

**Explanation**

**Land-Use/Land-Cover**

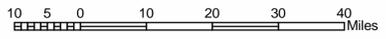
- Corn
- Cotton
- Soybeans
- Peanuts
- Other Crops
- Seed/Sod Grass
- Pasture/Hay
- Pecans
- Open Water
- Developed
- Barren
- Forest
- Grassland Herbaceous
- Wetlands

**Groundwater irrigation assessment areas**

- Tennessee River Valley
- Sand Mountain
- Black Belt
- Southeast Alabama
- South-Central Alabama
- Southwest Alabama

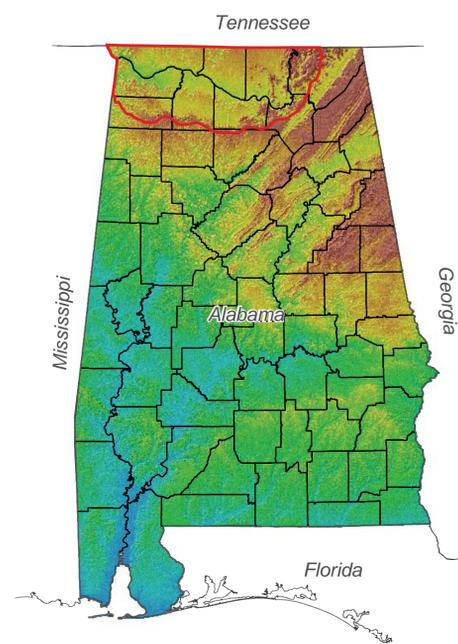
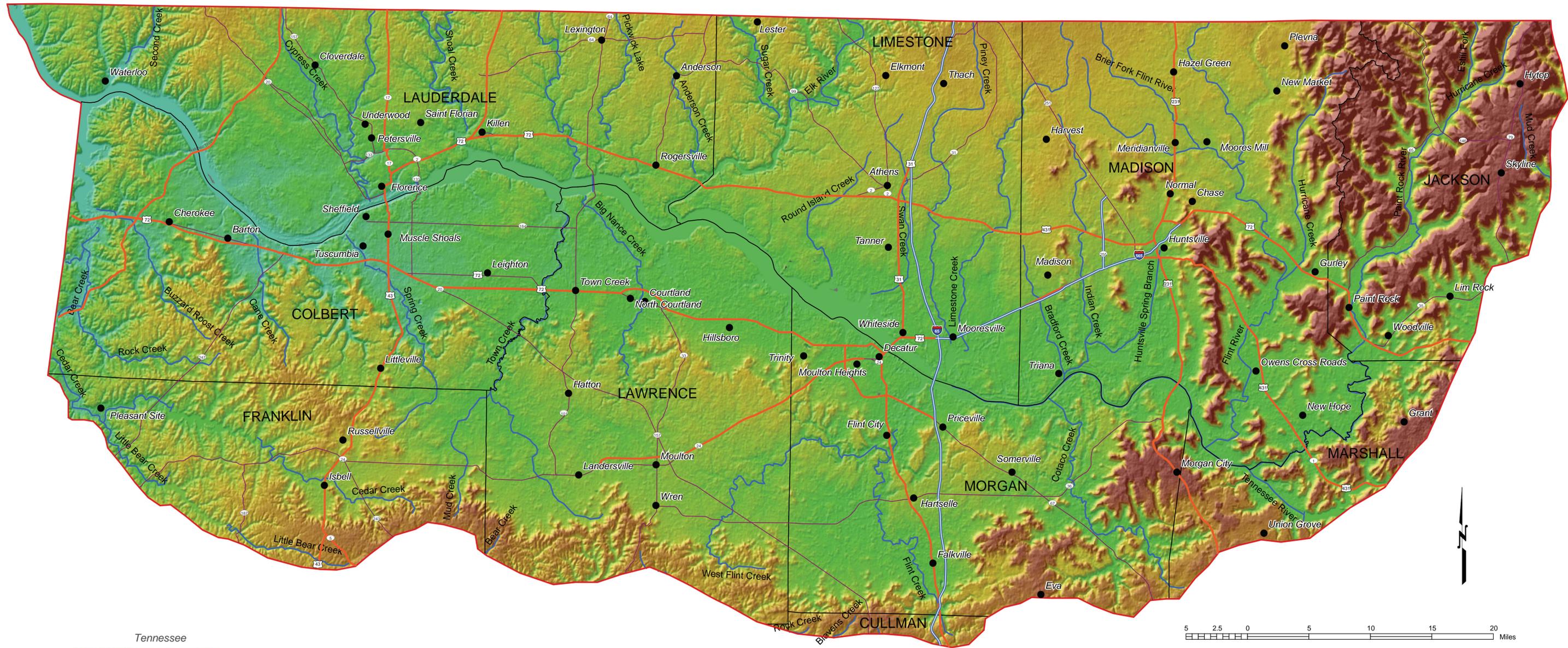


Berry H. (Nick) Tew, Jr.  
State Geologist



**ALABAMA 2010 LAND-USE/LAND-COVER  
AND GROUNDWATER IRRIGATION  
ASSESSMENT AREAS**  
(Land-use/land-cover modified from USDA-2010  
Cropland Data Layer for the Southeast States)

By  
Dorina Murgulet  
2011



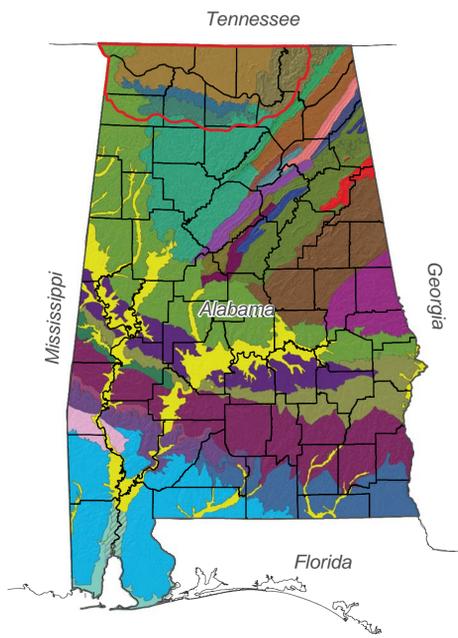
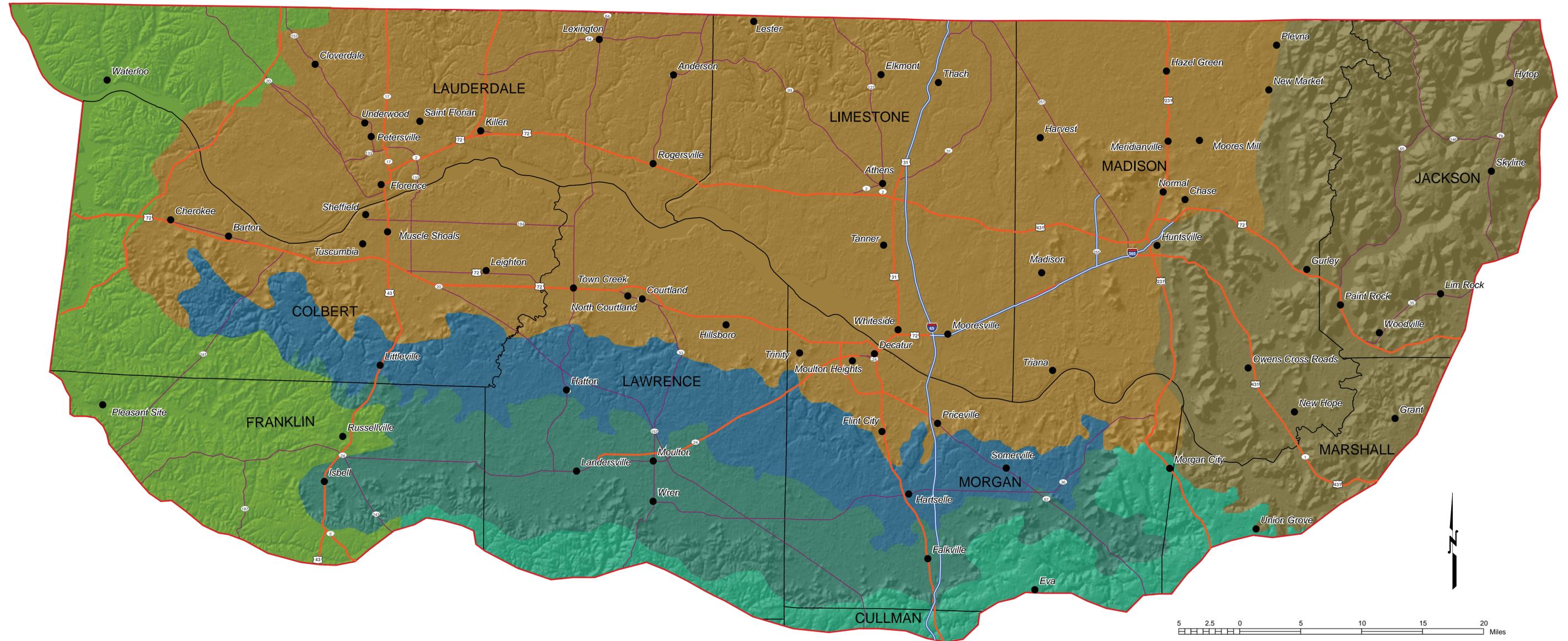
### Explanation

- Elevation in feet above NGVD 1929
  - High : 1,880
  - Low : 414
  - City
- Tennessee River Valley groundwater irrigation assessment area
- County boundary
- Rivers
- Limited access interstate
- Highway
- Major road
- I Interstate highway
- 72 United States highway
- 67 State highway

## Location Map and Topography of the Tennessee River Valley Groundwater Irrigation Assessment Area

By  
Stephen P. Jennings  
2011





**Explanation**

- Fall Line Hills
- Moulton Valley
- Tennessee River Valley groundwater irrigation assessment area
- Tennessee Valley
- Warrior Basin
- County boundary
- Little Mountain
- Jackson County Mountains
- City

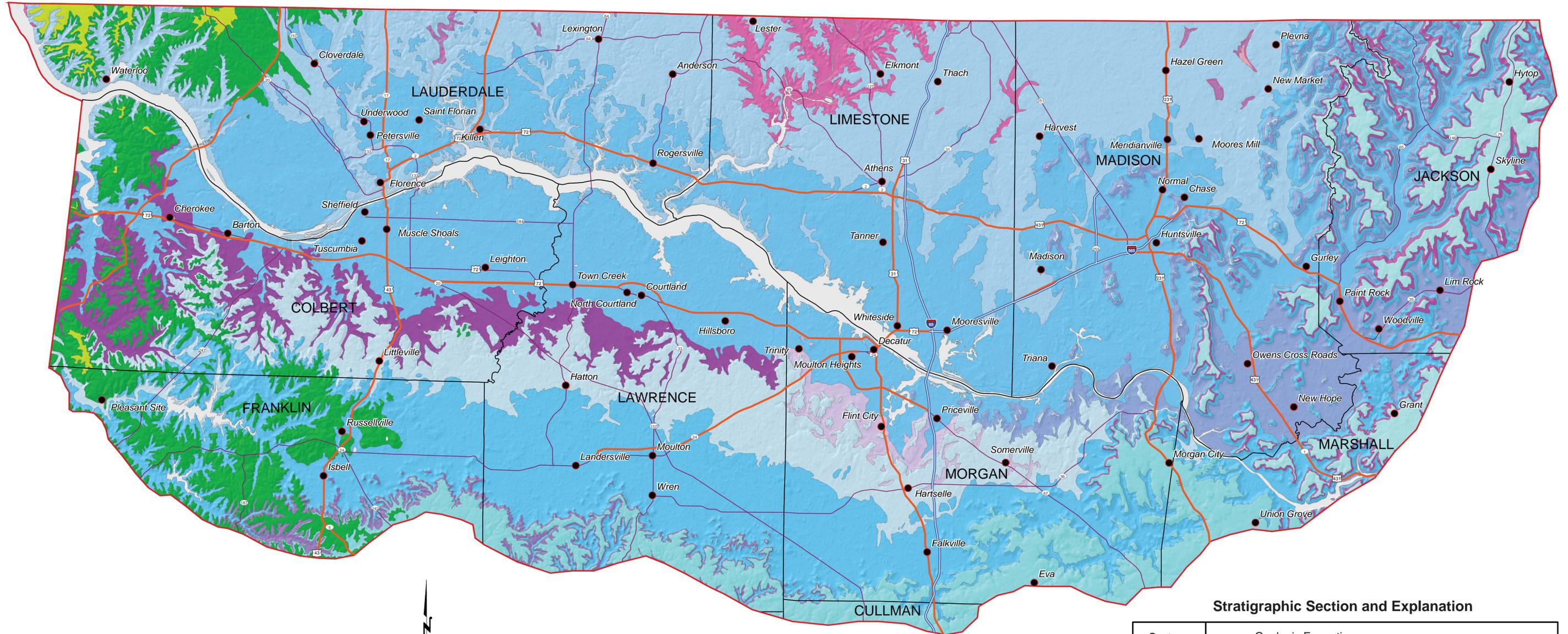
**Physiographic Regions of the Tennessee River Valley  
Groundwater Irrigation Assessment Area**

(modified from Sapp and Emplincourt, 1975)

By  
Stephen P. Jennings  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist

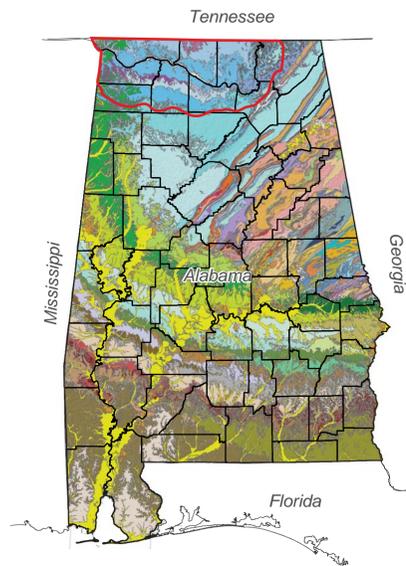


**Stratigraphic Section and Explanation**

System	Geologic Formation
Cretaceous	Eutaw Formation
	Gordo Formation
Pennsylvanian	Pottsville Formation
	Pottsville Formation (lower part)
Mississippian	Parkwood Formation
	Pennington Formation
	Bangor Limestone
	Hartselle Sandstone
	Monteagle Limestone
	Pride Mountain Formation
	Pride Mountain Formation and Monteagle Limestone undifferentiated
	Tuscumbia Limestone
Fort Payne Chert (includes Maury Formation)	
Devonian	Chattanooga Shale
Silurian	Silurian System undifferentiated
Ordovician	Sequatchie Formation
	Ordovician System undifferentiated

**Explanation**

- Tennessee River Valley groundwater irrigation assessment area
- County boundary
- City
- Water

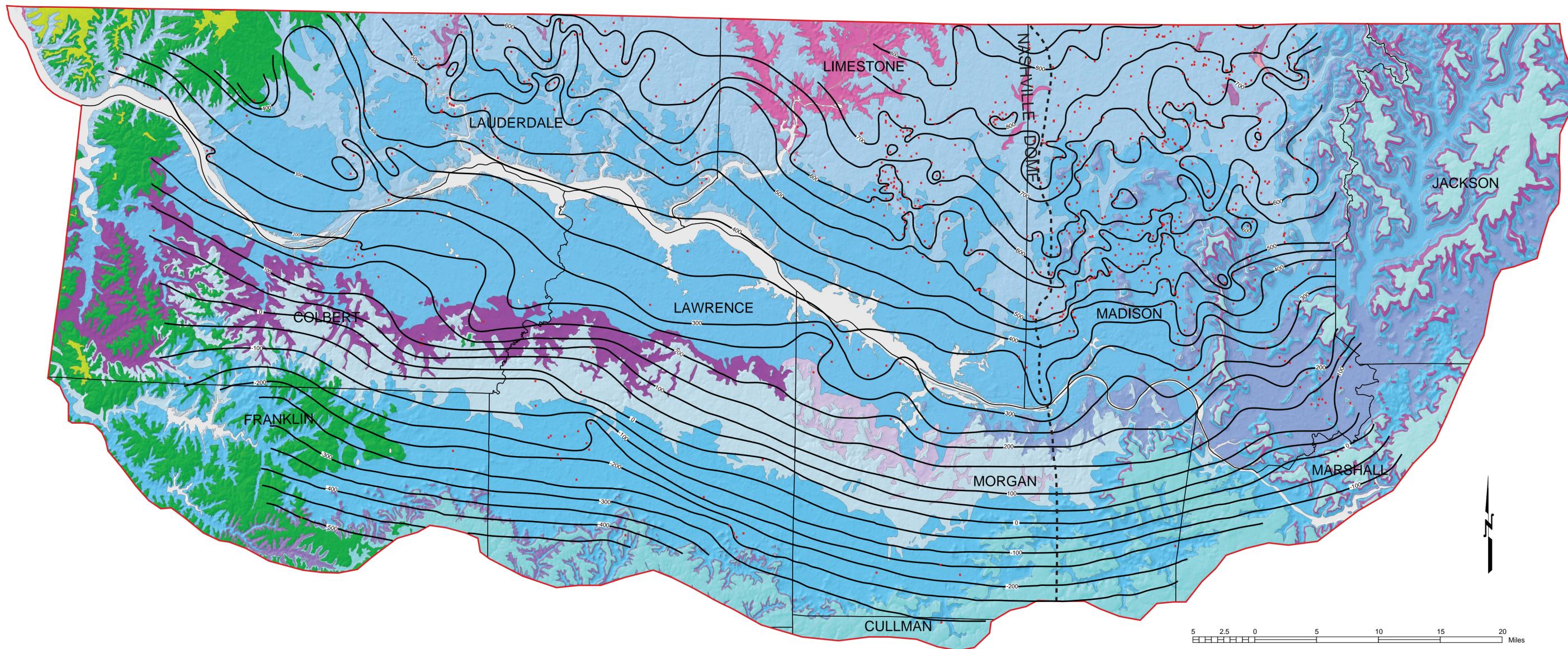


Berry H. (Nick) Tew, Jr.  
State Geologist

**Geologic Map of the Tennessee River Valley  
Groundwater Irrigation Assessment Area**

(modified from Geological Survey of Alabama, 2006)

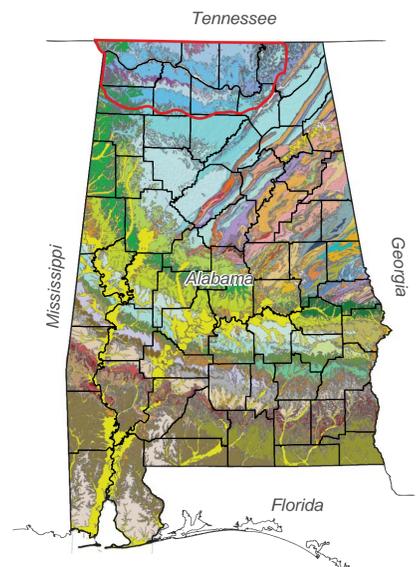
By  
Stephen P. Jennings  
2011



**Explanation**

- |                                   |   |                                    |
|-----------------------------------|---|------------------------------------|
| Eutaw Formation                   | Bangor Limestone  | Fort Payne Chert                   |
| Gordo Formation                   | Hartselle Sandstone   | Chattanooga Shale                  |
| Pottsville Formation              | Monteagle Limestone   | Silurian System undifferentiated   |
| Pottsville Formation (lower part) | Pride Mountain Formation  | Sequatchie Formation               |
| Parkwood Formation                | Pride Mountain Formation and Monteagle Limestone undifferentiated | Ordovician System undifferentiated |
| Pennington Formation              | Tuscumbia Limestone   | Water                              |

- Tennessee River Valley groundwater irrigation assessment area
- County boundary
- Well or test hole
- Contour of top of Chattanooga Shale (contour interval 50 feet; datum mean sea level)
- Axis of Nashville Dome



