



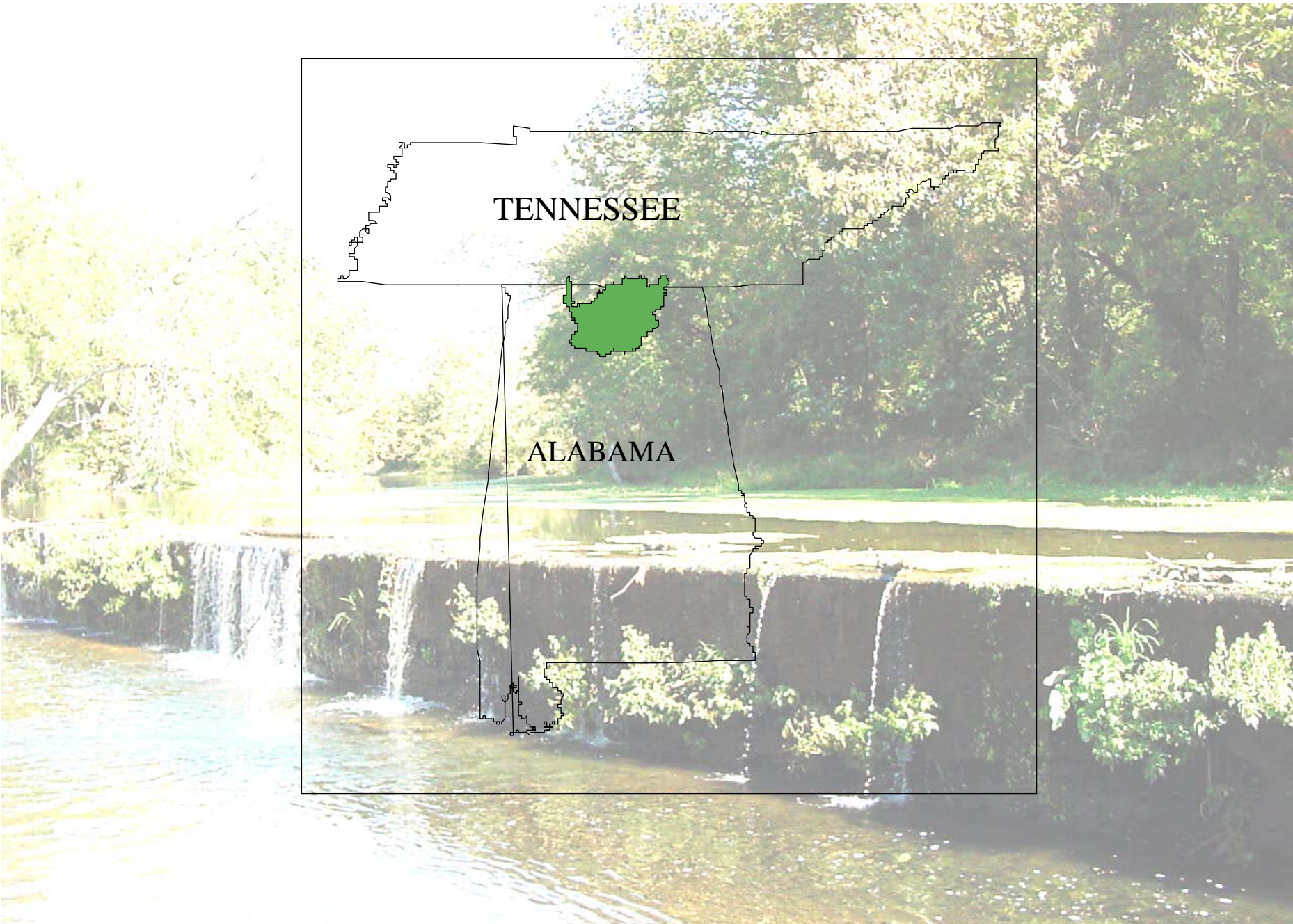
Status of Water Quality in the Wheeler Lake Basin of Northern Alabama

