“Wetland Inventory & Restoration Prioritization”

-Arkansas Wetland Resources Information Management System-

National Symposium on Compensatory Mitigation & the Watershed Approach

Multi-Agency Wetland Planning Team

Multi-Agency Wetlands Planning Team

Arkansas Forestry Commission

Arkansas Natural Heritage Commission

Arkansas Department of Environmental Quality

University of Arkansas Cooperative Extension Service

Arkansas Soil & Water Conservation Commission

Arkansas Game & Fish Commission

With Cooperation from:

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

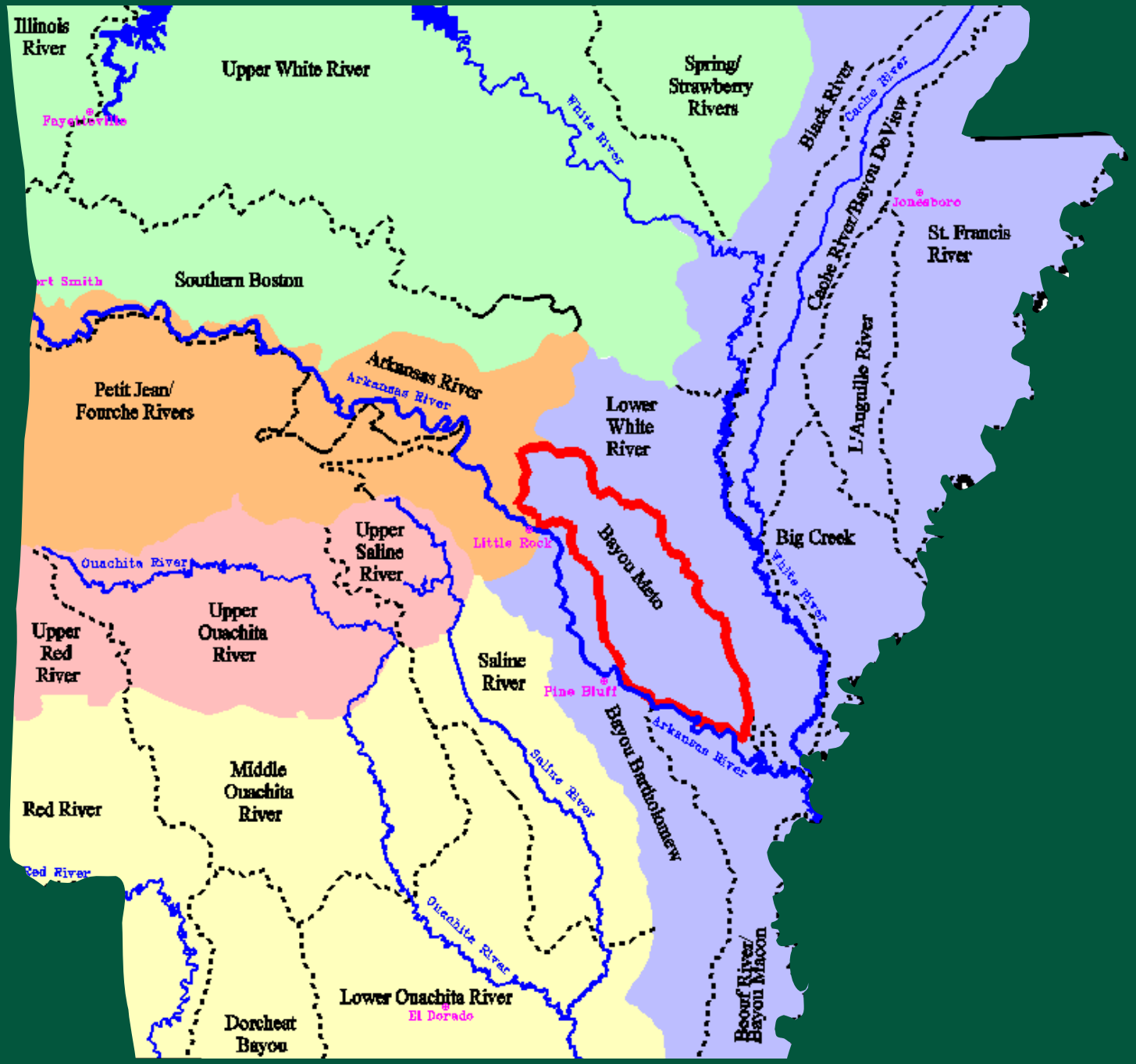
U.S.D.A. Natural Resources Conservation Service

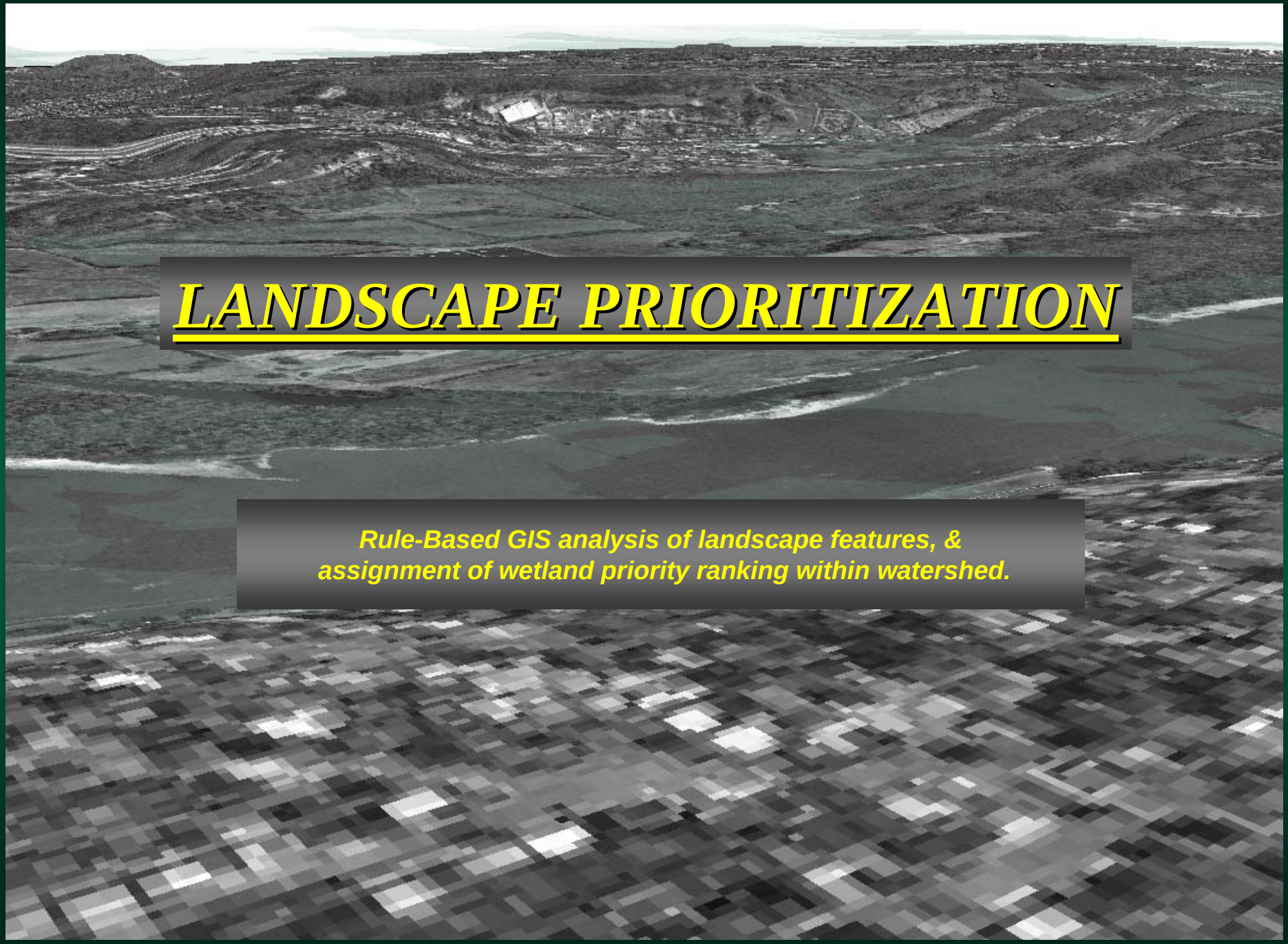
Arkansas Highway & Transportation Department

