

## **U.S. EPA Watershed Initiative Nomination**

### **The Bayou Bartholomew Watershed in Arkansas and Louisiana**

Submitted by: Winrock International

The Bayou Bartholomew Watershed of Arkansas and Louisiana is one of the nation's most unique places. Bayou Bartholomew follows a meandering course through all or part of Jefferson, Lincoln, Drew, Desha, Chicot, and Ashley counties in Arkansas and joins the Ouachita River in Morehouse Parish, near Sterlington, Louisiana. The site is considered a conservation priority by The Nature Conservancy (TNC) because 1) it contains what is probably the largest, relatively intact, low relief stream subject to bank overflow in the Mississippi River Valley; 2) it supports at least three species of federally listed freshwater mussels and over half of all known mussel species found in Louisiana; 3) it may support the most diverse assemblage (103 species) of freshwater fish of any stream system in North America; and 4) although fragmented, it captures a landscape of bottomland forest that supports important populations of many species, including the threatened Louisiana black bear and high-quality examples of numerous plant communities.

Bayou Bartholomew is listed in the Arkansas Department of Environmental Quality (ADEQ) 305(b) Water Quality Assessment Report as impaired for primary contact for recreation and aquatic life. The Arkansas Soil & Water Conservation Commission (ASWCC) designates this watershed as a high priority 319 non-point source pollution area. Furthermore, the Louisiana Department of Environmental Quality (LDEQ) has designated Bayou Bartholomew as having water quality impairment relating to agriculture. The primary conservation targets at Bayou Bartholomew are the freshwater aquatic community (mussels and fish) and the matrix of bottomland hardwood communities that contribute to maintenance of water quality required by these aquatics. Much of the watershed has been deforested and converted to agriculture. A significant portion of the remaining forestland has been managed for timber production over the decades, and composition and structure are now altered to some extent.

Despite construction of several drainage canals and levees to support adjacent agricultural activities, much of the site is annually exposed to significant over bank flooding, and the flooding cycle, sediment deposition, nutrient input, fish stock replenishment, etc. are considered to closely approximate historic conditions. Because of the size, current condition and relatively intact hydrology of the site, its species and communities are considered highly viable with appropriate conservation action.

### **Watershed Plan**

Bayou Bartholomew Watershed is blessed with a well thought-out watershed plan and strategies to address problem areas for the stream itself, its surrounding wetlands, and the watershed. In 1995, The Bayou Bartholomew Alliance (BBA), a local citizen-based non-profit organization concerned about the stream, convened a technical support group of federal and state natural resources agency personnel to develop a short and long-term restoration plan for Bayou Bartholomew. This resulted in the 1996 publishing of *“Short and Long Term Strategies for Protecting and Enhancing Natural Resources in the Bayou Bartholomew Watershed.”* This plan is referenced in the project descriptions and will continue to be the basis of all restoration, conservation, and preservation activities of the BBA in the watershed. Additionally, through EPA and other supporting funding, the *“Watershed Restoration Action Strategy (WRAS) for the Bayou Bartholomew Watershed”* was developed in 1999 to compliment and enhance the original watershed plan, and most recently, the *“Bayou Bartholomew Wetland Planning Area Report”* was developed in 2002 to address wetlands planning, restoration, and protection in the watershed. These three documents provide a consensus of federal, state and local stakeholders within the watershed to address the identified problems in the watershed. The planned activities of this grant will build on the numerous accomplishments the BBA has had in the upper and middle sections of Bayou Bartholomew by developing a partnership that brings the additional expertise of Winrock and the Northeast LA/TNC Field Office to the lower

interstate reach of the stream. Because of its base in Arkansas, WI has a long tradition of successfully working in the state.

### **Problems & Threats**

The Bayou Bartholomew Watershed Plan identified 15 problems affecting the watershed, and the technical support group developed short and long-term action plans to address each problem. The 15 identified problems include: sedimentation, nutrients, dumping, logjams, in-stream flow, habitat alteration, diverse uses and interest, lack of public access, improper application of pesticides/herbicides, chemical barrels, rock weirs, improper management of irrigation water, low dissolved oxygen, lack of information exchange, and mercury pollution. This nomination will focus on addressing identified problems within the watershed plan associated with: 1) sedimentation, 2) log jams, 3) habitat alteration, 4) rock weirs, and 5) diverse uses and interest. Other problem areas in the watershed outside the scope of this grant are being addressed through other funding sources.

### **Innovation**

The 1999 WRAS for the Bayou Bartholomew Watershed estimated an annual cost of \$4.4 million to address the identified problems. Federal, state, and local funding cannot come close to meeting this need. Adequate funding is a serious, nationwide problem for watershed restoration. A way to tap into significant private funding must be developed to adequately support the short and long-term needs of this watershed plan and others across the country. Winrock's watershed nomination is innovative, because while following the watershed plan, it addresses developing these new private funding sources via market-based incentives that will ensure the continuation of and increase the reach, volume, and scope of work within the watershed plan. This new source of money will not only enhance the implementation of short and long-term action strategies within the watershed plan, but it will also create a new source of income for private landowners who choose to voluntarily participate.

This grant nomination is also innovative because it continues to foster the science of an adequate geomorphologic stream survey as necessary for any effective stream rehabilitation project.

Standard ambient water quality monitoring is not definitive enough to measure the success or failure of a stream restoration project unless it and the rehabilitation projects are adequately tied to an assessment of the stream's geomorphologic characteristics.

### **Description of Projects**

The projects below are designed to compliment already existing State and Federal efforts in the watershed including the recently implemented USEPA/ASWCC 319 non-point grant and the wetland planning efforts for the watershed. **All project action plans listed below are directly related to the existing Bayou Bartholomew Watershed plan's long- and short-term action strategies developed by the BBA Technical Support Group in November 1996.** The Watershed Initiative budget, with a breakdown by category and task, can be found in Appendix 2.

**Task 1:** Environmental Assets Development. **Implementing Agency:** Winrock International

**Goal:** To increase the reach, volume, and scope of work that the BBA can accomplish within its riparian habitat improvement, wildlife habitat improvement, wetlands habitat improvement, and water quality improvement projects to address the problem of sedimentation.

**Watershed Plan Problem/Action:** Sedimentation, Short Term Plan (STP) Action 4, Long Term Plan (LTP) Action 9; Habitat Alteration, LTP Actions 1&2; Diverse Uses & Interest, LTP

**Deliverable(s):** Introduction of a market-based environmental assets incentives program to the Bayou Bartholomew watershed that benefits industry, private landowners, and land restoration efforts that will increase the capacity of the BBA to meet its organizational goals to improve the watershed.

**Subtask 1.1** (Year 1) Identify and quantify the potential value of environmental assets in the Bayou Bartholomew watershed. Efforts include identifying lands suitable for carbon offsets, sedimentation credits, wetland credits, woodpecker credits, etc. WI would enter the tracts into ArcGIS based on asset classification and potential value. This system would allow for quick identification of acreage by investor preference.

**Subtask 1.2** (Year 3) Produce a portfolio of potential environmental assets projects to present to investors, including utility companies, land trusts, and foundations.

**Subtask 1.3** (Year 3) Develop delivery mechanisms for transferring revenues from environmental assets to private landowners and the associated environmental credits to investors.

**Subtask 1.4** (Year 2) Based on past and on-going carbon sequestration project experience, WI would train the BBA on how to conceptualize and implement environmental asset projects.

**Subtask 1.5** (Years 2&3) Develop a GIS-based registry for environmental assets.

**Subtask 1.6** (Year 1) Through a consultant contract, Winrock will work with the University of Arkansas at Little Rock Institute for Economic Advancement to examine the economic impact of land use change from marginal land row-cropping to restored bottomland hardwoods in the Bayou Bartholomew watershed.

**Subtask 1.7** (Years 1-3) Provide outreach and knowledge transfer via project description and accomplishments, along with necessary contacts, on WI U.S. Programs web site, the BBA web site, and the Arkansas Watershed Advisory Group (AWAG) web site, and request that WI make a presentation at the annual AWAG conference and/or national watershed conference.