Southern Region Water Quality Conference October 25, 2005



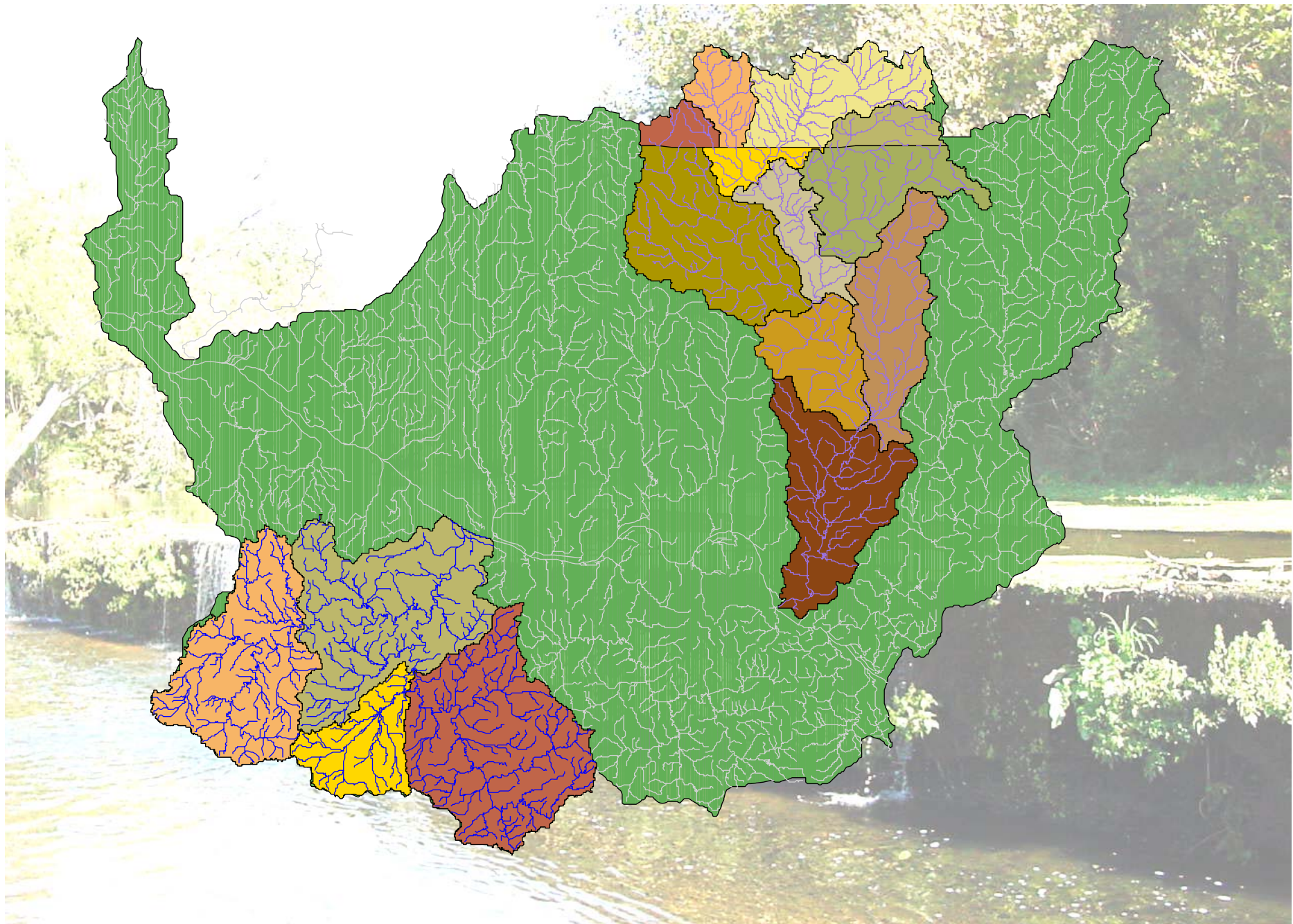


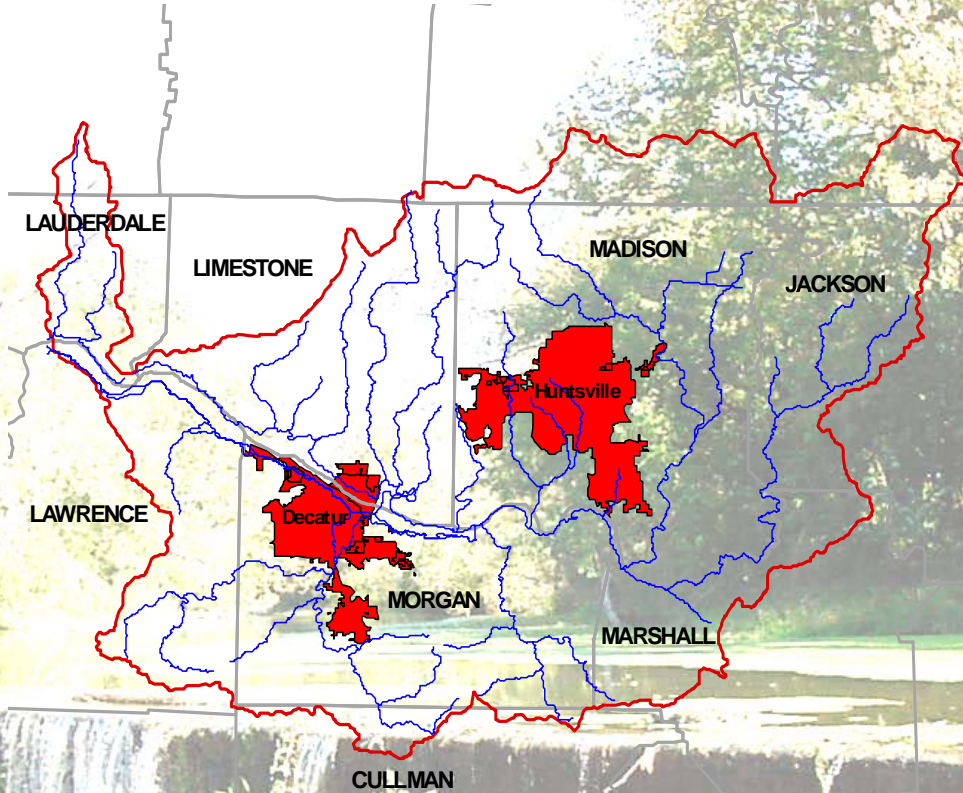









TENNESSEE

ALABAMA

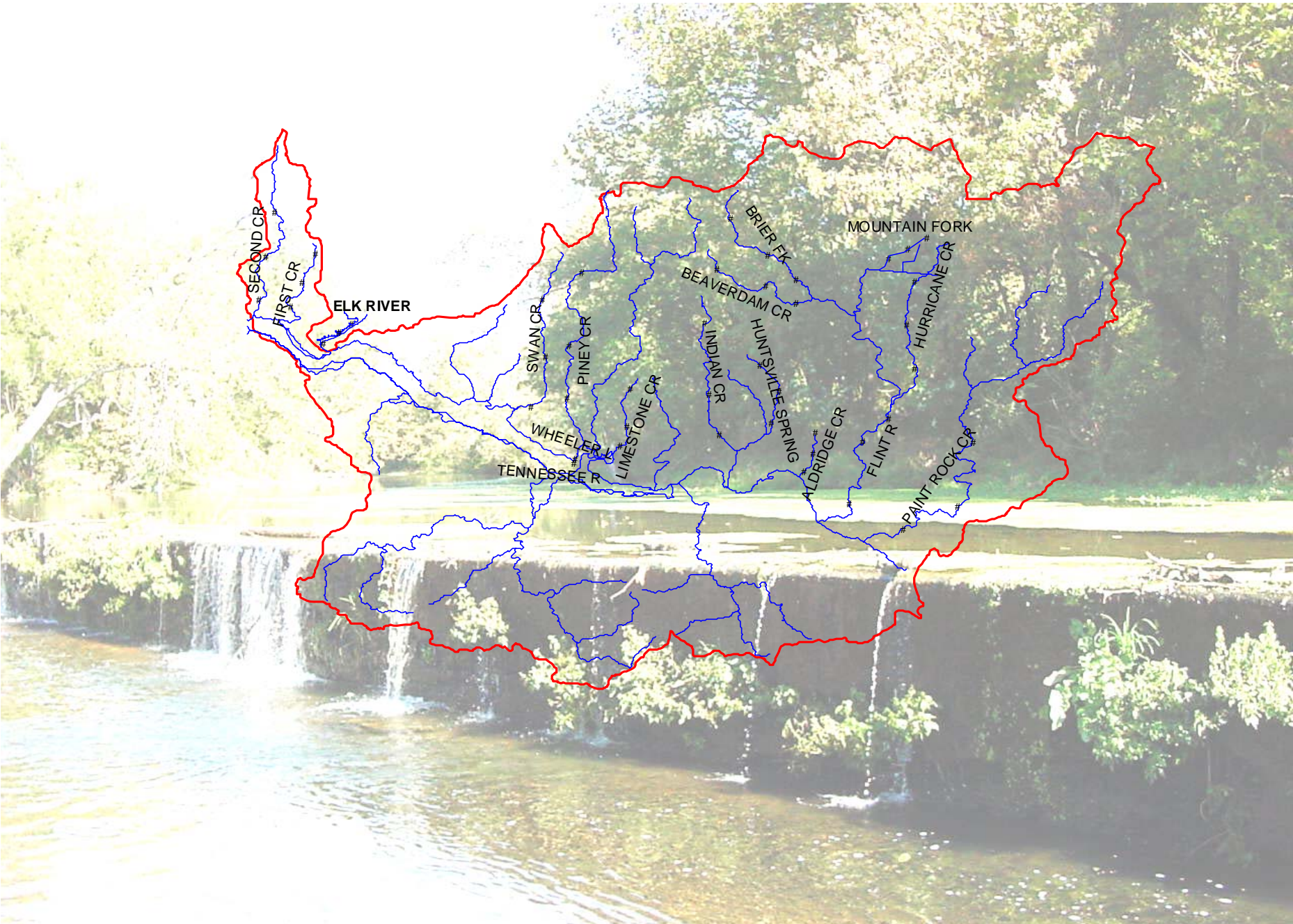
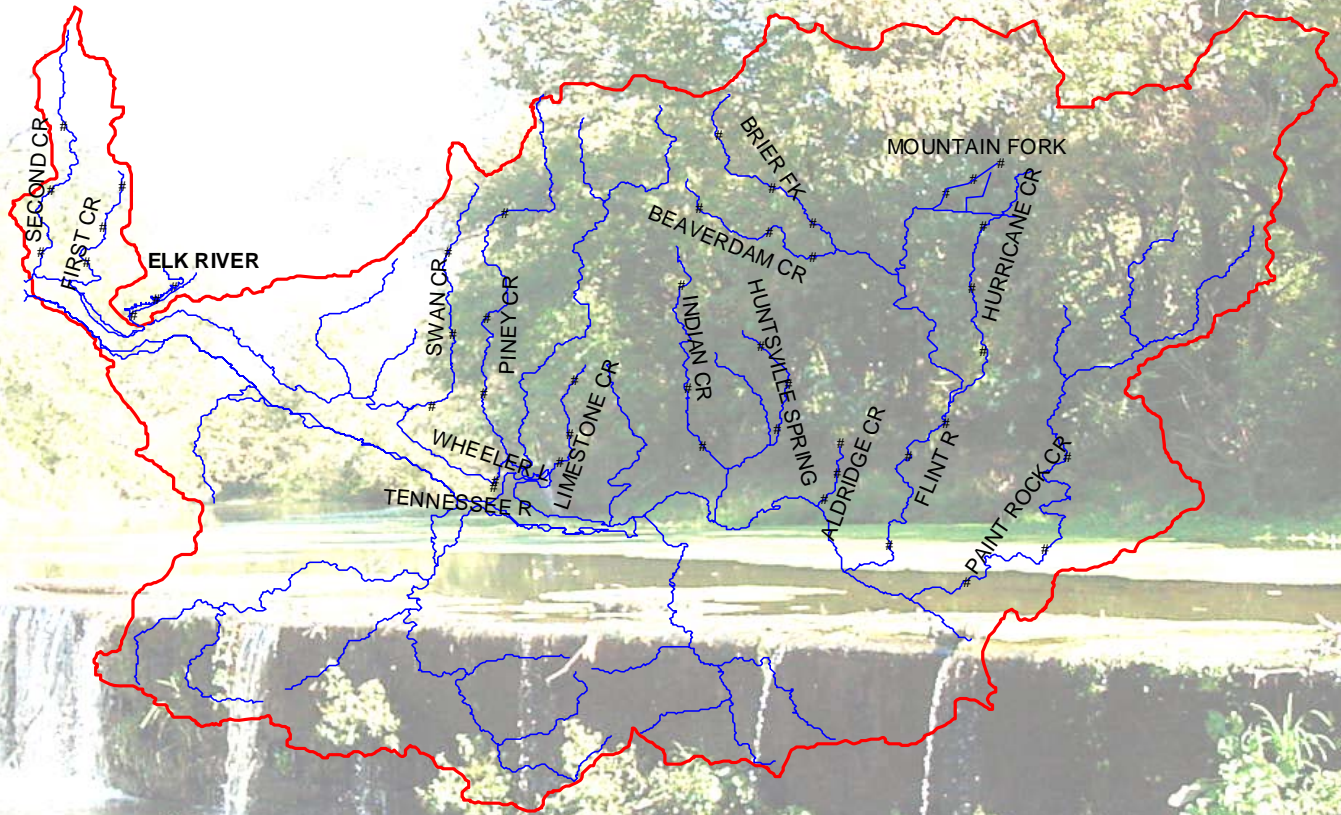




-  Reach File
-  Wheeler Lake Basin Boundary
-  County Names
-  County Boundaries
-  Urban

0.0003 0 0.0003 0.0006 Miles





Both physical and chemical properties of the samples were measured

- turbidity
- pH
- TSS
- Total Fecal Coliform
- Total Nitrogen
- Total Phosphorus
- BOD
- Selected heavy metals