Center For Advanced Spatial Technologies

EPA Monitoring Program Guidance

- **LANDSCAPE ASSESSMENT:** *remote sensing, existing GIS layers, land uses, landscape profiling (Level 1)*
- **RAPID ASSESSMENT:** *sub-sample of landscape level, hydro geologic setting, stressors (Level 2)*
- **INTENSIVE SITE ASSESSMENT:** *sub-sample of rapid assessment level, bioassessment methods, hydrologic measures (Level 3)*


Illinois River
Upper White River
Spring/ Strawberry Rivers
White River
Black River
Cache River
Cache River/Bayou DeView
Jonesboro
St. Francis River
Southern Boston
Petit Jean/ Fourche Rivers
Arkansas River
Arkansas River
Lower White River
L'Anguille River
Little Rock
Bayou Meto
Big Creek
White River
Ouachita River
Upper Saline River
Upper Ouachita River
Upper Red River
Saline River
Pine Bluff
Bayou Bartholomew
Arkansas River
Saline River
Middle Ouachita River
Red River
Ouachita River
Lower Ouachita River
El Dorado
Dorcheat Bayou
Bayou Macon

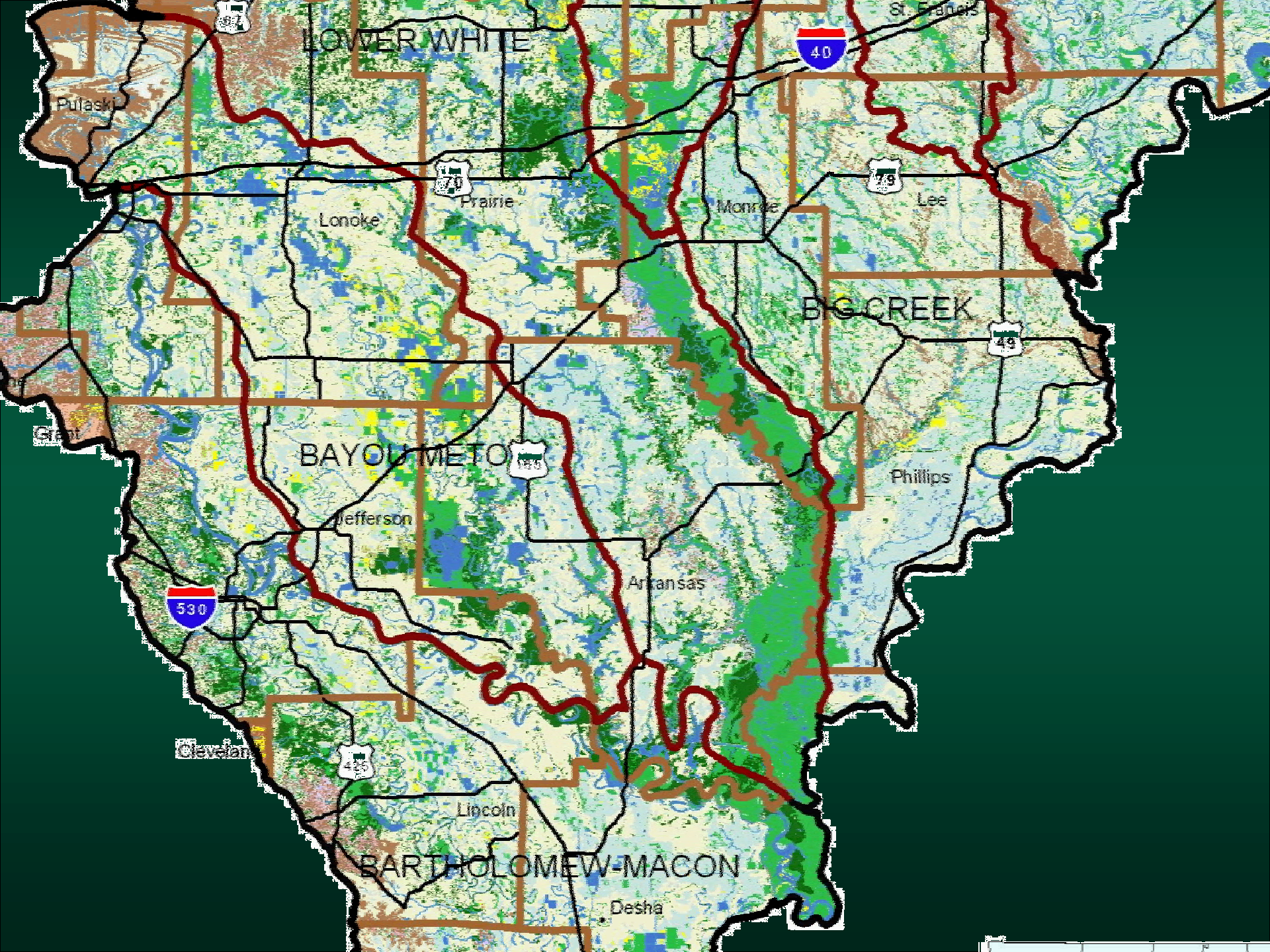

LANDSCAPE PRIORITIZATION
Rule-Based GIS analysis of landscape features, &
assignment of wetland priority ranking within watershed.