**Task 2:** Collect stream morphology data for a representative reach of Bayou Bartholomew.

**Implementing Agency:** Arkansas Department of Environmental Quality (ADEQ).

**Goal:** To find the baseline of existing physical conditions and to establish permanent reference sites for Bayou Bartholomew.

**Watershed Plan Problem/Action:** State approved monitoring & evaluation plan

**Deliverable(s):** Summary of the Bayou Bartholomew geomorphologic assessment.

**Subtask 2.1** (Year 3) Develop a regional curve using stage and discharge relationships at the USGS stations.

**Subtask 2.2** (Year 1) Collect stream morphology data on a representative reach of the main stem of Bayou Bartholomew. Perform a tour of Bayou Bartholomew to determine locations for collecting

physical measurements on the stream. Stream morphology data collection will include: stream bankfull mean depth, stream bankfull maximum depth, stream bankfull width, flood prone area width, dominant channel material, channel slope, valley slope, bed features, sinuosity, and meander width ratio.

**Subtask 2.3** (Year 1) Identify reference reaches and collection of physical measurements similar to those described in Subtask 2.2.

**Subtask 2.4** (Years 1&3) (ADEQ and WI) Prepare photo documentation of the stream conditions to assist in comparing future stream conditions.

**Subtask 2.5** (Year 2) Perform a stream bank erosion inventory.

**Task 3:** Establishment of a continuous water quality monitoring station (Year 1) and associated water quality monitoring (Years 1-3). **Implementing Agency:** ADEQ.

**Goal:** To validate sediment load in the stream to give a baseline for tracking and evaluating future improvements.

**Watershed Plan Problem/Action:** Sediment

**Deliverable(s):** Summary and analysis of water quality data collected at the site.

**Subtask 3.1** (Year 1) Install equipment and obtain a flow-rating curve for the appropriate site.

**Subtask 3.2** (Years 1-3) Collect flow-weighted base flow samples.

**Subtask 3.3** (Year 1) Collect discreet samples during three storm events.

**Subtask 3.4** (Years 1-3) Collect water quality samples during storm events.

**Task 4:** Develop a proactive protection program for threatened freshwater mussel populations in the Bayou Bartholomew Watershed through easements and a modeling program based on using mussels as indicator species of sedimentation.

**Implementing Agency:** Northeast Louisiana Field Office/The Nature Conservancy.

**Goal(s):** To identify, protect, or restore critical examples of quality mussel habitat known to occur in the Bayou Bartholomew Watershed.

**Watershed Plan Problem/Action:** Sediment, LTP Action 10

**Deliverable(s):** Spatial representation of the mussel populations in the Bayou Bartholomew Watershed.

**Subtask 4.1** (Year 3) Identify reaches of the bayou that harbor high relative densities of threatened mussels and high levels of diversity among aquatic components by overlaying spatially explicit records of occurrence with GIS layers that represent the full range of habitat types present in the watershed.

**Subtask 4.2** (Year 3) Digitize and assign a habitat type designation to previous collection sites.

**Subtask 4.3** (Year 1) Select appropriate sites to represent the full range of habitat sites in the watershed.

**Subtask 4.4** (Years 2&3) Chose priority sites and enter into negotiations for protective easements in selected areas.

**Task 5:** Provide coordination, staff, and office support. **Implementing Agency:** Bayou Bartholomew Alliance (BBA)

**Goal(s):** To coordinate the Bayou Bartholomew Alliance's cooperative efforts with federal, state, local, and private entities involved in carrying out "*Watershed Initiative*" projects that address the problems of sedimentation, log jams, habitat alteration, rock weirs, and diverse uses and interest.

**Watershed Plan Problem/Action:** Coordination of watershed plan

**Deliverable(s):** Primary coordination for on-the-ground project activities.

**Subtask 5.1** (Years 1-2) Provide additional coordination and supervision of BBA watershed efforts for "*Watershed Initiative*" projects.

**Subtask 5.2** (Year 3) Provide coordination and supervision of all BBA watershed efforts fully funded for one year.

**Subtask 5.3** (Years 1-3) BBA's office and travel expenses to coordinate BBA "*Watershed Initiative*" efforts.

**Task 6:** Rehabilitate up to two rock or earthen weirs to stabilize pass flows and prevent erosion.

**Implementing Agency:** BBA.

**Goal:** To successfully work with private landowners in the watershed to redesign and restore weirs that will improve stream flow, reduce erosion, and allow for adequate fish passage.

**Watershed Plan Problem/Action:** Rock Weirs, STP Action 4

**Deliverable(s):** Up to two completed weir restoration projects.

**Subtask 6.1** (Years 1-3) Develop and install weir designs that compliment geomorphologic assessment of Bayou Bartholomew.

**Task 7:** Remove logjams from Bayou Bartholomew to maintain a clear channel and improve flow regime. **Implementing Agency:** BBA.

**Goal:** To clear channel and improve flow in the bayou.

**Watershed Plan Problem/Action:** Logjams, STP Action 3; LTP Actions 1 & 2.

**Deliverable(s):** Remove 15-20 logjams from Bayou Bartholomew during the grant period.

**Subtask 7.1** (Years 1-3) Identify and remove logjams from Bayou Bartholomew.

**Task 8:** Continue beneficial habitat alteration efforts that restore bottomland hardwood habitat in the Bayou Bartholomew Watershed to create wetlands, reduce sedimentation, improve wildlife habitat, and improve water quality. **Implementing Agency:** BBA.

**Goal:** To convert marginal cropland in the watershed back into restored bottomland hardwoods, thereby reducing sedimentation through a market-based environmental assets approach by marketing to private industry as a carbon sequestration project.

**Watershed Plan Problem/Action:** Habitat Alteration, LTP Actions 1&2; Diverse Uses

**Deliverable:** 200 acres of converted marginal cropland back into bottomland hardwoods.

**Subtask 8.1** (Year 1) Find a willing landowner desiring to convert marginal cropland back into bottomland hardwoods.

**Subtask 8.2** (Year 1-3) Coordinate tree planting.

### **Performance Measures**

Progress measures are based on the agency/organizations implementing tasks on schedule.

Environmental milestones include: meeting the acreage enrollment goal for carbon sequestration project(s); acres of habitat protected through easements for the benefit of mussels; # of logjams cleared from the bayou; # of weirs restored on the bayou. Other performance measures will include the amount of private investment leveraged as a result of the project; and an increase in private/public awareness of the value of Bayou Bartholomew in the local economies of the watershed. Agency and organization coordinators will provide quarterly updates to WI, who will, in turn, provide a formal quarterly report to USEPA. All water quality monitoring will be administered by ADEQ based on its present agreements with USEPA Region 6. All projects will be coordinated through the BBA Technical Support Group. The group includes the following stakeholders: ADEQ, TNC, WI, USDA-Natural Resources Conservation Service, UA-Cooperative Extension Service, ASWCC, USEPA-Region 6, Arkansas Game & Fish Commission, US Fish & Wildlife Service, Ducks Unlimited, local Conservation District offices and local Resource Conservation & Development Councils.

### **Qualifications & Experience**

**Gregg Patterson** (BJ, MS-Forestry) is Director of U.S. Programs for Winrock International. He developed the Arkansas Water Education Team for ADEQ and then served two years as the Agency's Environmental Preservation Division Chief, where he was intimately involved in water issues and helped lead ADEQ's watershed initiatives. Mr. Patterson also served on the BBA's Technical Support Group and the Multi-agency Wetlands Planning Task Force. He also successfully completed Dave Rosgen's introductory course in applied river morphology and is a member of the Arkansas Watershed Advisory Group.

