Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

FY2019 Projects

Buffalo River Conservation Committee Unpaved Roads: Cave Mountain Road

Project #: 19-201

Lead Project Partner: Newton County Road Department

Status: Active

Primarily an Arkansas Unpaved Roads Program (AURP) project with supplemental 319 NPS funding, the Cave Mountain Road project aims to reduce sediment in the Buffalo River Watershed. Unpaved roads are the second leading cause of nonpoint source pollution in the state, including sediment, which is the largest pollutant by volume in Arkansas. By incorporating Best Management Practices (BMPs) and Environmentally Sensitive Maintenance (ESM) on unpaved roads, sediment in waterways can be reduced. This project will include the installation of cross pipes and guard rails, as well as the enhancement of the base roadway with clay, crushed stone, chip-and-seal, and roller compaction.

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

Cane Branch Road Project

Project #: 19-202

Lead Project Partner: Searcy County

Status: Complete

Like Project 19-201, the Cane Branch Road Project is primarily an Arkansas Unpaved Roads Program (AURP) project with supplemental 319 NPS funding. The project aimed to reduce sediment in the Buffalo River Watershed. Unpaved roads are the second leading cause of nonpoint source pollution in the state, including sediment, which is the largest pollutant by volume in Arkansas. By incorporating Best Management Practices (BMPs) and Environmentally Sensitive Maintenance (ESM) on unpaved roads, sediment in waterways can be reduced. BMPs implemented included the installation of 21 cross pipe culverts, grade breaks, and road grading and ditch re-shaping. This project passed inspection October 2021.

Buffalo River Watershed Monitoring

Project #: 19-300

Lead Project Partner: Arkansas State University Ecotoxicology Research Facility

Status: Active

Named the first National River in the US and designated as an Extraordinary Resource Waterway by ADEQ in 2008, the Buffalo River offers year-round recreation opportunity, supports local economies through tourism, and provides quality habitat for wildlife. However, parts of the watershed have been impaired due to TDS, dissolved oxygen, and temperature. The ASU Ecotoxicology Research Facility is monitoring multiple physical and chemical water quality parameters in eight sites across four sub-watersheds (12-digit HUCs).

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

The four monitored sub-watersheds are Calf Creek, Brush Creek, Tomahawk Creek, and Bears Outlet Creek. The project is scheduled to be completed December 2022.

Middle White River Watershed Monitoring

Project #: 19-400

Lead Project Partner: Arkansas State University Ecotoxicology Research Facility

Status: Active

The Middle White River spans multiple ecoregions, transitioning from the Ozark Highlands down to the Delta. The watershed sees transitional land uses, as well, moving from majority pastureland to row crop agriculture. ASU's Ecotoxicology Research Facility is monitoring four sub-watersheds (12-digit HUCs) in this transitional zone of the Middle White Watershed, including Greenbriar Creek, Spring/Sprint Creek, Lower Salado Creek, and Miller Creek. The project is scheduled to be completed December 2022.

Bayou DeView Watershed Monitoring

Project #: 19-500

Lead Project Partner: Arkansas State University

In order to measure effectiveness of BMPs associated with the Mississippi River Basin Initiative (MRBI) and other water quality programs, ASU's Ecotoxicology Research Facility is monitoring several physical and chemical water quality parameters in Bayou DeView. The MRBI project has identified the nutrients and suspended solids in the Cache River Watershed as contributing factors to the Gulf of Mexico hypoxia zone. Bayou DeView, a tributary to the Cache River, has been noted to contribute contaminants.