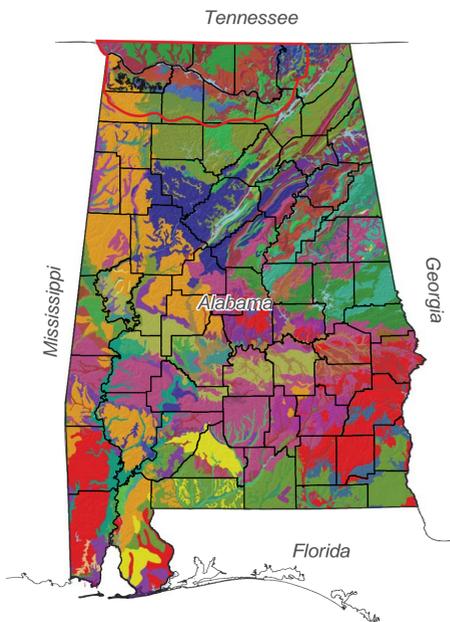
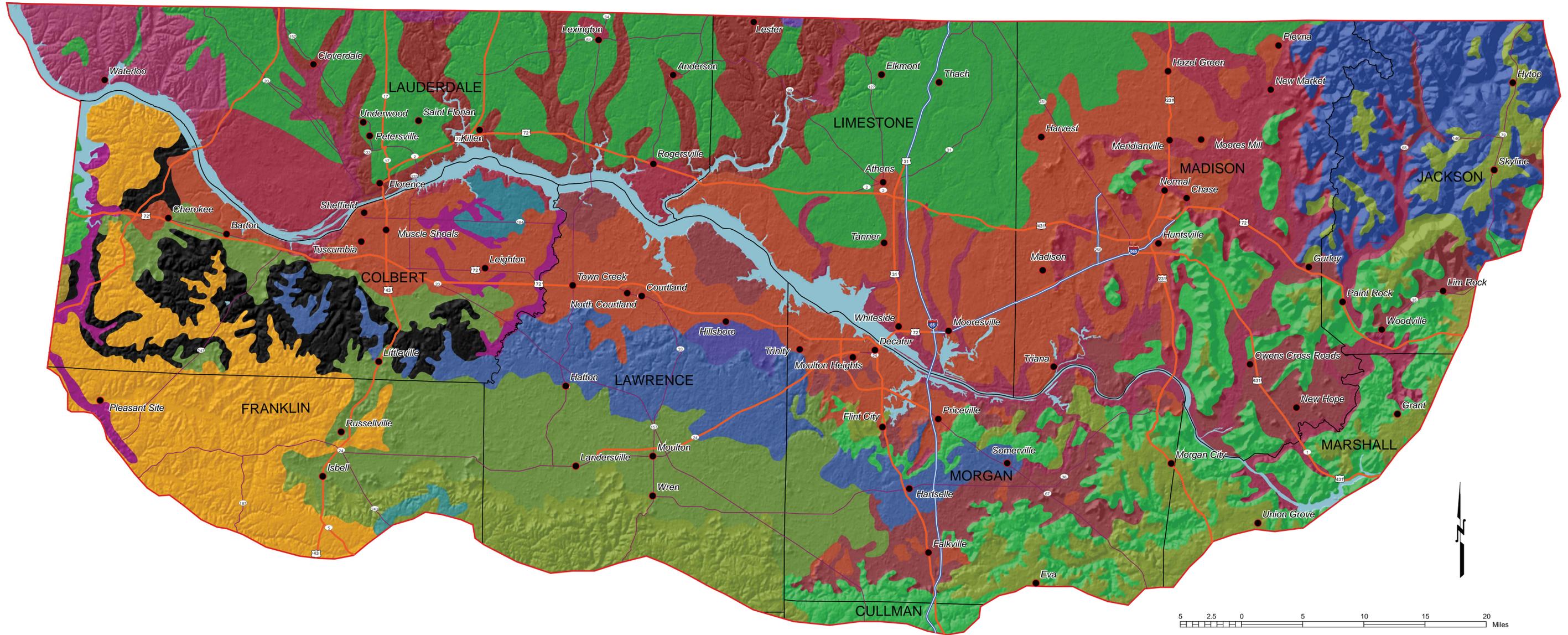
**Structure Map of the Top of Chattanooga Shale in the Tennessee River Valley Groundwater Irrigation Assessment Area**

(geologic map modified from Geological Survey of Alabama, 2006)

By  
Stephen P. Jennings  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



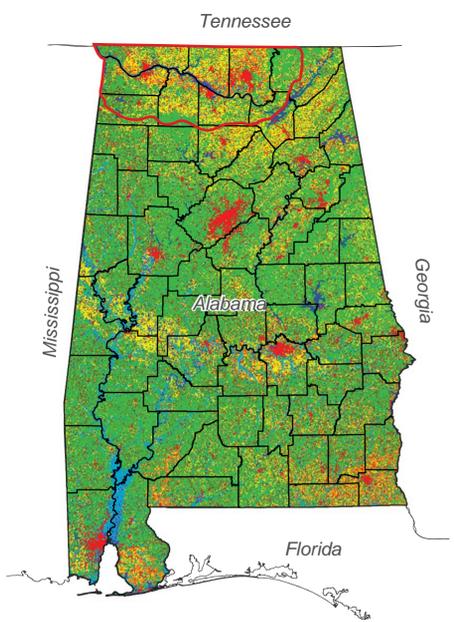
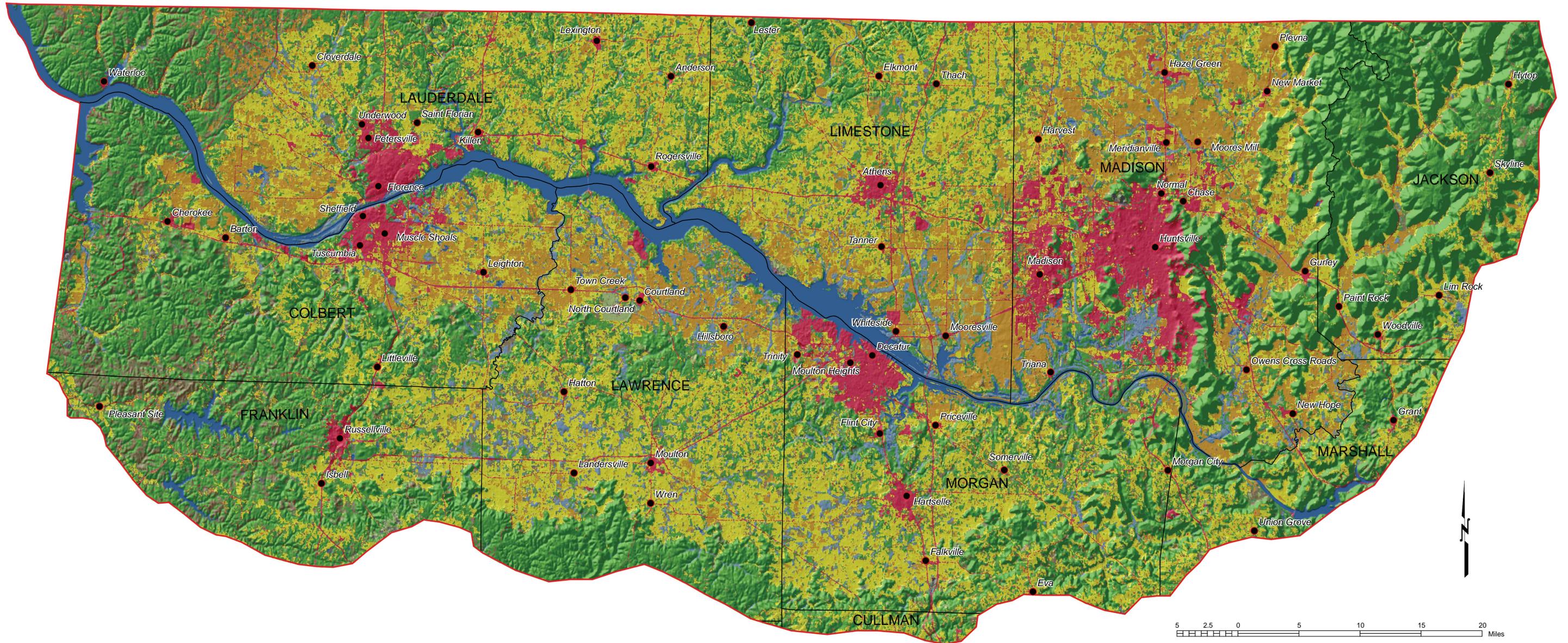
**Explanation**

<p><b>Alfisols</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">■</span> Fine-silty, Mixed, Active, Thermic Aquic Fragiudalfs</li> <li><span style="color: black;">■</span> Very-fine, Smectitic, Thermic Vertic Hapludalfs</li> <li><span style="color: yellow;">■</span> Fine-silty, Mixed, Active, Thermic Ultic Hapludalfs</li> <li><span style="color: lightgreen;">■</span> Fine, Smectitic, Thermic Vertic Hapludalfs</li> <li><span style="color: blue;">■</span> Typic Hapludalfs, Fine, Mixed, Thermic</li> </ul> <p><b>Entisols</b></p> <ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Coarse-loamy, Siliceous, Active, Thermic Typic Fluvaquents</li> </ul>	<p><b>Inceptisols</b></p> <ul style="list-style-type: none"> <li><span style="color: lightgreen;">■</span> Fluventic Dystrachrepts, Fine-loamy, Siliceous, Thermic</li> <li><span style="color: pink;">■</span> Fine-silty, Mixed, Active, Thermic Fluvaquentic Dystrudepts</li> </ul> <p><b>Ultisols</b></p> <ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Loamy-skeletal, Siliceous, Semiactive, Thermic Typic Hapludults</li> <li><span style="color: green;">■</span> Glossic Fragiudults, Fine-silty, Siliceous, Thermic</li> <li><span style="color: brown;">■</span> Typic Paleudults, Clayey, Kaolinitic, Thermic</li> <li><span style="color: darkred;">■</span> Loamy-skeletal, Siliceous, Semiactive, Thermic Typic Paleudults</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Fine-silty, Mixed, Semiactive, Thermic Typic Hapludults</li> <li><span style="color: yellow;">■</span> Fine-loamy, Siliceous, Subactive, Thermic Typic Hapludults</li> <li><span style="color: orange;">■</span> Rhodic Paleudults, Clayey, Kaolinitic, Thermic</li> <li><span style="color: lightgreen;">■</span> Fine-loamy, Siliceous, Semiactive, Thermic Typic Hapludults</li> <li><span style="color: blue;">■</span> Fine-loamy, Siliceous, Subactive, Thermic Glossic Fragiudults</li> <li><span style="color: teal;">■</span> Fine-loamy, Siliceous, Semiactive, Thermic Typic Fragiudults</li> <li><span style="color: brown;">■</span> Typic Paleudults, Fine-loamy, Siliceous, Thermic</li> <li><span style="color: darkred;">■</span> Fine-silty, Siliceous, Semiactive, Thermic Glossaquic Fragiudults</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Humic Hapludults, Fine-loamy, Mixed, Thermic</li> <li><span style="color: blue;">■</span> Fine-silty, Siliceous, Semiactive, Thermic Typic Paleudults</li> <li><span style="color: green;">■</span> Fine-loamy, Siliceous, Semiactive, Thermic Typic Paleudults</li> <li><span style="color: lightblue;">■</span> Water</li> <li><span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> Tennessee River Valley groundwater irrigation assessment area</li> <li><span style="border-bottom: 1px solid black; width: 10px; display: inline-block;"></span> County Boundary</li> <li><span style="color: black; font-size: 10px;">●</span> City</li> </ul>
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**Soil Order and Taxonomic Classification for the Tennessee River Valley Groundwater Irrigation Assessment Area**  
 (modified from USDA-NRCS, Web Soil Survey, 2009)

By  
 Stephen P. Jennings  
 2011





**Explanation**

- |                                    |  |   |
|------------------------------------|--|---|
| <b>LULC classification</b>         | Herbaceous upland natural/seminatural (grassland/herbaceous) | Vegetated natural shrubland                                   |
| Water                              | Herbaceous planted/cultivated (pasture/hay)                  | Other symbols   |
| Developed                          | Herbaceous planted/cultivated (cultivated crops)             | Tennessee River Valley groundwater irrigation assessment area |
| Barren                             | Wetlands   | County boundary   |
| Vegetated; natural forested upland |  | City  |

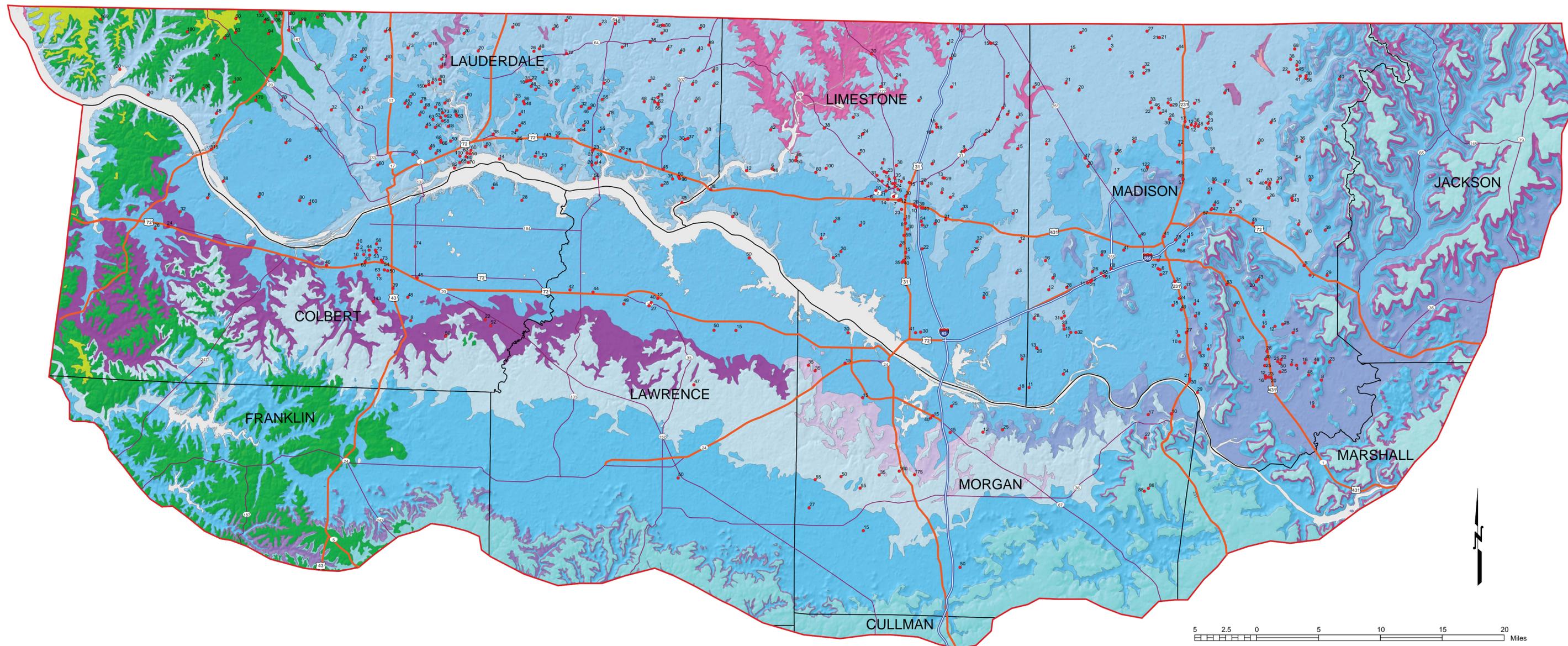
**Land-Use/Land-Cover Classification for the Tennessee River Valley Groundwater Irrigation Assessment Area**

(modified from USDA-NRCS - Cropland Data for Southeast States, 2010)

By  
Stephen P. Jennings  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



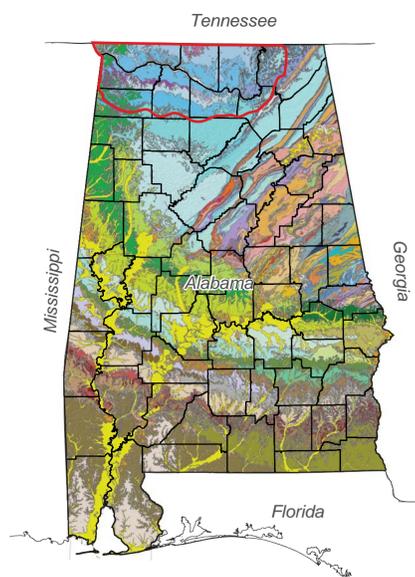
**Explanation**

- Eutaw Formation
- Gordo Formation
- Pottsville Formation
- Pottsville Formation (lower part)
- Parkwood Formation
- Pennington Formation

- Bangor Limestone
- Hartselle Sandstone
- Monteagle Limestone
- Pride Mountain Formation
- Pride Mountain Formation and Monteagle Limestone undifferentiated
- Tusculumbia Limestone

- Fort Payne Chert
- Chattanooga Shale
- Silurian System undifferentiated
- Sequatchie Formation
- Ordovician System undifferentiated
- Water

- Tennessee River Valley groundwater irrigation assessment area
- County boundary
- Wells with static water level, in feet below land surface (all measurements shown to nearest foot)



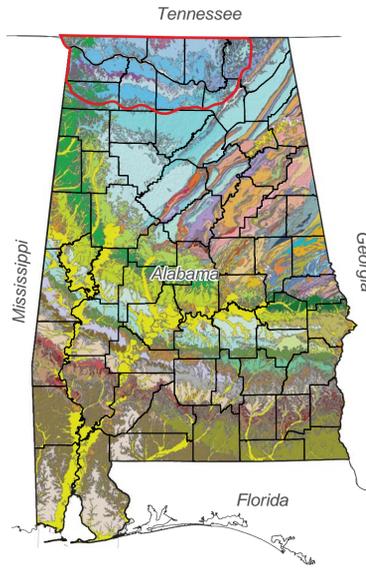
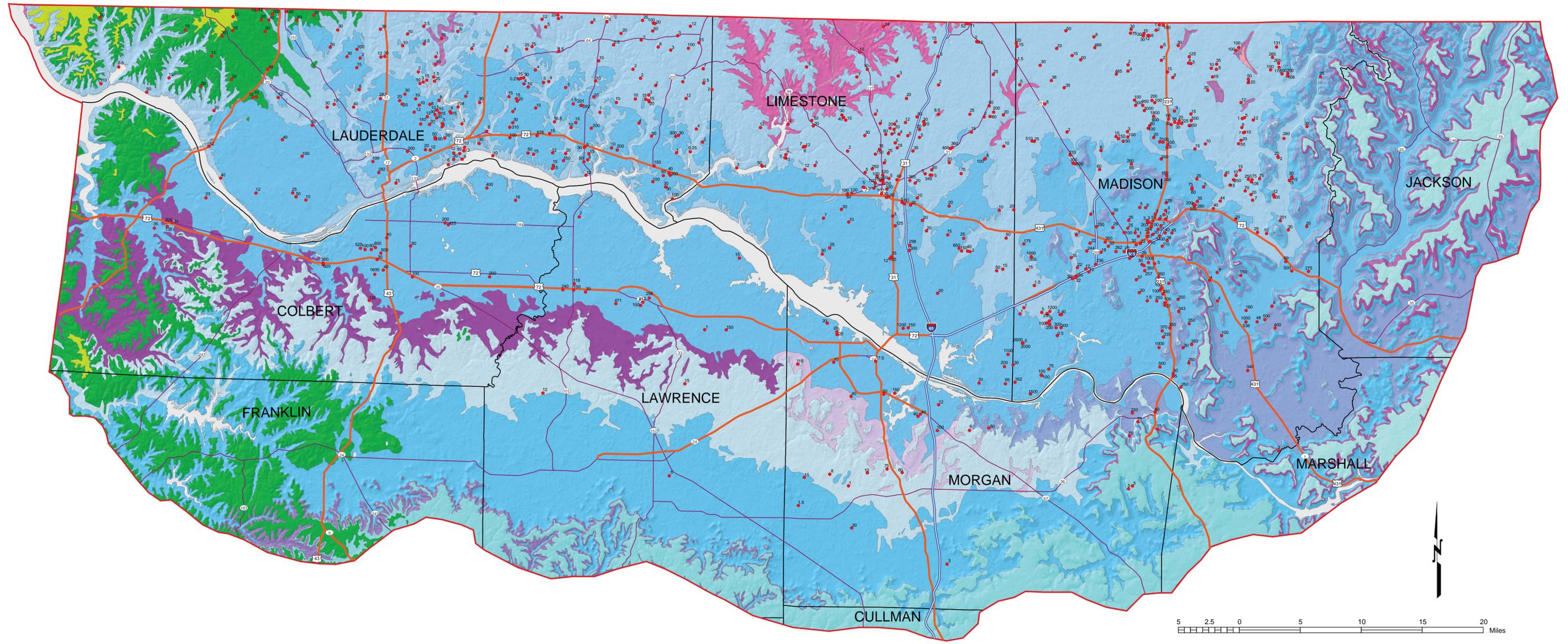
**Depth to Water in Selected Wells in the Tennessee River Valley Groundwater Irrigation Assessment Area**

