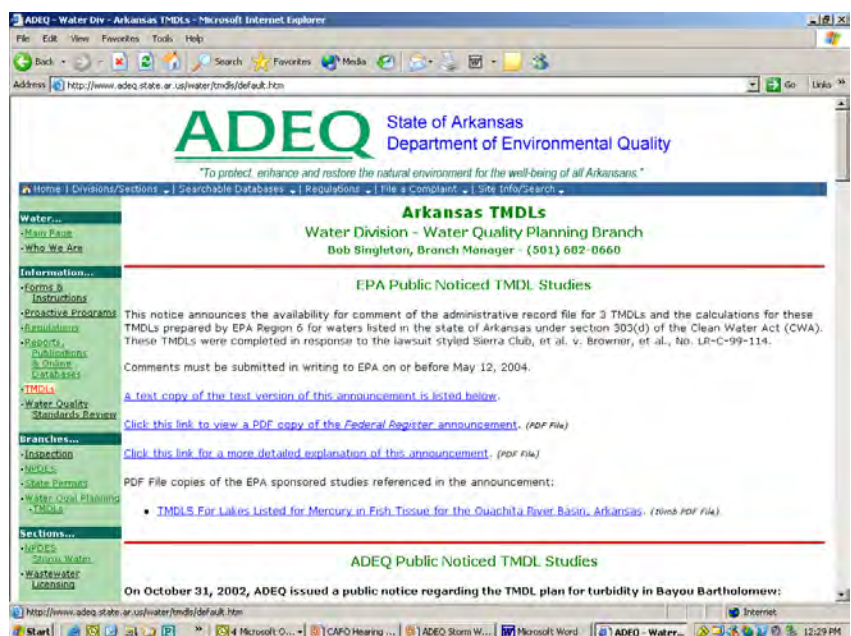
## Arkansas Department of Environmental Quality (ADEQ)

ADEQ was a significant partner in development of the 2006-2010 NPS Management Program Update in FFY 2005, participating in the task force, reviewing and commenting on early drafts, and providing critical input into the organization of statewide programs.

ANRC relies on ADEQ for most monitoring and all assessment of waterbodies. ADEQ is responsible for monitoring the chemical constituents in the water and sediment of the state's waterbodies as well as biological communities and physical habitat in certain waters. The chemical monitoring network on rivers and streams includes 140 stations sampled monthly for more than 30 parameters, more than 100 stations sampled bi-monthly or quarterly, and 30-50 stations that are intensively sampled for short periods for special studies. ADEQ also monitors groundwater at 195 well and spring sites in nine monitoring areas of the state.

ADEQ also is responsible for developing water quality standards for waters of the state. Narrative or numeric water quality standards are developed for six eco-regions in order to prevent impairment of designated uses and prohibit degradation. Current eco-region standards were developed during an intensive statewide study of the physical, chemical and biological characteristics of least-disturbed streams during 1983-86 and are reviewed at least every three years and updated as needed.

Every two years, ADEQ produces a comprehensive assessment of the condition of waters of the state required under Section 305(b) of the Clean Water Act. ADEQ will release its next assessment in 2006. This assessment is used to prepare the statewide list of impaired waters required under Section 303(d) of the Clean Water Act. ADEQ published its draft 2004 303(d) list of impaired waterbodies for comment in February 2005. Based on its assessment and list of impaired waterbodies, ADEQ is responsible for establishing TMDLs within required time periods.





# Implementation Projects

## Priority Watershed Projects

### Illinois River Watershed

***Ballard Creek BMP Implementation (02-500):*** This is the fourth phase of a five-phase project. During this phase the project objective is to provide cost-share to implement BMPs such as stream bank stabilization, alternative water supplies, cross fencing and warm season grass establishment. These BMPs reduce the risk of NPS pollution from nitrogen, phosphorus, and sediment in both the Ballard Creek and other sub watersheds of the Illinois River in Washington County.

These reductions in load are sustainable and should result in reduction of ambient stream concentrations as long as the BMPs are maintained. To ensure the benefits of BMP implementation are sustained, the Washington County Conservation District will continue to plan and update existing plans within Ballard Creek and the entire Illinois River Watershed. Landowner education on how to install and maintain BMPs is an integral part of this project. See Appendix C for a summary of BMPs implemented as a result of this project.

***Urban Nutrient Management in the Illinois River Landscape Project (03-400):*** This project seeks to encourage urban landowners in the Fayetteville and Springdale areas in the Illinois River watershed to more effectively control the amount, timing, and placement of soil nutrients for the purpose of reducing nonpoint source of soil nutrients, particularly phosphorus. Using Extension's Home\*A\*Syst assessment program, the Washington County Conservation District helped interested homeowners assess their practices and developed site-specific recommendations for improvement. Sixty-five individuals participated in three field days in 2005. Post-planning follow up indicated that few participating homeowners followed through. This project may provide important lessons about how to more effectively reach urban homeowners. See Appendix C for a summary of BMPs implemented as a result of this project.

***Demonstration of On-Farm Litter Combustion (03-800):*** The project goal is to accelerate implementation of on-farm litter combustion as an alternative to land application of litter in order to reduce nonpoint pollution of surface water and groundwater in Northwest Arkansas and other areas of intense poultry production. The objectives are to operate, monitor and optimize litter combustion furnaces designed to incinerate litter and heat broiler houses, to demonstrate technical performance and operational requirements on-farm, and to build a cadre of key opinion leaders among integrators, growers and agency staff and the poultry industry who can effectively promote use of the technology.