Arkansas Nonpoint Source Pollution Program

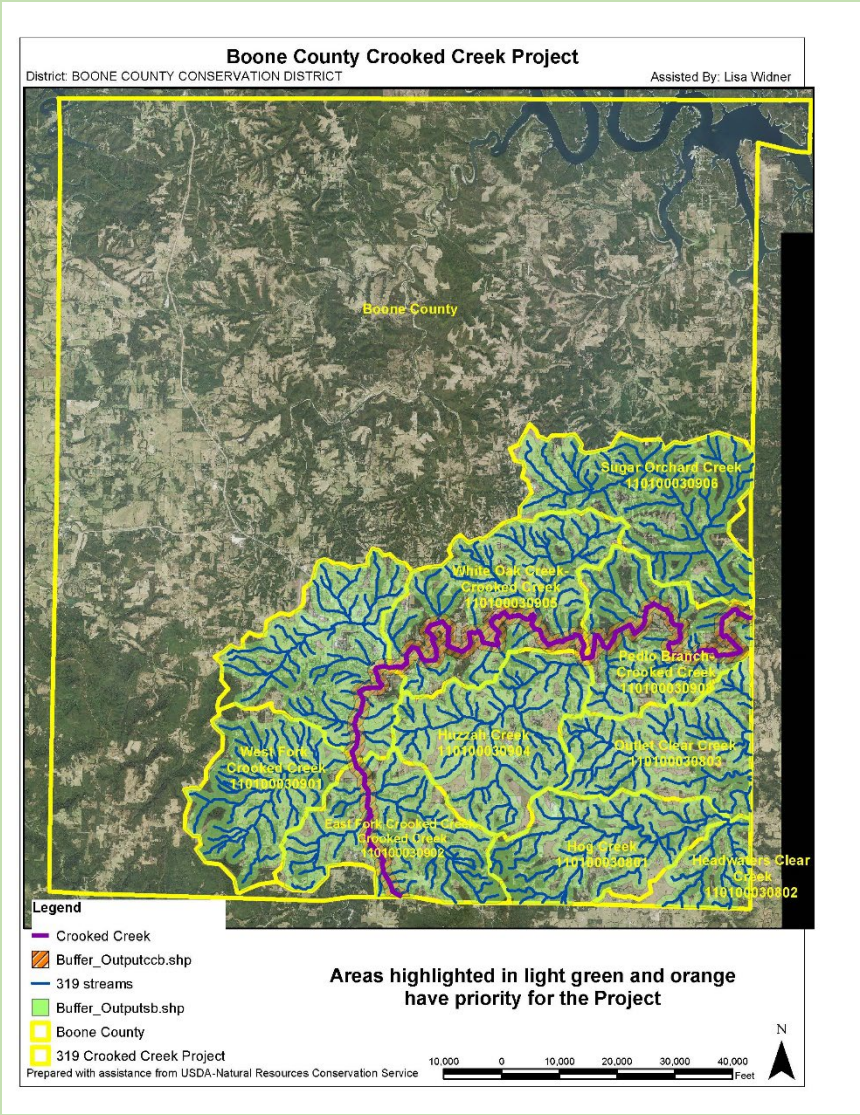
NATURAL RESOURCES DIVISION

Crooked Creek Cost Share

Project #: **19-600**

Lead Project Partner: **Boone County Conservation District**

Status: **Active**



Crooked Creek, a part of Bull Shoals Lake Watershed in Northwest Arkansas, is a popular destination for floating and smallmouth bass fishing. However, portions of the creek have been identified as impaired due to total dissolved solids levels. The source of the pollution is unknown but thought to originate from both urban and rural sources, such as poultry and livestock operations. Reduction of vegetated stream banks is also a likely contributing factor. Boone County Conservation District's project's primary objective is to implement a program that will encourage voluntary participation of landowners to implement BMPs on properties within the sub-watersheds adjacent to or contributing to Crooked Creek. Their goal is to reach 8,000 acres with BMPs, which will reduce nutrients, sediment, and bacteria from entering the waterway. The project aims to reduce sediment runoff by 3.59 tons/acre/year, create nutrient management and prescribed grazing plans, and installing livestock exclusion fencing in riparian areas. The project is expected to be completed in September 2022.