The pH and turbidity were both measured on sight using portable instruments



Laboratory Analysis



BOD & Fecal Coliform



TSS



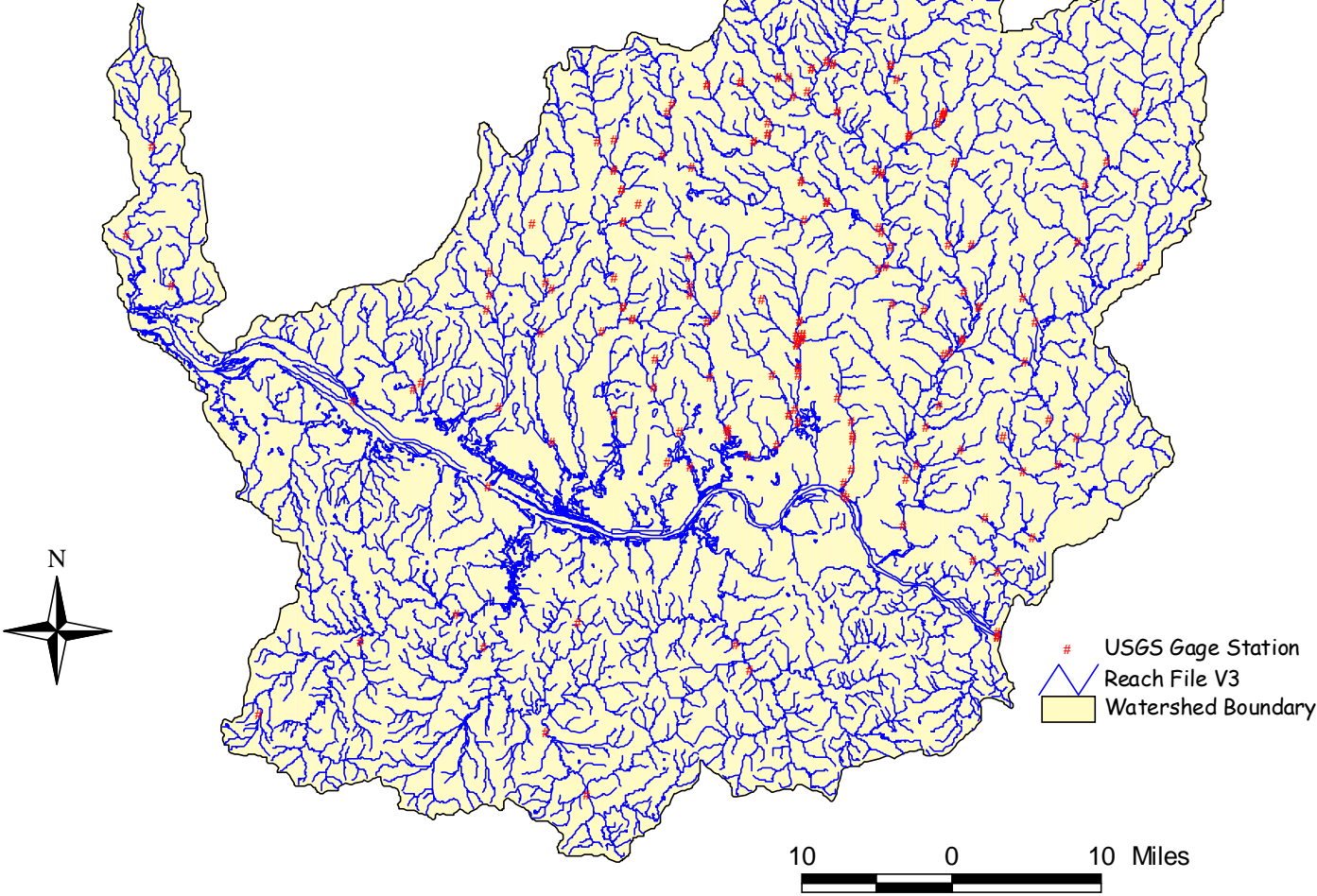
Heavy Metals & Phosphorus



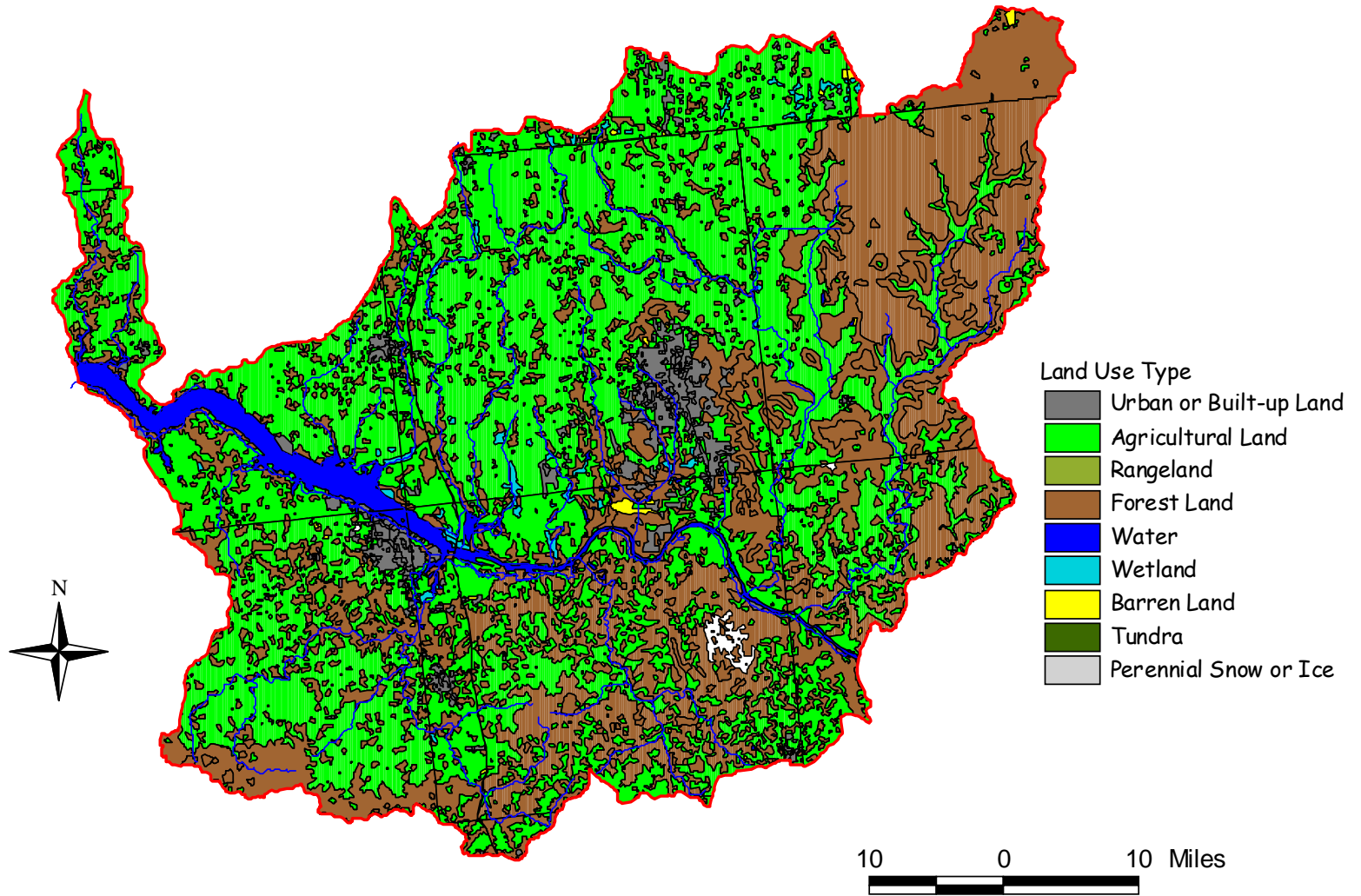
Major Rivers (Reach File V.1) of Wheeler Lake Watershed



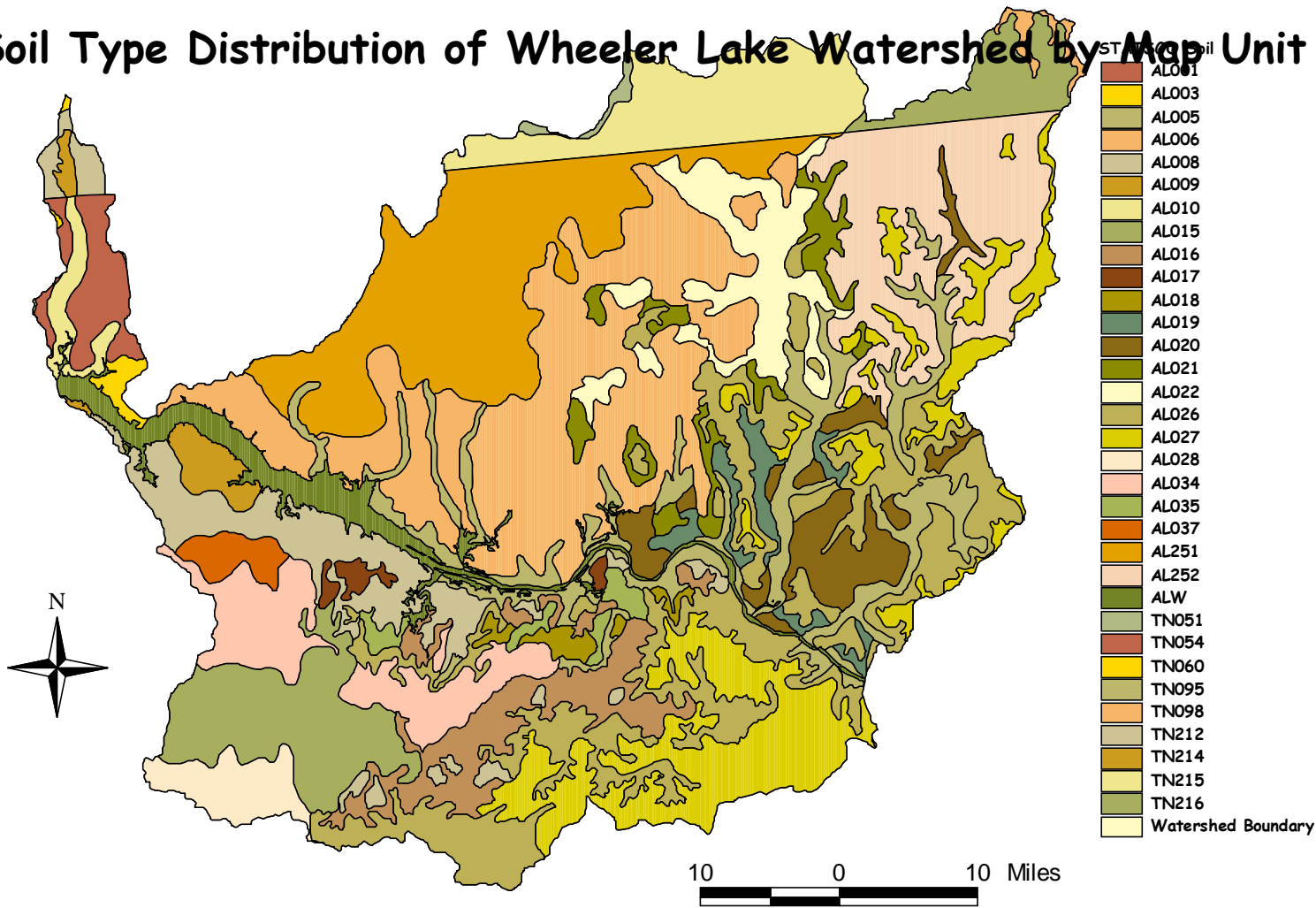
Major Rivers (Reach File V3) and USGS Gage Stations



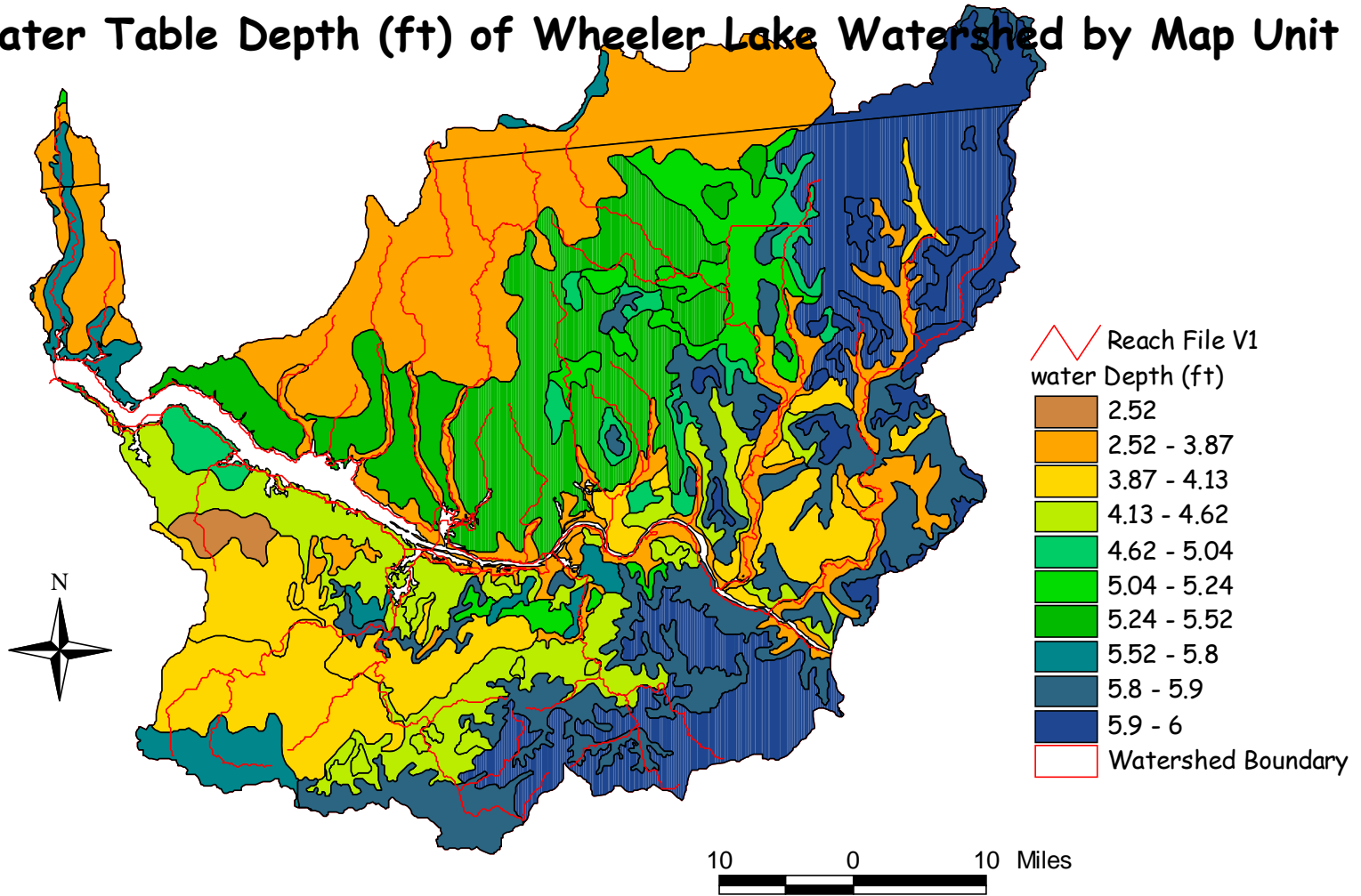
Land Use Distribution of Wheeler Lake Watershed