To date, the project has installed and optimized the performance of a test incinerator (e.g., testing determined that primary airflow of approximately 350 cfm was identified as the best operating point. The furnace seemed to operate best with a wood pellet blend of 30-40%. Heat exchanger improvements increased heat delivery by about 50%. Fuel loading that maintains a bed height of approximately 8 inches improves combustion). Based on knowledge gained from the test furnace, a furnace is being installed as an on-farm demonstration. The vendor test fired the furnace in September 2005. Installation should be completed in FFY 2006. When installation is completed, extensive on-farm demonstrations and outreach are planned. Project faculty presented their preliminary combustion performance measures at the 2005 American Society of Agricultural Engineers international meeting in Tampa, Florida, July 20, 2005.

***Feasibility Assessment of Establishing the Ozark Poultry Litter Bank (03-900):*** The objective of the project is to determine the feasibility of establishing and operating the Ozark Poultry Litter Bank (OPLB) to explore options to export poultry litter out of nutrient surplus areas and alternative uses, such as palletizing, on-farm energy production, and centralized facility energy production.

In March 2005, the project released a report estimating the costs of using poultry litter in different forms, including loose raw litter, baled raw litter, and litter pellets transported in truck or in a combination of truck and barge. Cost estimates for using poultry litter include transportation, storage and handling, processing, application and incorporation. The report determined the level of subsidy needed to make each form of poultry litter a price-competitive source of organic matter and nutrients to potential users.

***A Demonstration of Process Technology for Converting Poultry Waste to Energy and Chemical Products (03-1000):*** The project is demonstrating the effectiveness of proprietary, advanced thermal/chemical/biochemical process technology for cost-effective conversion of poultry waste (poultry litter and caged layer manure) into commercially viable energy and chemical products on a commercial scale. The objective of the demonstration is to establish the technology as a BMP for control of nonpoint source pollutants that emanate from the poultry industry. The project will also demonstrate the cost effectiveness of the technology on a commercial scale.

The greatest accomplishments during this reporting period, include: completion of permit application to the Oklahoma DEQ for surface water impoundments; completion and approval of a water well permit by the Oklahoma Water Resources Board; completion of a detailed site topographical survey with a draft plot plan; completion of soil sampling/analysis; and completion of equipment design calculations for a key separations unit.

***Poultry Litter Transport from Nutrient Surplus Watersheds in Northwest Arkansas (03-1100):*** The project is facilitating the export of litter from grower operations in the Eucha/Spavinaw and Illinois River watersheds in Northwest Arkansas (NWA) to row crop, pasture, forage, grass and forest lands of Arkansas outside nutrient surplus areas. In 2005, the project hauled more litter, increased signups of growers, haulers, and buyers, and strengthened its marketing efforts and understanding of market prices in different regions. Despite these gains, export of litter remains a challenge due to the high cost relative to alternative products.

***Benton County Illinois River Watershed Cost Share Program (04-300):*** The project is intended to improve water quality in the Illinois River Priority Watershed by implementing best management practices, therefore reducing nutrients and sediment loss in the basin. Cost share is provided to promote implementation of BMPs. See Appendix C for a summary of BMPs implemented as a result of this project.

***Developing Resource Management Systems for Golf Courses in Washington County, Arkansas: Phase I (04-700):*** The objective of the project is to perform a resource inventory and develop comprehensive nutrient management plans (CNMPs) for up to thirteen golf courses and five driving ranges that are located in the Illinois and White River watersheds. As planned, information gathered from the resource inventory will be used to plan beneficial BMPs and to design future monitoring regimes that will demonstrate a reduction in nonpoint source pollution. Golf course managers were very cooperative throughout the project, and have continued to include the conservation district in their discussions and meetings. However, even though they are already implementing practices such as buffers, integrated pest management, and stream



bank stabilization, concerns about possible regulation make participants reluctant to share site-specific information about their implementation of BMPs.

***Benton County No-till Drill Project (04-101):*** The goal of this project is to reduce phosphorus runoff and phosphorus levels in the soil by planting 1,000 acres of cool season annuals and perennials. Priority is given to 750 acres in which soil has a slight to moderate runoff potential. Inter-seeding will increase the growing season and lengthen the time that plants are utilizing soil phosphorus.

Drill usage from October 2004 to current only accumulated 142.1 acres. Temperatures and rainfall were near perfect for both warm and cool season forages. Most summers a small percentage of the cool season's forages are lost due to locally dry conditions. This loss is usually what gets replanted with the drill in the fall or early spring. Usage of the drill will greatly increase during the fall of 2005 if weather patterns continue. Rainfall is below normal for the months of April, May and June. Should this pattern continue, forage and hay crops will be off at least 25% down from 2004. Winter annuals will need to be no-tilled into both warm and cool season pasture and hay fields to supplement existing stands and reseed fields that are lost due to shortage of rainfall.

### **Upper White River Watershed**

***Carroll County Table Rock Tributaries Watershed Cost Share Project (02-600):*** This project provides for the proper and efficient use of nutrients from all sources and reduction of soil loss to help reduce nutrient and sediment loads to Table Rock Lake by providing technical and financial assistance. All technical assistance has been completed. See Appendix C for a summary of BMPs implemented as a result of this project.

***West Fork of the White River Watershed Coordination Project (03-500):*** This project provides support for a watershed group coordinator and planning that will develop and implement strategies for reducing non-point source pollutants in the West Fork of the White River while raising awareness and providing education to citizens who live and work in the watershed. The project resulted in the development of a watershed restoration action strategy.