Standard Methodology for Analyses *(GIS Prioritization)*

- *Assemble appropriate data on ecosystem components needed for decision-making (emphasis on existing watershed-scale geographic data).*
- *Review maps of ecosystem components (e.g. water, soil, vegetation) to begin to understand wetland patterns, problems and potentials in the watershed.*
- *Prepare Component overlay maps to investigate relationships between individual wetland components (e.g., to what extent does existing forest occur on hydric soils).*
- *Develop general wetland goals and objectives of the project, emphasizing measurable and mappable structural attributes (e.g., highest priority goal or goal may be establishment of a naturally-vegetated corridor along main stem of the river; and objective may be to restore a minimum 60-meter wide buffer along ditches. Both of these address mappable structural attributes).*
- *Implement GIS procedures to generate priority maps of protection and restoration priorities based on objective, clearly stated criteria.*
- *Review priority maps, verify on-ground as needed, evaluate resulting maps and revise criteria as appropriate (if priorities fail to meet defined goals).*
- *Synthesize knowledge of watershed characteristics and wetland protection programs into a strategy for wetland protection and restoration based on goals developed for the state and watershed.*
- *Develop monitoring and evaluation plan for the watershed strategy.*

Delta Wetland Planning Region. Potential Farmed Wetlands

Delta Wetland Planning Region. Wetland Inventory


LOWER WHITE
Pulaski
Prairie
Lonoke
Monroe
Lee
BIG CREEK
BAYOU METO
Jefferson
Phillips
Arkansas
Cleveland
Lincoln
BARTHOLOMEW-MACON
Desha
St. Francis
40
530
70
49
65
425


Establish Baseline Inventory
Identify Landscape changes

Wetlands in Arkansas
- Arkansas Wetland Loss and Gain
- Wetland Protection
- Agency Roles
- Functions and Values of Wetlands
- Classification & Characterization of the Wetlands of Arkansas

Arkansas Wetland Conservation Plan

Arkansas Wetland Conservation Initiatives & Policy

Other Wetland Sites

Contact Us

Teacher's Tour

Wetland Walkabout

Home

Valley Train Pond

Wetland Class: Depressions
Wetland SubClass: Isolated Depression
Detailed Description: Valley Train Pond

Introduction

Valley train ponds are isolated wetlands associated with glacial outwash deposits (also called "valley train" deposits) in the Delta Region. They form in very shallow basins that are the remnants of ancient channel systems that once carried meltwater from the continental glaciers that covered much of Missouri, Illinois, and other areas to the north. Plant species in the valley train ponds are similar to those found in swampy floodplain systems, such as baldcypress and water tupelo. Ancient sandbars within the depressions may support species that are not commonly seen in swamps, but are more typical of sandy riverfront areas, such as sycamore, and river birch.

Valley train ponds have been identified on outwash deposits between the White River and Crowley's Ridge, and in the St. Francis River lowlands. Remnant examples of this wetland type may be found within some of the Wildlife Management Areas in that part of the state.

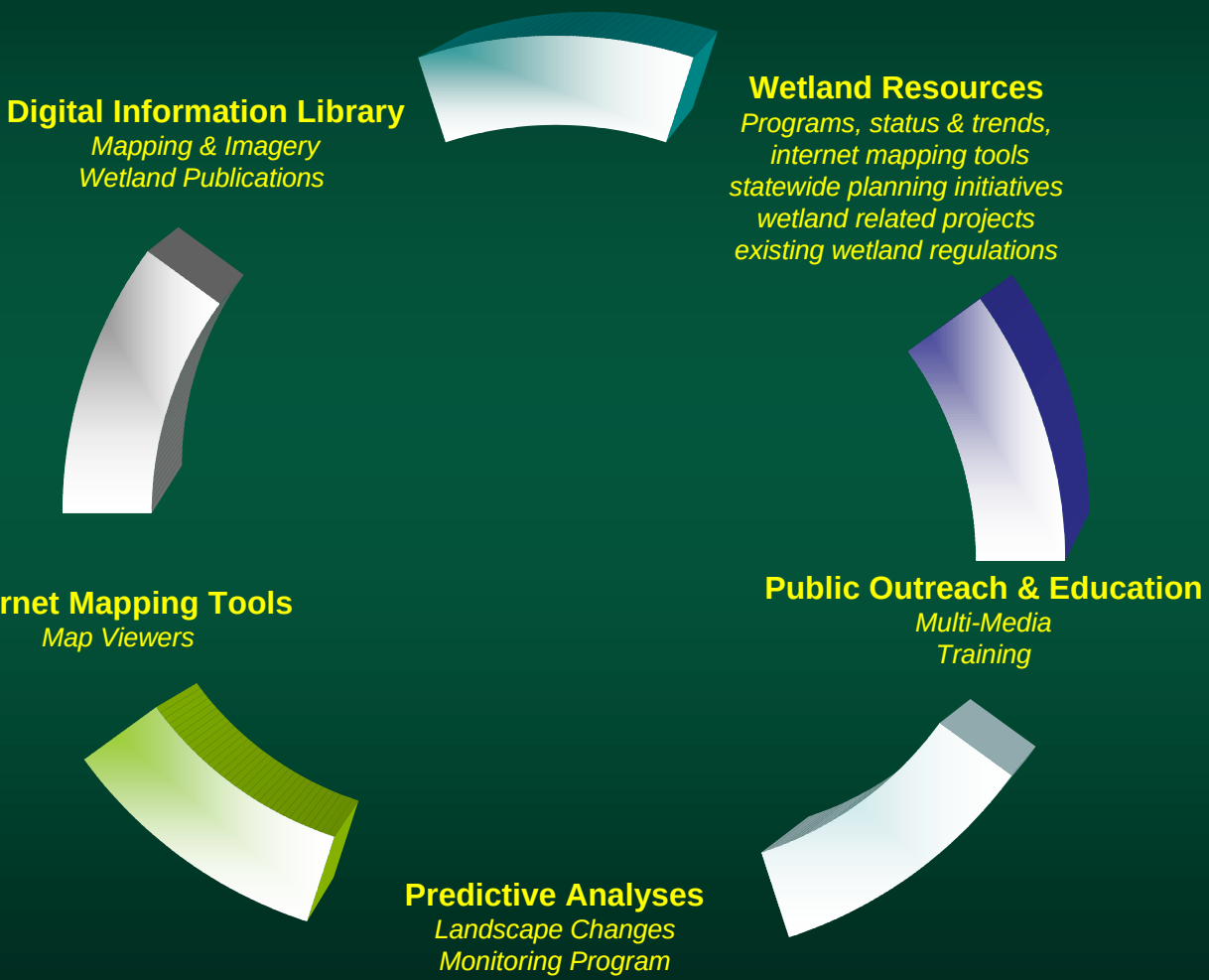
Basemap adapted from © 1993 Ray Sheridan

For more details on the Valley Train Pond, click here.