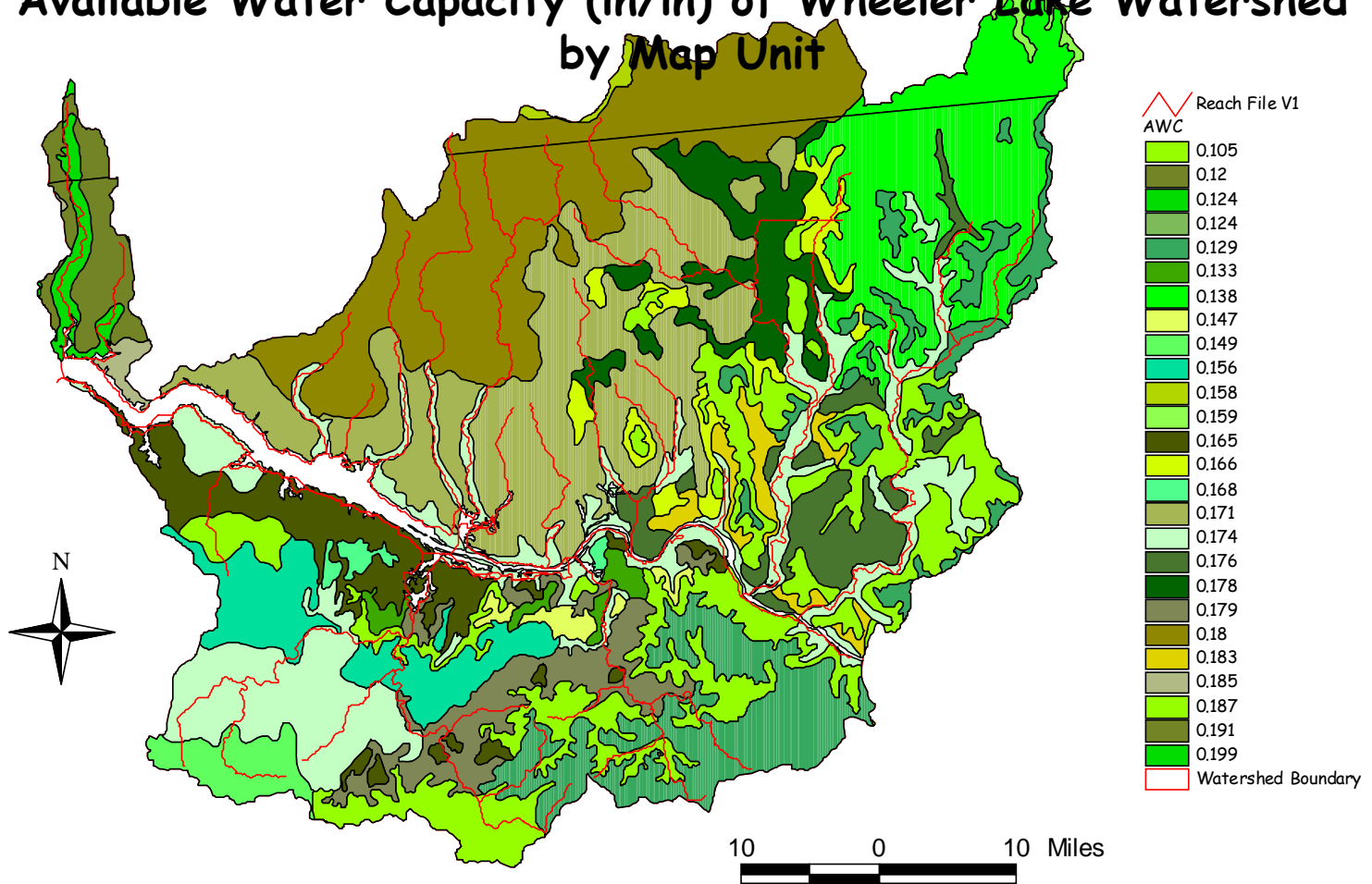
Soil Type Distribution of Wheeler Lake Watershed by Map Unit



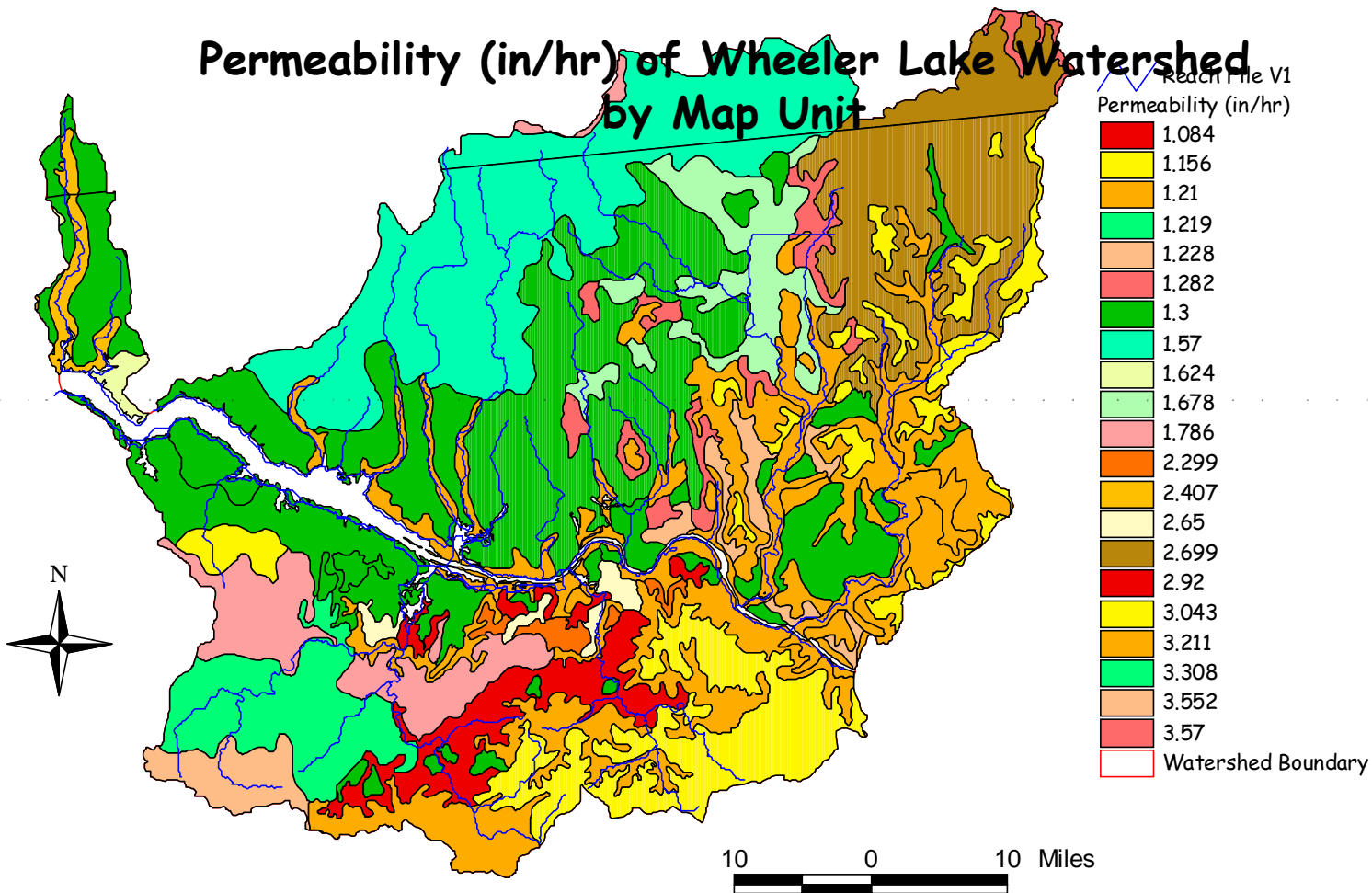
Water Table Depth (ft) of Wheeler Lake Watershed by Map Unit



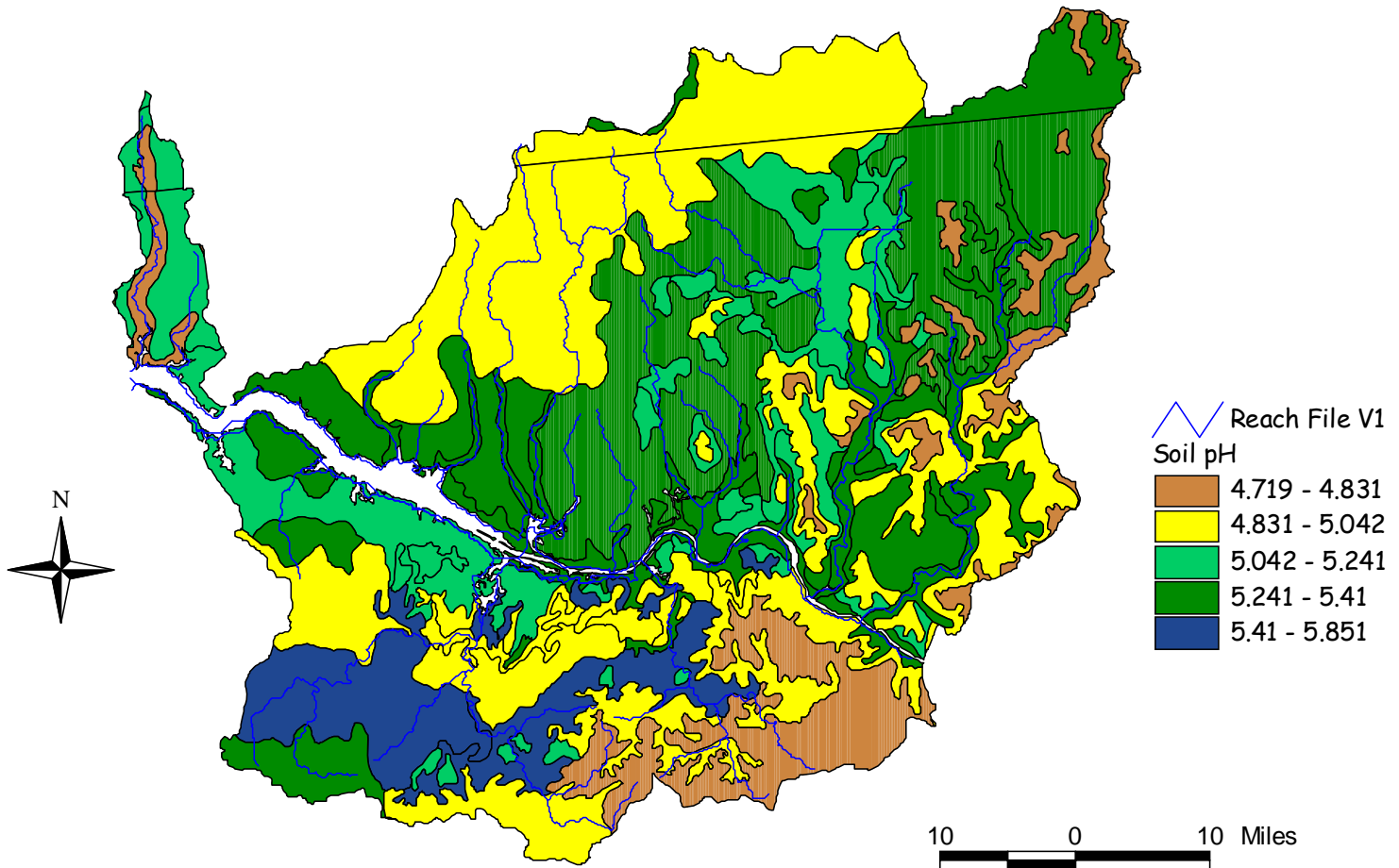
Available Water Capacity (in/in) of Wheeler Lake Watershed by Map Unit