***Upper White River Watershed Cost Share Project (04-200):*** This project is encouraging the proper and efficient use of nutrients from all sources and reduction of soil loss to help reduce nutrient and sediment loads to the Upper White River. This will be accomplished by providing technical assistance and cost share assistance. The project is still experiencing a large number of applicants interested in applying practices even after the first year of signups. See Appendix C for a summary of BMPs implemented as a result of this project.

**Carroll County Conservation District Osage Creek Stream Bank Restoration Project (04-160):** The site is located on Osage creek approximately one mile east of Osage in Carroll County, where a cut bank has developed along the right river bank approximately 850 hundred feet long with the bank height varying from 4 to 11 feet. Gravel within the channel was dozed from the point bar to the cut bank to form a uniform surface across the width of the channel. Ten rock veins were installed to protect the streambank and 600 willows were planted in a 150 ft buffer strip, which was fenced off to exclude cattle from entering the stream. The bank was sloped off and hydro-seeded with Bermuda grass. The site was sprayed with bonded fiber matrix (BFM) as soon as the weather permitted. Annually, 3,842 tons of sediment eroded off this site before this project was completed. After installation there should be minimal erosion. As a result of this project, numerous Carroll County landowners have expressed interest in stabilizing other streams and rivers in the county. See Appendix C for a summary of BMPs implemented as a result of this project.

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**Wharton Creek Streambank Stabilization (04-170) :** Wharton Creek is a tributary of War Eagle Creek. The site is approximately .25 miles upstream of Hwy 74 Bridge. Bank stabilization is taking place on two sites using log weirs and peak stone toe protection, plus hydro-mulching and plantings. ANRC staff has provided the design work with cooperative input from the private landowners and Army Corps of Engineers Coastal and Hydraulics Laboratory - Engineer Research and Development Center (ERDC). The Madison County Road Department (MCRD) and Arkansas Game & Fish Commission (AG&FC) are supplying labor and machinery to install the design plan. Design team members will be on site during construction to ensure proper installation. Madison County Conservation District is providing coordination among cooperating parties as well as a hydromulcher and additional labor.

### Bayou Bartholomew Watershed

**Bayou Bartholomew Watershed Nonpoint Source Pollution Abatement Project (Project 02-1100):** This comprehensive effort is coordinated by the Bayou Bartholomew Alliance (BBA), a locally led watershed group. The project focuses on reducing sediment through conservation planning and BMP implementation. The project also obtains conservation riparian easements to achieve long-term results.

The BBA has been successful in acquiring conservation easements this past year. Conservation planning under the existing grant is nearly complete. See Appendix C for a summary of BMPs implemented as a result of this project. Logjam removal by BBA has been effective in getting

volunteers to participate and BBA exceeded its goal of removing 8 logjams. In 2005, BBA formed a partnership with Winrock International and the Nature Conservancy in order to create a carbon credit program for carbon sequestration to promote reforestation of more lands. Weir modifications are being designed to make such structures more ecologically compatible. A weir demonstration site in Lincoln County is complete.

Fish sampling efforts continue to show improvements in the health of the Bayou Bartholomew with increases in biomass and diversity occurring at all sites. New board members have been elected to the Bayou Bartholomew bringing new blood and new ideas on how to improve the Bayou's water quality. Public awareness efforts continue with programs and tours. Nine field days were attended by 650 individuals while 1145 citizens participated in five cleanups. Nearly 424 individuals attended presentations and BBA set up booths at eleven public events attended by 8,458 individuals.

### **Cadron Creek Watershed**

***Lake Brewer Watershed Nonpoint Source Pollution Control Project (00-1000):*** The project goal was to maintain or restore designated uses of Lake Brewer and Cypress Creek and to provide training for proper ways to apply BMPs to county unpaved roads. A highlight of the project was the establishment of the Brewer Lake Watershed Alliance. A No-Till Drill was also used to plant over 300 acres. BMPs that were implemented to help improve water quality were: poultry waste systems, pasture planting, pond, and tree planting. Keeping the project in the public's eye helped motivate landowners in the watershed to adopt BMPs.

***Faulkner County Erosion Control No-till Drill and Pasture Sprayer (04-104):*** Faulkner Co. Conservation District has thousands of acres of pasture that need improvement to reduce nonpoint source pollution caused by runoff of nutrients and pesticides, particularly in the Cadron Creek watershed. In FFY 2005, more than 600 acres were no-tilled in Faulkner County. Several land users rented both the no-till drill and pasture sprayer to spray for weeds and underbrush as they no-tilled cool season grasses such as wheat, rye grass, white clover, and orchard grass. These cool season grasses uptake nutrients and provide ground cover during winter months.

### **Lower Little River Watershed**

***Lower Little River Watershed Project (00-1400):*** The project successfully initiated a watershed management program by forming the Lower Little River Watershed Coalition. The Coalition developed a Watershed Restoration Action Strategy that includes a public awareness component, management measures and an implementation schedule. The public is much more aware of a watershed's function, the mission of the local Conservation District and the role of the coalition in water resource management. Educational projects and community outreach have been a key component of the project.

### **L'Anguille River Watershed**

Three L'Anguille River watershed projects are discussed in the highlights section of this annual report. See the tables on p. xx for a summary of BMPs implemented as a result of these projects.

- ***L'Anguille Watershed Partners Project and DU Phase II (01-410)***
- ***Lower L'Anguille River Cost Share Project (01-510)***

- ***Demonstrating the Impact on Water Use and Runoff Water Quality of BMP Implementation for a Rice Rotation in the L'Anguille River Watershed (04-400)***

***Cross County No-till Drill Project (04-103):*** Farming and grazing operations in the L'Anguille River watershed contribute to sediment runoff. The Cross County Conservation



**No Till On Recently Planted Soybean Field**

District's goal is to reduce sediment runoff by

implementing no-till in at least 1,000 acres and to educate landowners on the benefits of the no-till method of planting.