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

Markham Square Water Quality Demonstration Project

Project #: 19-700

Lead Project Partner: City of Conway

Status: Complete

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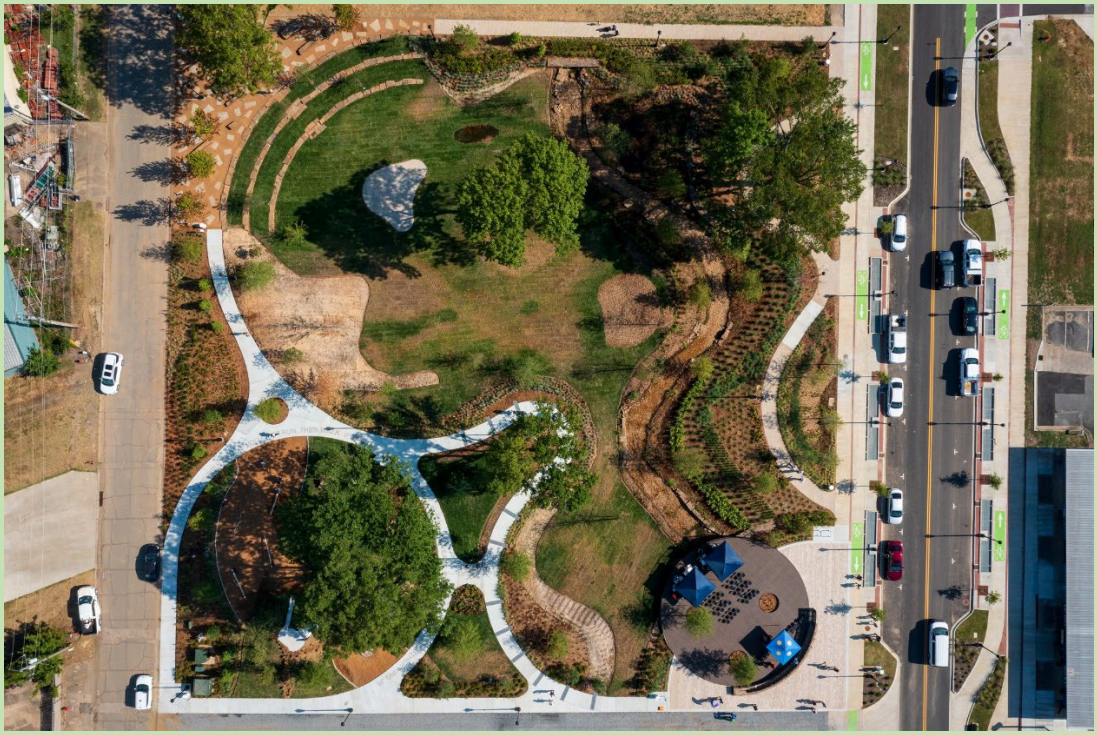
Markham Square is located near downtown Conway, one of Arkansas' fastest growing cities. The overarching goal of the project was mitigation of water quality issues in the Little Creek-Palarm Creek sub-watershed, which is part of the greater Lake Conway-Point Remove Watershed, a priority 8-digit HUC identified in the 2018-2023 ANRD NPS Management Plan. The project aims to transform a former brownfield site into an aesthetically pleasing town square that both benefits water quality, celebrates community, and demonstrates how Low Impact Development (LID) and Green Infrastructure (GI) techniques can be used in sustainable stormwater mitigation and filtration. Project partners have produced several videos about the project, which are available on the City of Conway's YouTube channel. The park officially opened in July of 2022 as Martin Luther King Jr. Square.



Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

Illinois River Watershed Unpaved Roads BMP Demonstration

Project #: 19-800

Lead Project Partner: Illinois River Watershed Partnership

Status: Active

The Illinois River Watershed is characterized by rapidly increasing population growth and development in Northwest Arkansas. Several segments of the watershed have surpassed the threshold for acceptable levels of turbidity and sediment. IRWP's project aims to reduce this sediment by implementing unpaved road BMPs, as well as demonstrations for educational purposes.

Lake Conway Point Remove Water Quality Monitoring

Project #: 19-900

Lead Project Partner: Equilibrium

Status: Active

Spanning seven counties including Conway, Faulkner, Perry, Pope, Pulaski, Van Buren, and Yell Counties, the Lake Conway-Point Remove Watershed includes several streams listed as impaired on ADEQ's 2016 303(d) List. Categories of impairments vary, ranging from pH to dissolved oxygen to ammonia-nitrogen to turbidity. The 2018-2023 NPS Management Plan calls for strategic monitoring in priority watersheds, as monitoring increases awareness and understanding of watershed health, and therefore results in higher protection of water resources. Equilibrium's monitoring project aims to collect, analyze, and report water quality and discharge data within seven streams at ten sites. The project is expected to be completed September 2022.