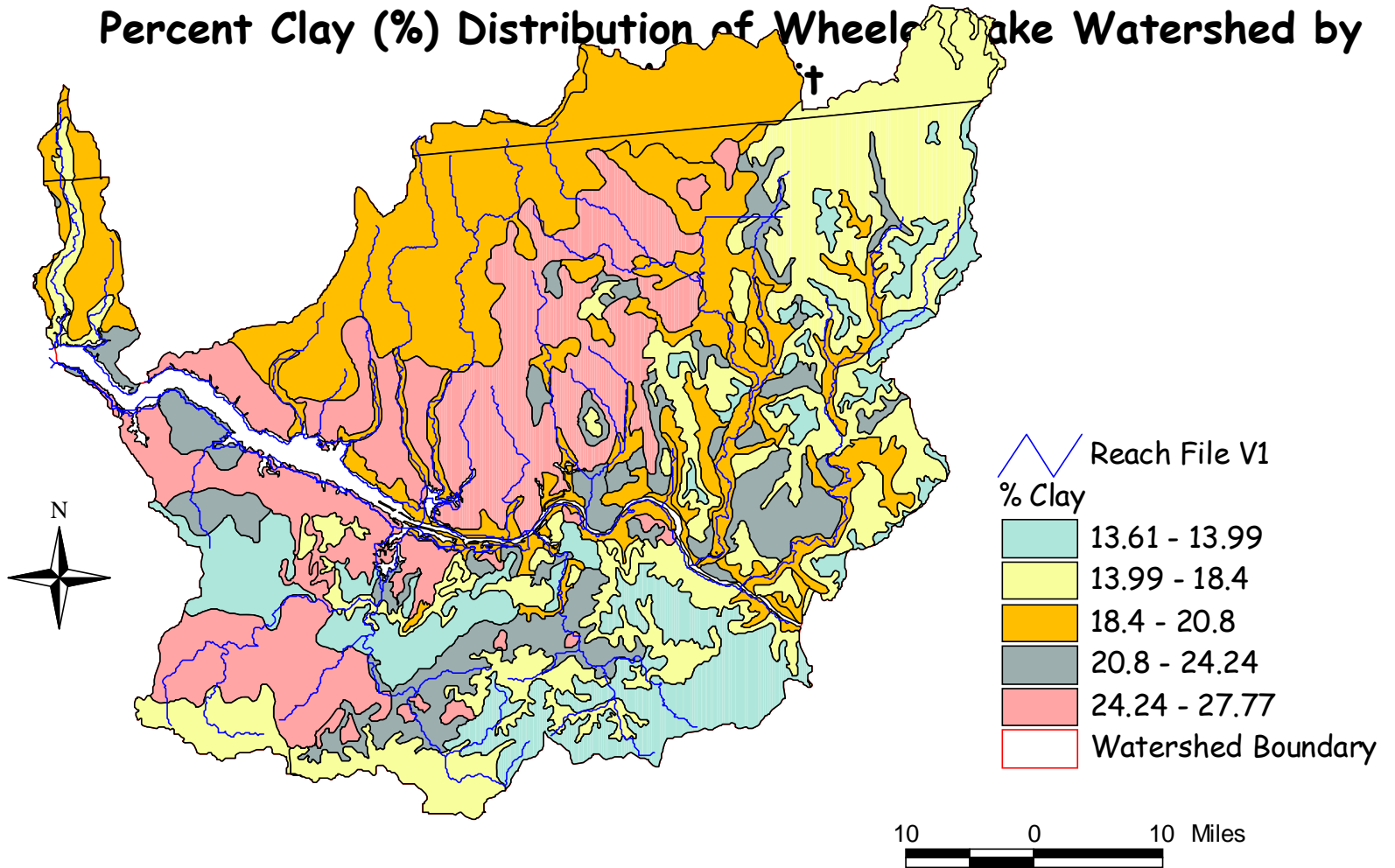
Permeability (in/hr) of Wheeler Lake Watershed by Map Unit



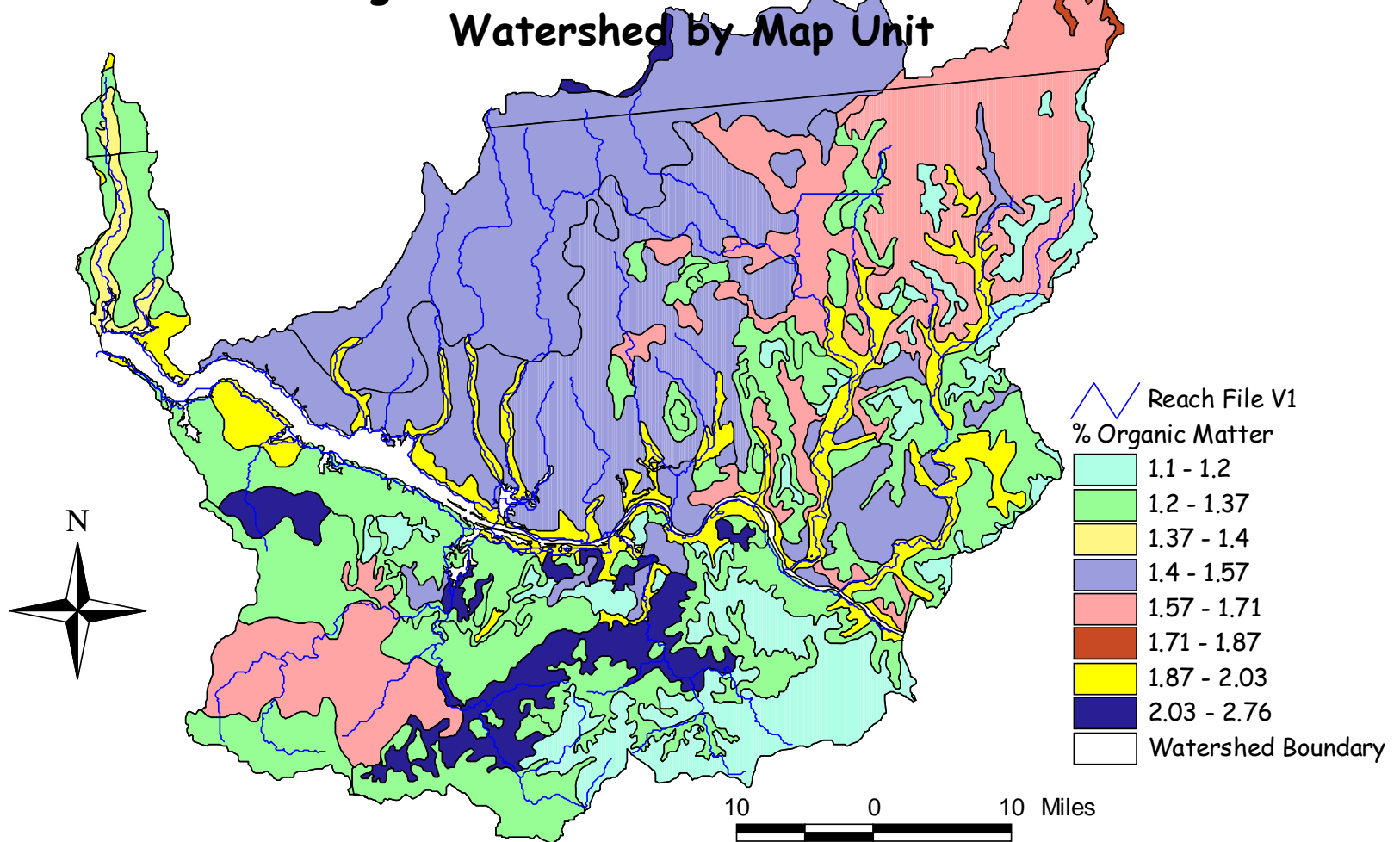
Soil pH Distribution of Wheeler Lake Watershed by Map Unit



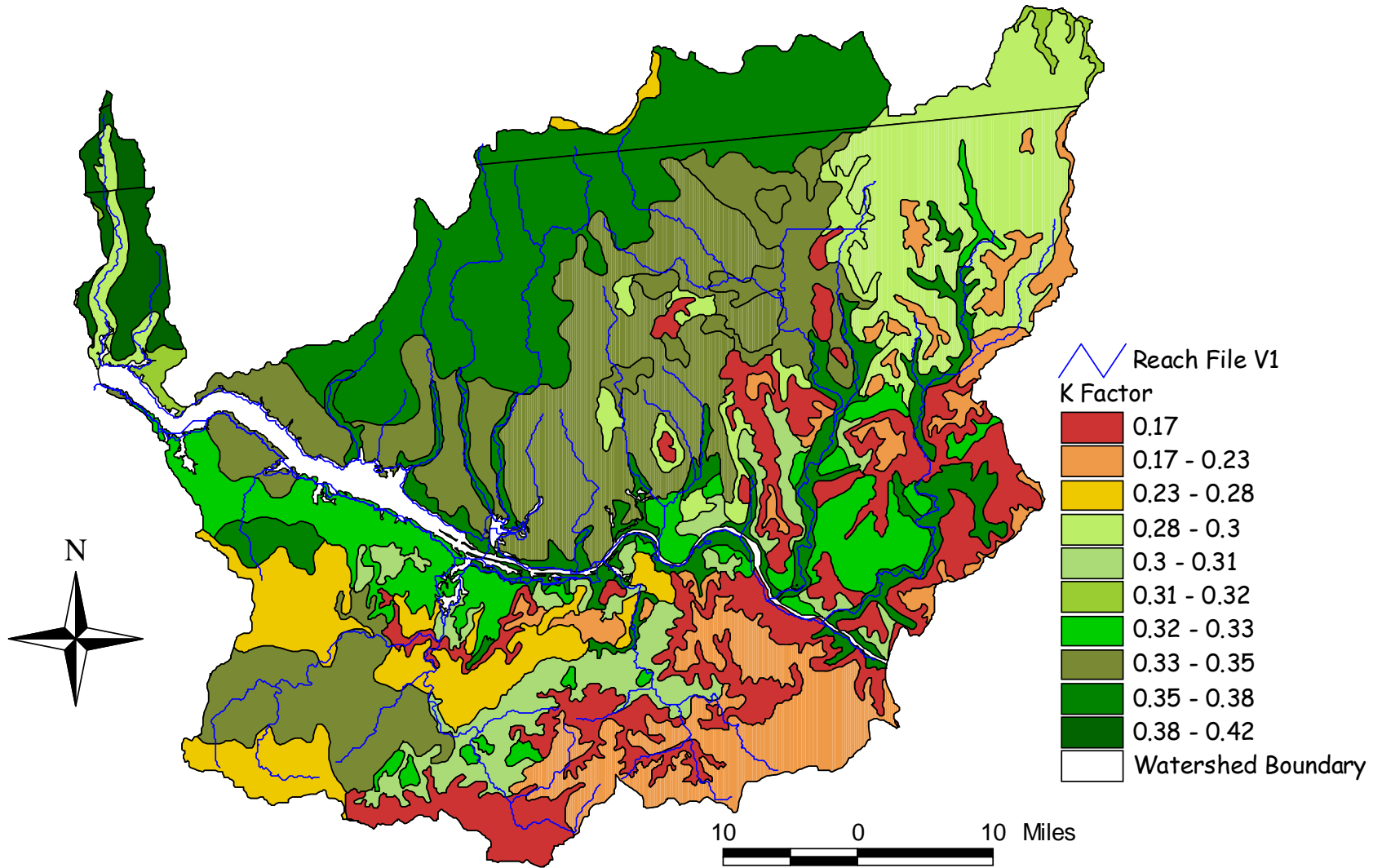
Percent Clay (%) Distribution of Wheelock Lake Watershed by



Percent Organic Matter Distribution of Wheeler Lake Watershed by Map Unit



Soil Erodibility Factor of Wheeler Lake Watershed by Map Unit



Polluted waters listed for area

By MIKE SALINERO
Times Staff Writer

Alabama environmental authorities have released a list of polluted waters in the state, and environmental groups say the list is a great tool for citizens to clean up their streams and rivers.