Four cooperators planted 365 acres using the no-till drill in the first year. Landowners were presented with information on the benefits of the no-till method through

demonstrations and the media. The District will continue outreach and education to prepare cooperators for the next season of no-till planting.

## **Agriculture Statewide Program**

***Big Creek Watershed Tailwater Demonstration (02-200):*** This is a project to reduce the amount of sediment runoff from cropland by the reuse of on farm and adjacent surface water. This is being done through a demonstration of the feasibility of tailwater systems, cost share, and technology transfer. About 75% of the farms in the Big Creek portion of the Monroe County Conservation District have the potential for using all or some of the BMPs demonstrated by this project. It is estimated that there are 750 farms in the watershed with some 560 using some type of irrigation system. It is estimated that 100 farms will utilize some type of water reuse system as a result of this project. See Appendix C for a summary of BMPs implemented as a result of this project.

***Buffalo Island Drainage District #9 Sediment Prevention Project (02-1000):*** This is a project to a) reduce sediment loading of the Buffalo Island Drainage District ditches; b) manage cropland so that the average annual soil loss is within "T"; c) implement additional BMPs to effectively control gully erosion and protect wetlands; and d) restore riparian areas to trap sediment before it enters the stream. To reduce sedimentation from field runoff, 500 pipe drops are being installed in the St. Francis River Drainage in Craighead County.

As of September 30, 2005, 343 pipe drops have been installed in Buffalo Island Drainage District ditches. They have been inspected by the NRCS Technician to see that the pipes have been installed properly and that their locations have been documented. Pre-installation has been done on 350 pipes. The project is achieving the desired results, reducing the amount of sediments entering the drainage ditches. This should help prolong and improve maintenance of the ditches. See Appendix C for a summary of BMPs implemented as a result of this project.

***Clay County Sediment Prevention Project (03-200):*** This project is to reduce sediment loading of the Mayo Ditch and its tributaries as it flows to the St. Francis River. The project

promotes better management of the adjacent croplands so that the average annual soil loss is within the allowable tolerance. BMPs are being implemented to effectively control "head cutting" of the stream bank, gully erosion, as well as protect wetlands and riparian areas within the watershed. See Appendix C for a summary of BMPs implemented as a result of this project. In mid to late November the remaining pipes were installed. The weather deteriorated to the point that all construction was stopped. Projected completion date for the project is September 2006.

***Litter Spreader Utilization Project (04-112):*** Through this mini-grant, the Woodruff County Conservation District, located in eastern Arkansas, purchased a litter spreader and made it available to local farmers to rent to encourage local landowners to apply chicken litter to cropland in Woodruff County. Litter will restore organic matter and nutrients on cropland to increase production. Where litter is applied to pasture, the increased ground cover will hold soil in place thus reducing erosion and sedimentation. Litter from local poultry producers and their storage facilities were used. While the project's goal was to spread litter on 1,000 acres in the first year was not reached, the conservation district is confident that demand for the litter spreader will increase as they promote its use over time. See Appendix C for a summary of BMPs implemented as a result of this project.

***Lonoke County Chicken Litter Utilization Project (04-105):*** The Lonoke County Chicken Litter Utilization Project is located in the Bayou Meto, Plum Bayou, Lower Arkansas and Lower White-Bayou Des Arc watersheds. The goals and objectives of this project were for local land users to apply chicken litter to pasture and cropland in Lonoke County. Ninety percent (90%) of the litter was spread on cropland. Land users applied chicken litter to restore nutrients, particularly on land that has been leveled, while maintaining water quality to waterways adjacent to land where litter is applied. Runoff is insignificant, as litter is incorporated into the soil in preparation for crop planting.

Seventy-five percent (75%) of the litter utilized in Lonoke County originated in Yell, Pope and Conway Counties. The removal of chicken litter from these counties assists in relieving the pressure of phosphorus overload in the nutrient surplus areas of northwest Arkansas. Twenty-five percent (25%) of the litter was purchased from poultry operations in Lonoke and Jefferson Counties. Approximately 2,493 tons, or 5,000 pounds of litter was applied to approximately 2,373 acres. Lonoke County land users were already familiar with the use of chicken litter as a nutrient replacement, and the availability of the new litter spreader enhanced the use of litter. With proper care and maintenance, it is feasible that the litter spreader will be in use for ten years or more.

***Yell County No Till Project (04-113):*** The district received \$15,000 in grant monies to purchase a no-till drill. Match was provided by labor and machinery use from the landowners. Seventeen producers participated in the project protecting 706.1 acres of pastureland. Using the RUSLE calculations of 1 ton/acre soil lost because of improper cover during the time that warm season grasses are dormant; we calculate that 706 tons of soil were saved. See Appendix C for a summary of BMPs implemented as a result of this project.

***Marion County Crooked Creek Conservation Project (04-106):*** There are approximately 41,675 acres of pastureland in Marion County. Many of these pastures are on steep slopes prone to runoff of excess stormwater. Cool season grasses provide ground cover during the winter months that result in less sediment and excess nutrients traveling into nearby waterbodies. The Crooked Creek Conservation District purchased a no-till drill for use by local landowners. This gives producers the opportunity to put BMPs in place that not only benefit them but also prevent pollution to surface and ground water. Ten producers rented the no-till

drill in the first year. See Appendix C for a summary of BMPs implemented as a result of this project.