*(geologic map modified from Geological Survey of Alabama, 2006)*

By  
Stephen P. Jennings  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

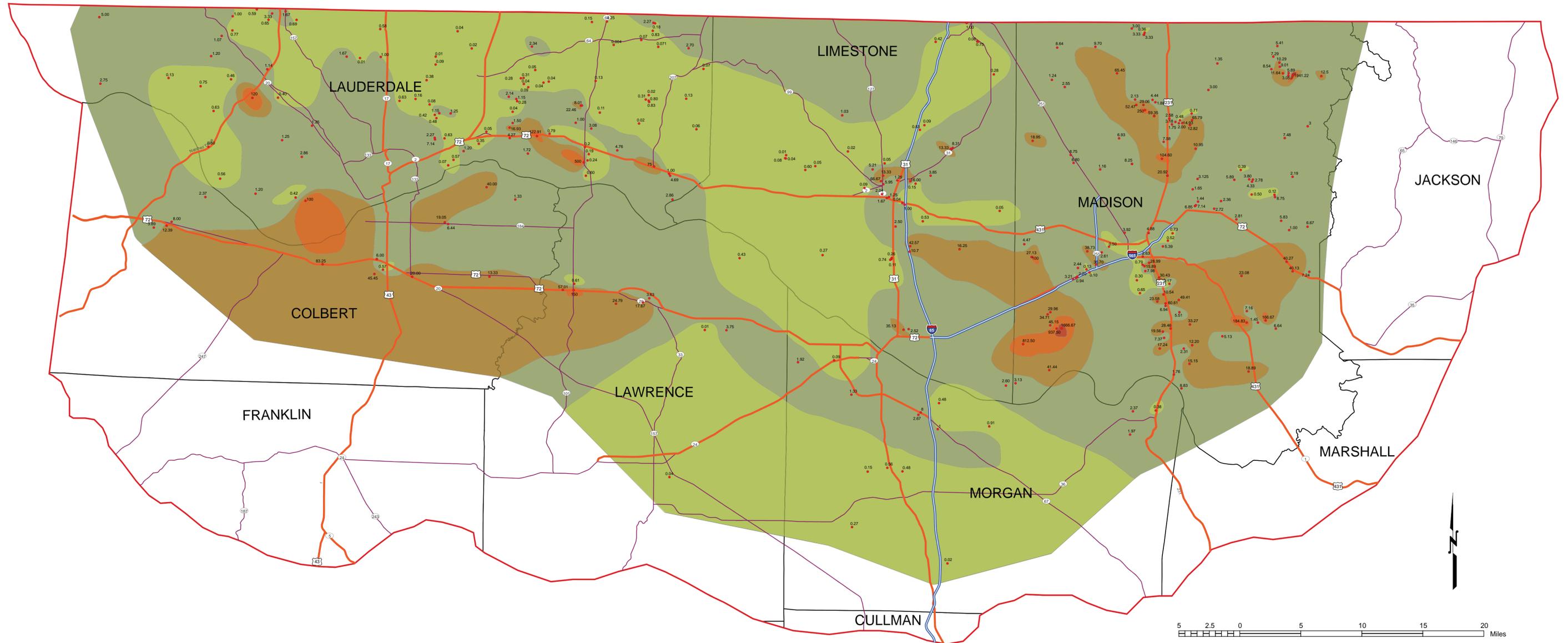
- |                                   |   |                                    |   |
|-----------------------------------|---|------------------------------------|---|
| Eutaw Formation                   | Bangor Limestone  | Fort Payne Chert                   | Tennessee River Valley groundwater irrigation assessment area |
| Gordo Formation                   | Hartselle Sandstone   | Chattanooga Shale                  | County boundary   |
| Pottsville Formation              | Monteagle Limestone   | Silurian System undifferentiated   | City  |
| Pottsville Formation (lower part) | Pride Mountain Formation  | Sequatchie Formation               | Well (pumping rate shown in gallons per minute)               |
| Parkwood Formation                | Pride Mountain Formation and Monteagle Limestone undifferentiated | Ordovician System undifferentiated |   |
| Pennington Formation              | Tusculmbia Limestone  | Water                              |   |

**Pumping Rates of Selected Wells in the Tennessee River Valley Groundwater Irrigation Assessment Area**

(geologic map modified from Geological Survey of Alabama, 2006)

By  
Stephen P. Jennings  
2011





**Explanation**

Specific Capacity (gallons per minute per foot of drawdown)

- > 1,000
- 100 - 1,000
- 10 - 100
- 1 - 10
- < 1

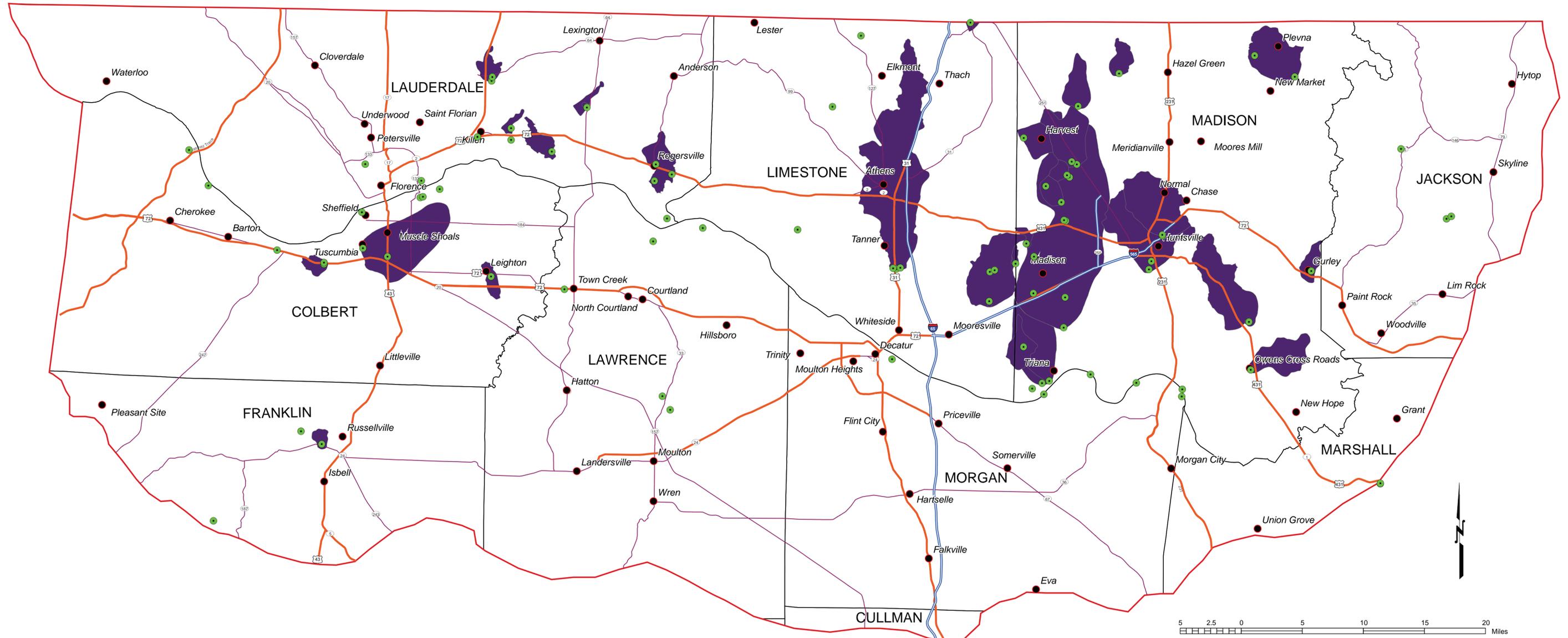
- Tennessee River Valley groundwater irrigation assessment area
- County boundary
- Wells with specific capacity

**Specific Capacities of Wells in the Tennessee River Valley Groundwater Irrigation Assessment Area**

By  
Stephen P. Jennings  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

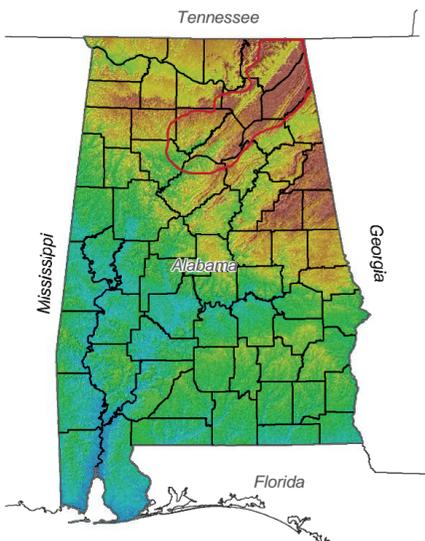
- Tennessee River Valley groundwater irrigation assessment area
- City
- County boundary
- Public water supply well
- Source water assessment area
- Limited access interstate
- Highway
- Major road
- ⓘ Interstate highway
- Ⓡ United States highway
- Ⓢ State highway

**Source Water Assessment Areas and Public Water Supply Wells in the Tennessee River Valley Groundwater Irrigation Assessment Area**

By  
Stephen P. Jennings  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High: 606  
 Low: 80  
 City

Sand Mountain groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road

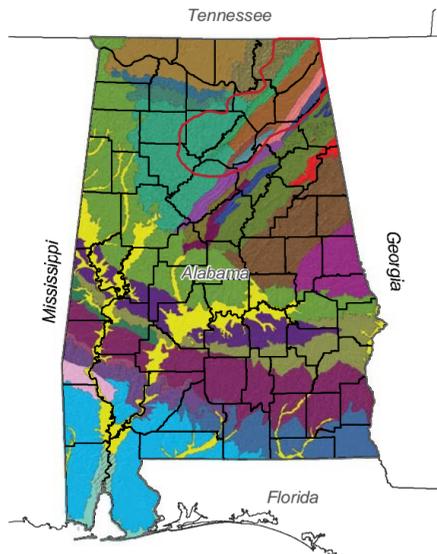
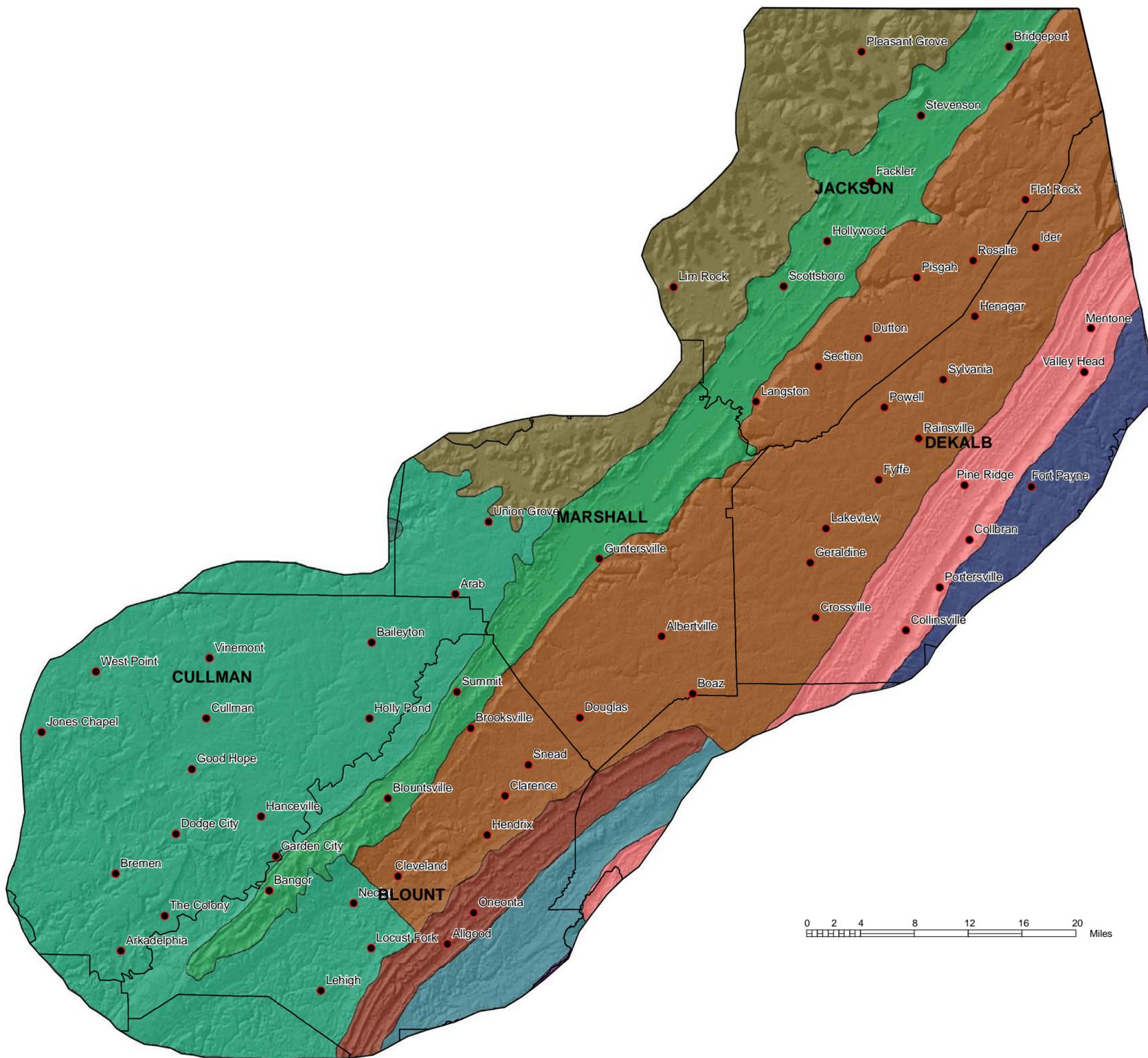
Interstate highway  
 United States highway  
 State highway

**LOCATION MAP FOR SAND MOUNTAIN ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

By  
 Neil Moss  
 2010



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

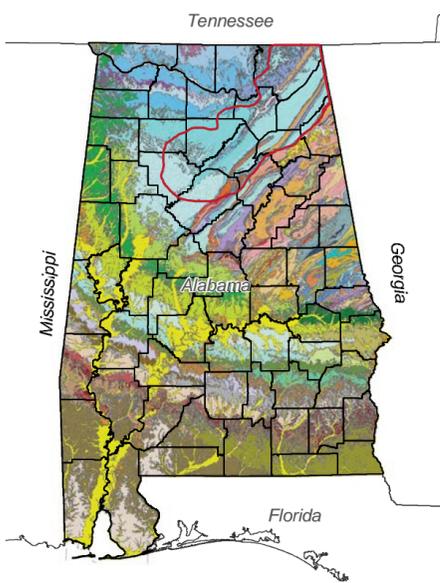
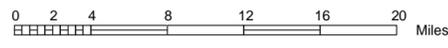
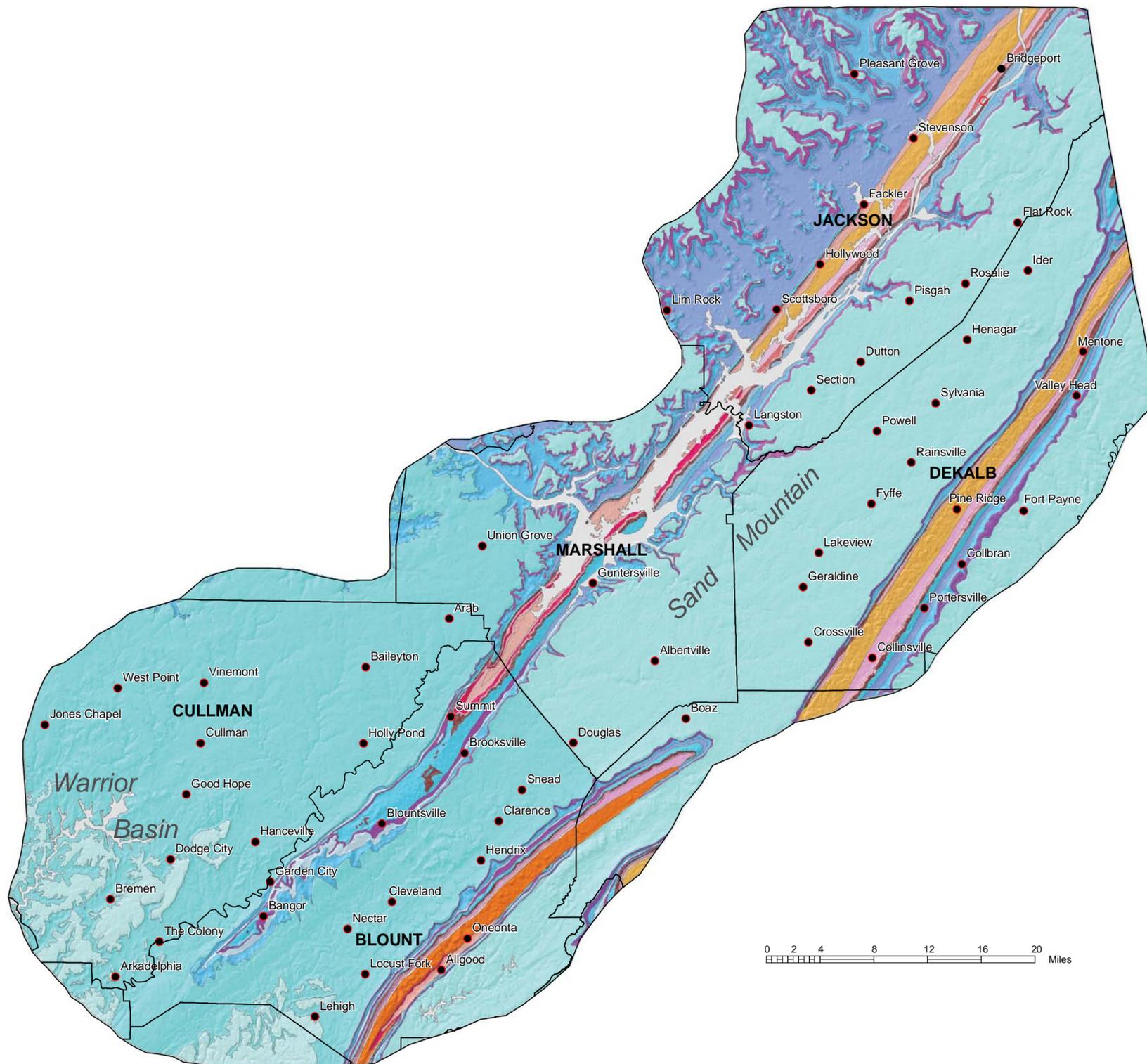
Blount Mountain	Moulton Valley	Sequatchie Valley	Sand Mountain groundwater irrigation assessment area
Jackson County Mountains	Murphrees Valley	Warrior Basin	County boundary
Lookout Mountain	Sand Mountain	Wills Valley	City

**PHYSIOGRAPHIC REGIONS FOR THE SAND MOUNTAIN  
GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(Modified from Sapp and Emplincourt, 1975)

By  
Neil Moss  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

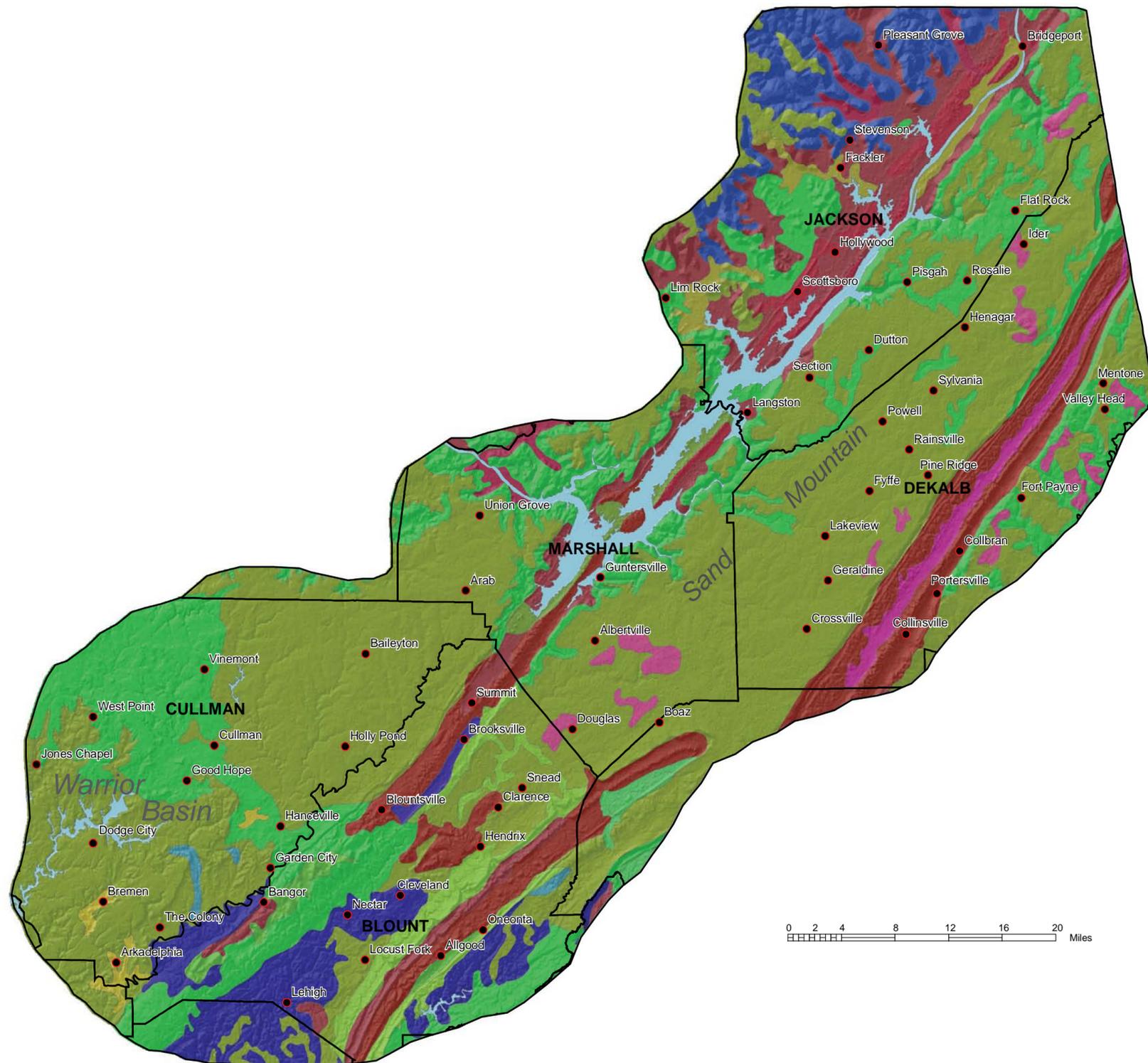
- |   |  |  |   |
|---|--|--|---|
| <p><b>Paleozoic</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Pottsville Formation upper part</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Pottsville Formation lower part</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Parkwood and Pennington Formations</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Pennington Formation</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00BFFF; border: 1px solid black; margin-right: 5px;"></span> Bangor Limestone</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Hartselle Sandstone</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #6666FF; border: 1px solid black; margin-right: 5px;"></span> Monteagle Limestone</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Pride Mountain Formation</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00BFFF; border: 1px solid black; margin-right: 5px;"></span> Tuscumbia Limestone</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00BFFF; border: 1px solid black; margin-right: 5px;"></span> Tuscumbia Limestone and Fort Payne Chert</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800000; border: 1px solid black; margin-right: 5px;"></span> Red Mountain Formation</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Sequatchie Formation</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FF00FF; border: 1px solid black; margin-right: 5px;"></span> Leipers Limestone</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Chickamauga Limestone</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FF0000; border: 1px solid black; margin-right: 5px;"></span> Nashville Group</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Stones River Group</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA500; border: 1px solid black; margin-right: 5px;"></span> Chepultepec and Copper Ridge Dolomites</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Knox Group undifferentiated</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FF00FF; border: 1px solid black; margin-right: 5px;"></span> Ketona Dolomite</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA500; border: 1px solid black; margin-right: 5px;"></span> Conasauga Formation</li> </ul> | <p><b>Other Symbols</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Water</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid red; margin-right: 5px;"></span> Sand Mountain groundwater irrigation assessment area</li> <li><span style="display: inline-block; width: 15px; border-bottom: 1px solid black; margin-right: 5px;"></span> County boundary</li> <li><span style="display: inline-block; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid black; margin-right: 5px;"></span> City</li> </ul> |
|---|--|--|---|