Under the Clean Water Act, state governments had until April 1 to provide a list of polluted waters to the U.S. Environmental Protection Agency. Citizens have until Wednesday at 5 p.m. to comment on the list to the Alabama Department of Environmental Management. This article lists the rivers, streams and lakes ADEM has classified as polluted in the five-county area served by *The Times*.

The list includes the location on the streams or rivers where the pollution is occurring, in what county the waters lie, and the causes and sources of the pollution. The list also ranks each stream, river or lake by how badly it needs to be cleaned up.

Here's how ADEM decided what waters went on the list: The agency designates a use for each body of water in the state. These include fish and wildlife, agriculture and industrial, swimming and whole body contact, shellfish harvesting, public water supply, industrial operations and navigation.

Two special designations are called Outstanding Alabama Waters and Outstanding National Resource Waters. These designations give special protection to

Please see WATERS on A6

Madison County's polluted waters



1) Mountain Fork, from its source to Flint River, siltation, pathogens and organic enrichment.

2) Brier Fork, for 3.9 miles upstream from Flint River, unknown toxicity.

3) Chase Creek, for 2.7 miles downstream from Madison County Flood Bridge, siltation and organic enrichment.

4) Indian Creek, from its source to Alabama 72, siltation and organic enrichment.

5) Indian Creek, from Huntsville Spring Branch to the Tennessee River, priority organics.

6) Huntsville Spring Branch, for 4.4 miles downstream of the Alabama 53 bridge, metals.

7) Huntsville Spring Branch, five miles upstream from Indian Creek, priority organics.

8) Aldridge Creek, from its source to its mouth, siltation and organic enrichment.

9) Goose Creek, from its source to Flint River, organic enrichment.

To make a comment

If you would like to comment on the list of polluted waters, write Lynn Sisk, Water Division, Alabama Department of Environmental Management, P.O. Box 301463, Montgomery, 36130-1463.

Or you can fax your comments to Sisk at (334) 279-3051.

For more information

If you would like to get a copy of "Saving Our Watersheds, A Field Guide to Watershed Restoration Using TMDLs," at \$10 a copy, call the National Wildlife Federation's Northeastern Natural Resource Center, (802) 229-0650.







μ-Trac 4200 Microbiological Analyzer



This compact impedance analyzer is user friendly and easy to operate, even by non-experts. The concept of 21 measuring places each one separately programmable in a dry block thermostat and administrated by a laptop computer is unchallenged in performance and possibilities. The μ-Trac reveals its strengths wherever microbiology is being performed on an absolutely minimum budget. The availability of pre-filled measurement cells eliminates the whole media preparation process. All hygiene-relevant microbiological parameters of production plants can be covered by this tiny genius in the simplest possible way.

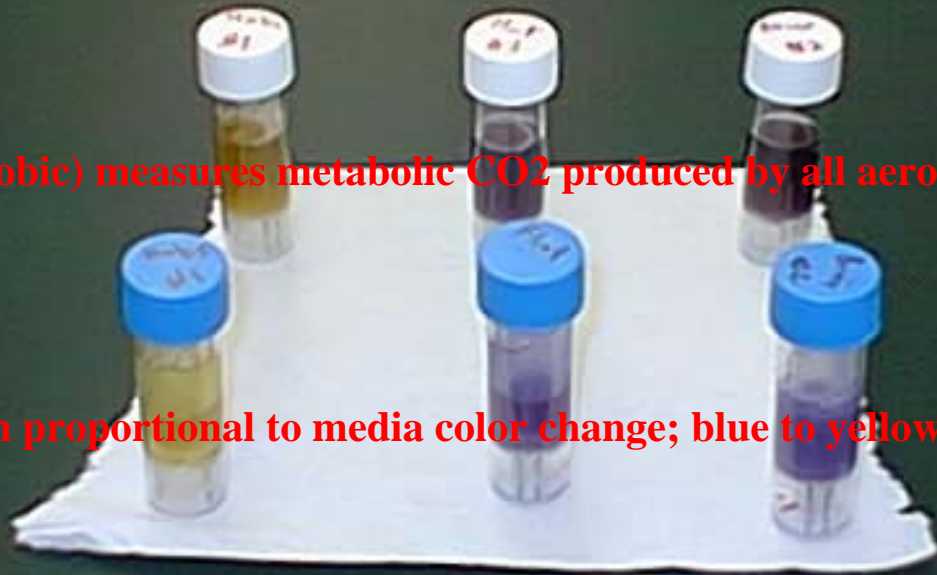
Bacteria screening using microbial metabolism and impedance change measurement

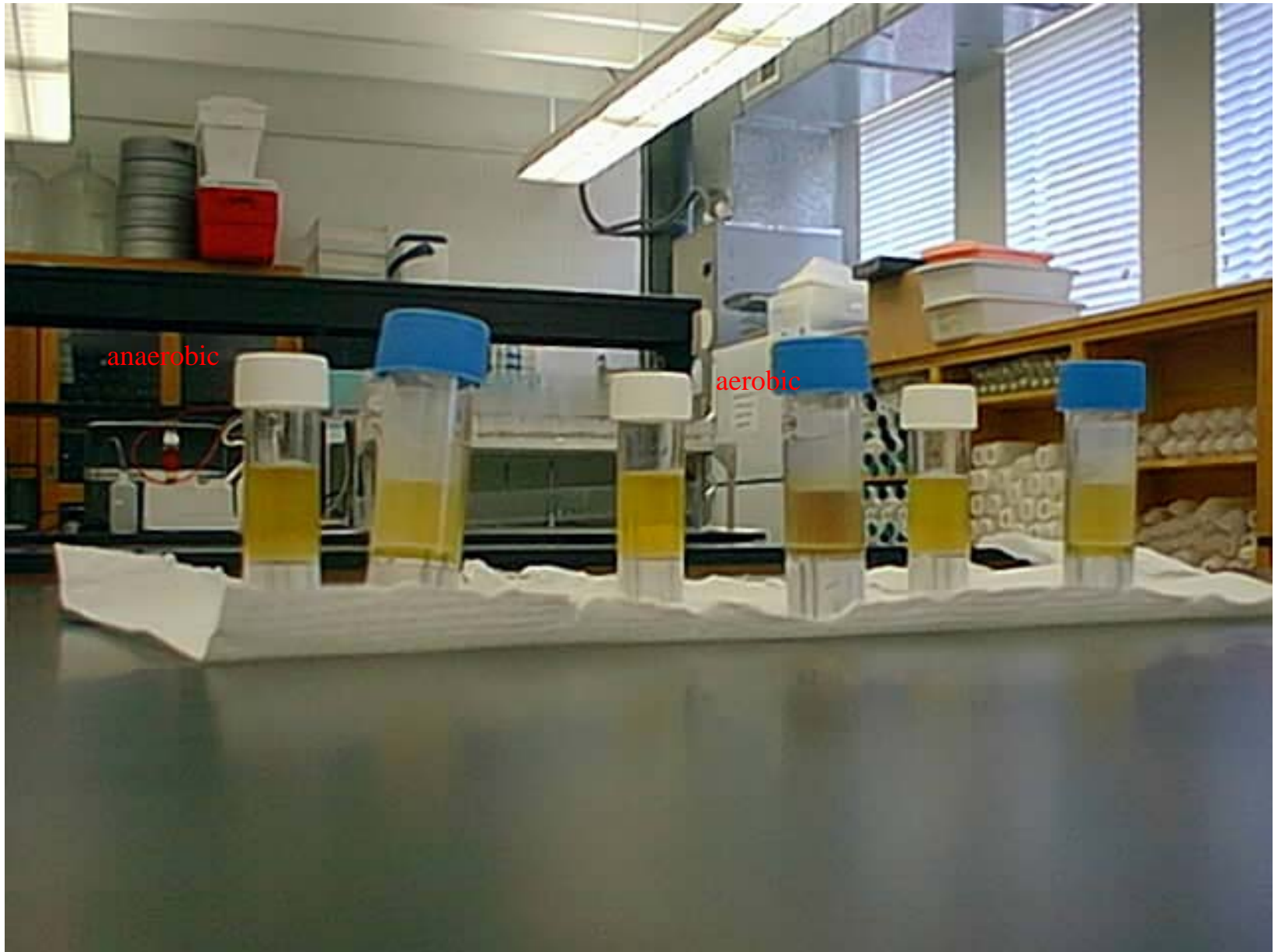
Direct method (anaerobic) measures impedance change of media due to bacterial metabolites

Indirect method (aerobic) measures metabolic CO₂ produced by all aerobic microorganisms

Qualitative indication proportional to media color change; blue to yellow, <6 hours

Quantitative indication provided in CFU/ml in <2 hours





anaerobic

aerobic



StreamPro SxS 12:04

History Expert Playback

Summary Data

Total Discharge	% Diff Rating	Avg. Velocity	Total Area
1.983	4.37	0.230	7.60

Measurement

Nmb	Stn Q	% Rated Q	Avg V
1	0.000	0.00	0.00
2	0.015	0.78	0.05
3	0.024	1.24	0.10
4	0.039	2.03	0.13
5	0.053	2.78	0.15
6	0.079	4.14	0.20

File Tools Help

StreamPro SxS 11:47

History Expert Playback

Display

Mean Velocity over Distance

Bottom Depth Velocity

Storage... \sxs_000r_000 File

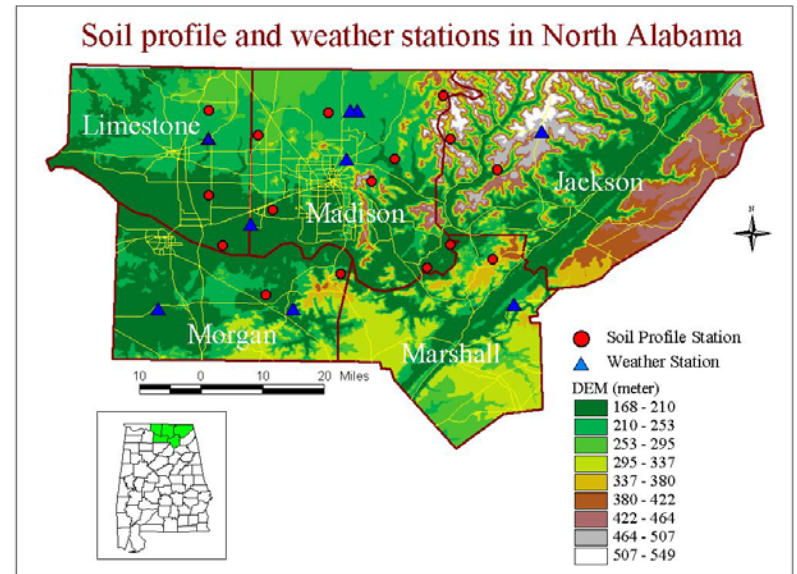
Ensemble Nmb.1 (1-816)