**Sandi Formica** (BS, MS Chemical Engineering, U. Arkansas) is the present ADEQ Chief of Environmental Preservation and a chemical engineer with extensive water experience. Past experience includes working as the Program Support Manager for the AR Department of Environmental Quality and as a Project Manager for the AR Department of Pollution Control and Ecology. Ms. Formica is well trained in fluvial geomorphology, stream stability & restoration, and stream surveying techniques, and she has completed all levels, including the advanced engineer training, in Dave Rosgen's river morphology courses. Ms. Formica is an instrumental leader in the Arkansas Watershed Advisory Group, for which she initiated, and is now chairing, activities and information programs.

**Ronnie Ulmer** (BS Agr., LSU) is the Program Manager for TNC's NE LA Field Office. He has extensive experience in landowner relations and conservation easement programs. He has served as a team Biologist for an Ornithological Pesticide Impact Study and a Survey Team Member for a Vegetation Survey for the West Monroe Water Conservation Project in Louisiana. Mr. Ulmer has a BS in Agriculture and is pursuing an MS degree in Ecology from the Univ. of Louisiana-Monroe.

**Dr. Bill Layher** (BSE, MS-Environmental Science, Emporia St. U., PhD Zoology, OK St. U.) is Coordinator for the Bayou Bartholomew Alliance and President of Layher Biologics RTEC, Inc. Dr. Layher will serve as the local connection to all on-the-ground watershed work for this project. His experience includes working as the Project Leader for the US Geologic Survey and as the Supervisor on Environmental Services for the Kansas Department of Wildlife and Parks. He has held professorships at seven universities, published 60 scientific articles, and presented over 100 papers at scientific conferences. In addition, Dr. Layher has served on 29 governmental committees dedicated to and involved with natural resource topics.

**Request for Proposal (RFP) No. FRL-7262-8 EPA Watershed Initiative  
Budget Presented by Task**

<i>Task Subtasks</i>	<i>Task Duration</i>	<i>Implementing Group</i>	<i>Deliverable</i>	<i>Estimated Cost</i>	<i>Match</i>
<b>Task 1. Environmental Assets Development</b>	<b>3 Years (Total)</b>	<b>Winrock</b>	<b>Introduction of a market-based environmental assets incentives program to the BB watershed that benefits industry, private landowners, and land restoration efforts</b>		
1.1 Identify and quantify the potential value of environmental assets in the Bayou Bartholomew watershed	Years 1& 2	Winrock		\$270,000	\$50,000
1.2 Produce a portfolio of potential environmental assets projects to present to investors, including utility companies, land trusts, and foundations.	Year 3	Winrock		\$50,000	\$25,000
1.3 Develop delivery mechanisms for transferring revenues from environmental assets to private landowners and credits to investors.	Year 3	Winrock		\$30,000	\$12,500
1.4 Train the BBA on how to conceptualize and implement environmental asset projects.	Year 2	Winrock		\$37,234	\$12,500
1.5 Develop a GIS-	Years 2 & 3	Winrock		\$25,000	

based registry for environmental assets.					
1.6 Examine the economic impact of land use change in the Bayou Bartholomew watershed in determining the environmental value of assets from the land use change in the watershed.	Year 1	Winrock and the University of Arkansas at Little Rock		\$50,000	
1.7 Project outreach and knowledge transfer	Years 1-3			\$40,000	
<b>TOTAL TASK 1</b>				<b>\$502,234</b>	<b>\$100,000</b>
<b>Task 2. Collect stream morphology data for a representative reach of Bayou Bartholomew. Arkansas Department of Environmental Quality (ADEQ).</b>	<b>3 Years (Total)</b>	<b>ADEQ</b>	<b>Summary of the BB geomorphologic assessment.</b>		
2.1 Develop a regional curve using stage and discharge relationships at the USGS stations	Year 3	ADEQ		\$25,000	
2.2 Collect stream morphology data on a representative reach of the main stem of Bayou Bartholomew.	Year 1	ADEQ		\$25,000	
2.3 Identify reference reaches and collection of physical measurements similar to those described in Subtask 2.2.	Year 1	ADEQ		\$12,500	
2.4 Prepare photo documentation of the stream conditions to assist	Years 1 & 3	ADEQ and Winrock		\$12,500	

in comparing future stream conditions.					
2.5 Perform a stream bank erosion inventory.	Year 2	ADEQ		\$25,000	
<b>TOTAL TASK 2</b>				<b>\$100,000</b>	<b>\$0</b>
<b>Task 3: Establishment of a continuous water quality monitoring station and associated water quality monitoring.</b>	<b>Years 1-3</b>	<b>ADEQ</b>	<b>Summary and analysis of water quality data collected at the site.</b>		
3.1 Summary of the Bayou Bartholomew geomorphologic assessment.	Year 1	ADEQ		\$75,000	\$20,000
3.2 Collect flow-weighted base flow samples.	Years 1-3	ADEQ		\$25,000	\$10,000
3.3 Collect discreet samples during three storm events.	Year 1	ADEQ		\$25,000	\$10,000
3.4 Collect water quality samples during storm events.	Years 1-3	ADEQ		\$25,000	\$8,077
<b>TOTAL TASK 3</b>				<b>\$150,000</b>	<b>\$48,077</b>
<b>Task 4: Develop a proactive protection program for threatened freshwater mussel populations in the Bayou Bartholomew Watershed through easement modeling as an indicator species of sedimentation.</b>	<b>Years 1-3</b>	<b>Northeast Louisiana Field Office/The Nature Conservancy.</b>	<b>Spatial representation of the mussel populations in the Bayou Bartholomew Watershed.</b>		
Subtask 4.1 Identify reaches of the bayou that harbor high relative densities of threatened mussels and high levels of diversity among aquatic components by overlaying	Year 3	TNC		\$75,000	\$20,000

spatially explicit records of occurrence with GIS layers that represent the full range of habitat types present in the watershed.					
Subtask 4.2 Digitize and assign a habitat type designation to previous collection sites.	Year 3	TNC		\$50,000	\$20,000
Subtask 4.3 Select appropriate sites to represent the full range of habitat sites in the watershed.	Year 1	TNC		\$50,000	\$20,000
Subtask 4.4 Chose priority sites and enter into negotiations for protective easements in selected areas.	Years 2&3	TNC		\$72,753	\$15,500
<b>TOTAL TASK 4</b>				<b>\$247,753</b>	<b>\$75,500</b>
<b>Task 5: Provide coordination, staff, and office support.</b>	<b>Years 1-3</b>	<b>Bayou Bartholomew Alliance (BBA)</b>	<b>Primary coordination for on-the-ground project activities.</b>		
Subtask 5.1 Provide additional coordination and supervision of BBA watershed efforts for “Watershed Initiative” projects.	Years 1-2	BBA		\$75,000	\$5,000
Subtask 5.2 Provide coordination and supervision of all BBA watershed efforts fully funded for one year.	Year 3	BBA		\$50,000	\$5,000
<b>Subtask 5.3</b> Oversee office and travel expenses to coordinate BBA “ <i>Watershed Initiative</i> ” efforts.	(Years 1-3)	BBA		\$75,000	
<b>TOTAL TASK 5</b>				<b>\$200,000</b>	<b>\$10,000</b>