***Miller County Conservation District No-Till Drill Project (04-107):*** Miller County has pasture and croplands as well as timber production. Filter strips, hay and pasture plantings, critical area plantings and no-till crop plantings are often recommended near water resources, particularly in areas with extreme slopes and highly permeable soils. In addition, use of commercial fertilizers can be reduced by planting legumes as cover crops. Miller Co. Conservation District purchased a no-till drill. Six cooperators allowed the District to plant test plots or leased the no-till drill for specific best management practices on their properties. The District has organized visits so that other farmers can see the no-till fields and learn more about the practice. As a result, several cooperators plan filter strips, critical plantings and no-till next season as BMPs or prescribed actions for the Conservation Reserve Program. See Appendix C for a summary of BMPs implemented as a result of this project.

***Perry County Litter Spreader (04-109):*** The project goal is to assist local landowners to better control nutrient runoff into local streams and rivers. As a result of the project, producers in the Fourche La Fave River, Cypress Creek, and Rose Creek watersheds have access to the equipment to effectively apply animal waste at an environmentally safe rate. Purchase of a litter spreader and weed sprayer that producers can rent allows the district's poultry, livestock, turf grass and row crop producers to more effectively implement environmentally sound nutrient management plans. Sixteen producers used the litter spreader to apply animal waste on 1,483 acres while the sprayer was used to treat 586 acres. See Appendix C for a summary of BMPs implemented as a result of this project.

***Spring River Watershed Project (04-500):*** The project goal is to maintain or restore all designated uses of the Spring River Watershed. The secondary objective is to begin addressing the problem of sedimentation by the following tasks: 1) implement conservation plans on 52,300 acres of pastureland utilizing alternative watering sources, and 6.5 miles of stream bank protection in the Spring River watershed; 2) implement a program that will bring about voluntary participation of landowners and land users in the application of the necessary BMPs required to bring pollution of the watershed to acceptable levels.

The farmers in Fulton County have exceeded all expectation for their participation in this project. Farmers have been willing to fence off creeks and the participation has been phenomenal. There has been a backlog of contracts due to walk-in traffic and checking out practices that farmers have completed. With the hard work from farmers and Conservation District employees the project is ahead of schedule. See Appendix C for a summary of BMPs implemented as a result of this project.

***Upper Little Red River Watershed BMP Implementation Project (03-300):*** The project will minimize the impact of nonpoint source pollution in the watershed. This will be accomplished by providing pasture and nutrient management, pasture establishment, animal waste utilization plans, and demonstrations. In the past year, the equipment the district owns has been put to good use by the land users in the county, with a steady implementation of BMPs. See Appendix C for a summary of BMPs implemented as a result of this project.

***Upper Little Red River Watershed Project (02-400):*** The goal of this project is to begin addressing the problem of sedimentation by implementing conservation plans on pastureland in the Upper Little Red River. The project provides education, technical assistance and cost share to farmers with conservation plans. In 2005, the project provided cost share to 13 farmers who fenced cattle out of 44,927 feet of riparian zone while four farmers planted pasture grasses that improve nutrient uptake to reduce runoff. The project promoted pasture improvement in its



quarterly newsletter that reaches 375 readers, conducted a field day attended by nearly 150 individuals and provided information at other events. See Appendix C for a complete summary of BMPs implemented as a result of this project.

## Urban Statewide Program

***Fourche Creek Watershed Recovery and Restoration Project (02-810):*** This project focused on reducing: streambank failures, destruction/loss of natural riparian zones, floatable trash and chemical runoff, construction/development runoff including sedimentation and stormwater, understanding problematic areas and physical locations, and the lack of NPS education and curriculums. The Fourche Creek Team implemented five streambank stabilization projects protecting 11,000+ square feet of land, created a riparian management plan, distributed watershed material and information with media coverage, reached more than 300 students, and established eight permanent water quality-monitoring sites.

## Appendix A

### FFY 2005 Expenditures

Grant ID	Fiscal Year		Total FY 2005
C999610307	1999	Federal State	\$36,817 \$9,145
C999610308	2000	Federal State	\$92,676 \$98,927
C999610309	2001	Federal State	\$443,602 \$338,682
C999610310	2002	Federal State	\$816,223 \$1,149,986
C999610311	2003	Federal State	\$604,419 \$380,838
C999610312	2004	Federal State	\$1,759,345 \$1,194,564
C999610313	2005	Federal State	\$108,481 \$88,758
<b>GRAND TOTAL</b>		Federal State <b>TOTAL</b>	<b>\$3,861,563</b> \$3,260,900 <b>\$7,122,463</b>

Grant ID	Fiscal Year		Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05
C999610 307	1999	Federal	\$27,350	\$9,467	\$0	\$0	\$0	\$0
		State	\$9,145	\$0	\$0	\$0	\$0	\$0
C999610 308	2000	Federal	\$2,800	\$0	\$24,339	\$14,500	\$17,157	\$0
		State	\$4,400	\$0	\$6,024	\$15,500	\$0	\$11,202
C999610 309	2001	Federal	\$81,435	\$72,463	\$0	\$35,234	\$50,309	\$29,192
		State	\$68,485	\$65,200	\$0	\$20,519	\$23,380	\$5,302
C999610 310	2002	Federal	\$184,408	\$0	\$53,563	\$113,085	\$69,031	\$53,313
		State	\$101,979	\$0	\$84,507	\$538,757	\$37,603	\$58,425
C999610 311	2003	Federal	\$91,106	\$3,347	\$74,350	\$34,305	\$7,400	\$87,338
		State	\$70,864	\$6,981	\$7,853	\$18,726	\$6,271	\$4,978
C999610 312	2004	Federal	\$212,613	\$63,144	\$159,886	\$240,087	\$48,762	\$94,473
		State	\$46,024	\$25,841	\$58,955	\$137,560	\$31,795	\$95,708
C999610 313	2005	Federal	\$0	\$0	\$0	\$0	\$0	\$0
		State	\$0	\$0	\$0	\$0	\$0	\$0
<b>GRAND TOTAL</b>		Federal	\$599,711	\$148,421	\$312,138	\$437,211	\$192,659	\$264,316
		State	\$300,896	\$98,022	\$157,339	\$731,062	\$99,049	\$175,615
		TOTAL	\$900,608	\$246,443	\$469,477	\$1,168,272	\$291,708	\$439,932