File Tools Help

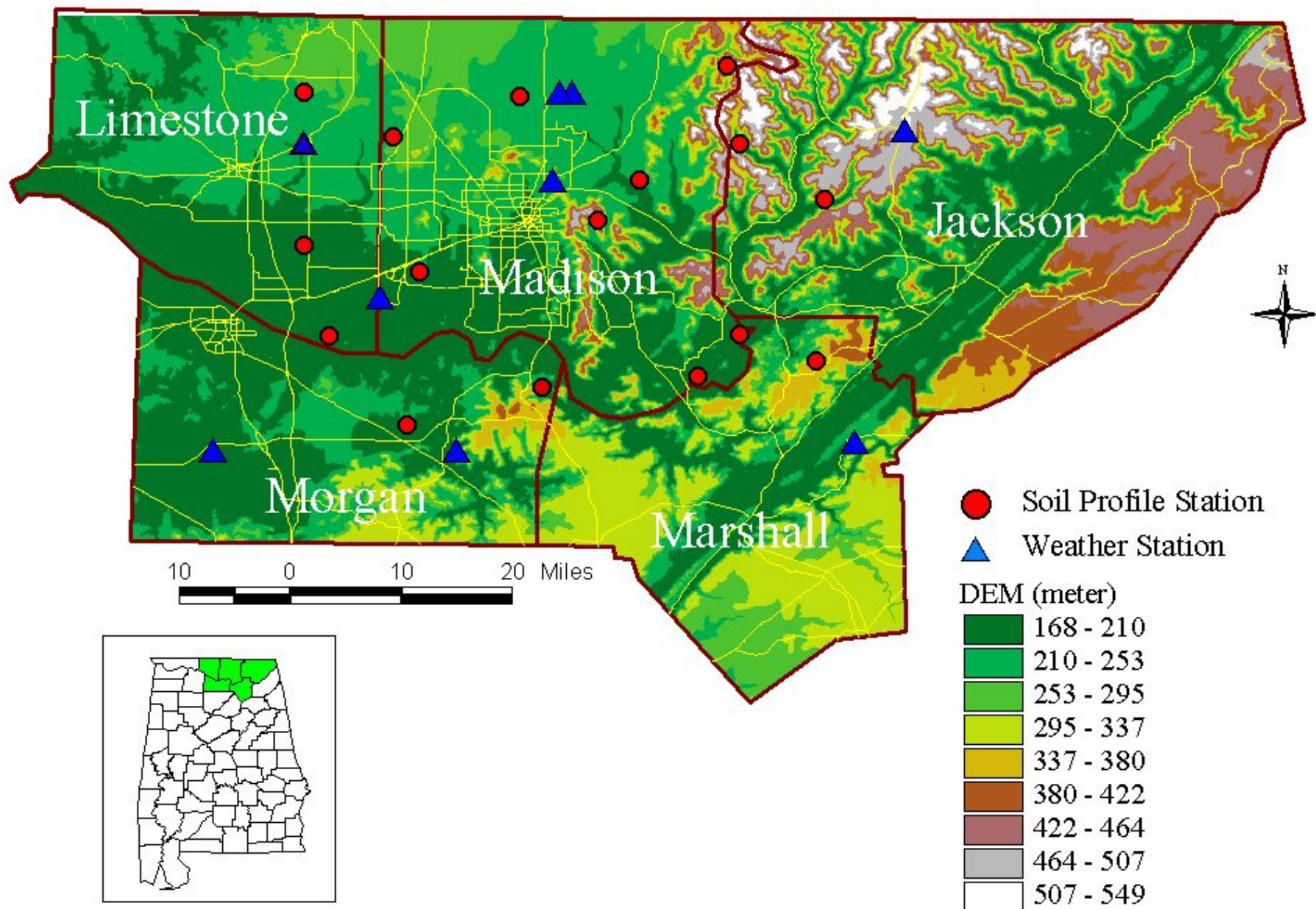


ALMNET locations

- ALMNET sites are located in north central Alabama and cover an area of approximately 6,300 km².
- The area includes all of **Madison** county and portions of **Jackson**, **Limestone**, **Marshall**, and **Morgan** Counties



Soil profile and weather stations in North Alabama



Alabama Mesonet (**ALMNET**): A Collection of Soil Profile and Weather Stations in Northern Alabama

- Equipped with state-of-the-art *in situ* sensors that continuously record:
 - Precipitation
 - Soil heat flux
 - Solar radiation
 - Wind (speed and direction)
 - Relative humidity
 - Soil moisture
 - Temperature (air & soil)

Objectives

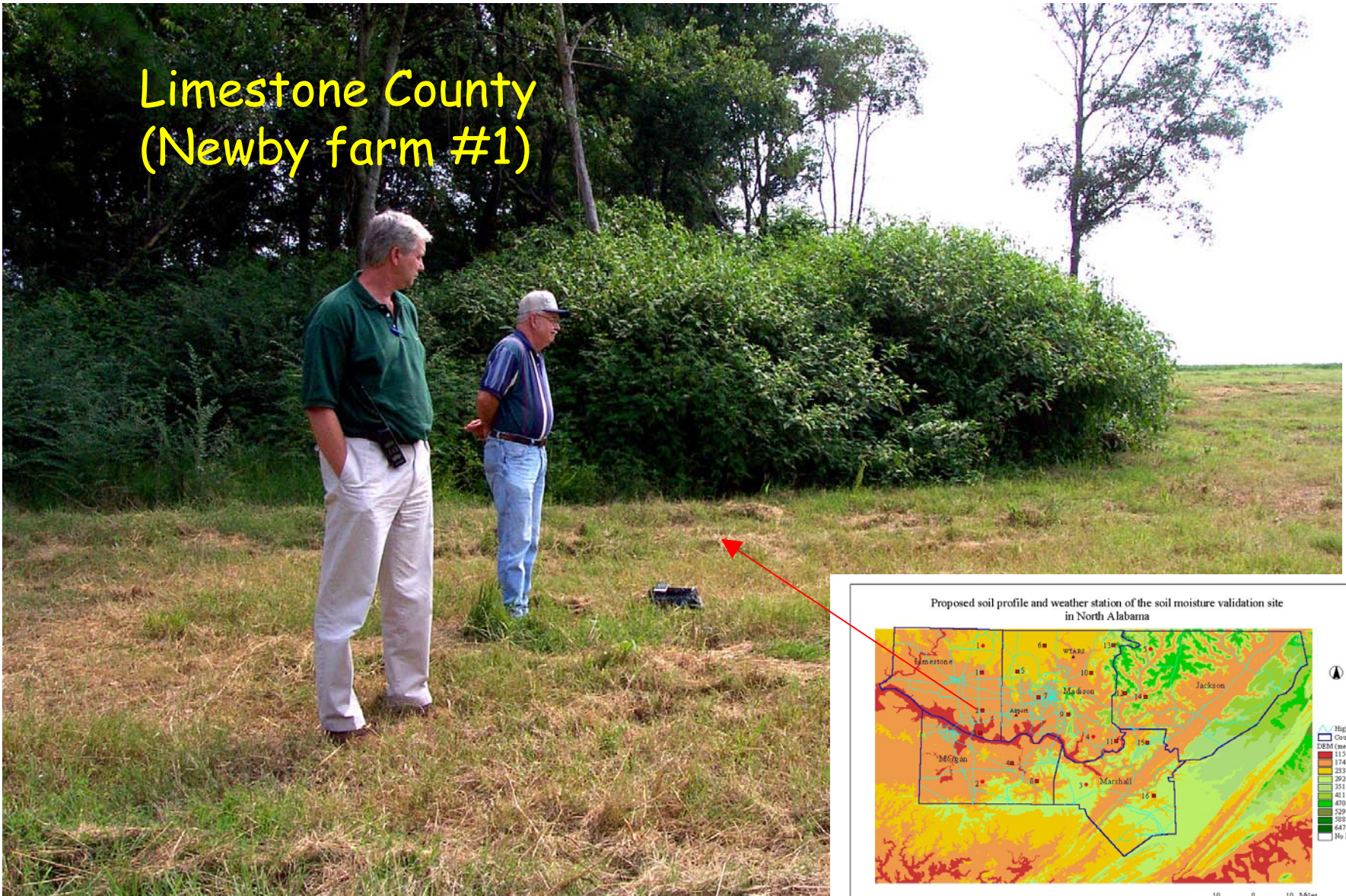
- To serve as a **validation site** for current and future satellite missions of monitoring soil moisture (e.g. the Aqua satellite, SuRGE, etc..) and archiving both atmospheric and hydrological data.
- To study **soil moisture** and **temperature variability** at different time scales and under different land use/cover.
- To **model soil water content** and **temperature** from observable climate data and compare model estimates in terms of energy partitioning.

- To strengthen **outdoor research and training facilities** for both undergraduate and graduate students.
- To establish an **Online Internet Service** for extension agents, farmers and interested individuals to visualize climate related data.

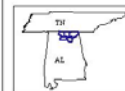
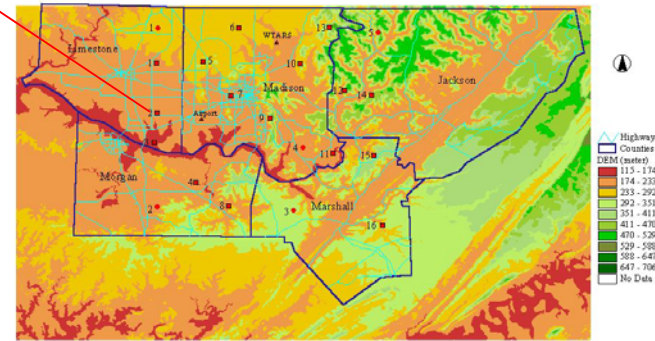


Jackson County (Johnson farm)

Limestone County (Newby farm #1)



Proposed soil profile and weather station of the soil moisture validation site in North Alabama

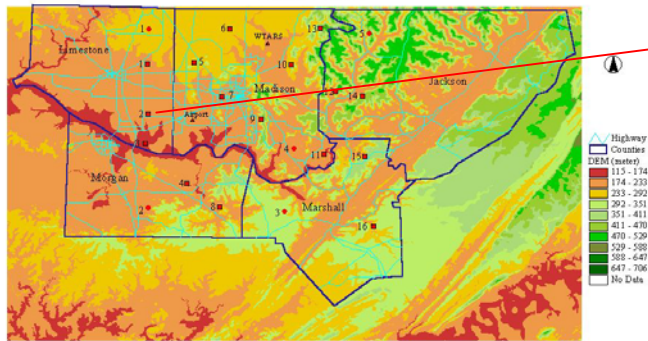


- ▲ Existing Weather Station
- New Weather Station
- Profile Station

Note - Number next to station location correspond to location name in Table 1.

Limestone County (Lauderdale Farm)

Proposed soil profile and weather station of the soil moisture validation site in North Alabama



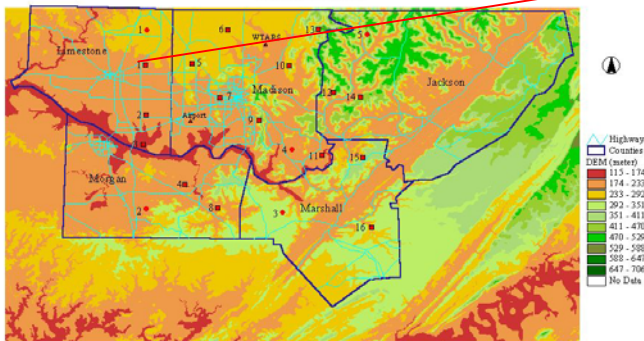
- ▲ Existing Weather Station
- New Weather Station
- Profile Station

Note - Number next to station location correspond to location name in Table 1.