Other Isolated Depression Community Types

- Mountaintop Depression
- Sand Pond
- Sinkhole
- Unconnected Alluvial Depression

Arkansas Wetland Resources Information Management System *(AWRIMS)*



Arkansas Wetland Resource Information Management System

Welcome - to the Arkansas Wetland Resource Information Management System (AWRIMS) website, where you will find information on wetland projects, research, regulations, programs, and other related wetland conservation activities. The website is organized to allow you quick access to wetland data and information for download or print.

Getting Started – To view website content:

- Position your mouse slowly over any category at the top of the page or over a thumbnail and a short description of the category will become visible.
- Click on the category to access information or data.
- Continue to click on links to view subsequent web pages.

Status & Trends - Query existing wetland regulatory and non-regulatory data.

Map Viewers - The map viewers allow display of available program and imagery data. Click on category or thumbnail to access map viewers.

Status & Trends - View wetlands impact & restoration data.

Beginner map viewer - Simplest way to view and print color infrared DOQQ, quadrangle maps, etc.

Advanced internet mapping tool - Advanced IMS allows overlay of multiple data coverages and analyses.

Arkansas Wetland Resource Information Management System

Use the "quick-view graphics tool" (QVG) to summarize wetland impact and restoration data in tabular and graphical formats. The QVG also includes automated, user-friendly printing and reporting options.

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1) Select Geographic Area:

Select Geographic Boundary

2) Select Year(s):

- [x] 1990
- [x] 1991
- [x] 1992
- [x] 1993
- [x] 1994
- [x] 1995
- [x] 1996
- [x] 1997
- [x] 1998
- [x] 1999
- [x] 2000
- [x] 2001

3) Select Wetland Program(s):

- [x] Corps of Engineers
- [x] Natural Resources Conservation Service (NRCS)
- [ ] Farm Service Agency (FSA)
- [ ] Arkansas Game & Fish Commission
- [ ] Arkansas Soil & Water Conservation Commission
- [ ] The Nature Conservancy
- [ ] Arkansas Natural Heritage Commission
- [ ] U.S. Fish and Wildlife Service
- [ ] Ducks Unlimited

Continue

Arkansas Wetland Resource Information Management System

Welcome to the "quick-view graphics tool" for wetland status & trends information. This tool allows you quick access to digital data and summary information through your current internet browser. Please double click the information you wish to query (by area, year, regulatory and/or conservation program information) and follow instructions to complete your query. Use the zoom buttons to view data in tabular and graphical formats. To print out maps and tables, click the print preview button and select the format you want to print.

1) Select Geographic Area:

Select Geographic Boundary

- Select Geographic Boundary
- 2001 Ark. Senate
- 2001 Ark. House
- Wetland Planning Regions
- Wetland Planning Areas
- Counties
- 8 Digit Hucs

2) Se

1992	1996	2000
1993	1997	2001
1994	1998	
1995	1999	

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- Farm Service Agency (FSA)
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- Arkansas Natural Heritage Commission
- U.S. Fish and Wildlife Service
- Ducks Unlimited

Continue

Wetland Planning Areas

Check All / Uncheck All

- Arkansas River
- Bayou Bartholomew
- Bayou Meto
- Big Creek
- Black River
- Cache River/Bayou DeView
- Dorcheat River
- Illinois River
- L Anguille River
- Lower Ouachita River
- Lower White River
- Middle Ouachita River
- Petit Jean/ Fourche Rivers
- Red River
- Saline River
- Southern Borrow
- Spring/Strawberry Rivers
- St Francis River
- Upper Ouachita River
- Upper Red River
- Upper Saline River
- Upper White River

Back Next

Current Area of Interest
Boundary Type : Wetland Planning Areas
Area(s) Selected: Cache Riv/Bayou DeView

Advanced Map Viewer

Cache River/Bayou DeView Summary Report

Corps of Engineers

Agency programs	Records Found	Acres
404 Permits	102	141.00

Natural Resources Conservation Service

Agency programs	Records Found	Acres
Conservation Reserve Enhancement Program	0	0.00
Wetland Reserve Program	48	8685.64

Return to the Start
Arkansas Soil and Water Conservation Commission
101 East Capitol, Suite 350
Little Rock, Arkansas 72201
Phone: (501) 682-1611
Fax: (501) 682-3991
Visit us online at: http://www.state.ar.us/aswcc/