**GEOLOGIC MAP AND LOCATION OF PUBLIC WATER SUPPLY WELLS AND SOURCE WATER ASSESSMENT AREAS FOR THE SAND MOUNTAIN GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(Geology from Geological Survey of Alabama, 2006)

By  
Neil Moss  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

**Ultisols**

- Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
- Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
- Loamy, siliceous, subactive, thermic Lithic Hapludults
- Fine-loamy, siliceous, semiactive, thermic Aquic Hapludults
- Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults
- Typic Paleudults, Clayey, Kaolinitic, Thermic
- Typic Endoaquults, Clayey, Mixed, Thermic
- Typic Paleudults, Fine-loamy, Siliceous, Thermic

**Ultisols**

- Fine, mixed, semiactive, thermic Typic Hapludults
- Fine-loamy, siliceous, subactive, thermic Typic Paleudults

**Inceptisols**

- Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts
- Fine-Silty, mixed, active, thermic Fluvaquentic Dystrudepts
- Loamy-skeletal, mixed, subactive, thermic, Typic Dystrudepts

**Mollisols**

- Clayey, mixed, active, thermic Lithic Hapludults

**Alfisols**

- Fine, smectitic, thermic Vertic Hapludalfs
- Vertic Hapludalfs, Very-fine, Mixed, Thermic
- Typic Hapludalfs, Fine, Mixed, Thermic

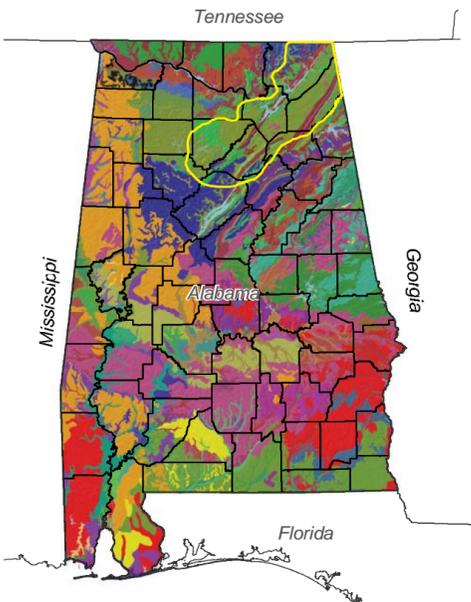
**Entisols**

- Loamy-skeletal, mixed, active, acid, thermic Typic Udorthents

Sand Mountain groundwater irrigation assessment area

County boundary

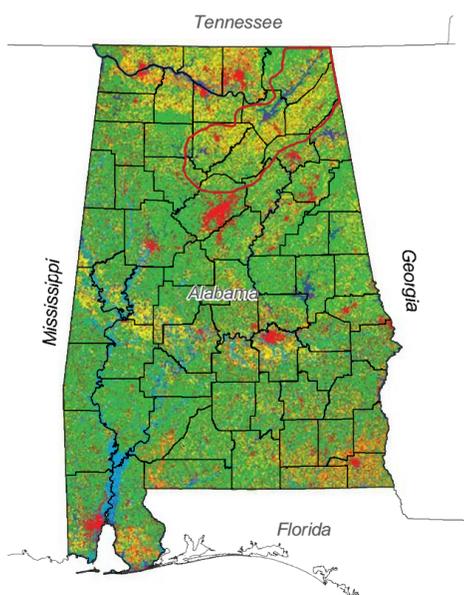
● City



Berry H. (Nick) Tew, Jr.  
State Geologist

**SOIL ORDER AND TAXONOMIC CLASSIFICATION FOR THE SAND MOUNTAIN  
GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(Modified from USDA-NRCS: Web Soil Survey, 2009)

By  
Neil Moss  
2010

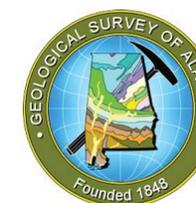


**Explanation**

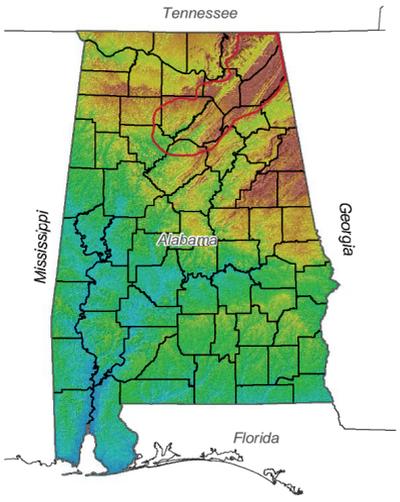
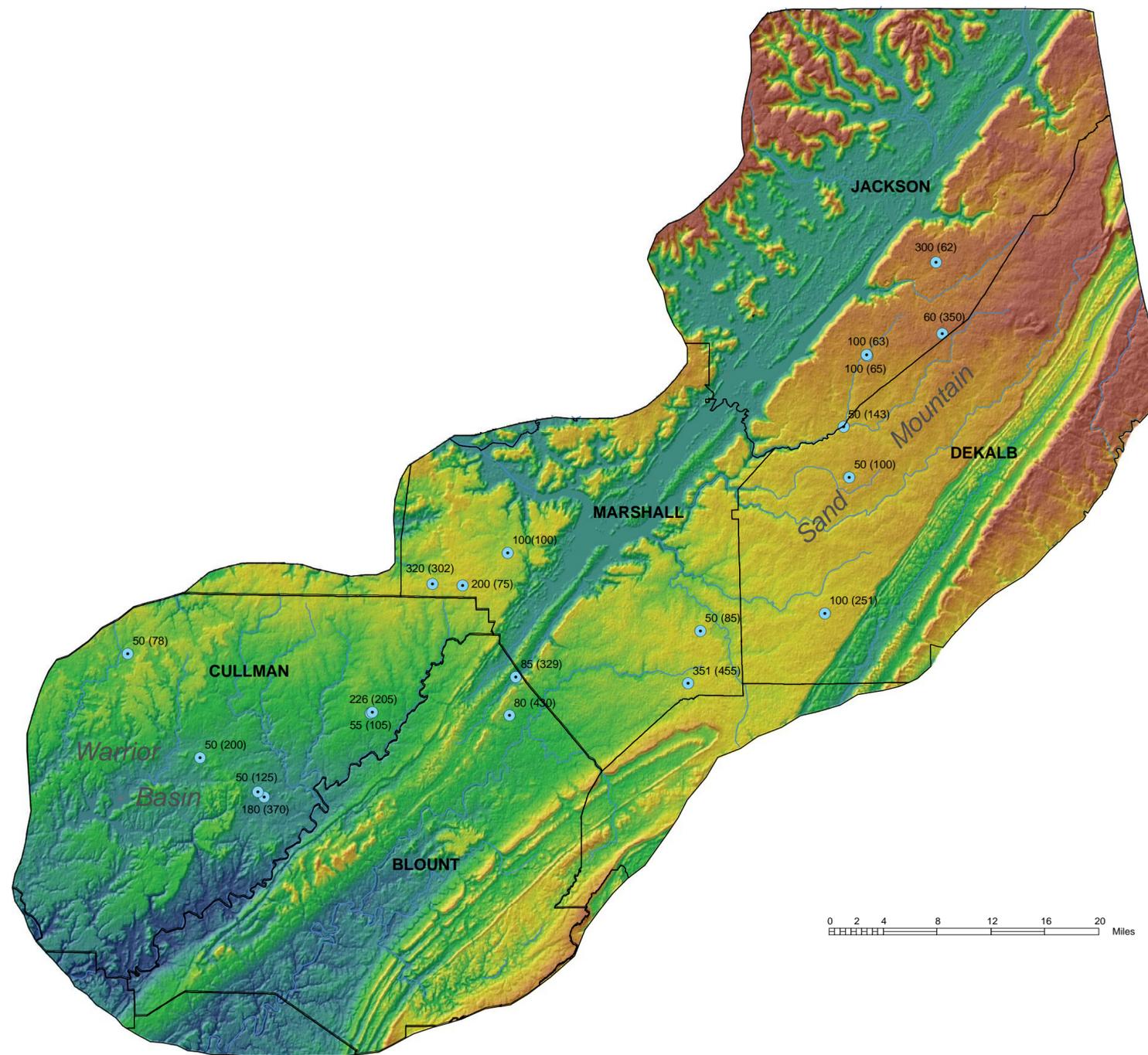
<b>LULC Classification</b>		<b>Other Symbols</b>	
Row Crops	Forest	Developed	Sand Mountain groundwater irrigation assessment area
Seed/Sod Grass	Pecans	Barren	County boundary
Pasture/Hay	Aquaculture	Grassland Herbaceous	City
	Open Water	Wetlands	

**LAND-USE/LAND-COVER CLASSIFICATION FOR THE SAND MOUNTAIN  
GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(Modified from the USDA-Cropland Data Layer for Delta States, 2010)

By  
Neil Moss  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

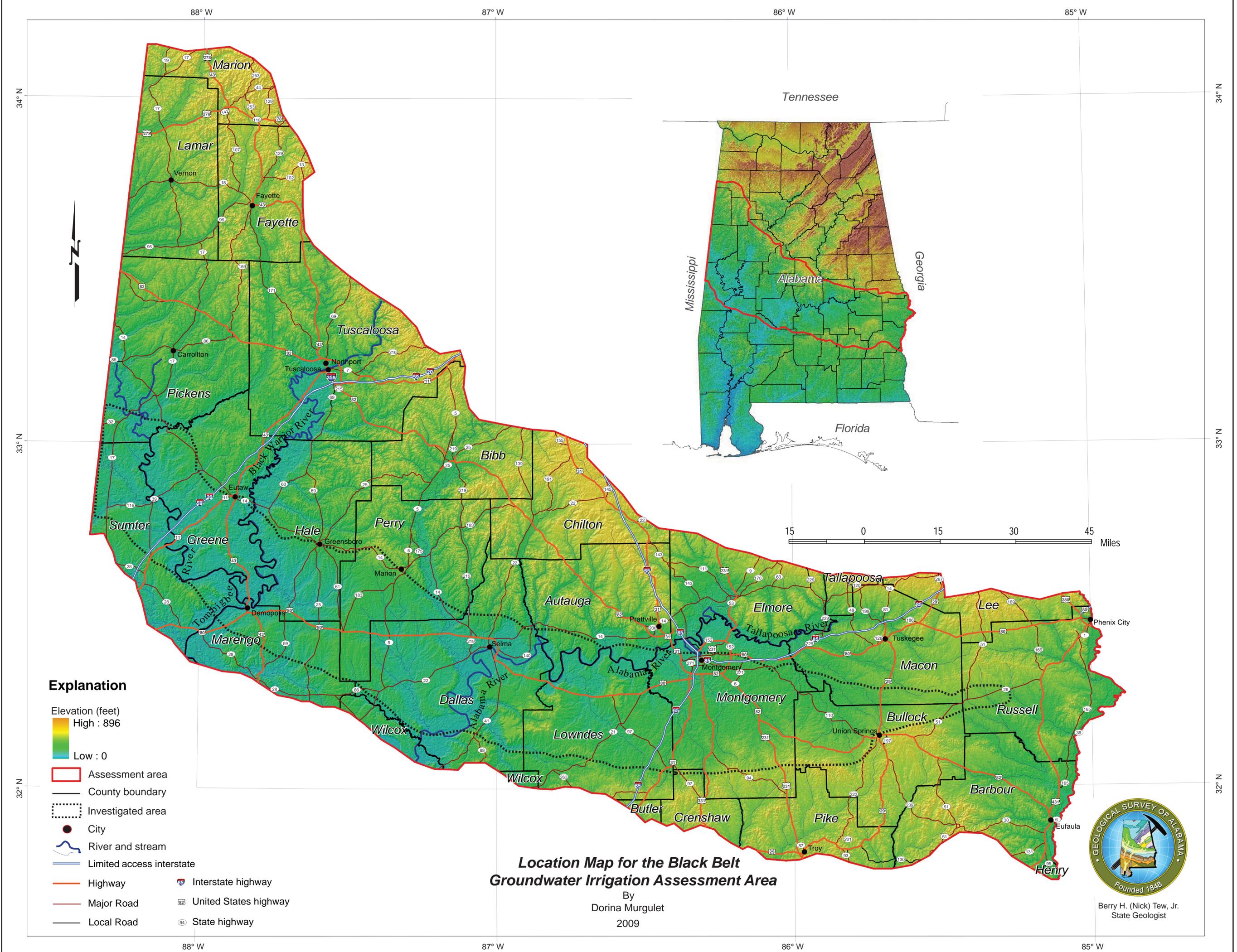
- Elevation in feet above NGVD 1929
  - High : 1,880
  - Low : 269
- Water wells  
GPM (Well Depth)
- Sand Mountain groundwater irrigation assessment area
- County boundary
- Rivers

**WELLS WITH PUMPING RATES >50 GPM IN THE SAND MOUNTAIN  
GROUNDWATER IRRIGATION ASSESSMENT AREA**

By  
Neil Moss  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation (feet)  
 High : 896  
 Low : 0

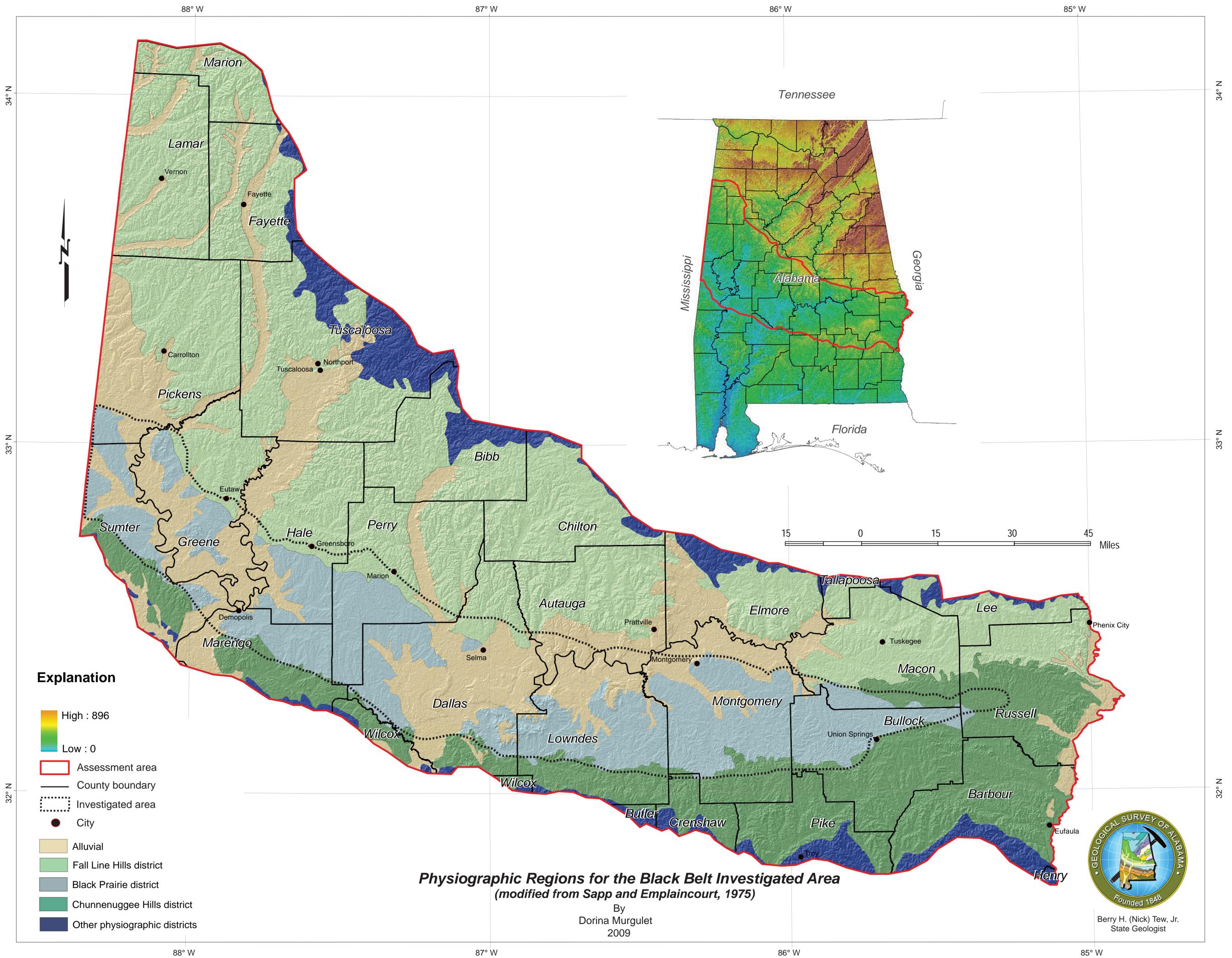
- Assessment area
- County boundary
- Investigated area
- City
- River and stream
- Limited access interstate
- Highway
- Interstate highway
- Major Road
- United States highway
- Local Road
- State highway

**Location Map for the Black Belt  
 Groundwater Irrigation Assessment Area**

By  
 Dorina Murgulet  
 2009



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

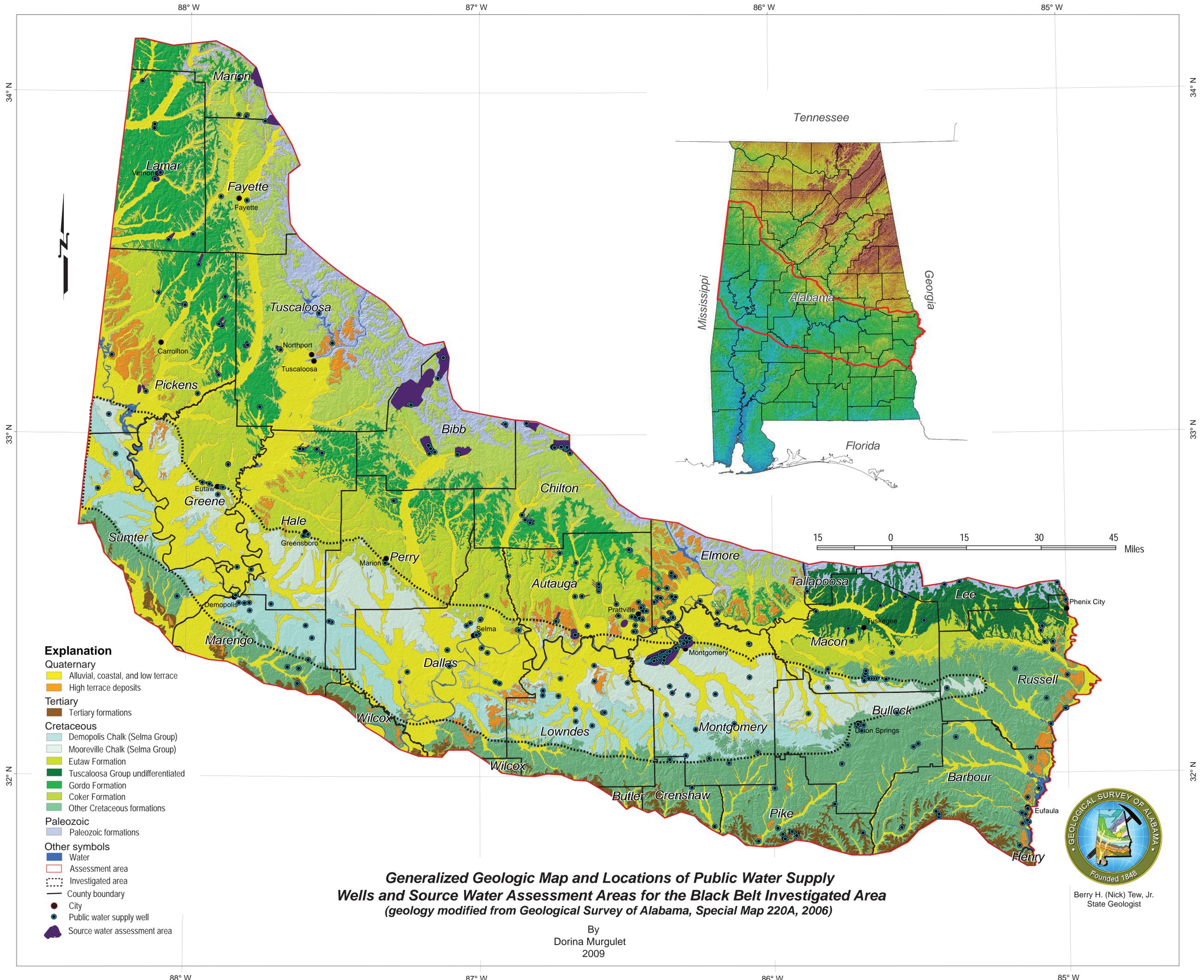
- High : 896
- Low : 0
- Assessment area
- County boundary
- Investigated area
- City
- Alluvial
- Fall Line Hills district
- Black Prairie district
- Chunnenugee Hills district
- Other physiographic districts