<b>Task 6: Rehabilitate up to two rock or earthen weirs to stabilize pass flows and prevent erosion.</b>	<b>Years 1-3</b>	<b>BBA</b>	<b>Up to two completed weir restoration projects.</b>		
Subtask 6.1 Develop and install weir designs that compliment geomorphologic assessment of Bayou Bartholomew.	Years 1-3	BBA		\$60,000	\$10,000
<b>TOTAL TASK 6</b>				<b>\$60,000</b>	<b>\$10,000</b>
<b>Task 7: Remove logjams from Bayou Bartholomew to maintain a clear channel and improve flow regime.</b>	<b>Years 1-3</b>	<b>BBA</b>	<b>Remove 15-20 logjams from Bayou Bartholomew during the grant period.</b>		
Subtask 7.1 Identify and remove logjams from Bayou Bartholomew.	Years 1-3	BBA		\$20,000	\$18,000
<b>TOTAL TASK 7</b>				<b>\$20,000</b>	<b>\$18,000</b>
<b>Task 8. Continue beneficial habitat alteration efforts that restore bottomland hardwood habitat in the Bayou Bartholomew Watershed to create wetlands, reduce sedimentation, improve wildlife habitat, and improve water quality.</b>	<b>Years 1-3</b>	<b>BBA</b>	<b>200 acres of converted marginal cropland back into bottomland hardwoods.</b>		
Subtask 8.1 Find a willing landowner desiring to convert marginal cropland back into bottomland	Year 1	BBA		\$10,000	\$25,000

hardwoods.					
Subtask 8.2Coordinate tree planting.	Year 1-3	BBA		\$10,000	\$50,000
<b>TOTAL TASK 8</b>				<b>\$20,000</b>	<b>\$75,000</b>
<b>PROJECT TOTALS</b>				<b>\$1,299,987</b>	<b>\$336,577</b>



# Winrock International

*Putting Ideas to Work*

38 Winrock Drive  
Morrilton, Arkansas 72110-9370 USA  
Phone: 1.501.727.5435  
Fax: 1.501.727.5417  
www.winrock.org

November 13, 2002

RE: Request for Proposal (RFP) No. FRL-7262-8 EPA Watershed Initiative

To Whom It May Concern:

Winrock International hereby pledges \$100,000 in matching funds for the EPA Watershed Initiative project.

Sincerely,

Ron Hubbard  
Senior Director Corporate Contracts

Cc: Gregg Patterson

# ADEQ

ARKANSAS  
Department of Environmental Quality

November 18, 2002

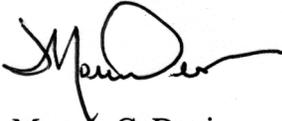
Mr. Gregg Patterson, Director  
U.S. Programs  
Winrock International  
2230 Cottdale Lane, Suite 6  
Little Rock, AR 72202

Dear Mr. Patterson;

The Arkansas Department of Environmental Quality (ADEQ) is committed to provide \$48,077 matching funds towards the federal dollars received for the "Bayou Bartholomew Watershed in Arkansas and Louisiana" U.S. EPA Watershed Initiative Project. The matching funds would be in the form of "in-kind" services being provided by our agency, through staff time dedicated to the project or through laboratory analysis, etc.

We look forward to working with your organization and the other partners on this project.

Sincerely,



Marcus C. Devine  
Director

# Bayou Bartholomew Alliance

*Dr. Curtis Merrell, President*  
PO Box 665  
Monticello, Arkansas 71657  
870-367-5901 870-367-7427 fax  
cmerrell@seark.net



*Dr. William G. Layher, Coordinator*  
7233 Camden Cutoff Rd.  
Pine Bluff, Arkansas 71603  
870-879-4808 phone/fax  
layher@earthlink.net

October 30, 2002

Mr. Gregg Patterson, Director  
U.S. Programs  
Winrock International  
2230 Cottondale Lane, Suite 6  
Little Rock, AR 72202

Dear Mr. Patterson:

As discussed at our meeting concerning the watershed grant application, The Bayou Bartholomew Alliance is prepared to provide \$113,000 dollars in matching funds to the project. These funds would be provided either as in-kind services or in cash to the project in some cases. We feel that during the project we can raise \$75,000 for the purchase of hardwood seedlings for reforestation efforts; \$10,000 for earthen wier renovation, \$18,000 for logjam removal to prevent further instream bank erosion; and \$10,000 for dumpsite cleanups. These latter three categories would be provided through volunteer efforts and donated equipment.

We look forward to working with your organization and the other partners in the grant application. We are confident that our organization can accomplish the tasks identified in the project.

Sincerely,

A handwritten signature in cursive script that reads "William G. Layher". The signature is written in black ink and is positioned above the printed name.

William G. Layher, Coordinator



P.O. Box 4125  
Baton Rouge, Louisiana 70821

International Headquarters  
Arlington, Virginia  
TEL 703 841-5300

TEL 225 338-1040  
FAX 225 338-0103

To:

Gregg Patterson, Managing Director, U.S. Programs, Winrock International 2230  
Cottondale Lane, Suite 6, Little Rock, AR 72202.

From:

Ronnie Ulmer Northeast Louisiana Program Director, The Nature Conservancy  
Post Office Box 340 Winnsboro, LA. 71295

The Nature Conservancy is committed to provide \$75,500 in three substantially equal annual installments as our contribution to the match for the EPA 2003 Watershed Initiative grant application.

Ronnie D. Ulmer



M. J. "MIKE" FOSTER, JR.  
GOVERNOR

State of Louisiana

OFFICE OF THE GOVERNOR

Baton Rouge

70804-9004

POST OFFICE BOX 14004  
(225) 342-7015

November 15, 2002

Robert Wayland, Director  
Office of Wetlands, Oceans and Watersheds  
U.S. Environmental Protection Agency, Room 7130  
1301 Constitution Ave. NW  
Washington, D.C. 20004

RE: Support for Bayou Bartholomew Basin in Arkansas and Louisiana: EPA Watershed Initiative

Dear Mr. Wayland:

I am pleased to support Governor Huckabee's nomination of The Nature Conservancy proposal for the Bayou Bartholomew Basin (Basin) to compete for an Environmental Protection Agency (EPA) Watershed Initiative grant. Bayou Bartholomew arises in Jefferson County, Arkansas and joins the Ouachita River in Morehouse Parish, near Sterlington, Louisiana. The Nature Conservancy has documented the occurrence of more than 103 species of freshwater fish in this stream, more than reported anywhere else in North America.

The Nature Conservancy has built a strong reputation in Louisiana for bringing people together to voluntarily solve difficult environmental problems, including the kind of habitat degradation that is faced by the Bayou Bartholomew Basin. The Louisiana Department of Environmental Quality is already working with The Nature Conservancy in Arkansas, and is enthusiastic about the program proposed here. I encourage you to consider funding this worthy project.

Sincerely,

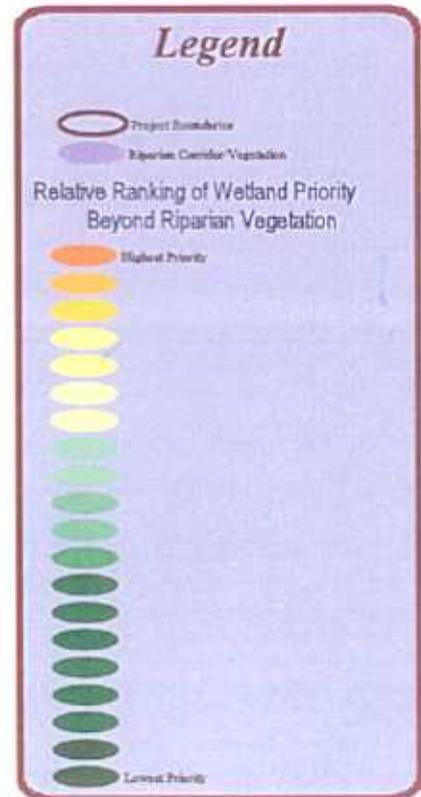
A handwritten signature in black ink, appearing to read "M. J. Foster, Jr.", written over a horizontal line.

M. J. "Mike" Foster, Jr.

jw

c: Governor Mike Huckabee

# Bayou Bartholomew



## Notes:

Ranking based on presence of hydric soils, hydrophytic vegetation potential farmed wetlands, and distance from minimum riparian corridor/riparian vegetation.

Hydrophytic vegetation, "Water", "Urban Residential", and "Urban Commercial" categories based on preliminary Arkansas GAP vegetation classification of Thematic Mapper imagery without use of ancillary data sources for defining hydrographic boundaries.

For a complete description of the Gap classification scheme see: Foti, T. et al. 1994. A Classification System for the Natural Vegetation of Arkansas. In proceedings Arkansas Academy of sciences 48:50-62.