Arkansas Wetland Resource Information Management System

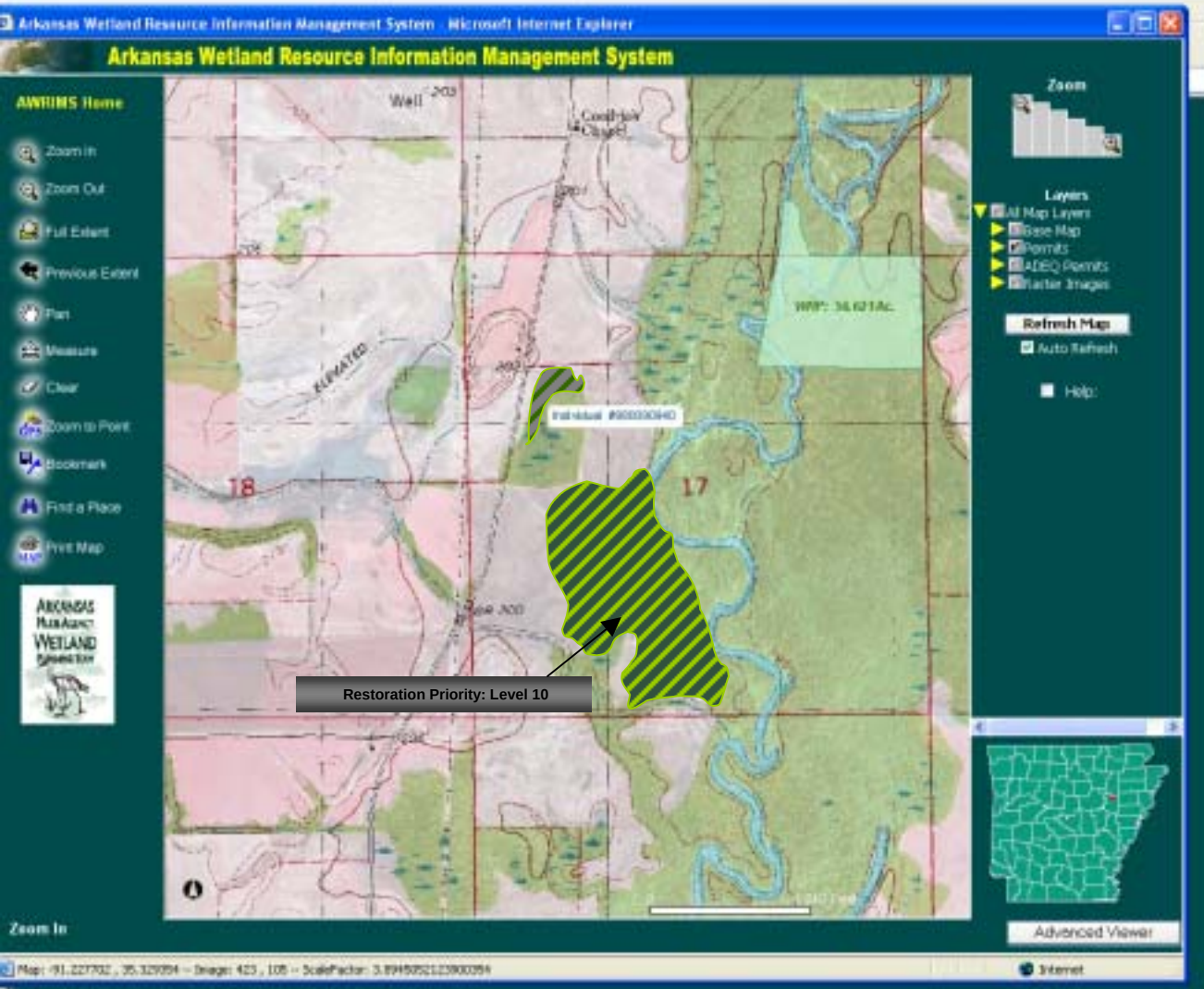
Detailed report for Cache River/Bayou DeView

Corps of Engineers

Mon, 17 May 2004 12:07:37

Map View	Permit Number	Acres	Date Issued	Permit Type
	960090700	18	Tue, 01 Oct 1996	Individual
	990210930	15	Mon, 08 Jul 2002	Individual
	940090020	12	Tue, 07 Feb 1995	Individual
	950290070	11	Tue, 23 Apr 1996	Individual
	200200119	5	Mon, 11 Mar 2002	Individual
	430470	4	Tue, 27 Mar 2001	Individual
	970010910	4	Thu, 17 Apr 1997	Nationwide
	970091010	3	Tue, 03 Mar 1998	Individual
	950010240	3	Fri, 14 Apr 1995	Nationwide
	980091280	3	Fri, 05 Feb 1999	Individual
	990090680	3	Fri, 06 Aug 1999	Individual
	90080	3	Wed, 10 Jan 2001	General
	950090000	3	Fri, 13 Jan 1995	Nationwide
	950010210	2	Tue, 23 May 1995	General
	90340	2	Thu, 03 May 2001	Individual
	200109039	2	Tue, 09 Oct 2001	Individual
	990090810	2	Fri, 23 Jul 1999	Individual
	990091230	2	Mon, 01 Oct 2001	Individual
	200108062	2	Fri, 26 Oct 2001	Nationwide
	980090760	2	Fri, 17 Apr 1998	Nationwide
	980090720	1	Thu, 04 Feb 1999	Individual
	960090970	1	Thu, 02 Jul 1998	Nationwide
	960090980	1	Thu, 02 Jul 1998	Nationwide
	199400195	1	Thu, 22 Sep 1994	Individual
	960430260	1	Mon, 29 Apr 1996	Nationwide
	980090940	1	Thu, 15 Apr 1998	Individual

start



980090810	2	Fri, 23 Jul 1999	Individual
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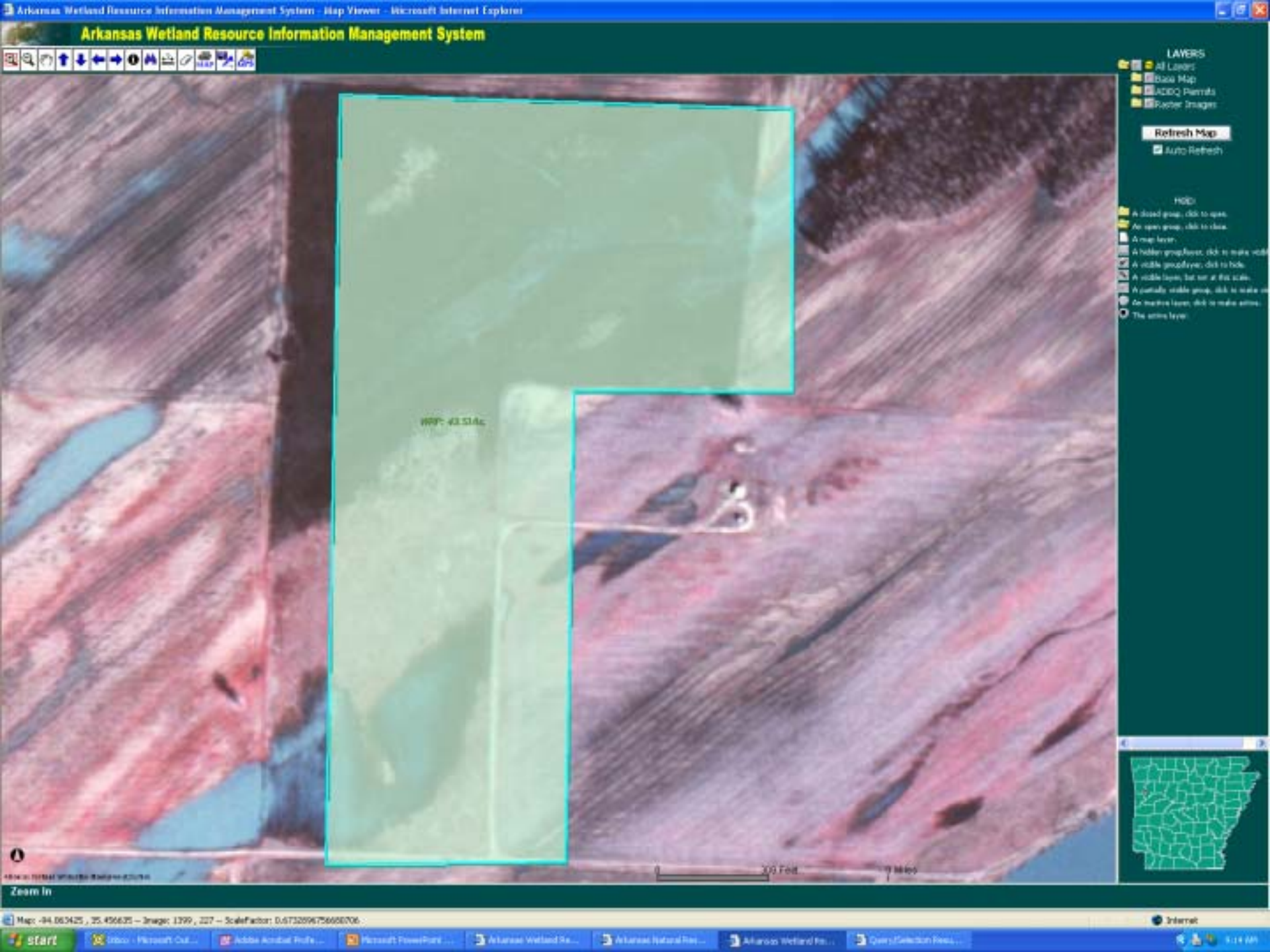
980090720	1	Thu, 04 Feb 1999	Individual
980090970	1	Thu, 02 Jul 1998	Nationwide