Grant ID	Fiscal Year		Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05
C999610 307	1999	Federal	\$0	\$0	\$0	\$0	\$0	\$0
		State	\$0	\$0	\$0	\$0	\$0	\$0
C999610 308	2000	Federal	\$0	\$20,080	\$0	\$0	\$13,800	\$0
		State	\$0	\$61,800	\$0	\$0	\$0	\$0
C999610 309	2001	Federal	\$91,470	\$9,430	\$8,019		\$66,051	\$0
		State	\$59,040	\$12,812	\$19,758		\$64,187	\$0
C999610 310	2002	Federal	\$89,218	\$12,050	\$43,153			\$198,402
		State	\$75,249	\$21,411	\$47,909			\$184,145
C999610 311	2003	Federal	\$19,439	\$45,235	\$175,004	\$3,955	\$59,202	\$3,738
		State	\$34,705	\$35,004	\$113,151	\$8,816	\$66,248	\$7,241
C999610 312	2004	Federal	\$259,943	\$202,639	\$132,322	\$2,969	\$340,223	\$2,284
		State	\$110,457	\$130,795	\$104,567	\$157,339	\$291,396	\$4,127
C999610 313	2005	Federal	\$0	\$0	\$0	\$285	\$69,763	\$38,433
		State	\$0	\$0	\$0	\$13,898	\$44,996	\$29,864
<b>GRAND TOTAL</b>		Federal	\$460,070	\$289,434	\$358,498	\$7,209	\$549,039	\$242,857
		State	\$279,452	\$261,822	\$285,386	\$180,053	\$466,827	\$225,376
		TOTAL	\$739,522	\$551,256	\$643,884	\$187,262	\$1,015,865	\$468,233

## Appendix B

### Project Status

The following tables list all the projects that were active during all or part of FFY 2005. The list includes **Projects Completed During FFY 2005** and **Ongoing Projects for FFY 2005**. **New projects** that began implementation in FFY 2005 are also provided. These will be reported on in the FFY 2006 Annual Report.

Project Number	Project Title	Status	Primary Goal	Priority Watershed
00-1000	Lake Brewer Watershed Nonpoint Source Pollution Control	Completed	Implementation	Cadron
00-1400	Lower Little River Watershed	Completed	Planning	Lower Little
01-1100	Optimizing BMPs, Water Quality and Sustained Agriculture in the Lincoln Lake Watershed	Completed	Planning	Upper White
01-1200	Beaver Lake Watershed Public Awareness and Education Project	Completed	Education	Upper White
01-610	Cache River Assessment	Completed	Planning	No
02-1100	Bayou Bartholomew Watershed Nonpoint Source Pollution Abatement Project	Completed	Implementation	Bayou Bartholomew
02-1200	Development of a Decision Support System and Data Needs for the Beaver Lake Watershed	Completed	Planning	Upper White
02-1400	Illinois River Nutrient Modeling	Completed	Planning	Illinois
02-200	Big Creek Watershed Tailwater Demonstration	Completed	Implementation	No
02-300	Poteau River Agricultural Watershed Project	Completed	Planning	Poteau
02-500	Ballard Creek BMP Implementation	Completed	Implementation	Illinois
02-600	Carroll County Table Rock Tributaries Watershed Cost Share Project	Completed	Implementation	Upper White
02-810	Fouche Creek II	Completed	Implementation	No
03-140	Watershed Restoration Plan for L'Anguille	Completed	Planning	L'Anguille
03-500	West Fork of the White River Project	Completed	Planning	Upper White
03-900	Feasibility Assessment: Ozark Poultry Litter Bank	Completed	Implementation	Illinois
04-101	Benton County Mini-grant	Completed	Implementation	Upper White
04-102	Conway County Mini-grant	Completed	Education	Cadron
04-103	Cross County Mini-grant	Completed	Implementation	No
04-104	Faulkner County Mini-grant	Completed	Implementation	Cadron
04-105	Lonoke County Mini-grant	Completed	Implementation	No
04-106	Marion County Mini-grant	Completed	Implementation	No