The Hydric Soils data is based on 1:24000 scale digital county soils data. This layer is based on pre-certified SSURGO data created by the University of Arkansas Soil Physics Laboratory. Hydric classification performed using "Hydric Soils of the United States," by NRCS. Units with hydric inclusions are classified as hydric. Where 1:24000 scale data was not available STATSGO 1:250000 scale data was used. Soils with more than 21% hydric components are also classified as hydric.

The potential farmed wetlands data on this media was prepared by the Space Remote Sensing Center, Mississippi, for the Natural Resource Conservation Service (NRCS).

The Potential Farmed Wetlands data is not an inventory of certified wetlands. This is one of several mapping tools used by NRCS for making certified wetland delineations on agricultural land for purposes of the Food Security Act of 1995 and Section 404 of the Clean Water Act.

County boundaries, roads, and hydrography data from U.S. Bureau of the Census TIGER/line 1994.

Projection: UTM, Zone 15; Datum: NAD27.

Cell resolution is 20 meters.

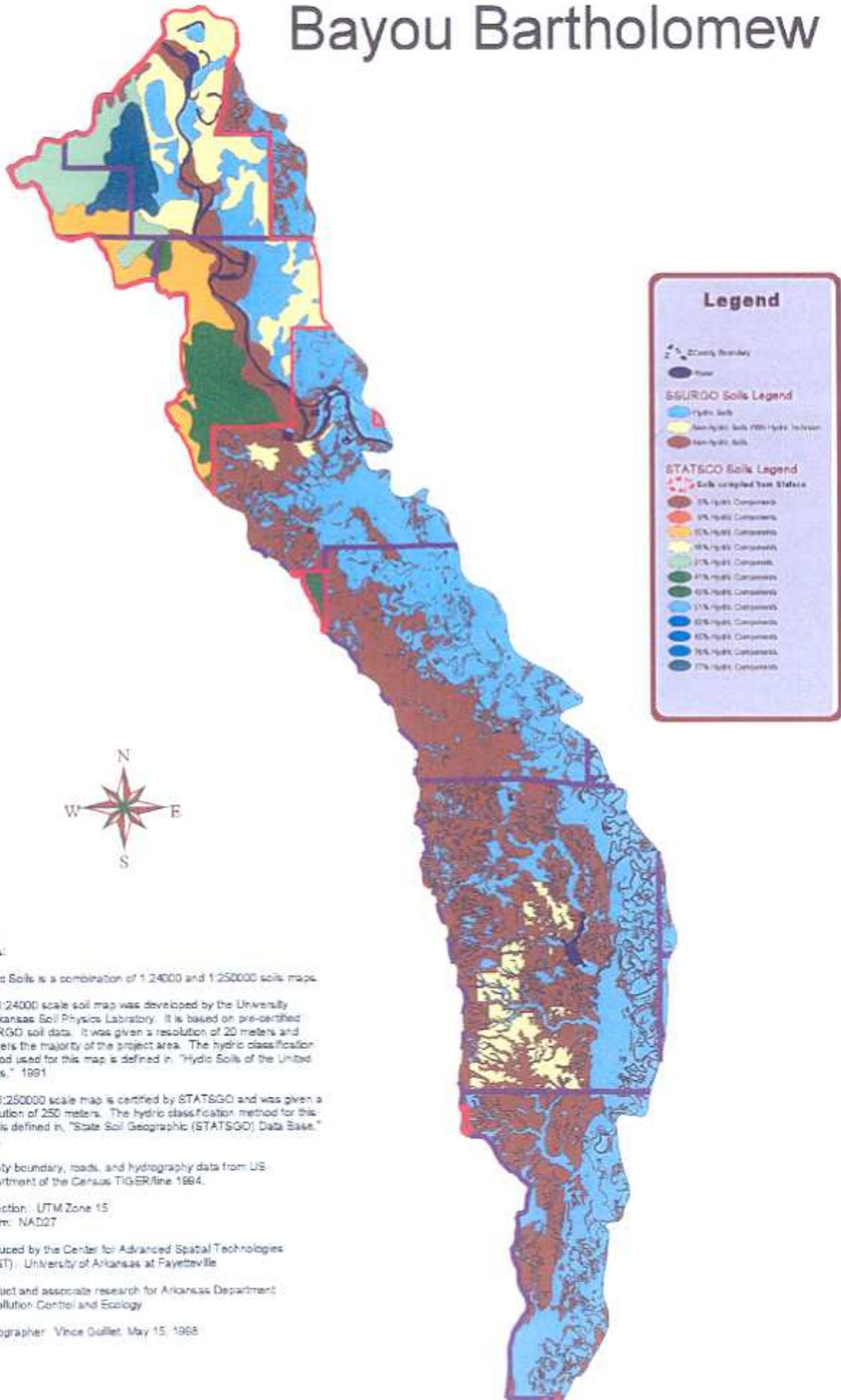
Produced by the Center for Advanced Spatial Technologies (CAST) University of Arkansas, Fayetteville Arkansas.

Product and associated research for Arkansas Department of Pollution Control and Ecology.

## Distribution Notes

Wetland priorities listed on this map were developed through Geographic Information System analyses of wetland indicators derived from other spatial data sources. The Multi-Agency Wetland Planning Team identified riparian corridors and existing blocks of farmed wetland as being important to wetland ecosystem function, and used these as weighting factors in the analysis. Priorities for wetland protection or restoration identified on this map do not

# Bayou Bartholomew



**Legend**

- County Boundary
- River
- SSURGO Soil Legend**
  - Hydric Soils
  - Non-Hydric Soils with Hydric Influence
  - Non-Hydric Soils
- STATSGO Soil Legend**
  - Soils sampled from Statewide
  - 0% Hydric Components
  - 1% Hydric Components
  - 2% Hydric Components
  - 3% Hydric Components
  - 4% Hydric Components
  - 5% Hydric Components
  - 6% Hydric Components
  - 7% Hydric Components
  - 8% Hydric Components
  - 9% Hydric Components
  - 10% Hydric Components
  - 11% Hydric Components
  - 12% Hydric Components



**Notes:**

Hydric Soils is a combination of 1:24000 and 1:250000 soils maps.

The 1:24000 scale soil map was developed by the University of Arkansas Soil Physics Laboratory. It is based on pre-certified SSURGO soil data. It was given a resolution of 20 meters and it covers the majority of the project area. The hydric classification method used for this map is defined in, "Hydric Soils of the United States," 1991.

The 1:250000 scale map is certified by STATSGO and was given a resolution of 250 meters. The hydric classification method for this map is defined in, "State Soil Geographic (STATSGO) Data Base," 1994.

County boundary, roads, and hydrography data from US Department of the Census TIGER/line 1994.