**Physiographic Regions for the Black Belt Investigated Area**  
(modified from Sapp and Emplaincourt, 1975)

By  
Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

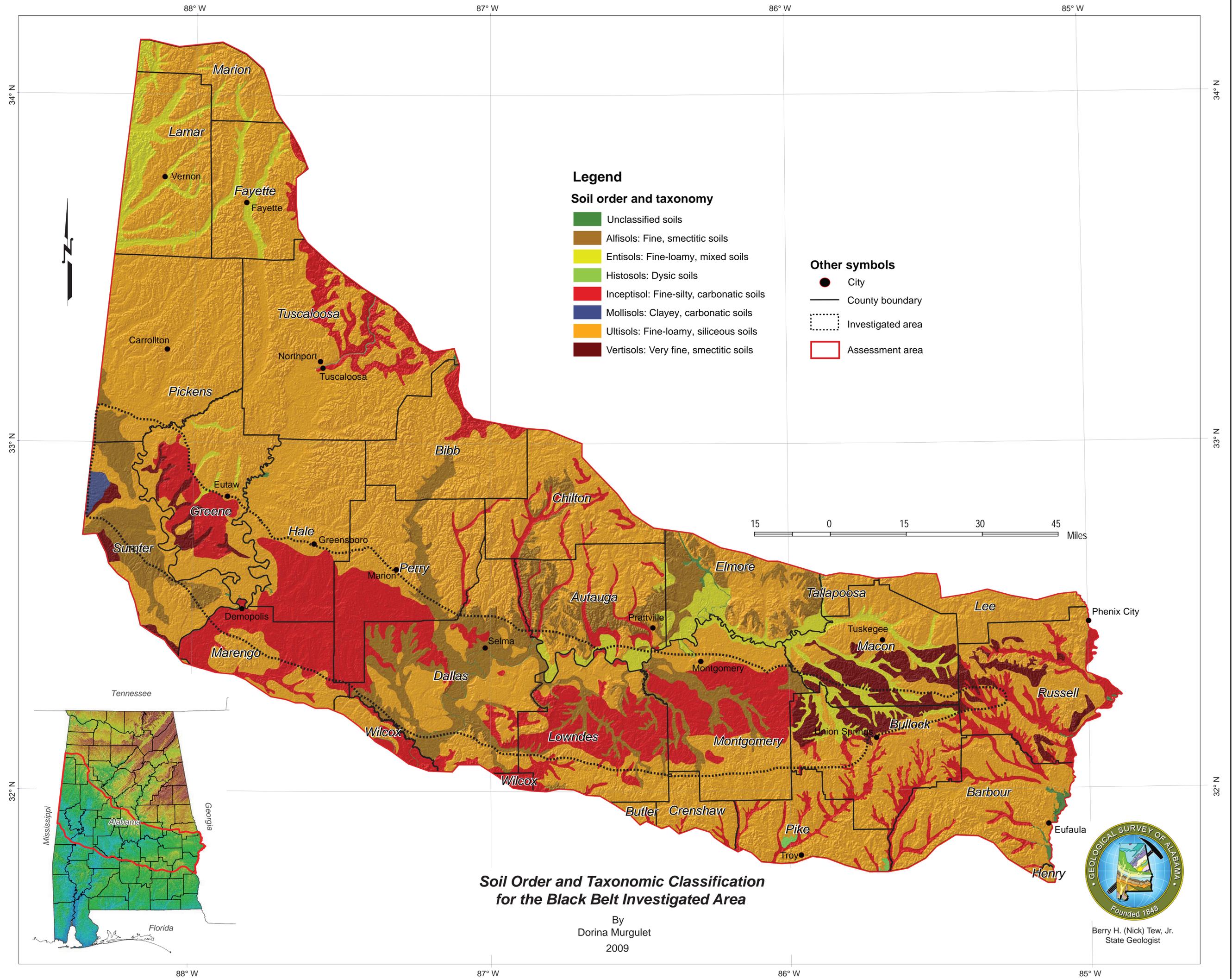
- Quaternary**
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary**
  - Tertiary formations
- Cretaceous**
  - Demopolis Chalk (Selma Group)
  - Mooreville Chalk (Selma Group)
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations
- Paleozoic**
  - Paleozoic formations
- Other symbols**
  - Water
  - Assessment area
  - Investigated area
  - County boundary
  - City
  - Public water supply well
  - Source water assessment area

**Generalized Geologic Map and Locations of Public Water Supply  
Wells and Source Water Assessment Areas for the Black Belt Investigated Area**  
(geology modified from Geological Survey of Alabama, Special Map 220A, 2006)

By  
Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



88° W 87° W 86° W 85° W

34° N

34° N

33° N

33° N

32° N

32° N

88° W 87° W 86° W 85° W

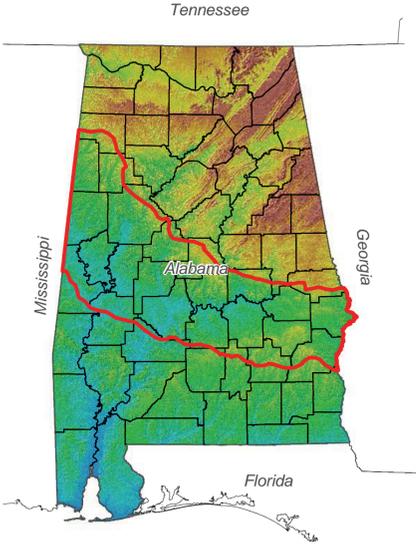
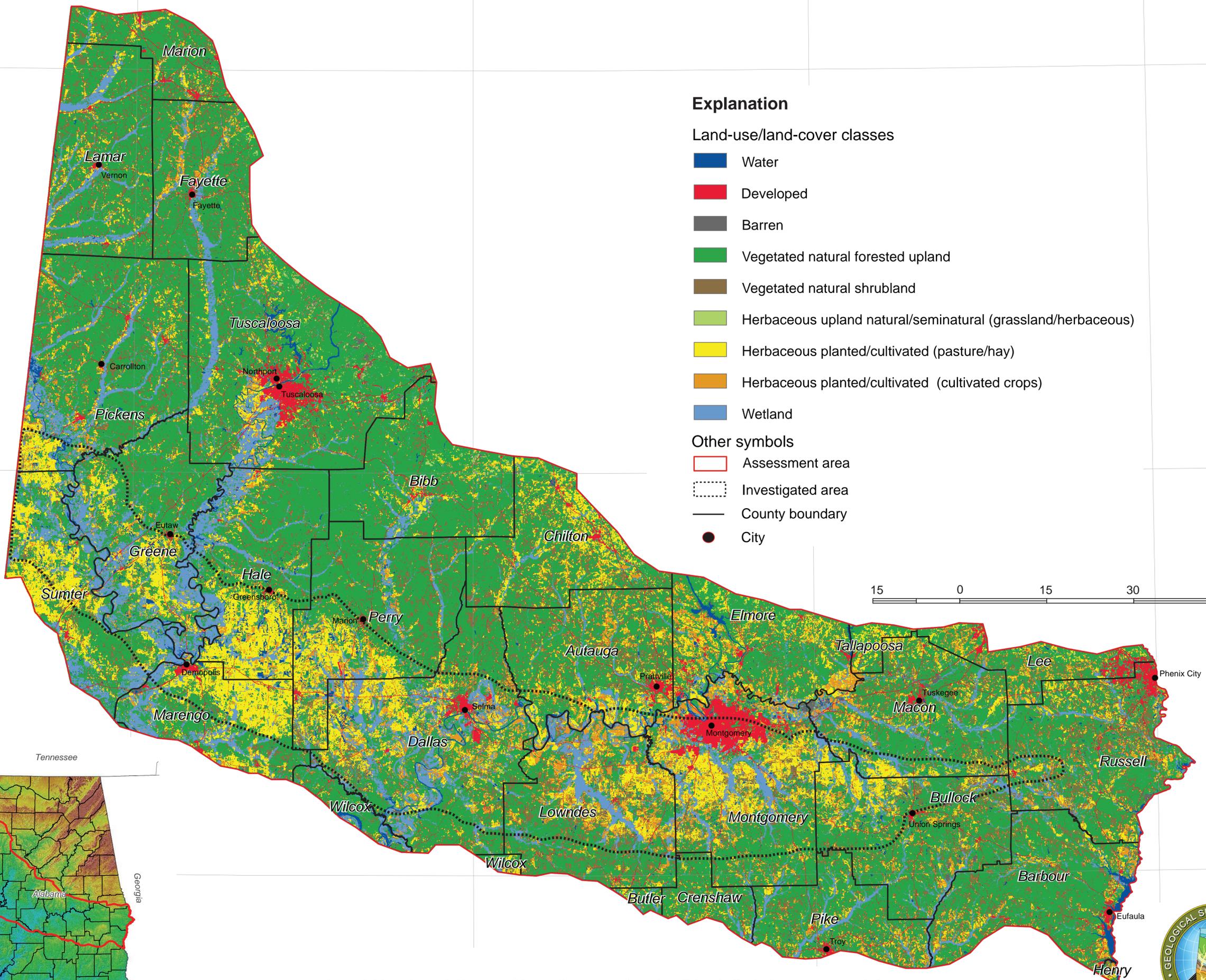
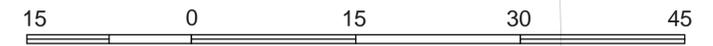
**Explanation**

Land-use/land-cover classes

-  Water
-  Developed
-  Barren
-  Vegetated natural forested upland
-  Vegetated natural shrubland
-  Herbaceous upland natural/seminatural (grassland/herbaceous)
-  Herbaceous planted/cultivated (pasture/hay)
-  Herbaceous planted/cultivated (cultivated crops)
-  Wetland

Other symbols

-  Assessment area
-  Investigated area
-  County boundary
-  City

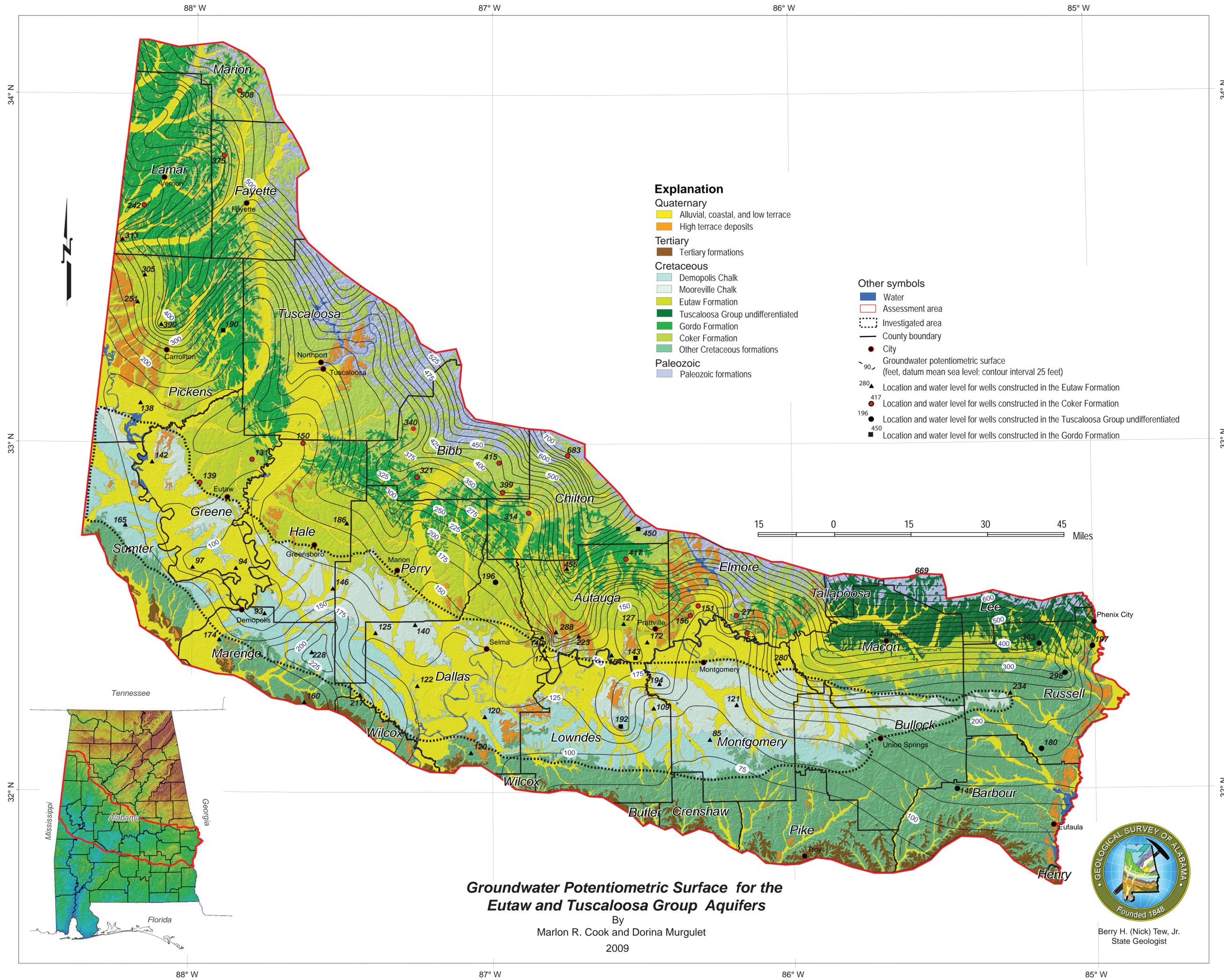


**Land-Use/Land-Cover Classification for the Black Belt Investigated Area**  
(modified from Homer and others, 2004)

By  
Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist

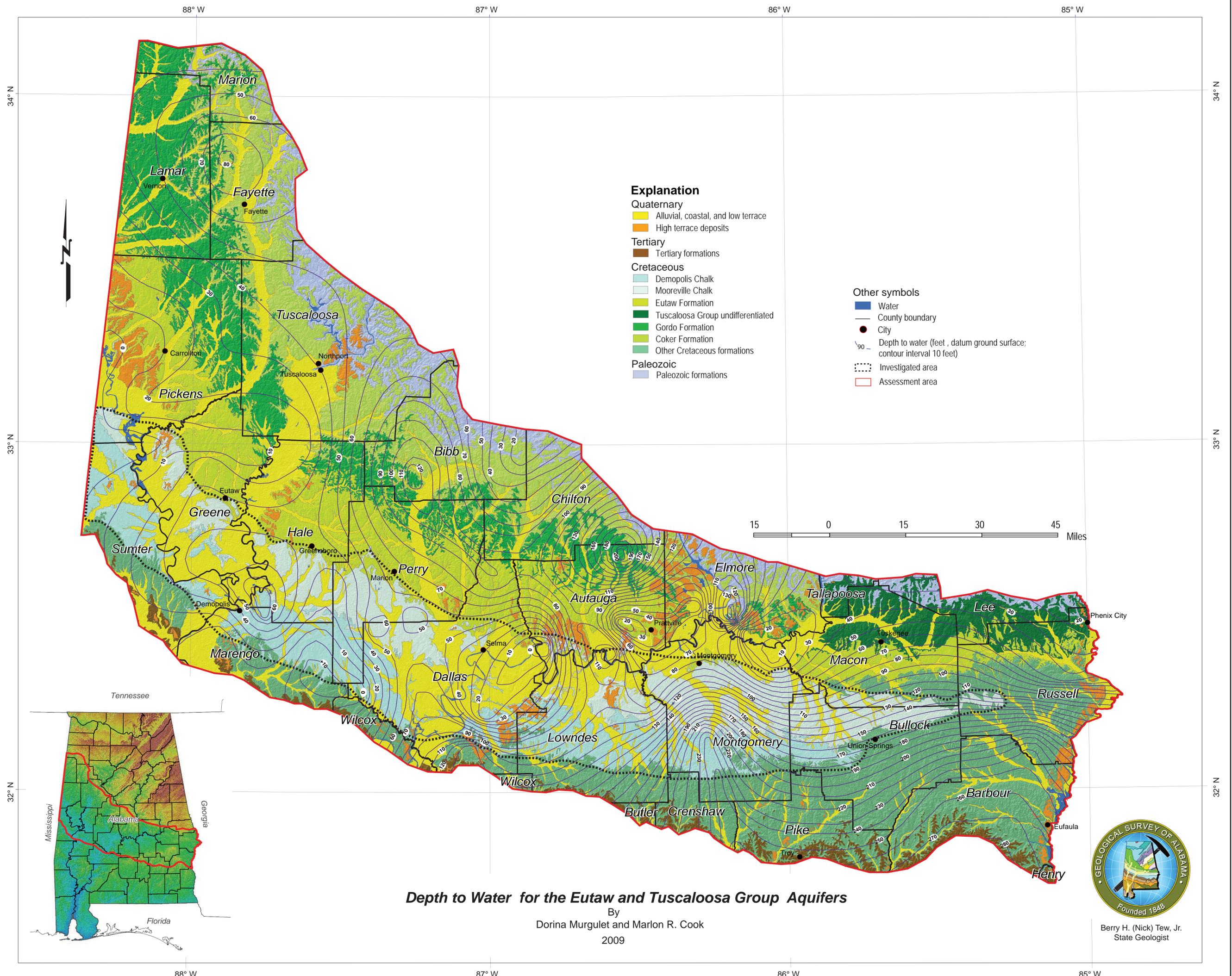


**Groundwater Potentiometric Surface for the Eutaw and Tuscaloosa Group Aquifers**

By  
Marlon R. Cook and Dorina Murgulet  
2009

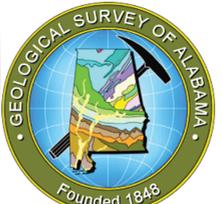


Berry H. (Nick) Tew, Jr.  
State Geologist

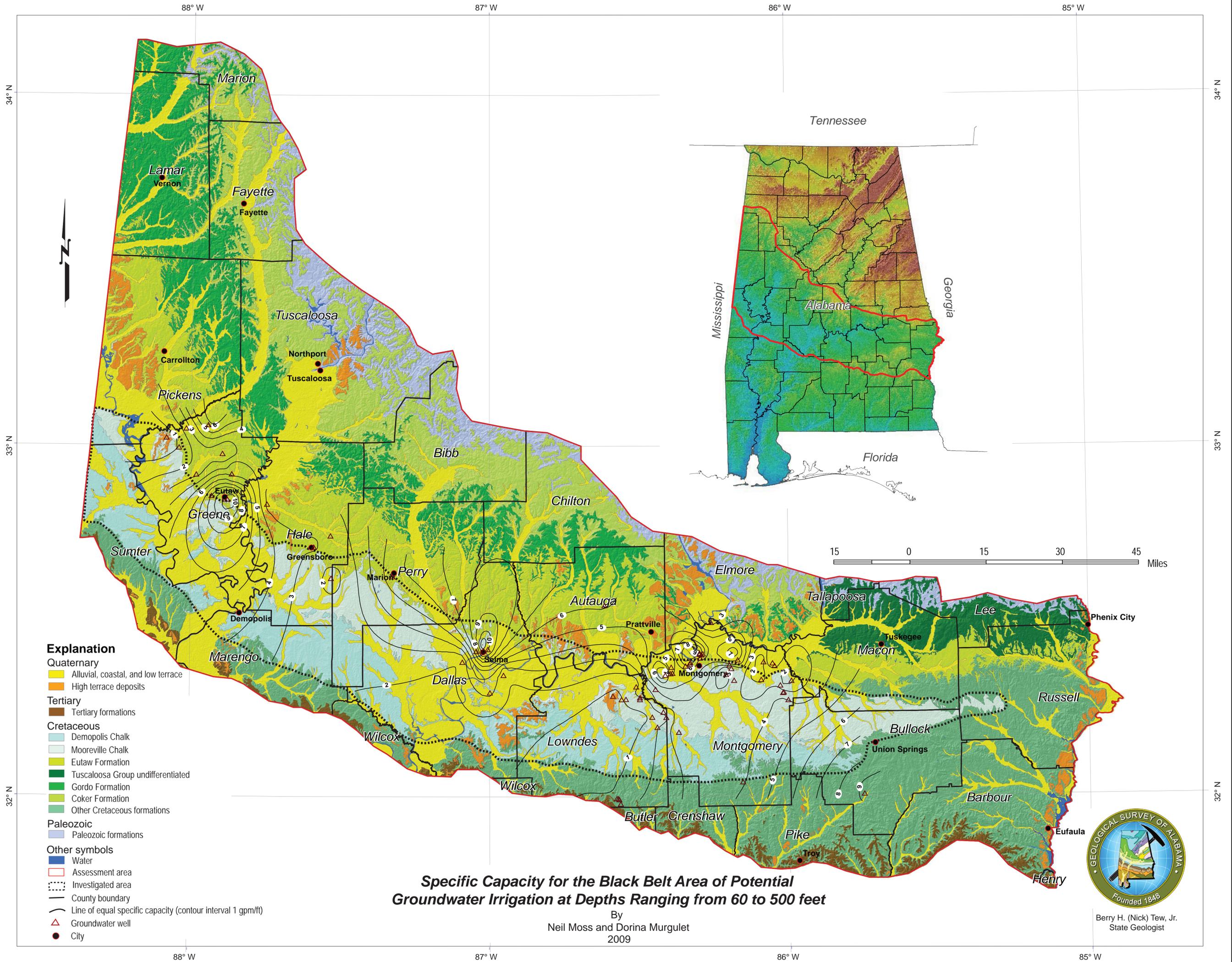


**Depth to Water for the Eutaw and Tuscaloosa Group Aquifers**

By  
Dorina Murgulet and Marlon R. Cook  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits

- Tertiary
  - Tertiary formations

- Cretaceous
  - Demopolis Chalk
  - Mooreville Chalk
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations

- Paleozoic
  - Paleozoic formations

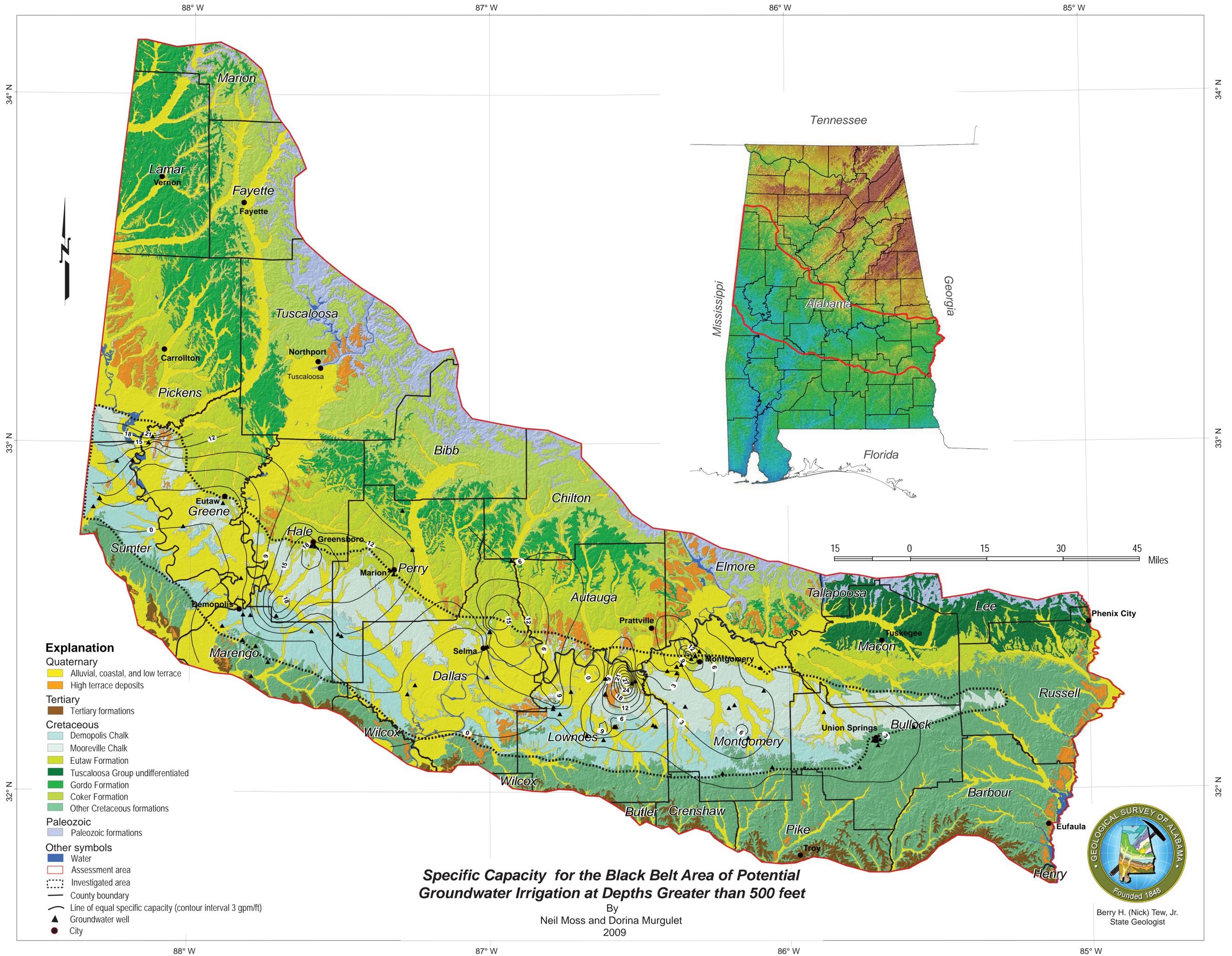
- Other symbols
  - Water
  - Assessment area
  - Investigated area
  - County boundary
  - Line of equal specific capacity (contour interval 1 gpm/ft)
  - Groundwater well
  - City

**Specific Capacity for the Black Belt Area of Potential Groundwater Irrigation at Depths Ranging from 60 to 500 feet**

By  
Neil Moss and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

**Quaternary**

- Alluvial, coastal, and low terrace
- High terrace deposits

**Tertiary**

- Tertiary formations

**Cretaceous**

- Demopolis Chalk
- Mooreville Chalk
- Eutaw Formation
- Tuscaloosa Group undifferentiated
- Gordo Formation
- Coker Formation
- Other Cretaceous formations

**Paleozoic**

- Paleozoic formations

**Other symbols**

- Water
- Assessment area
- Investigated area
- County boundary
- Line of equal specific capacity (contour interval 3 gpm/ft)
- Groundwater well
- City

**Specific Capacity for the Black Belt Area of Potential Groundwater Irrigation at Depths Greater than 500 feet**

By  
Neil Moss and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist

88° W 87° W 86° W 85° W

34° N

34° N

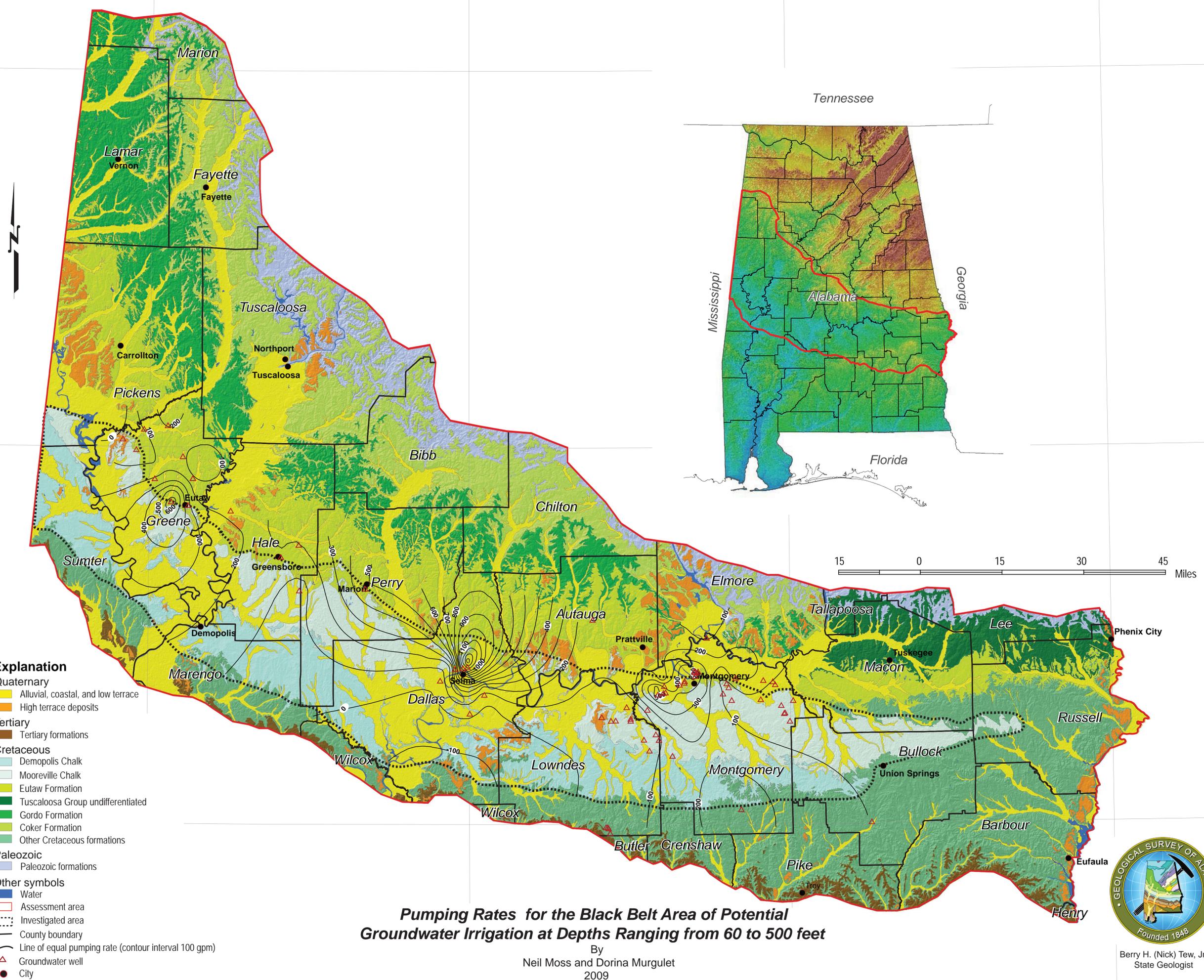
33° N

33° N

32° N

32° N

88° W 87° W 86° W 85° W



**Explanation**

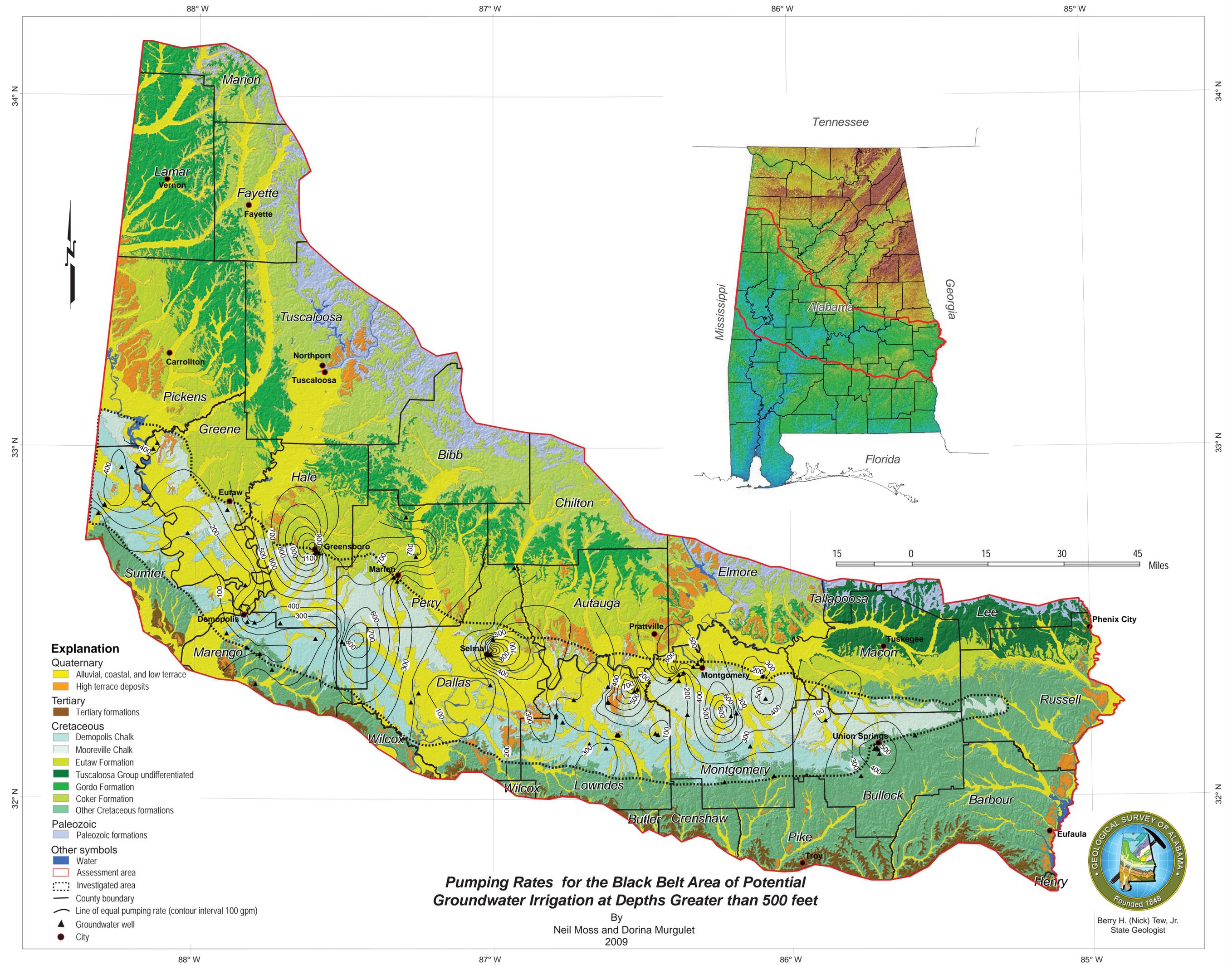
- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Tertiary formations
- Cretaceous
  - Demopolis Chalk
  - Mooreville Chalk
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations
- Paleozoic
  - Paleozoic formations
- Other symbols
  - Water
  - Assessment area
  - Investigated area
  - County boundary
  - Line of equal pumping rate (contour interval 100 gpm)
  - Groundwater well
  - City

**Pumping Rates for the Black Belt Area of Potential Groundwater Irrigation at Depths Ranging from 60 to 500 feet**

By  
Neil Moss and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

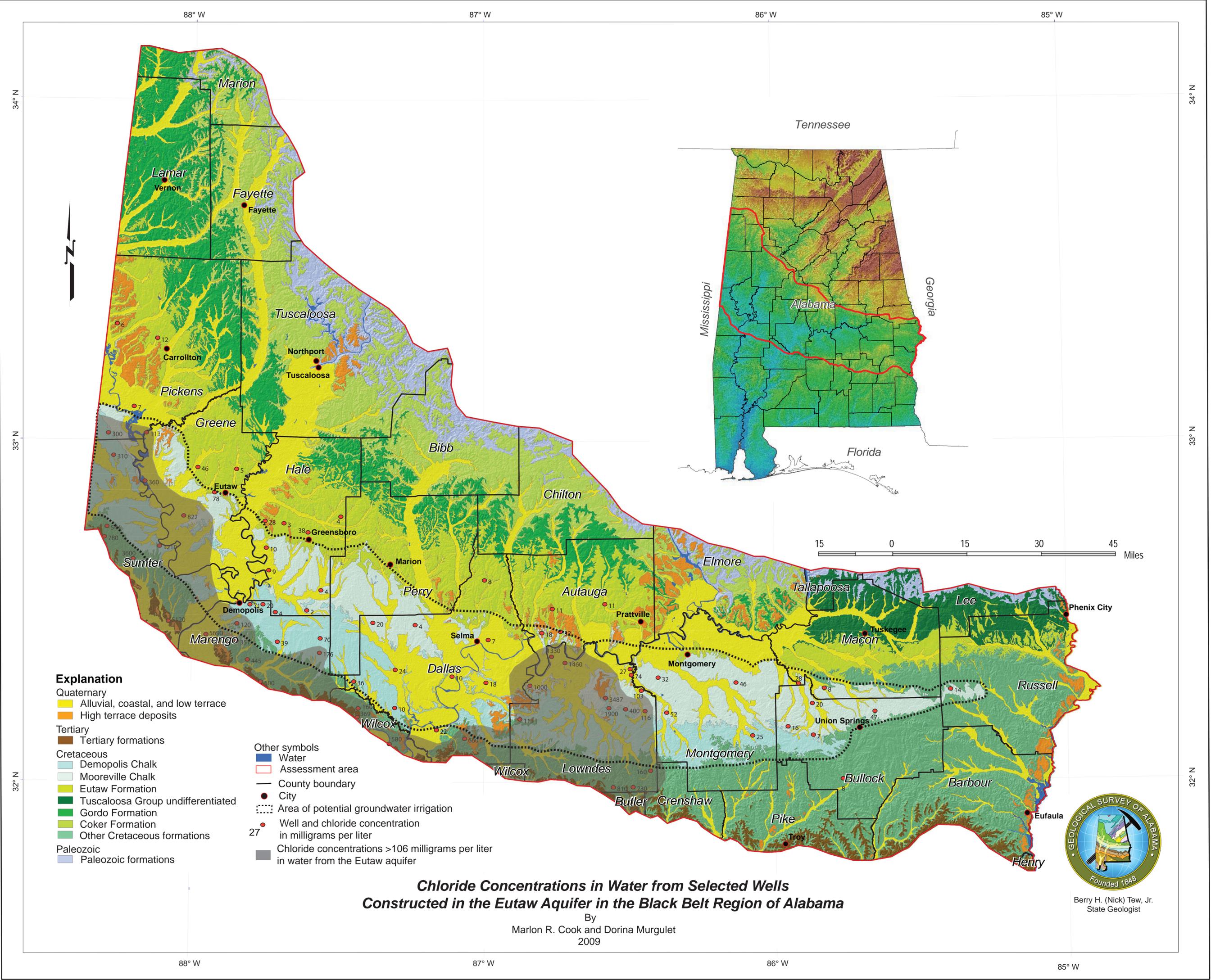
- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Tertiary formations
- Cretaceous
  - Demopolis Chalk
  - Mooreville Chalk
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations
- Paleozoic
  - Paleozoic formations
- Other symbols
  - Water
  - Assessment area
  - ⋯ Investigated area
  - County boundary
  - Line of equal pumping rate (contour interval 100 gpm)
  - ▲ Groundwater well
  - City

**Pumping Rates for the Black Belt Area of Potential Groundwater Irrigation at Depths Greater than 500 feet**

By  
Neil Moss and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



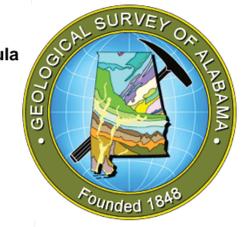
**Explanation**

- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Tertiary formations
- Cretaceous
  - Demopolis Chalk
  - Mooreville Chalk
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations
- Paleozoic
  - Paleozoic formations

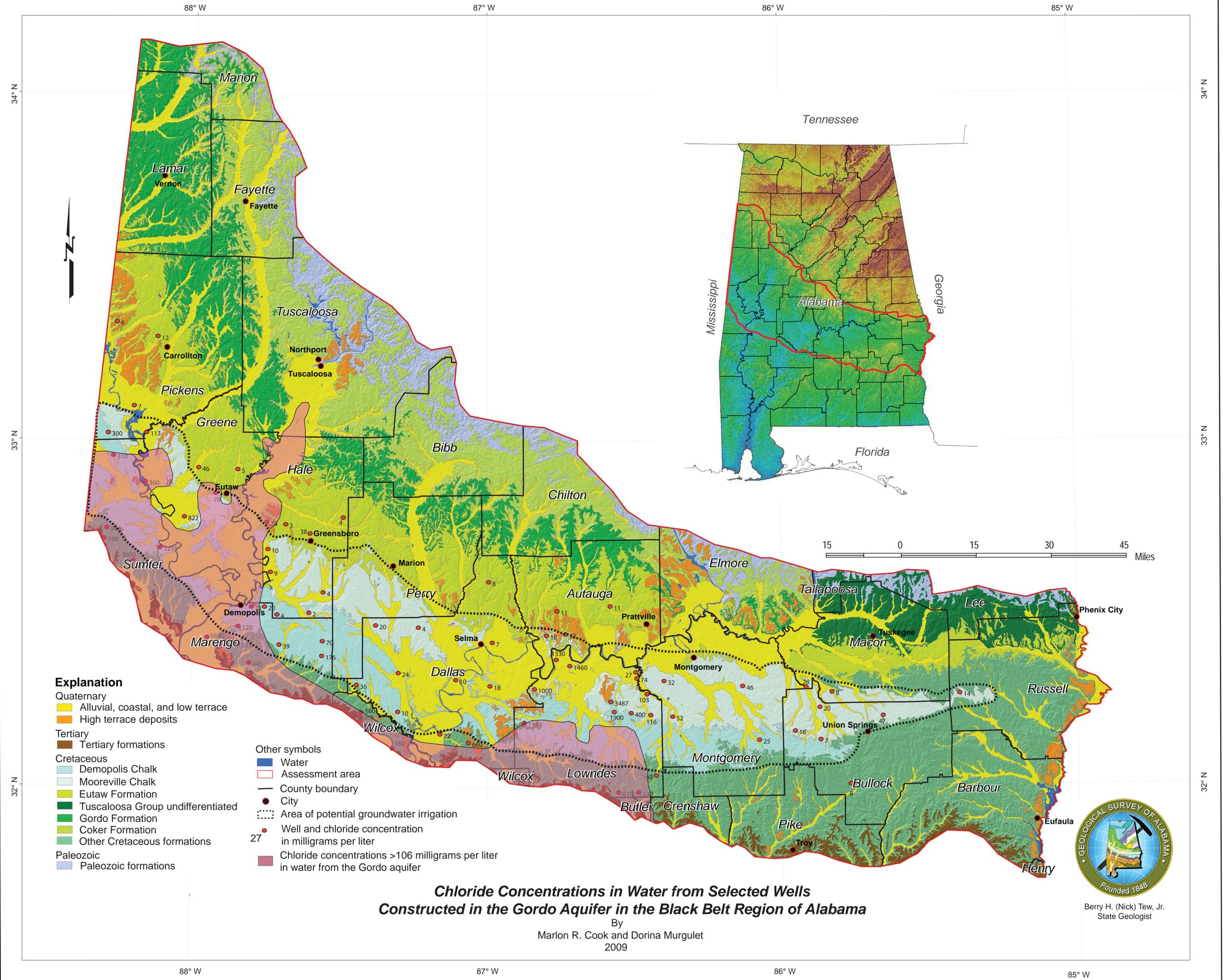
- Other symbols
  - Water
  - Assessment area
  - County boundary
  - City
  - Area of potential groundwater irrigation
  - Well and chloride concentration in milligrams per liter
  - Chloride concentrations >106 milligrams per liter in water from the Eutaw aquifer