Project Number	Project Title	Status	Primary Goal	Priority Watershed
04-107	Miller County Mini-grant	Completed	Implementation	Lower Little
04-109	Perry County Mini-grant	Completed	Implementation	No
04-110	Pulaski County Mini-grant	Completed	Education	No
04-111	St. Francis County Mini-grant	Completed	Education	L'Anguille
04-111c	L'Anguille River Monitoring Project	Completed	Monitoring	L'Anguille
04-112	Woodruff County Mini-grant	Completed	Implementation	No
04-112c	West Fork of the White River Monitoring Project	Completed	Monitoring	Upper White
04-113	Yell County Mini-grant	Completed	Implementation	No
04-113c	Ballard Creek Monitoring Project	Completed	Monitoring	Illinois
04-114	Kings River Monitoring Project	Completed	Monitoring	Upper White
04-115	White River Monitoring Project	Completed	Monitoring	Upper White
04-116	Bayou Bartholomew Monitoring Project	Completed	Monitoring	Bayou Bartholomew
04-120	GIS Database and Development Modeling in the AR Priority Watersheds	Completed	Planning	Multiple Priority Watersheds
04-130	Update of Arkansas NPS Management Program	Completed	Planning	No
04-151	Bayou Bartholomew Watershed Plan	Completed	Planning	Bayou Bartholomew
04-160	Carroll County Mini-grant	Completed	Implementation	Upper White
04-170	Wharton Creek Streambank Stabilization	Completed	Implementation	Upper White

### Ongoing Projects

01-300	Silvicultural Best Management Practices Effectiveness Monitoring	Ongoing	Monitoring	No
01-410	DU Phase II - L'Anguille Watershed Partners	Ongoing	Implementation	L'Anguille
01-510	Lower L'Anguille Cost-share	Ongoing	Implementation	L'Anguille
02-1000	Buffalo Island Drainage District #9 Sediment Prevention Project	Ongoing	Implementation	No
02-1500	Assessment of the Middle Fork Little Red River	Ongoing	Monitoring	No
02-1600	Hwy 59 Monitoring Illinois River	Ongoing	Monitoring	Illinois
02-400	Upper Little Red River Watershed Project	Ongoing	Implementation	No
02-900	Demonstration of Greenway Development To Protect Ecological Services in Urban Streams	Ongoing	Implementation	Illinois



Project Number	Project Title	Status	Primary Goal	Priority Watershed
03-1000	Demonstration: Converting Poultry Waste to Energy & Chemical Products	Ongoing	Implementation	Illinois
03-1100	Poultry Litter Transport from Nutrient Surplus Watersheds	Ongoing	Implementation	Illinois
03-200	Clay County Sediment Prevention Project	Ongoing	Implementation	No
03-300	Upper Little Red River Watershed BMP Implementation Project	Ongoing	Implementation	No
03-400	Urban Nutrient Management in the Illinois River Landscape Project	Ongoing	Implementation	Illinois
03-700	Arkansas Excess Nutrient Management Project	Ongoing	Planning	Illinois
03-800	Demonstration of On-Farm Litter Combustion	Ongoing	Implementation	Illinois
04-141	Randolph County Stacking Shed	Ongoing	Implementation	No
04-142	Point Remove Stacking Shed	Ongoing	Implementation	No
04-152	TNC Upper Saline River Watershed Plan	Ongoing	Planning	No
04-200	Upper White Cost-Share	Ongoing	Implementation	Upper White
04-300	Benton County Cost-Share	Ongoing	Implementation	Illinois
04-400	L'Anguille Demonstration with CES	Ongoing	Implementation	L'Anguille
04-500	Spring River Watershed Project	Ongoing	Implementation	No
04-600	Sebastian County Education	Ongoing	Education	No
04-700	Developing Resource Management Systems for Golf Courses in Washington Co., Phase I	Ongoing	Planning	Illinois
04-800	Lee Creek Watershed Water Quality Monitoring Project	Ongoing	Monitoring	No
04-900	Effectiveness of BMPs in Reducing NPS from Prescribed Fire	Ongoing	Implementation	No

### New Projects

05-1000	Urban Hispanic Outreach	New	Education	Illinois
05-101	Franklin County Mini-grant	New	Implementation	No
05-102	Newton County Mini-grant	New	Implementation	No
05-103	Point Remove Mini-grant	New	Implementation	No
05-104	Randolph County Mini-grant	New	Implementation	No
05-105	St. Francis County Mini-grant	New	Education	L'Anguille
05-106	Stone County Mini-grant	New	Education	No
05-107	Pulaski County Mini-grant	New	Education	No

<b>Project Number</b>	<b>Project Title</b>	<b>Status</b>	<b>Primary Goal</b>	<b>Priority Watershed</b>
<b>05-1100</b>	Urban Low Impact BMP's	New	Implementation	Illinois
<b>05-1200</b>	NPS Management Program Planning Coordination	New	Planning	No
<b>05-1300</b>	Edge of Field Monitoring	New	Monitoring	No
<b>05-200</b>	Middle Fork- White River Assessment	New	Monitoring	Upper White
<b>05-300</b>	AR Forestry Commission Silviculture Project	New	Monitoring	No
<b>05-400</b>	AGFC Blossomway Project	New	Implementation	Illinois
<b>05-500</b>	Middle White Cost Share	New	Implementation	No
<b>05-600</b>	Larkin Creek Cost Share	New	Implementation	
<b>05-700</b>	L'Anguille River Cost Share Phase II	New	Implementation	L'Anguille
<b>05-800</b>	Strawberry River Cost Share Phase III	New	Implementation	No
<b>05-900</b>	TNC Upper Saline- Planning	New	Planning	Upper Saline