Arkansas Wetland Resource Information Management System - Map Viewer - Microsoft Internet Explorer
Arkansas Wetland Resource Information Management System
LAYERS
All Layers
Base Map
ADEQ Permits
Raster Images
Refresh Map
Auto Refresh
HOW
WRP: 43.51Ac
Zoom In

The State Wetland Strategy, drafted in 1995, includes broad planning objectives and an action plan that identifies non-regulatory initiatives to enhance wetland conservation efforts in Arkansas.

Statewide Level IV Ecoregion Delineation Project - With assistance from Oregon State University, U.S. Geological Survey, and the Environmental Protection Agency, natural resource agency representatives in Arkansas delineate Level IV ecoregions and produce the ecoregion poster. The poster is viewable and downloadable in high resolution PDF format.

Arkansas Wetland Information Management System - Data management structure that includes a public website and central repository for information associated with wetland conservation.

Landscape assessment and prioritization - A GIS-based assessment tool that prioritizes landscape features based on soils, vegetation, & hydrology. Results from the landscape analysis can aid development of conservation strategies and implementation of voluntary programs.

HGM characterization, classification, & model development in Arkansas - Arkansas wetlands have been characterized and classified in each ecoregion using the Hydro-Geomorphic Methodology (HGM), including identification of reference wetlands and HGM model development.

State Wetland Strategies - The Arkansas State Wetlands Strategy, drafted in 1995, identified statewide conservation objectives and emphasized cooperative opportunities between state and federal resource managers.

Wetland Planning Area Reports - Planning Area Reports are completed for subbasins in the Delta Region. These watershed reports should aid local and state natural resource efforts in wetland conservation and mitigation banking within each planning area. Content of planning area reports is shown below.

Landowner's Guide to Voluntary Wetland Programs in Arkansas -

Arkansas Bottomland Hardwood Notes - Several bottomland hardwood management guides have been produced for regions in the southern United States.

Arkansas Mitigation Banking Program -

Arkansas Riparian Zone & Wetland Creation Tax Credit Program -

Today, there are an estimated 875,000 acres of forested wetlands remaining in the Mississippi Alluvial Plain. Restoration resources and dollars are limited, so landscape assessment and prioritization methodologies are important tools for maximizing restored wetland function. Using Geographic Information Systems (GIS) analyses, wetlands prioritized at the landscape level correspond to structural characteristics (soils, hydrology, and vegetation) and location (proximity to water or forested wetland). Higher priority for restoration is assigned to land that still has sufficient hydrologic regime to maintain soils and vegetation, and perhaps is in close proximity to existing forested wetlands. Lower priority is assigned to land that no longer have sufficient hydrologic regime necessary to maintain hydric soils or plants. Higher priority for restoration also corresponds to land that fills gaps in riparian corridors and connects blocks of existing forests. These analyses can summarize and categorize acres within a watershed at the landscape level. Examples of priority scenarios for individual Wetland Planning Areas (subbasins) and Regions (ecoregions) and description of the "GIS Standard Methodology for Analyses" can be viewed by clicking on the icons below.

Wetland Planning Regions

Delta
Ozark Mountains
Ouachita Mountains
Gulf Coastal Plain
Arkansas River Valley

Wetland Planning Areas

Bayou Meto
Bayou Bartholomew
Lower White River
St. Francis River
Cache River/ Bayou DeView
Big Creek
Black River
Beouf River/Bayou Macon

Standard Methodology For Analyses
(Same as regions above)

Wetland Planning Areas and Regions

(Select image for larger version.)

Arkansas has rich and diverse geology, and consequently diverse wetlands. Even the Delta Region, which appears somewhat flat and homogeneous, is actually composed of multiple fluvial terraces of different ages and depositional regimes. Wetland types are closely correlated with the different terraces in the delta and with geologic formations in the mountains. Therefore, the hydrogeomorphic (HGM) classification of Arkansas wetlands incorporates information about landscape and geomorphic position, water source, and hydrodynamics. All of the wetland types in Arkansas are classified into five hydrogeomorphic classes. These classes are subdivided into subclasses and community types. Each wetland class, subclass and community type is characterized using reference wetland data by scientists from state, federal, and private organizations.

To view the wetland classification system and regional guidebooks, click on the links below:
HGM Classification & Characterization of Arkansas Wetlands
HGM Functional Assessment Regional Guidebooks

Questions about website construction and maintenance - Center For Advanced Spatial Technologies (brad@cast.uark.edu)
Questions about website project and cooperative partnerships- KenBrunt@mail.state.ar.us

Depressions Depressional wetlands occur in topographic low points where water accumulates and remains for extended periods. Sources of water include precipitation, runoff, groundwater, and stream flooding. There are three subclasses and seven community types in the Depression Class. The wetland community types are listed below:

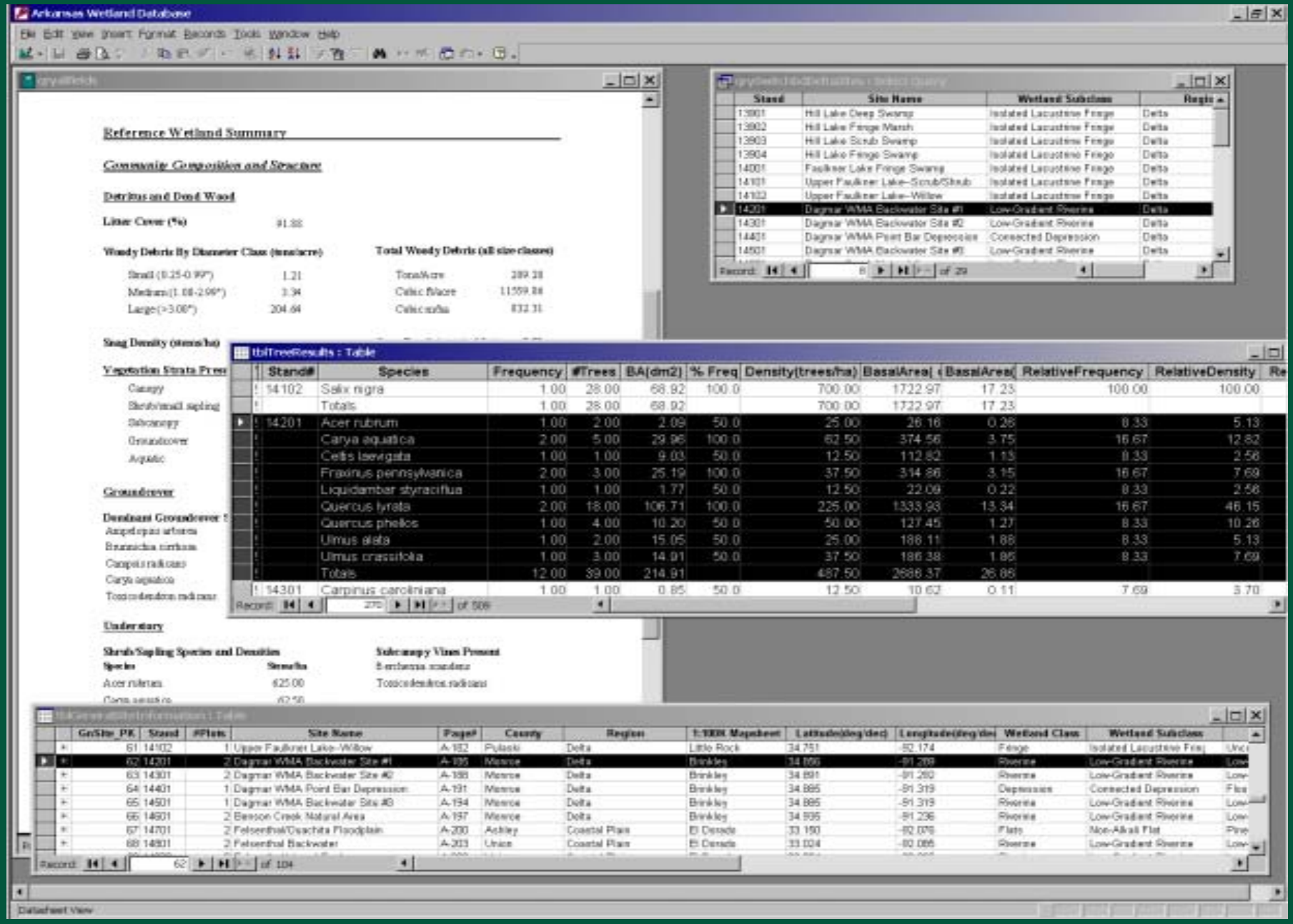
- Floodplain Depression
- Mountaintop Depression
- Sinkhole
- Valley Train Pond
- Headwater Swamp
- Sand Pond
- Unconnected Alluvial Depression

Flats Flats have little or no gradient, and the principal water source is precipitation. There is minimal overland flow into or out of the wetland except as saturated flow. Wetlands on flat areas that are subject to stream flooding during a 5-year event are classified as Riverine rather than Flats. Small ponded areas within flats are considered to be normal components of the Flats Class, unless they are deep enough to meet the criteria for the Depression Class. Sites should be considered Slope wetlands rather than Flats if they have sufficient gradient to cause runoff in a single direction, or if groundwater discharge is the principal water source within the wetland. There are two subclasses and six community types in the Flats Class. The community types are listed below:

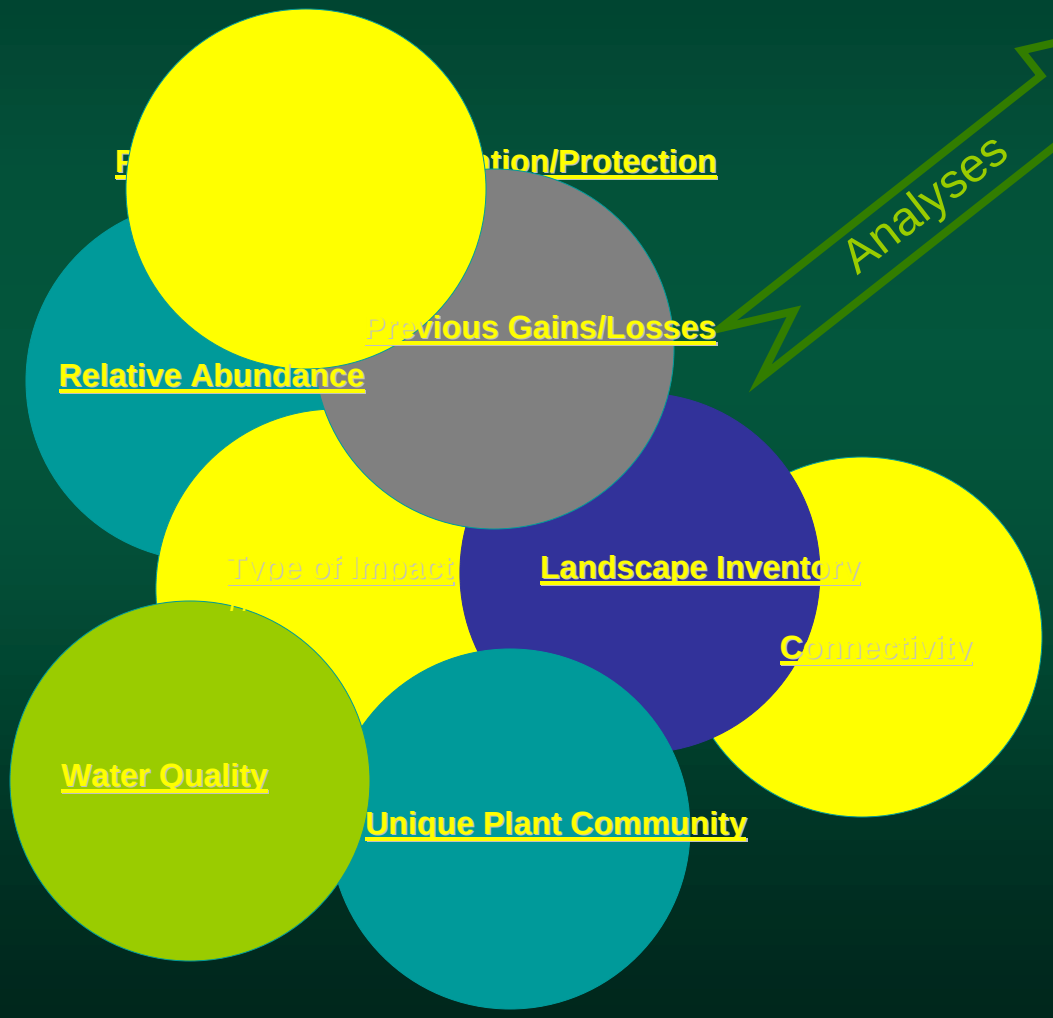
- Alkali Post Oak Flat
- Hardwood Flat
- Post Oak Flat
- Pine Flat
- Wet Tallgrass Prairie
- Alkali Wet Prairie