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

North Fork of White River Sub-Watershed Cost Share

Project #: **19-1000**

Lead Project Partner: **Fulton County Conservation District**

Status: **Active**

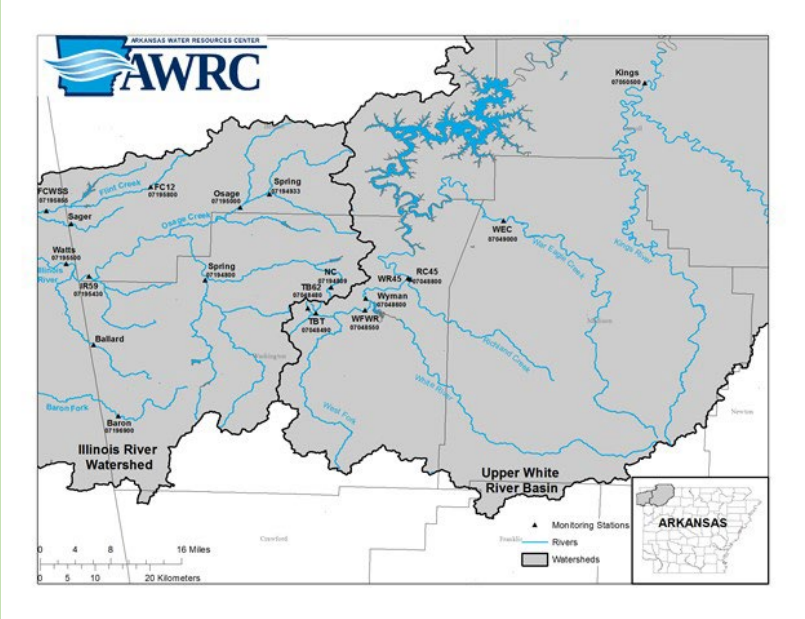
The North Fork White is a sub-watershed of the greater White River Watershed Basin and is located primarily in North Central Arkansas. There has been a lack of water quality monitoring in this watershed, but there are visibly high levels of turbidity and sediment load. Land use and more extreme rain events are thought to be contributors. The Fulton County Conservation District project aims to create a North Fork White Sub-Watershed Improvement Steering Committee and provide technical and cost share assistance to landowners in implementing BMPs. BMPs may include but are not limited to fencing, the creation of ponds, stream bank protection, rain garden construction, and creation of riparian forest buffer zones.

Water Quality Monitoring in the Upper Illinois River Watershed and Upper White River Basin

Project #: **19-1100**

Lead Project Partner: **Arkansas Water Resources Center**

Status: **Active**



The Upper Illinois River Watershed and the Upper White River Basin (otherwise known as the Beaver Reservoir Watershed) have seen significant land use

changes over the past decade as Northwest Arkansas continues to grow. Main tributaries and several reaches of the Illinois River have been 303(d) Listed due to nutrients, sediment, and pathogens from urban runoff and other unknown sources. The Upper White Basin, which provides drinking water to most of Northwest Arkansas as well as recreational and aesthetic value to the area, has likewise been impacted by sediment, nutrients, sulfate, and dissolved solids from surface erosion and other unknown sources. AWRC's project includes plans for water quality sampling, analysis, and annual load estimation at thirteen sites in both watersheds. Discharge data will also be used from USGS monitoring stations.

Update of the Watershed Stewardship Program: Phase I

Project #: 19-1200
Lead Project Partner: Jefferson County Cooperative Extension Service
Status: Complete

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The Arkansas Watershed Steward Program was created as a 319 project in 2013 (Project #12-500). The need for the Program arose from the need to foster awareness, education, and responsible stewardship of Arkansas' most important resources. The initial project culminated in the Arkansas Watershed Stewardship Handbook, created by the Extension Service in cooperation with over a dozen partners. It also resulted in a number of educational events and meetings. Water quality impairments across the state show a need for adequate stewardship from everyday landowners, especially in areas without active watershed groups. Project 19-200 sought to grow the Program, first through strategic planning by a steering committee and updating the Handbook. Phase II (Project #21-200) is underway, as curriculum and online education opportunities are developed. Visit https://www.uaex.uada.edu/environment-nature/water/ar-watershed-stewardship.aspx for more information.