## Appendix C FFY 2005 BMPs Reported As Implemented

		Illinois River Watershed				
NRCS Code	BMP	Ballard Creek	Urban Illinois River	Benton Co. Illinois River	Carroll Co. Table Rock Tribs	Poultry Litter Transport
	Project Number	02-500	03-400	04-300	02-600	03-1100
312	Waste Mgt Systems	12				
313	Waste Storage Facility	16		1	34	
314	Brush Management					
316/317	Animal Mortality Facility	4			4	
329a	No-Till					
329c	Ridge Till					
342	Critical Area Planting	4				
344	Seasonal Residue Mgmt					
351	Well	1				
378	Pond	1		1	1	
382	Fencing	13		3	9	
391	Riparian Forest Buffer					
393	Filter Strip	77				
410	Grade Stabilization					
430DD	Pipe					
430EE	PVC Pipe					
447	Tailwater					
449	Multiple Inlet/Water Mgmt					
511	Forage Harvest Mgt	77				
512	Pasture and Hay Planting	9		5	14	
516	Pipeline	5		1		
528	Prescribed Grazing	64			92	
561	Heavy Use Area	1				
580	Streambank Protection					
587	Water Control Structure					
590	Nutrient Management	82			114	
595	Pest Management	72				
612	Tree Planting					
614/642	Trough/Tank/Well	9			8	
633	Waste Utilization	67			92	
645	Upland Wildlife				31	
786	Alum Treatment	8		4	68	
Na	Nutrient Management		28			
Na	Proper Vegetative Planting Practices		28			
Na	Improved Grass Cutting Practice		28			
Na	Proper Watering Practice		28			
Na	Litter Hauling					39

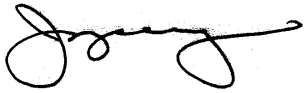
NRCS Code	BMP	Upper White River Watershed			Bayou Bartholomew	
		Cost Share: Carroll Co	Cost Share: Madison Co	Cost Share: Boone Co	Jefferson Co	Lincoln Co
	<b>Project Number</b>	<b>04-200</b>	<b>04-200</b>	<b>04-200</b>	<b>02-1100</b>	<b>02-1100</b>
312	Waste Mgt Systems					
313	Waste Storage Facility	10	8			1
314	Brush Management					
316/317	Animal Mortality Facility					
329a	No-Till				6	
329c	Ridge Till				13	
342	Critical Area Planting					
344	Seasonal Residue Mgmt					15
351	Well					
378	Pond		7			
382	Fencing	5	4			
391	Riparian Forest Buffer				21	49
393	Filter Strip					
410	Grade Stabilization					
430DD	Pipe					
430EE	PVC Pipe					
447	Tailwater					
449	Multiple Inlet/Water Mgmt					
511	Forage Harvest Mgt					
512	Pasture and Hay Planting	4	11	2		
516	Pipeline					
528	Prescribed Grazing	19				
561	Heavy Use Area					
580	Streambank Protection		2			
587	Water Control Structure					4
590	Nutrient Management	20				8
595	Pest Management	5				
612	Tree Planting					27
614/642	Trough/Tank/Well	1	7			
633	Waste Utilization	9				
645	Upland Wildlife	6				
786	Alum Treatment	3				

NRCS Code	BMP	L'Anguille River Watershed			Cadron Creek Watershed
		L'Anguille Partners	Lower L'Anguille Cost Share	Rice Rotation Demo	Lake Brewer NPS Pollution Control
	<b>Project Number</b>	<b>01-410</b>	<b>01-510</b>	<b>04-400</b>	<b>00-1000</b>
312	Waste Mgt Systems				
313	Waste Storage Facility				
314	Brush Management				
316/317	Animal Mortality Facility				2
329a	No-Till		14		
329c	Ridge Till				
342	Critical Area Planting				
344	Seasonal Residue Mgmt				
351	Well				
378	Pond				
382	Fencing				
391	Riparian Forest Buffer				
393	Filter Strip				
410	Grade Stabilization		12		
430DD	Pipe		8		
430EE	PVC Pipe				
447	Tailwater				
449	Multiple Inlet/Water Mgmt			1	
511	Forage Harvest Mgt				
512	Pasture and Hay Planting		3		4
516	Pipeline				
528	Prescribed Grazing				
561	Heavy Use Area				
580	Streambank Protection				
587	Water Control Structure	28	1	2	
590	Nutrient Management				
595	Pest Management				
612	Tree Planting				
614/642	Trough/Tank/Well				
633	Waste Utilization				
645	Upland Wildlife				
786	Alum Treatment				

		Other Watersheds				
NRCS Code	BMP	Big Creek Tailwater Recovery	Clay Co Sediment Prevention	Spring River	Upper Little Red River	Upper Little Red River
	Project Number	02-200	03-200	04-500	03-300	02-400
312	Waste Mgt Systems					
313	Waste Storage Facility					
314	Brush Management			20		
316/317	Animal Mortality Facility				1	
329a	No-Till					
329c	Ridge Till					
342	Critical Area Planting					
344	Seasonal Residue Mgmt					
351	Well					
378	Pond			2		5
382	Fencing			14	9	29
391	Riparian Forest Buffer					
393	Filter Strip					
394					9	
410	Grade Stabilization		18			
430DD	Pipe					
430EE	PVC Pipe	5				
447	Tailwater	12				
449	Multiple Inlet/Water Mgmt	12				
511	Forage Harvest Mgt					
512	Pasture and Hay Planting			4	6	34
516	Pipeline			7		6
528	Prescribed Grazing			9	28	
560					4	
561	Heavy Use Area					
580	Streambank Protection		4		1	
587	Water Control Structure				1	
590	Nutrient Management			32	42	
595	Pest Management			17	13	
612	Tree Planting				6	
614/642	Trough/Tank/Well			10		3
633	Waste Utilization					
645	Upland Wildlife			4		
786	Alum Treatment				2	



**Arkansas Natural Resources Commission  
Fiscal Year 2005  
Annual 319 Nonpoint Source Program Report  
Authorizing Signature of State Lead Agency**



**J. Randy Young, P.E.  
Executive Director**

**January 25, 2006**

**Date**