Projection: UTM Zone 15  
Datum: NAD27

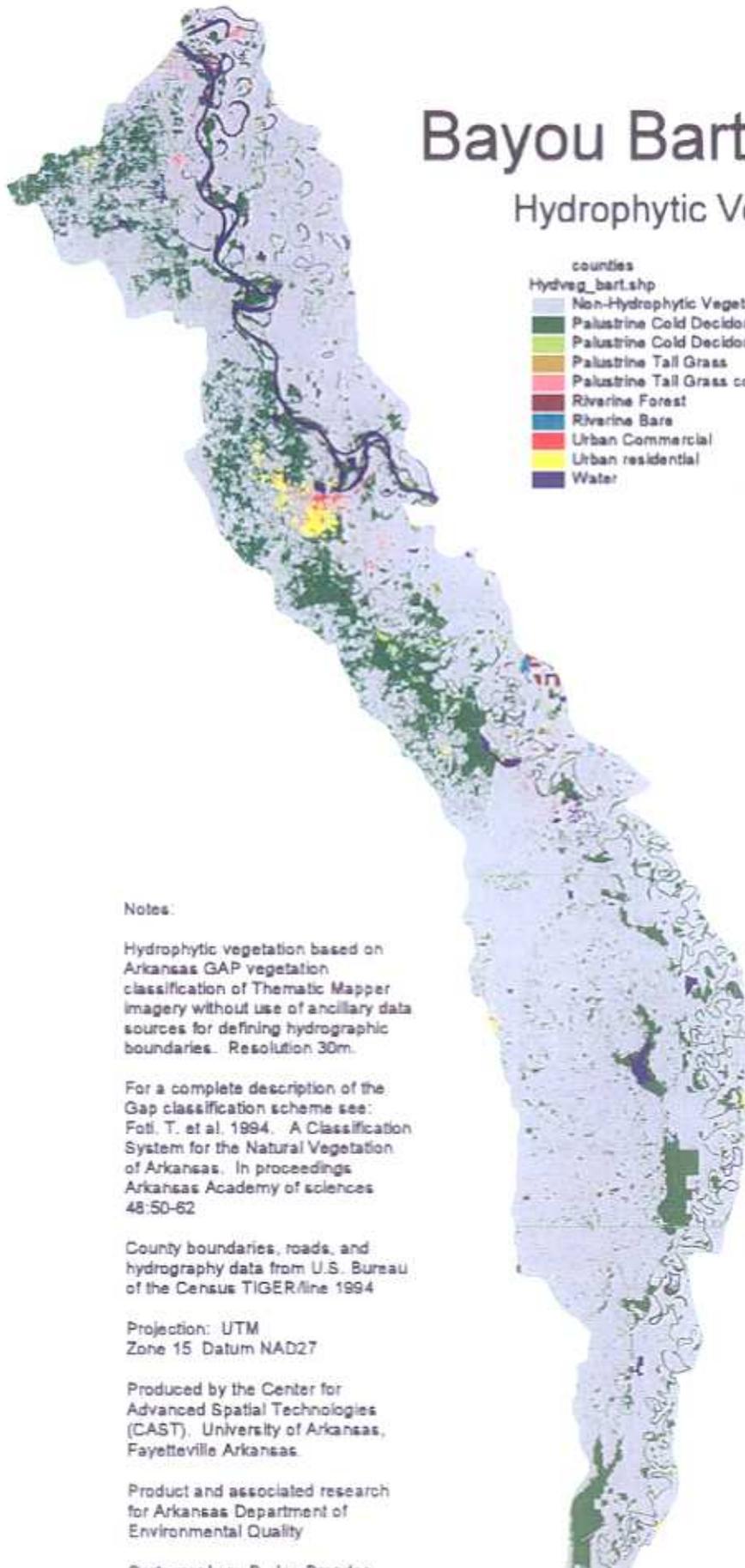
Produced by the Center for Advanced Spatial Technologies (CAST), University of Arkansas at Fayetteville

Product and associate research for Arkansas Department of Pollution Control and Ecology

Cartographer: Vince Gullett, May 15, 1998

# Bayou Bartholom

## Hydrophytic Vegetation



### Notes:

Hydrophytic vegetation based on Arkansas GAP vegetation classification of Thematic Mapper imagery without use of ancillary data sources for defining hydrographic boundaries. Resolution 30m.

For a complete description of the Gap classification scheme see: Foti, T. et al. 1994. A Classification System for the Natural Vegetation of Arkansas. In proceedings Arkansas Academy of sciences 48:50-62

County boundaries, roads, and hydrography data from U.S. Bureau of the Census TIGER/line 1994

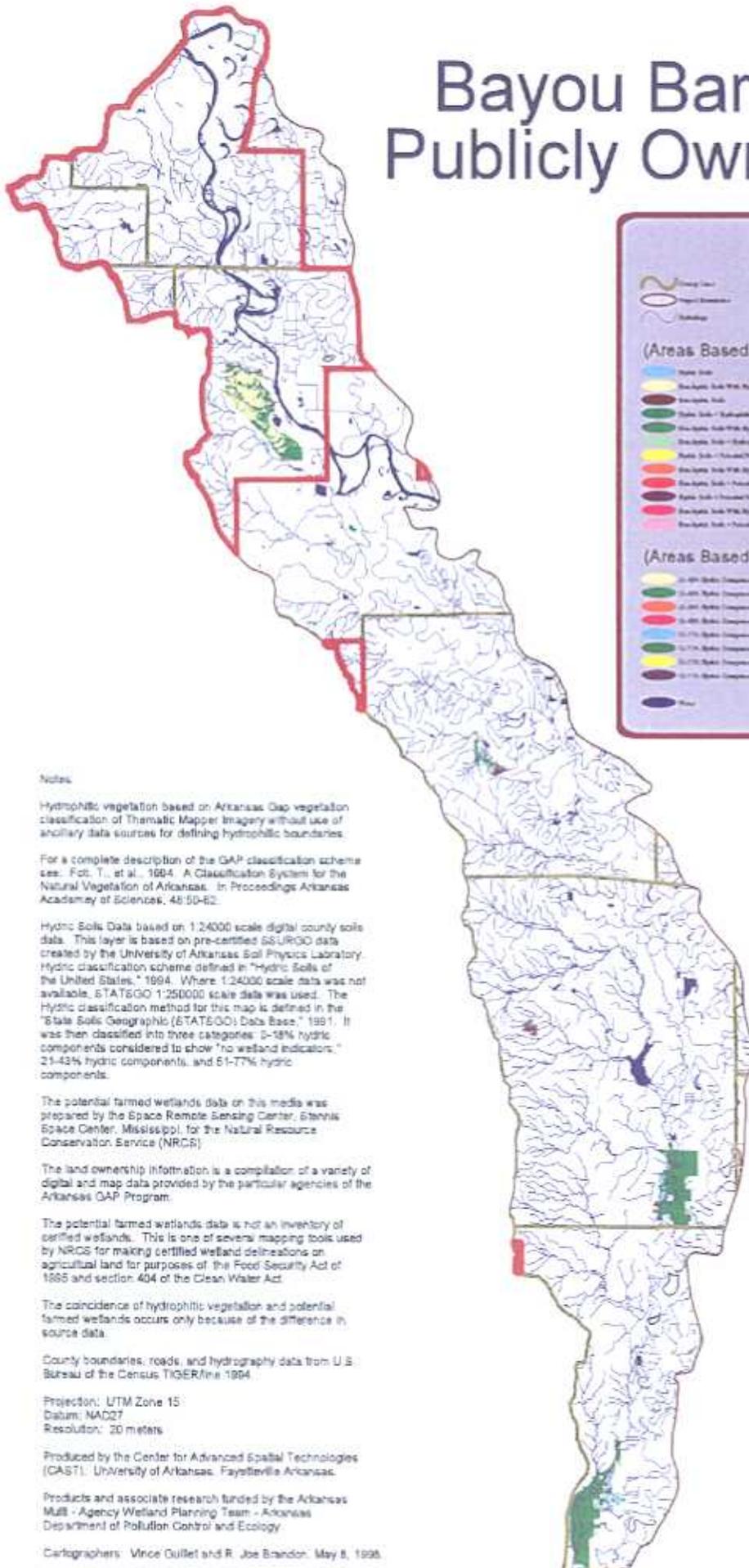
Projection: UTM  
Zone 15 Datum NAD27

Produced by the Center for Advanced Spatial Technologies (CAST), University of Arkansas, Fayetteville Arkansas.

Product and associated research for Arkansas Department of Environmental Quality

Cartographer: R. Joe Brandon

# Bayou Bartholomew Publicly Owned Wetlands



#### Notes

Hydrophilic vegetation based on Arkansas Gap vegetation classification of Thematic Mapper Imagery without use of ancillary data sources for defining hydrophilic boundaries.

For a complete description of the GAP classification scheme see: Fot, T., et al., 1994. A Classification System for the Natural Vegetation of Arkansas. In Proceedings Arkansas Academy of Sciences, 48:50-62.