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

Expanding Green Infrastructure to Southeast Arkansas

Project #: 19-1300

Lead Project Partner: Jefferson County Cooperative Extension Service

Status: Complete

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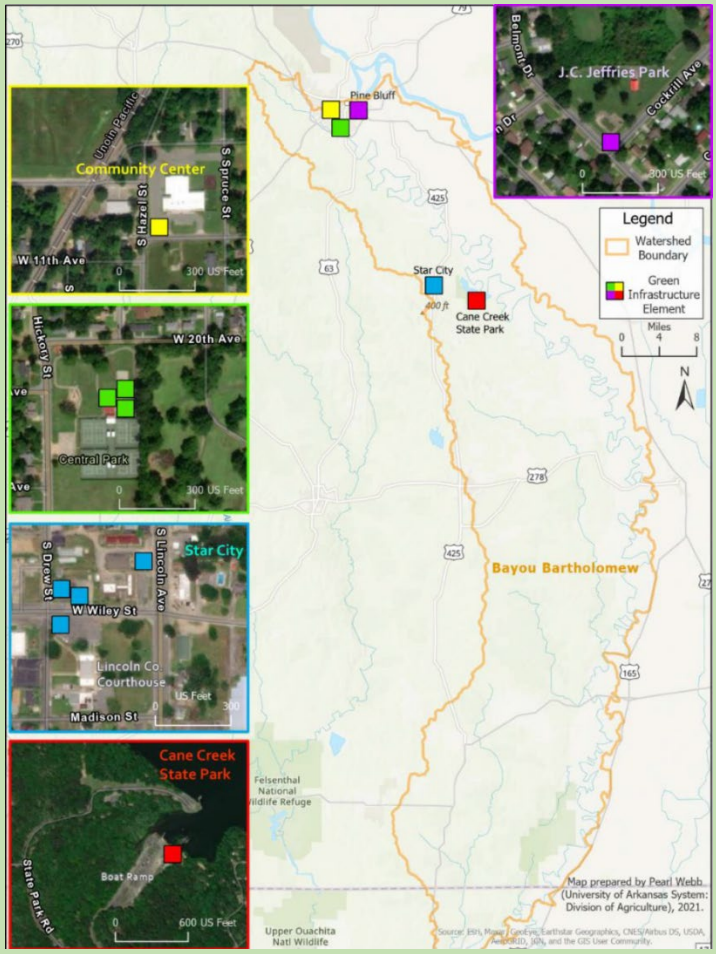

Within the Bayou Bartholomew Watershed in Southeast Arkansas, 29% of households are below the poverty line. The population is 56% Black and 40% White, with people of Latin American and Asian descent present, as well. In the City of Pine Bluff, where much of this project took place, the median income is $30,000, with over 32% of households below the poverty line and 100% of school-age children qualifying for free school lunch. The area is also home to elderly, houseless, and veteran communities, as well. Multiple segments of the watershed listed as impaired, and the area is subject to flooding and sewer overflows, as the area's infrastructure ages. These problems can have a disproportionate impact on already vulnerable communities in the watershed area. Additionally, water pollutants in the watershed eventually flow to the Gulf of Mexico, where excess nutrients have led to a "dead zone" devoid of aquatic life. While not a magic fix-all solution, green infrastructure is a technique that can help abate these water quality issues and improve the lives of everyone living in the watershed. Project #19-300 led to the installation of ten demonstration projects, including the creation of rain gardens and bioswales. Five green infrastructure elements were installed in Pine Bluff, two in Star City, two at the Lincoln County Extension Office, and one at Cane Creek State Park. The Project also included educational webinars to inform the public and other stakeholders about the benefits of green infrastructure.

Arkansas Nonpoint Source Pollution Program

NATURAL RESOURCES DIVISION

Expanding Green Infrastructure to Southeast Arkansas

Project #: 19-1400

Lead Project Partner: Washington County Cooperative Extension Service

Status: Complete

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Northwest Arkansas has experienced tremendous urban growth. From 2000-2010 alone, urban land use increased 72% (from 108 to 187 square miles) accompanying a 71% increase in population. The pace of growth in the region is increasing impervious surfaces and altering land use once largely dominated by forest and pasture. Specifically, the pressure of encroaching urban spaces into rural lands presents significant environmental challenges. Existing and reduced green spaces and rural lands can no longer offset this rapidly changing landscape and its impacts on water quality. The goals of this project were to develop new video podcasts, conduct stakeholder outreach, provide technical assistance on BMP installation, and demonstrate successful LID/BMP techniques to increase nonpoint source pollution awareness within the Illinois River and Beaver Lake Watersheds. Strong partnerships and cooperating agencies made the project successful. The public interest and the visible nature of these water quality demonstrations have been an innovative tool to engage urban stakeholders regarding land-use impacts on water quality of receiving streams. Strong social media response, local media interest, increased volunteer engagement, and expansion of relationships with partners and local businesses increased the visibility of NPS pollution prevention in urban Northwest Arkansas.