**Chloride Concentrations in Water from Selected Wells  
Constructed in the Eutaw Aquifer in the Black Belt Region of Alabama**

By  
Marlon R. Cook and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Tertiary formations
- Cretaceous
  - Demopolis Chalk
  - Mooreville Chalk
  - Eutaw Formation
  - Tuscaloosa Group undifferentiated
  - Gordo Formation
  - Coker Formation
  - Other Cretaceous formations
- Paleozoic
  - Paleozoic formations

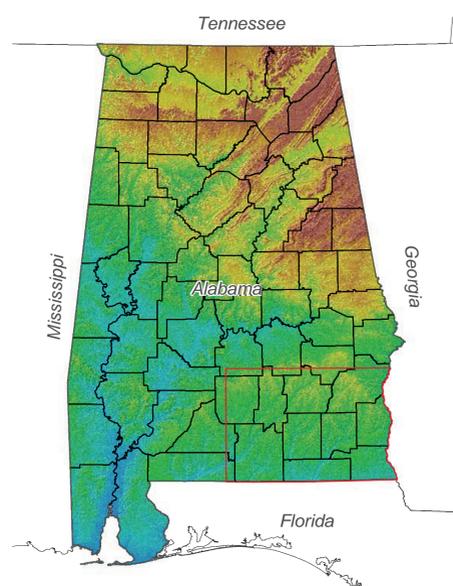
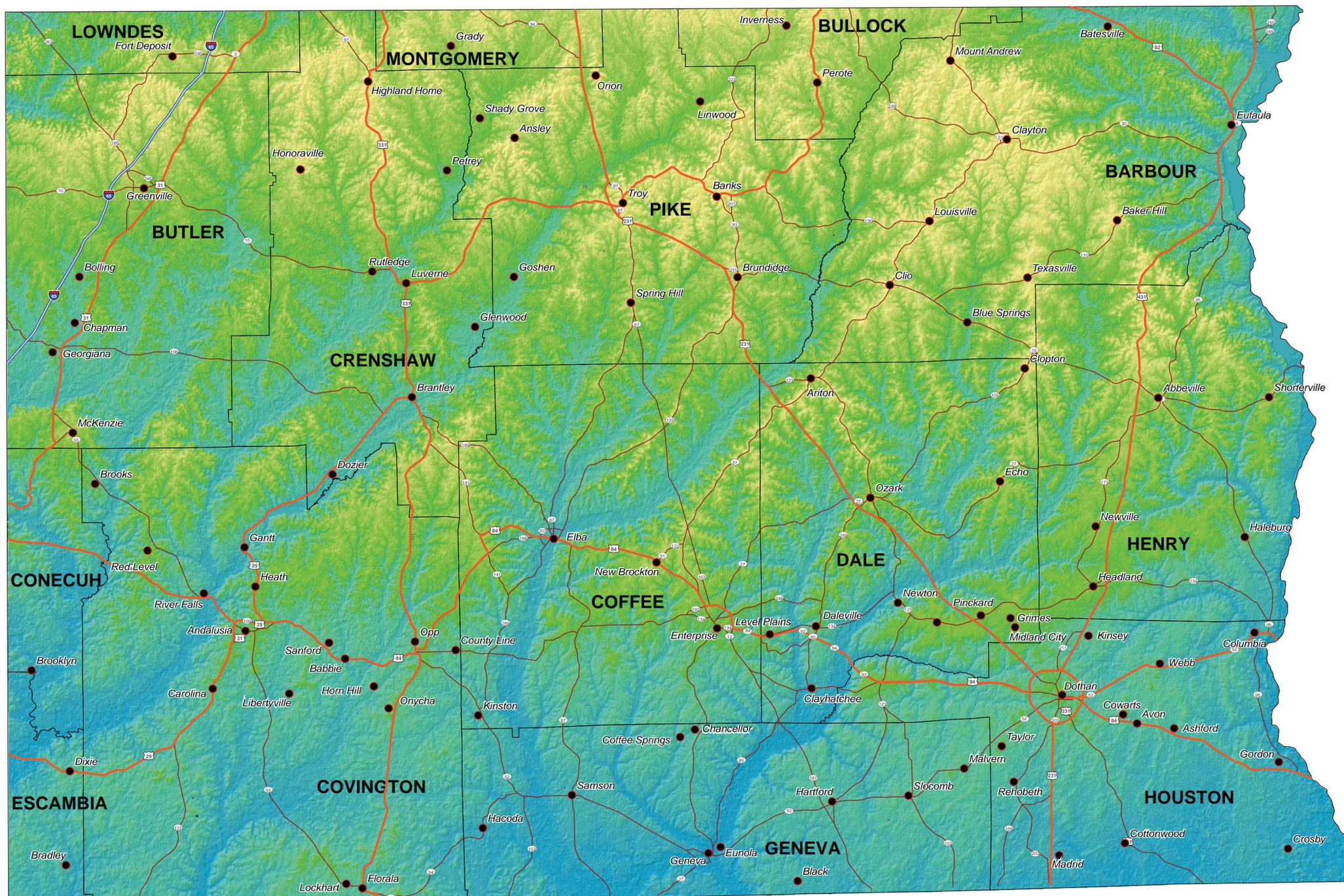
**Other symbols**

- Water
- Assessment area
- County boundary
- City
- Area of potential groundwater irrigation
- Well and chloride concentration in milligrams per liter
- Chloride concentrations >106 milligrams per liter in water from the Gordo aquifer

**Chloride Concentrations in Water from Selected Wells  
Constructed in the Gordo Aquifer in the Black Belt Region of Alabama**  
By  
Marlon R. Cook and Dorina Murgulet  
2009



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

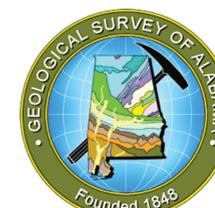
Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road

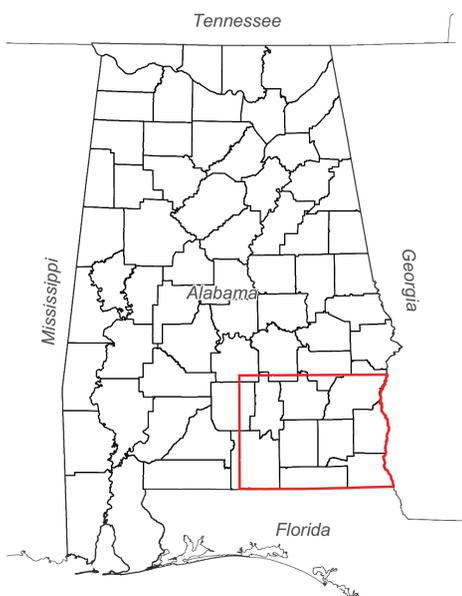
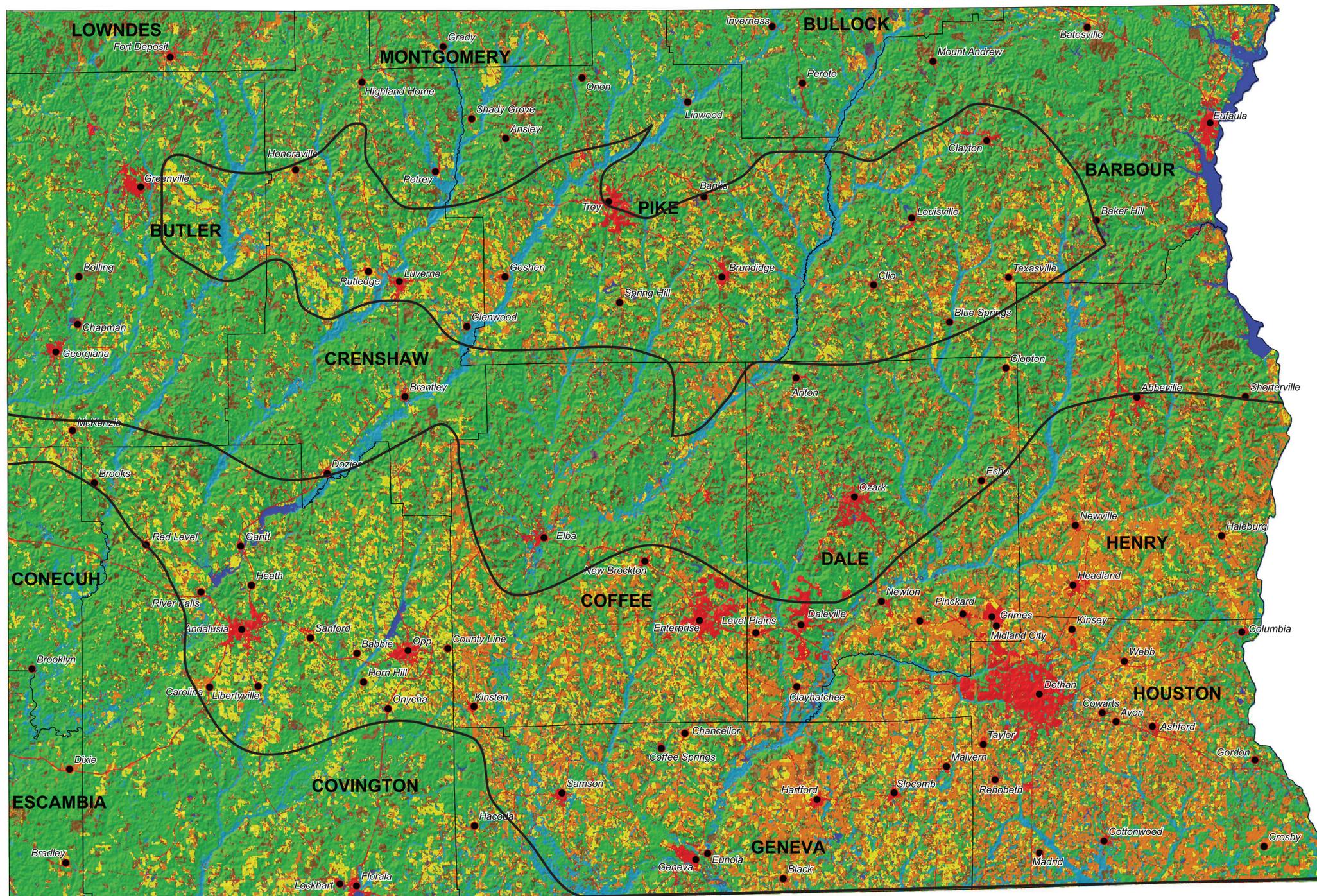
Interstate highway  
 United States highway  
 State highway

**Location Map for the South East Alabama Groundwater Irrigation Assessment Area**

By  
 Dorina Murgulet  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

LULC classification

- Water
- Developed
- Barren
- Vegetated; natural forested upland

- Herbaceous upland natural/seminatural (grassland/herbaceous)
- Herbaceous planted/cultivated (pasture/hay)
- Herbaceous planted/cultivated (cultivated crops)
- Wetlands

- Vegetated natural shrubland

Other symbols

- Southeast Alabama groundwater irrigation assessment area
- County boundary
- City
- Area dominated by agricultural land use

**Land-Use/Land-Cover Classification for the Southeast Alabama Groundwater Irrigation Assessment Area**

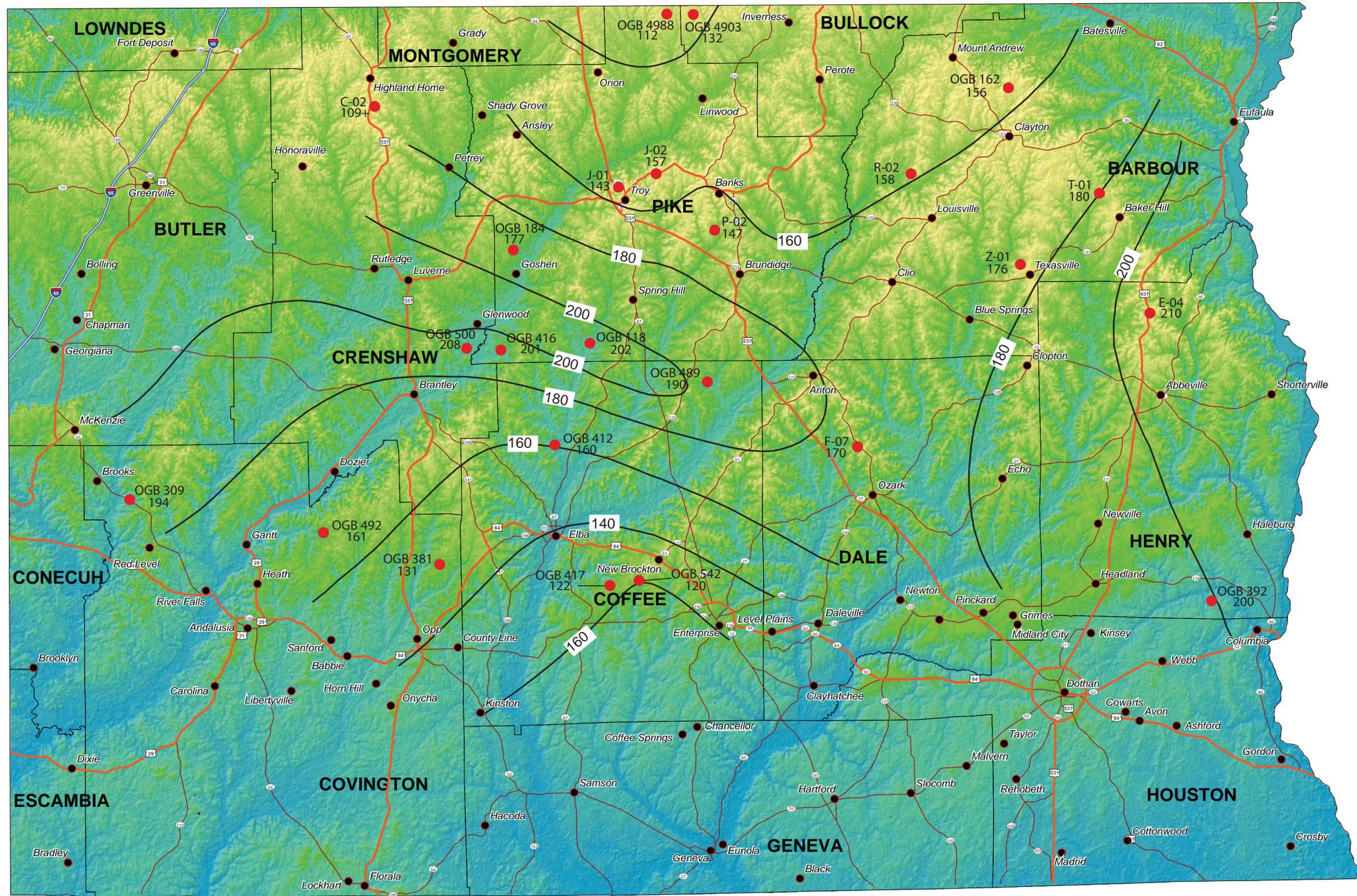
(LULC- modified from the USDA-Cropland Data Layer for Southeast States, 2010)

By  
Dorina Murgulet

2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

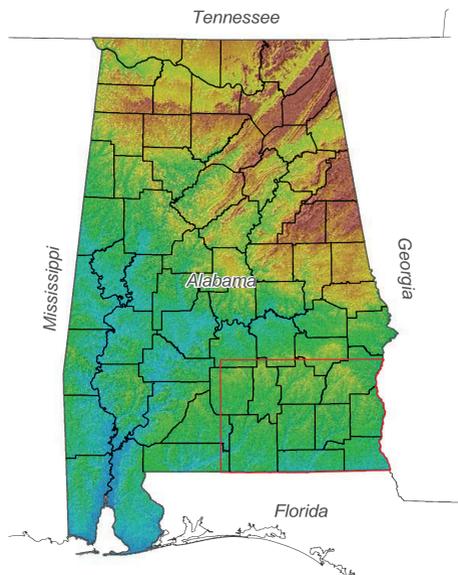
Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers  
 F-07 170 Gordo well and net sand value (ft.)

Limited access interstate  
 Highway  
 Major road  
 Gordo line of equal net sand (contour interval 20 ft.)

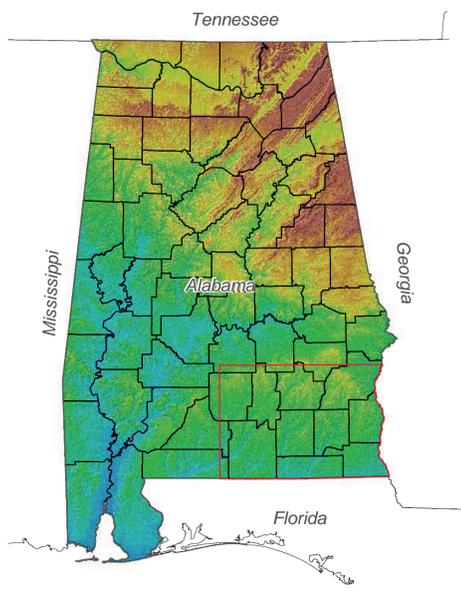
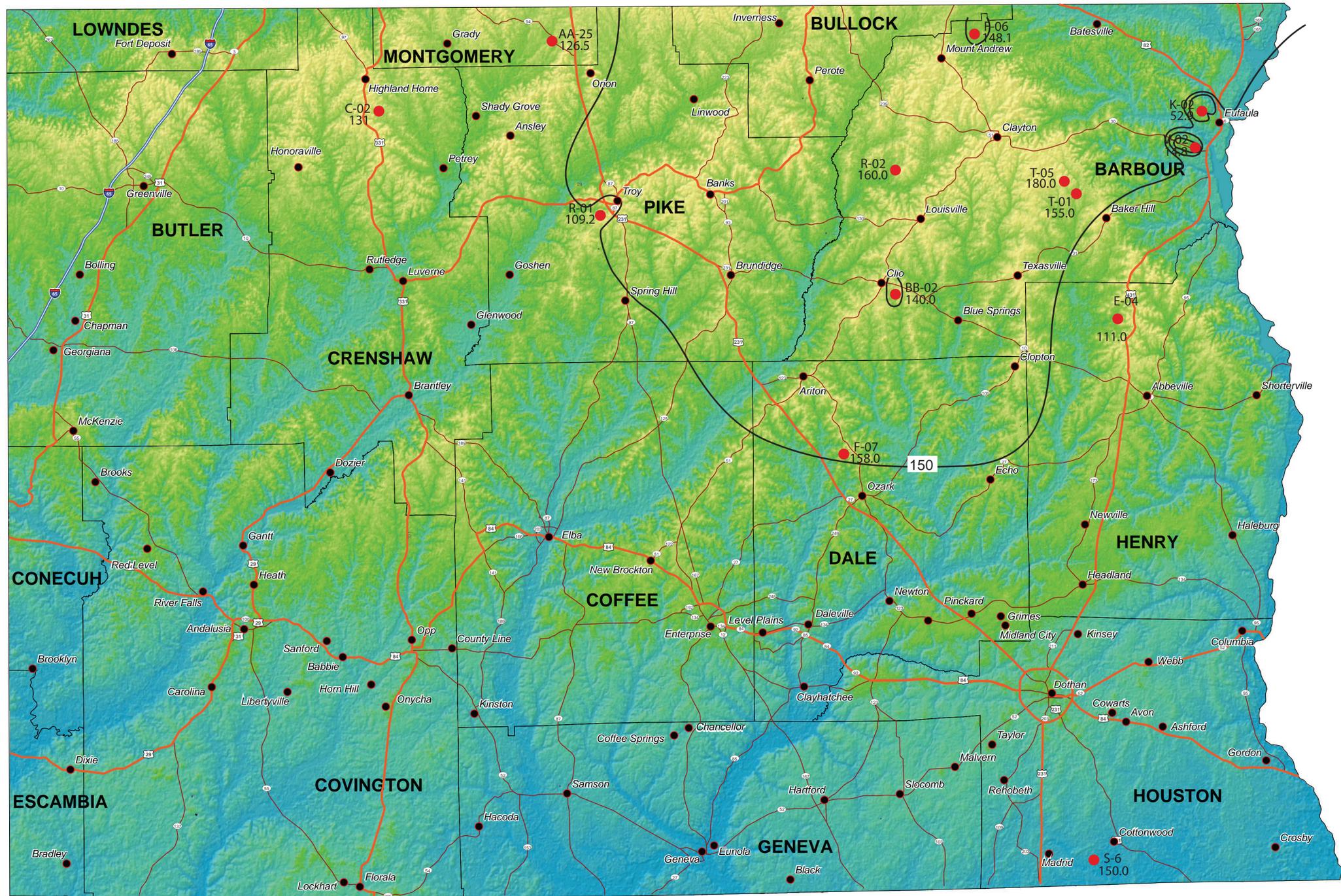
Interstate highway  
 United States highway  
 State highway