Hydro Soils Data based on 1:24000 scale digital county soils data. This layer is based on pre-certified SS-URGO data created by the University of Arkansas Soil Physics Laboratory. Hydro classification scheme defined in "Hydro Soils of the United States," 1994. Where 1:24000 scale data was not available, STATSGO 1:250000 scale data was used. The hydro classification method for this map is defined in the "State Soils Geographic (STATSGO) Data Base," 1991. It was then classified into three categories: 0-18% hydro components considered to show "no wetland indicators," 21-43% hydro components, and 51-77% hydro components.

The potential farmed wetlands data on this media was prepared by the Space Remote Sensing Center, Tennessee Space Center, Mississippi, for the Natural Resource Conservation Service (NRCS).

The land ownership information is a compilation of a variety of digital and map data provided by the particular agencies of the Arkansas GAP Program.

The potential farmed wetlands data is not an inventory of certified wetlands. This is one of several mapping tools used by NRCS for making certified wetland delineations on agricultural land for purposes of the Food Security Act of 1985 and section 404 of the Clean Water Act.

The coincidence of hydrophilic vegetation and potential farmed wetlands occurs only because of the difference in source data.

County boundaries, roads, and hydrography data from U.S. Bureau of the Census TIGER/line 1994.

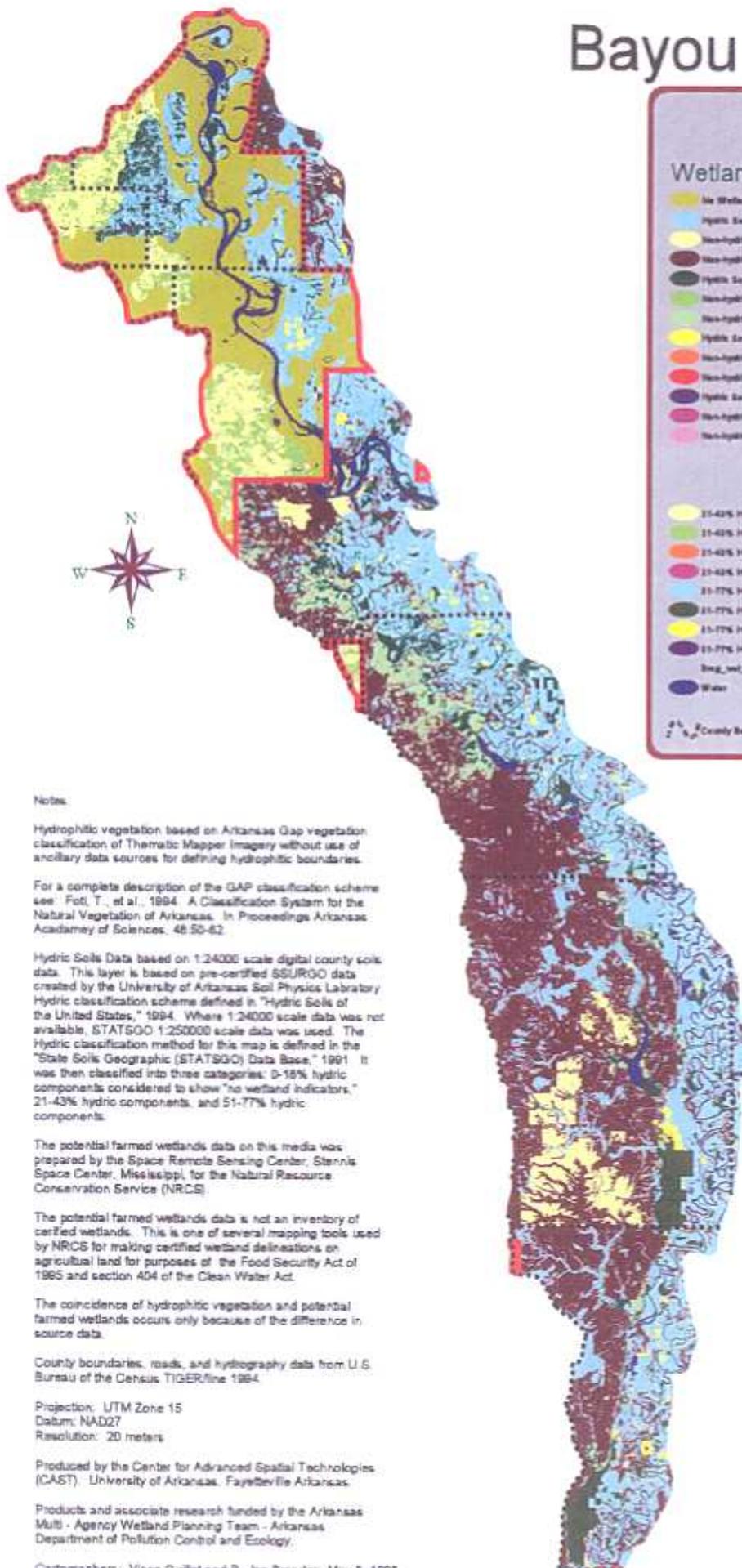
Projection: UTM Zone 15  
Datum: NAD27  
Resolution: 20 meters

Produced by the Center for Advanced Spatial Technologies (CAST), University of Arkansas, Fayetteville, Arkansas.

Products and associate research funded by the Arkansas Multi-Agency Wetland Planning Team - Arkansas Department of Pollution Control and Ecology

Cartographers: Vince Oullet and R. Joe Brandon, May 8, 1998.

# Bayou Bartholomew



## Legend

### Wetland Inventory

- No Wetland Indicators
- Hydric Soils
- Non-hydric Soils With Hydric Inclusions
- Non-hydric Soils
- Hydric Soils + Hydrophilic Vegetation
- Non-hydric Soils With Hydric Inclusions + Hydrophilic Vegetation
- Non-hydric Soils + Hydrophilic Vegetation
- Hydric Soils + Potential Farmed Wetlands
- Non-hydric Soils With Hydric Inclusions + Potential Farmed Wetlands
- Non-hydric Soils + Potential Farmed Wetlands
- Hydric Soils + Potential Farmed Wetlands + Hydrophilic Vegetation
- Non-hydric Soils With Hydric Inclusions + Potential Farmed Wetlands + Hydrophilic Vegetation
- Non-hydric Soils + Potential Farmed Wetlands + Hydrophilic Vegetation
- 21-42% Hydric Components
- 21-42% Hydric Components + Hydrophilic Vegetation
- 21-42% Hydric Soils + Potential Farmed Wetlands
- 21-42% Hydric Components + Potential Farmed Wetlands + Hydrophilic Vegetation
- 21-77% Hydric Components
- 21-77% Hydric Components + Hydrophilic Vegetation
- 21-77% Hydric Components + Potential Farmed Wetlands
- 21-77% Hydric Components + Potential Farmed Wetlands + Hydrophilic Vegetation
- Hwy\_wet\_inv\_3arcseclyr.shp
- Water
- County Boundary

#### Notes

Hydrophilic vegetation based on Arkansas Gap vegetation classification of Thematic Mapper Imagery without use of ancillary data sources for defining hydrophilic boundaries.

For a complete description of the GAP classification scheme see: Foti, T., et al., 1994. A Classification System for the Natural Vegetation of Arkansas. In Proceedings Arkansas Academy of Sciences, 48:50-62.

Hydric Soils Data based on 1:24000 scale digital county soils data. This layer is based on pre-certified SSURGO data created by the University of Arkansas Soil Physics Laboratory Hydric classification scheme defined in "Hydric Soils of the United States," 1994. Where 1:24000 scale data was not available, STATSGO 1:250000 scale data was used. The Hydric classification method for this map is defined in the "State Soils Geographic (STATSGO) Data Base," 1991. It was then classified into three categories: 0-18% hydric components considered to show "no wetland indicators," 21-42% hydric components, and 51-77% hydric components.

The potential farmed wetlands data on this media was prepared by the Space Remote Sensing Center, Stennis Space Center, Mississippi, for the Natural Resource Conservation Service (NRCS).