Limestone County (Newby farm #2)

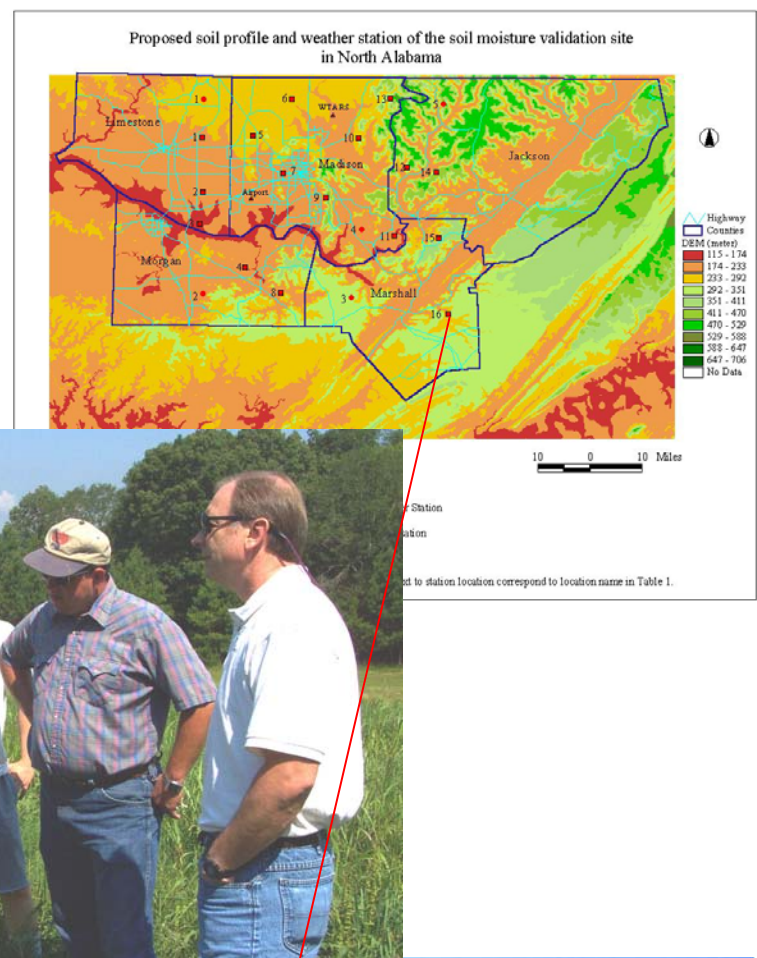


Proposed soil profile and weather station of the soil moisture validation site in North Alabama

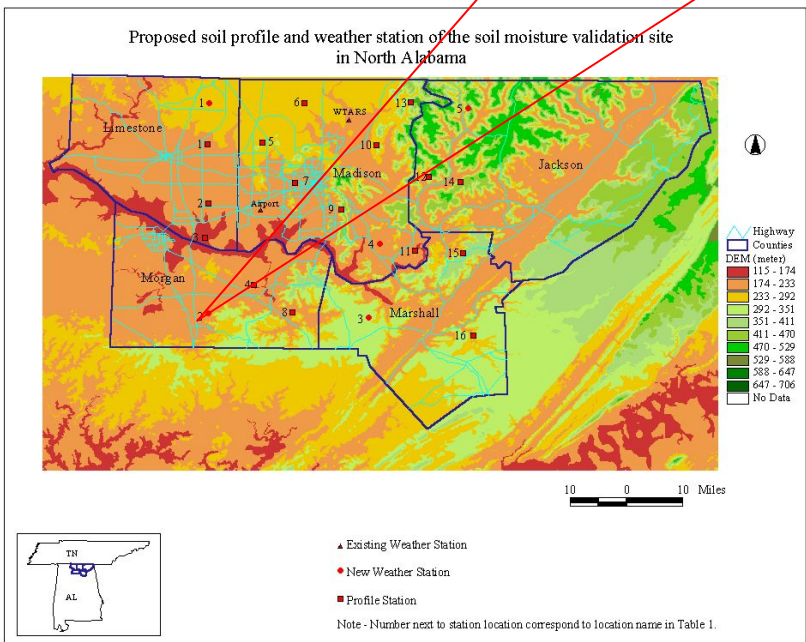


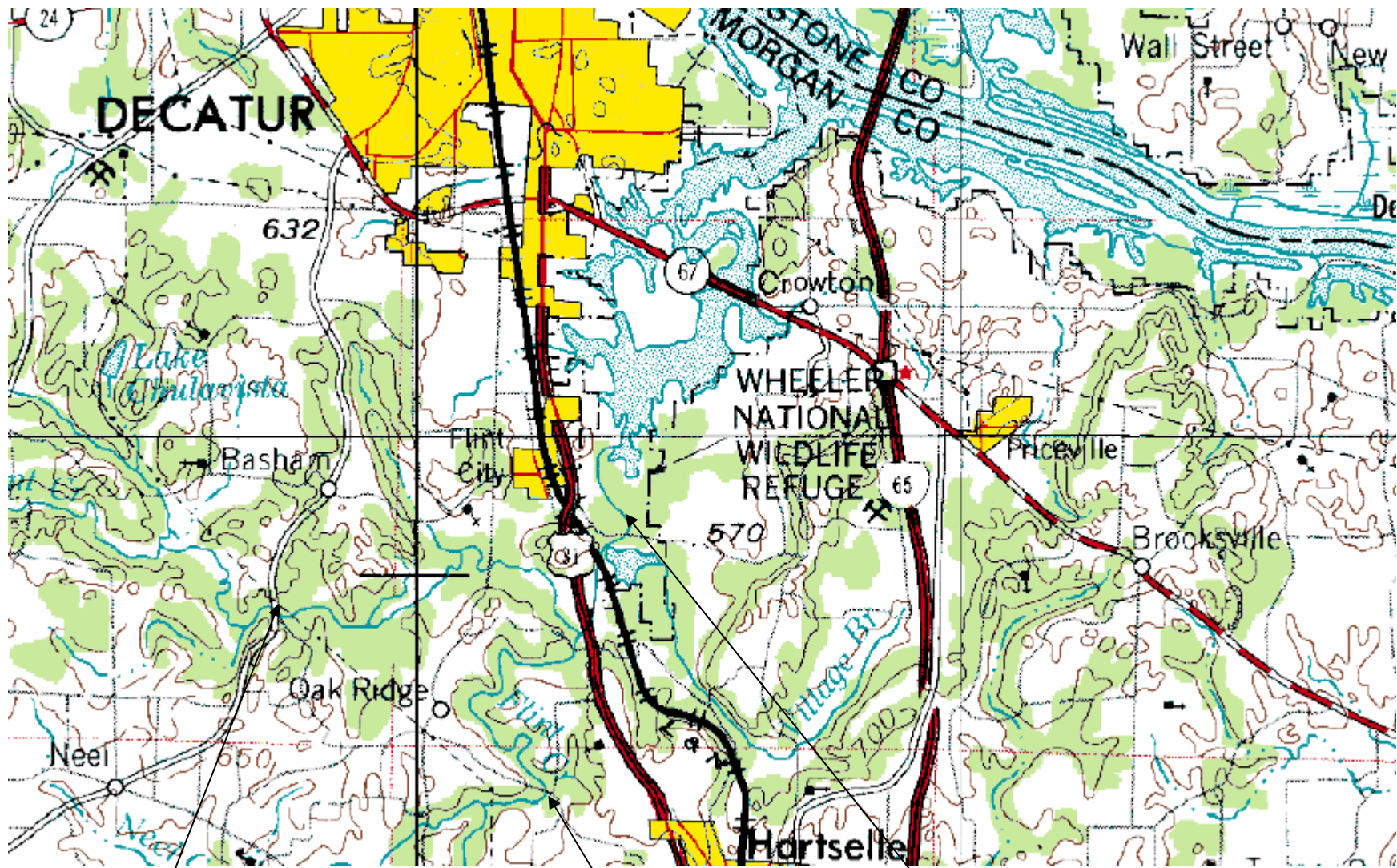
- ▲ Existing Weather Station
- New Weather Station
- Profile Station

Note - Number next to station location correspond to location name in Table 1.



Morgan County (Stanley Farm)





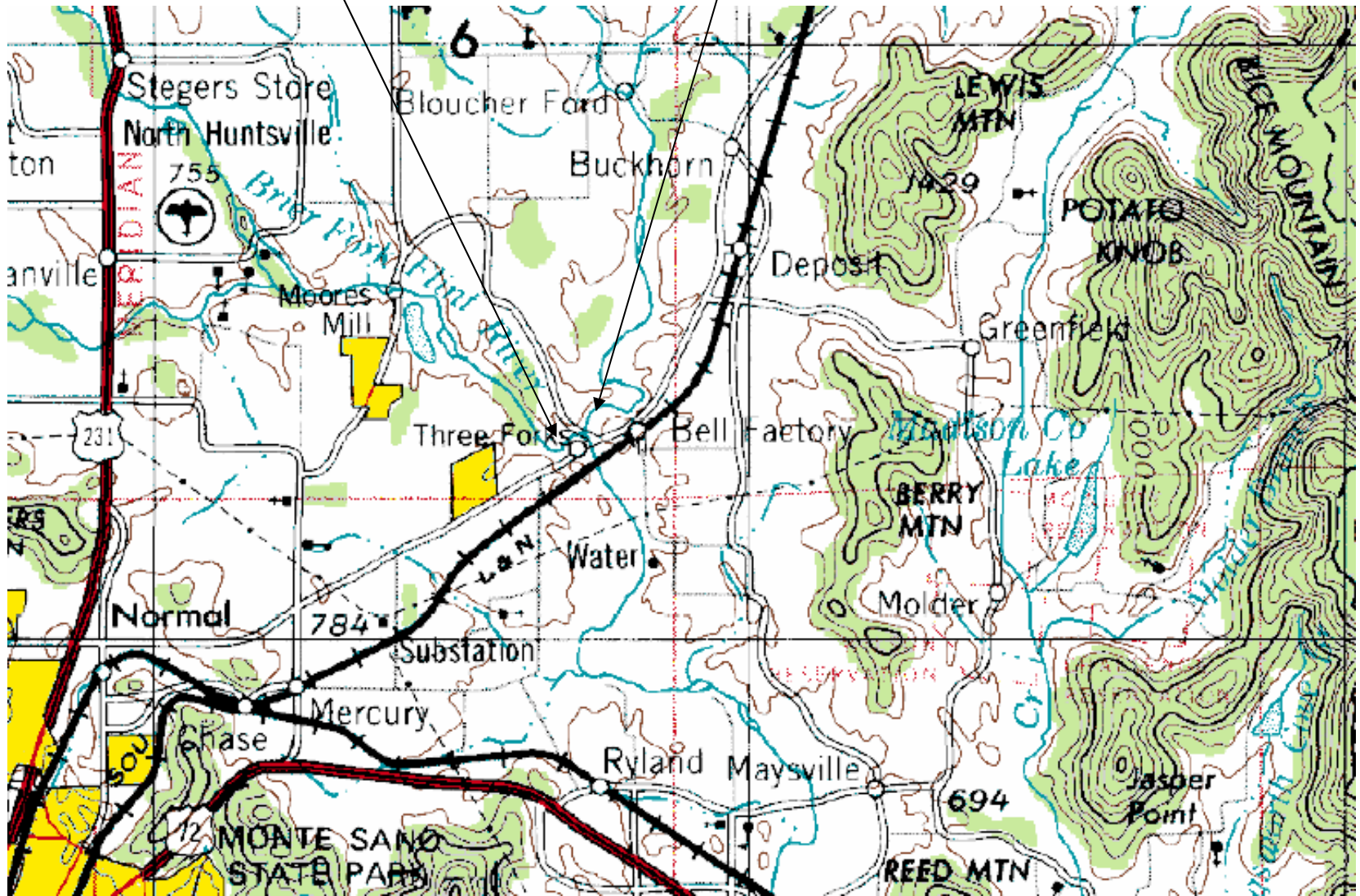
Means

Vaughn

Red Bank

Briar

Flint





Hobbs