Fringe Fringe wetlands occur along the margins of lakes. By convention, a lake must be more than 2m deep, otherwise associated wetlands are classified as depressional. In Arkansas, natural lakes occur mostly in the abandoned channels of large rivers (oxbows), but numerous man-made impoundments also support fringe wetlands. There are three subclasses and three community types in the Fringe Class. The community types are listed below:

- Connected Lake Margin
- Unconnected Lake Margin
- Reservoir Shore


Arkansas Wetland Database
File Edit View Insert Format Records Tools Window Help
Reference Wetland Summary
Community Composition and Structure
Detritus and Dead Wood
Litter Cover (%)
Woody Debris By Diameter Class (tons/acre)
Total Woody Debris (all size classes)
Snag Density (stems/ha)
Vegetation Strata Pres
Canopy
Shrub/small sapling
Subcanopy
Groundcover
Aquatic
Groundcover
Dominant Groundcover
Understory
Shrub/Sapling Species and Densities
Species
Stems/ha
Acer rubrum 625.00
Subcanopy Vines Present
Toxicodendron radicans
Stand
Site Name
Wetland Subclass
13901 Hill Lake Deep Swamp Isolated Lacustrine Fringe Delta
13902 Hill Lake Fringe Marsh Isolated Lacustrine Fringe Delta
13903 Hill Lake Scrub Swamp Isolated Lacustrine Fringe Delta
13904 Hill Lake Fringe Swamp Isolated Lacustrine Fringe Delta
14001 Faulkner Lake Fringe Swamp Isolated Lacustrine Fringe Delta
14101 Upper Faulkner Lake--Scrub/Shrub Isolated Lacustrine Fringe Delta
14102 Upper Faulkner Lake--Willow Isolated Lacustrine Fringe Delta
14201 Dagmar WMA Backwater Site #1 Low-Gradient Riverine Delta
14301 Dagmar WMA Backwater Site #2 Low-Gradient Riverine Delta
14401 Dagmar WMA Point Bar Depression Connected Depression Delta
14501 Dagmar WMA Backwater Site #3 Low-Gradient Riverine Delta
tblTreeResults : Table
Stand# Species Frequency #Trees BA(dm2) % Freq Density(trees/ha) BasalArea(BasalArea(RelativeFrequency RelativeDensity
14102 Salix nigra 1.00 28.00 68.92 100.0 700.00 1722.97 17.23 100.00 100.00
Totals 1.00 28.00 68.92 700.00 1722.97 17.23
14201 Acer rubrum 1.00 2.00 2.09 50.0 25.00 26.16 0.26 8.33 5.13
Carya aquatica 2.00 5.00 29.96 100.0 62.50 374.56 3.75 16.67 12.82
Celtis laevigata 1.00 1.00 9.03 50.0 12.50 112.82 1.13 8.33 2.56
Fraxinus pennsylvanica 2.00 3.00 25.19 100.0 37.50 314.86 3.15 16.67 7.69
Liquidambar styraciflua 1.00 1.00 1.77 50.0 12.50 22.09 0.22 8.33 2.56
Quercus lyrata 2.00 18.00 106.71 100.0 225.00 1333.93 13.34 16.67 46.15
Quercus phellos 1.00 4.00 10.20 50.0 50.00 127.45 1.27 8.33 10.26
Ulmus alata 1.00 2.00 15.05 50.0 25.00 188.11 1.88 8.33 5.13
Ulmus crassifolia 1.00 3.00 14.91 50.0 37.50 186.38 1.86 8.33 7.69
Totals 12.00 39.00 214.91 487.50 2688.37 26.86
14301 Carpinus caroliniana 1.00 1.00 0.85 50.0 12.50 10.62 0.11 7.69 3.70
GeoSite_PK Stand #Plots Site Name Page# County Region 1:100K Mapsheet Latitude(deg/dec) Longitude(deg/dec) Wetland Class Wetland Subclass
61 14102 1 Upper Faulkner Lake--Willow A-182 Pulaski Delta Little Rock 34.751 -92.174 Fringe Isolated Lacustrine Fri
62 14201 2 Dagmar WMA Backwater Site #1 A-186 Monroe Delta Brinkley 34.886 -91.289 Riverine Low-Gradient Riverine
63 14301 2 Dagmar WMA Backwater Site #2 A-188 Monroe Delta Brinkley 34.891 -91.282 Riverine Low-Gradient Riverine
64 14401 1 Dagmar WMA Point Bar Depression A-191 Monroe Delta Brinkley 34.885 -91.319 Depression Connected Depression
65 14501 1 Dagmar WMA Backwater Site #3 A-194 Monroe Delta Brinkley 34.885 -91.319 Riverine Low-Gradient Riverine
66 14601 2 Benson Creek Natural Area A-197 Monroe Delta Brinkley 34.935 -91.236 Riverine Low-Gradient Riverine
67 14701 2 Felsenthal/Ouachita Floodplain A-200 Ashley Coastal Plain El Dorado 33.150 -92.076 Flats Non-Alkali Flat
68 14801 2 Felsenthal Backwater A-203 Union Coastal Plain El Dorado 33.024 -92.085 Riverine Low-Gradient Riverine
Datasheet View

Decision Support System



Threat	??
Abundance	??
Priority	??
Uniqueness	??
Landscape Position	??
Previous Losses	??
Prioritization	??
Connectivity	??
HGM Function	??


Questions?