The potential farmed wetlands data is not an inventory of certified wetlands. This is one of several mapping tools used by NRCS for making certified wetland delineations on agricultural land for purposes of the Food Security Act of 1985 and section 404 of the Clean Water Act.

The coincidence of hydrophilic vegetation and potential farmed wetlands occurs only because of the difference in source data.

County boundaries, roads, and hydrography data from U.S. Bureau of the Census TIGER/line 1994.

Projection: UTM Zone 15  
Datum: NAD27  
Resolution: 20 meters

Produced by the Center for Advanced Spatial Technologies (CAST), University of Arkansas, Fayetteville Arkansas.

Products and associate research funded by the Arkansas Multi-Agency Wetland Planning Team - Arkansas Department of Pollution Control and Ecology.

Cartographers: Vince Guillot and R. Joe Brandon, May 8, 1998

Ecoregion Division Line

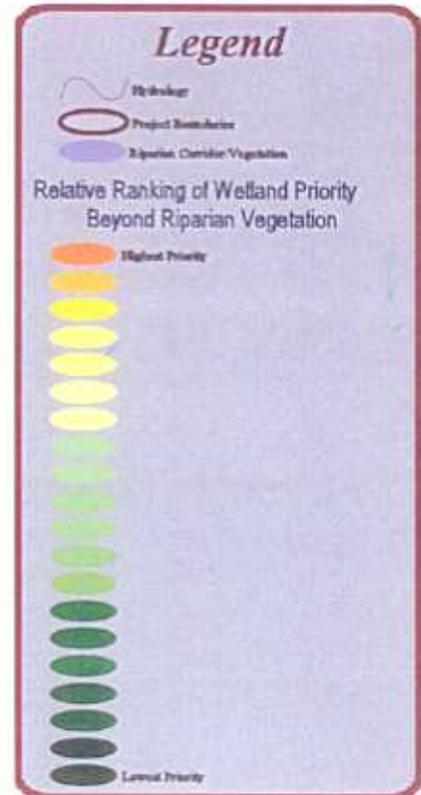
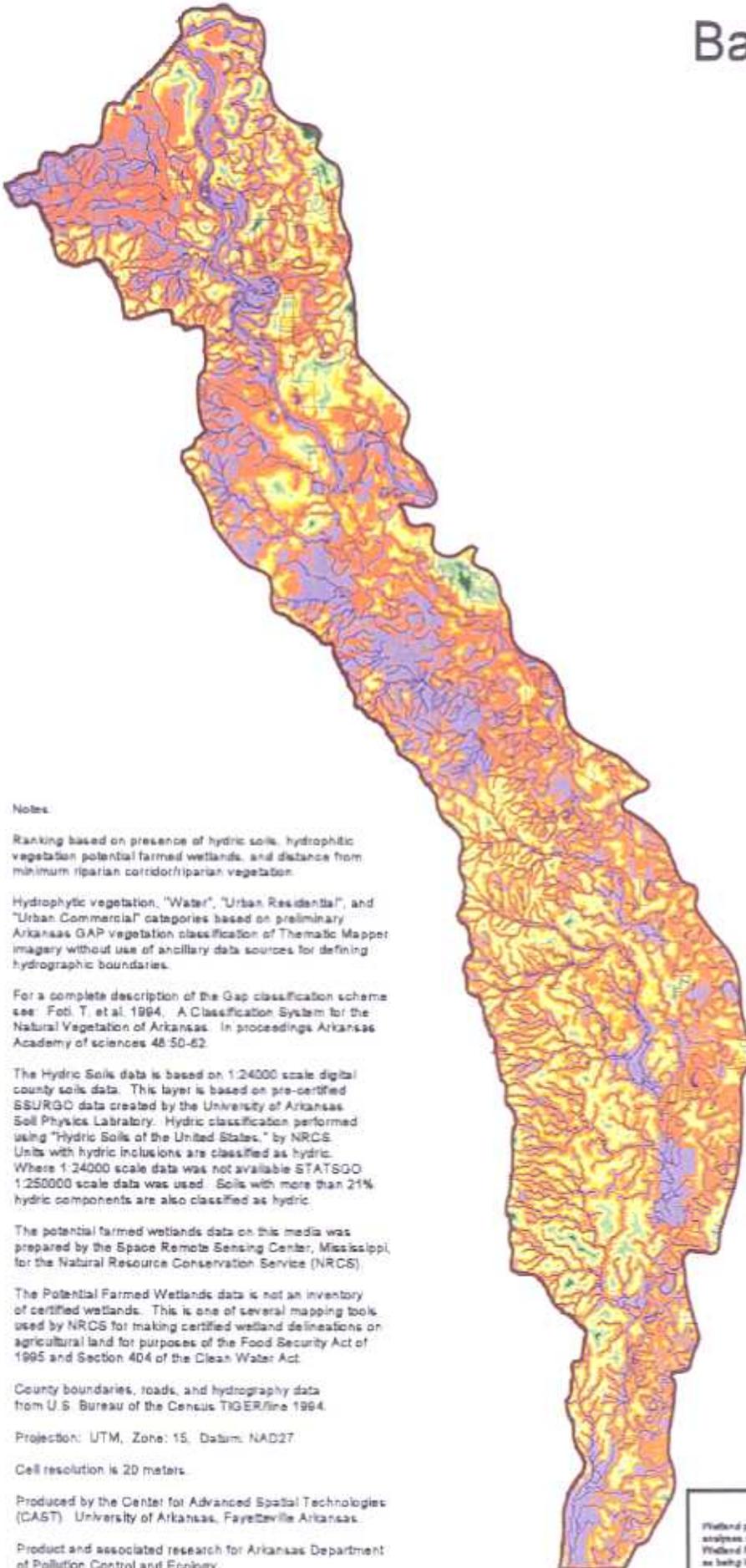


**Legend**

- Wetland Planning Boundary
- County Lines
- Protection
- Restoration



# Bayou Bartholomew



**Notes:**

Ranking based on presence of hydric soils, hydrophytic vegetation potential farmed wetlands, and distance from minimum riparian corridor/riparian vegetation.

Hydrophytic vegetation, "Water", "Urban Residential", and "Urban Commercial" categories based on preliminary Arkansas GAP vegetation classification of Thematic Mapper imagery without use of ancillary data sources for defining hydrographic boundaries.

For a complete description of the Gap classification scheme see: Foti, T. et al. 1994. A Classification System for the Natural Vegetation of Arkansas. In proceedings Arkansas Academy of sciences 48:50-62.

The Hydric Soils data is based on 1:24000 scale digital county soils data. This layer is based on pre-certified SSURGO data created by the University of Arkansas Soil Physics Laboratory. Hydric classification performed using "Hydric Soils of the United States," by NRCS. Units with hydric inclusions are classified as hydric. Where 1:24000 scale data was not available STATSGO 1:250000 scale data was used. Soils with more than 21% hydric components are also classified as hydric.

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The Potential Farmed Wetlands data is not an inventory of certified wetlands. This is one of several mapping tools used by NRCS for making certified wetland delineations on agricultural land for purposes of the Food Security Act of 1995 and Section 404 of the Clean Water Act.

County boundaries, roads, and hydrography data from U.S. Bureau of the Census TIGER/line 1994.

Projection: UTM, Zone: 15, Datum: NAD27.

Cell resolution is 20 meters.

Produced by the Center for Advanced Spatial Technologies (CAST) University of Arkansas, Fayetteville Arkansas.

Product and associated research for Arkansas Department of Pollution Control and Ecology.

**Distribution Notes**

Wetland priorities listed on this map were developed through Geographic Information System analyses of wetland indicators derived from other spatial data sources. The Multi-Agency Wetland Planning Team identified riparian corridors and existing blocks of forested wetland as being important to wetland ecosystem function, and used these as weighting factors in the analysis. Priorities for wetland protection or restoration identified on this map do not



**Legend**

-  Bayou Bartholomew
-  Bayou Bartholomew Watershed
-  Bayou Bartholomew Counties