**Net Sand Map for the Gordo Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

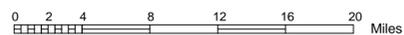
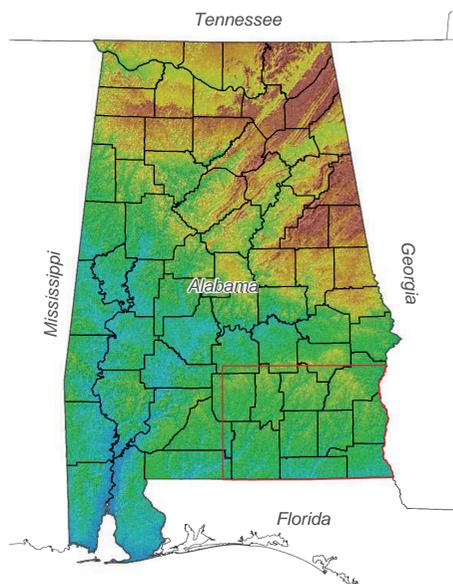
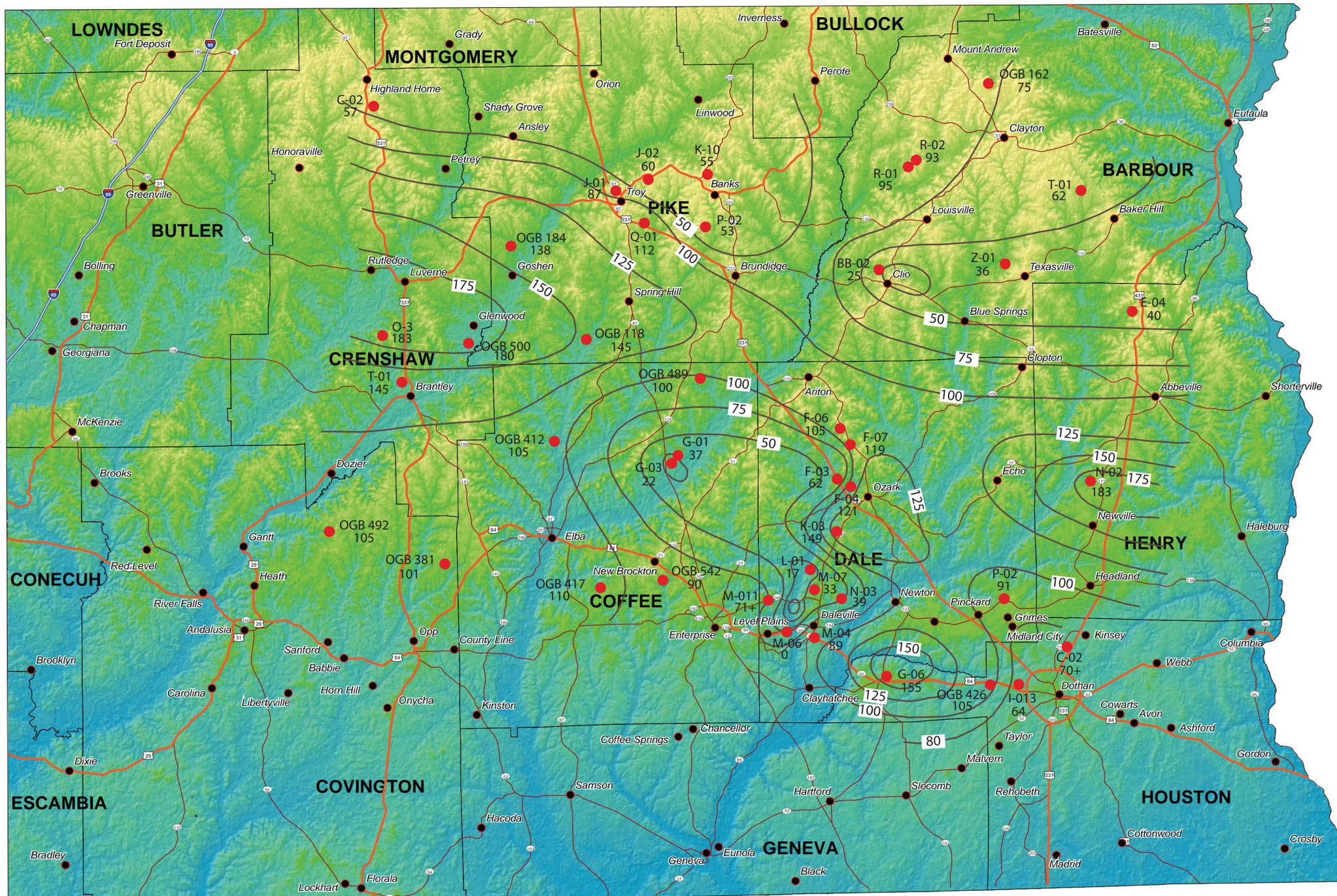
- |  |   |   |   |
|--|---|---|---|
| <p>Elevation in feet above NGVD 1929</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> High : 715</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #3CB371; border: 1px solid black; margin-right: 5px;"></span> Low : 0</li> <li><span style="display: inline-block; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid black; margin-right: 5px;"></span> City</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid red; margin-right: 5px;"></span> Southeast Alabama groundwater irrigation assessment area</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> County boundary</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid blue; margin-right: 5px;"></span> Rivers</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid blue; margin-right: 5px;"></span> Limited access interstate</li> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid orange; margin-right: 5px;"></span> Highway</li> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid brown; margin-right: 5px;"></span> Major road</li> <li><span style="display: inline-block; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid red; margin-right: 5px;"></span> S-6 Well and water level 150.0 elevation (ft. MSL)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #4682B4; border: 1px solid black; margin-right: 5px;"></span> Interstate highway</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #D2691E; border: 1px solid black; margin-right: 5px;"></span> United States highway</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></span> State highway</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> Line of equal water level elevation (ft. MSL) (contour interval 50 ft.)</li> </ul> |
|--|---|---|---|

**Potentiometric Surface for the Gordo Aquifer in Southeast Alabama**

By  
Marlon R. Cook  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

— Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 ● Ripley well and net sand value (ft.)

— Limited access interstate  
 — Highway  
 — Major road  
 — Ripley line of equal net sand (contour interval 25 ft.)

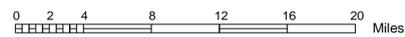
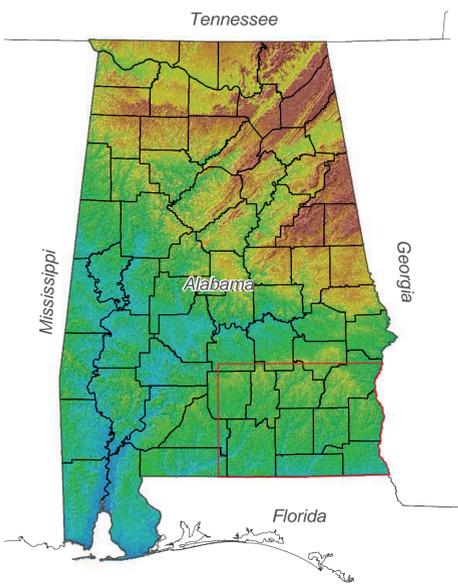
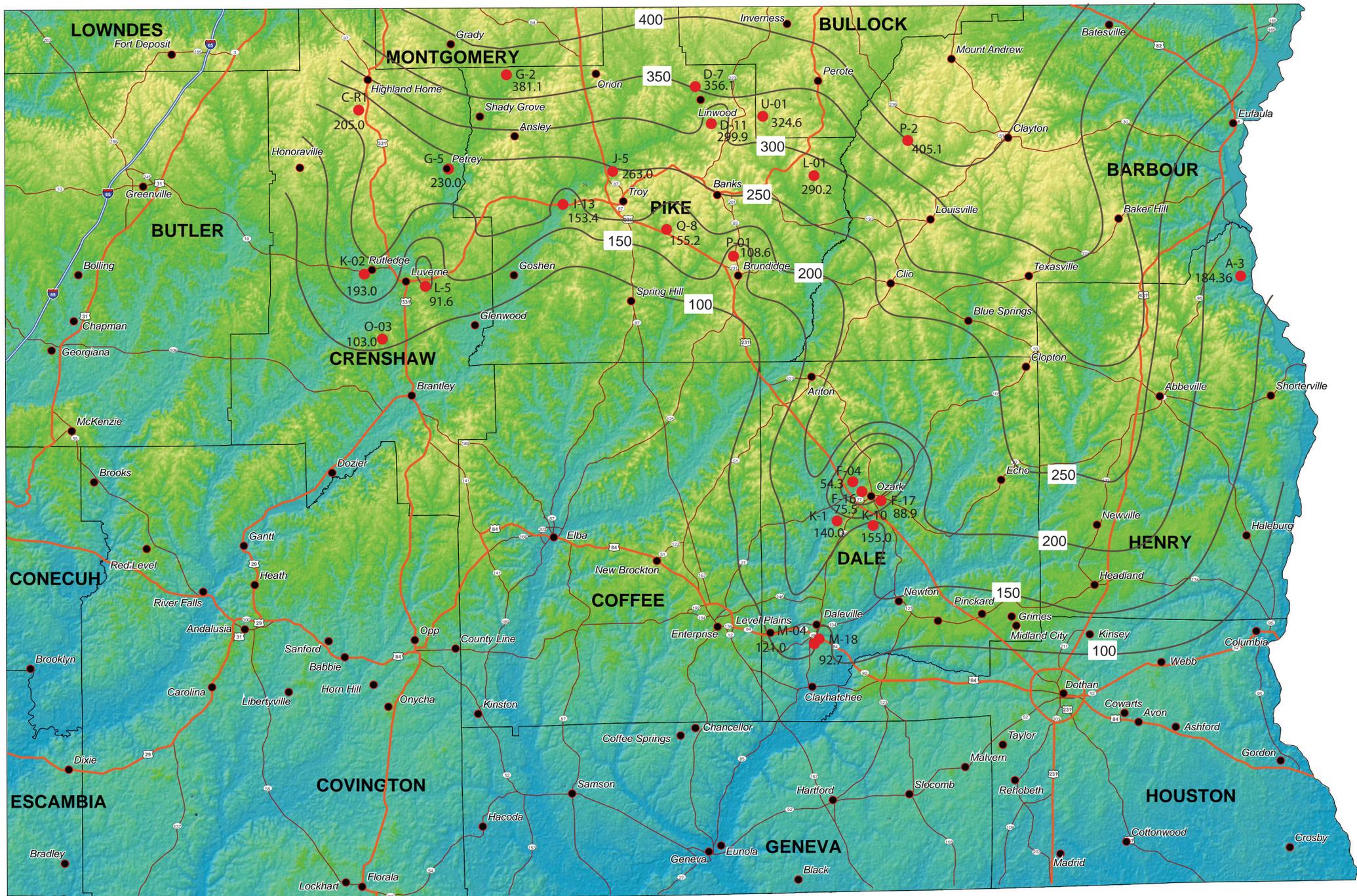
— Interstate highway  
 — United States highway  
 — State highway

**Net Sand Map for the Ripley Aquifer  
 in Southeast Alabama**

By  
 Stephen P. Jennings and Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

— Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 K-10  
 155.0 Well and water level elevation (ft. MSL)

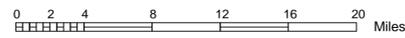
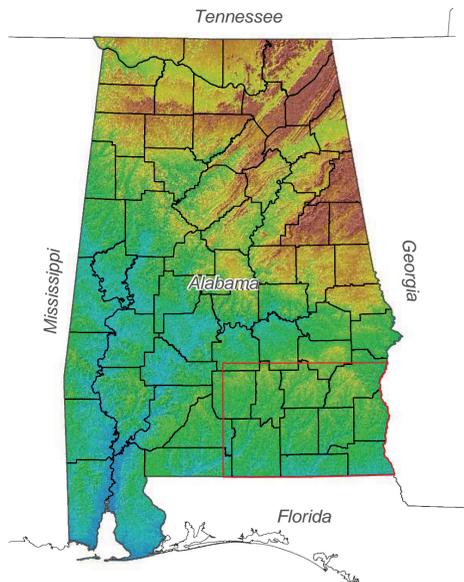
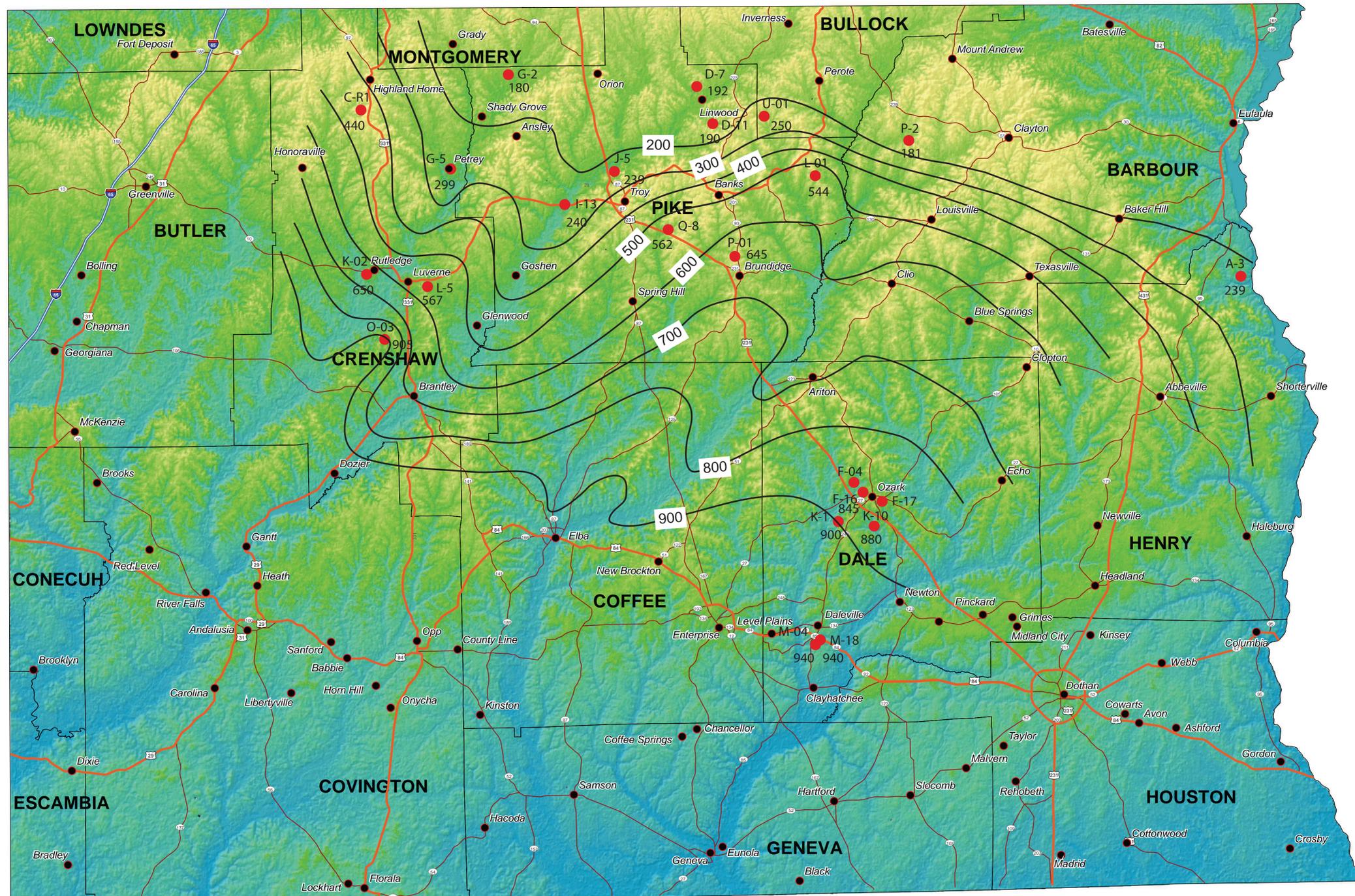
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal water level elevation (ft. MSL) (contour interval 50 ft.)

**Potentiometric Surface for the Ripley Aquifer in Southeast Alabama**

By Marlon R. Cook  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 ● K-10  
 ● 880  
 Well and depth (ft.)

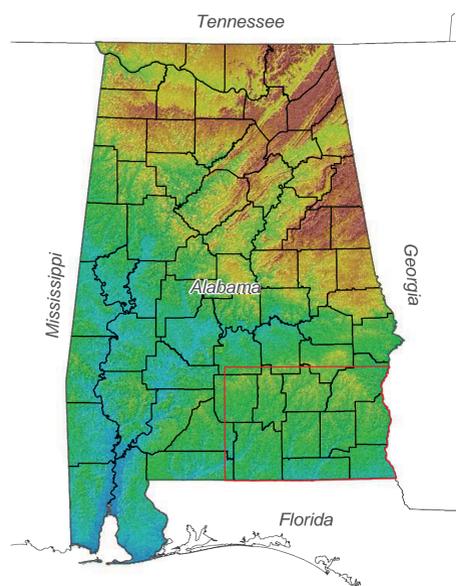
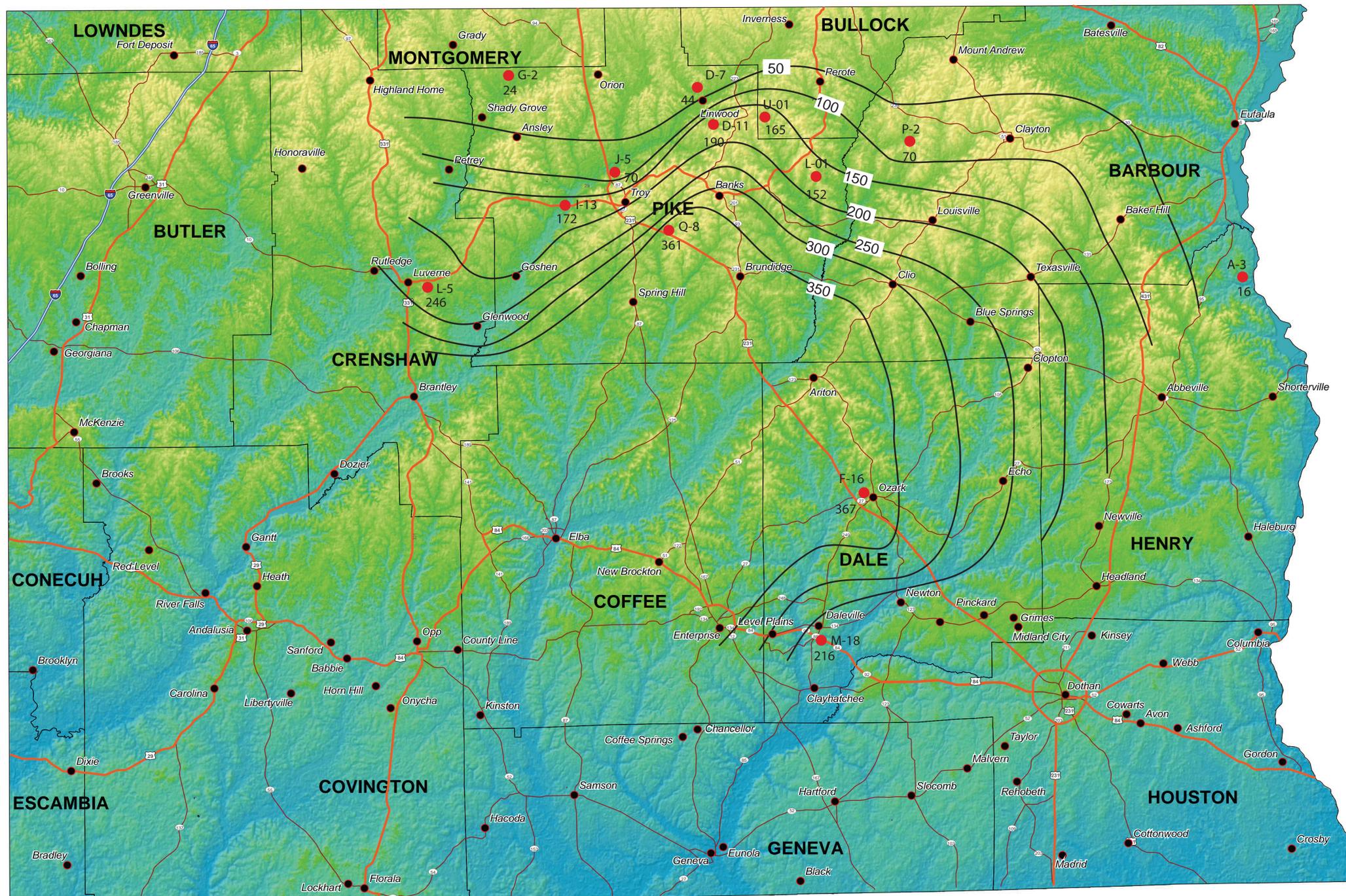
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal well depth (contour interval 50 ft.)

**Depth of Selected Wells Constructed in the Ripley Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road  
 Well and depth to water (ft.)  
 F-16  
 367

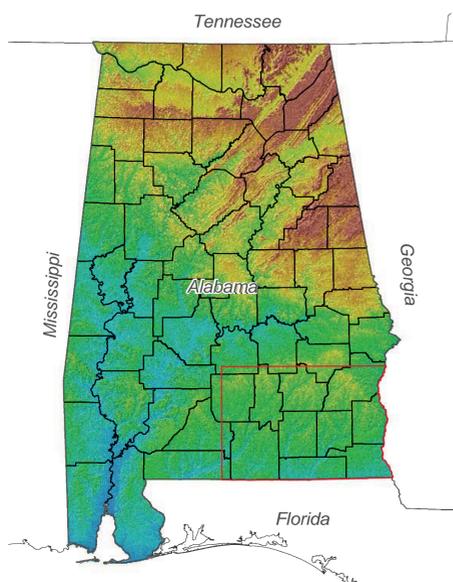
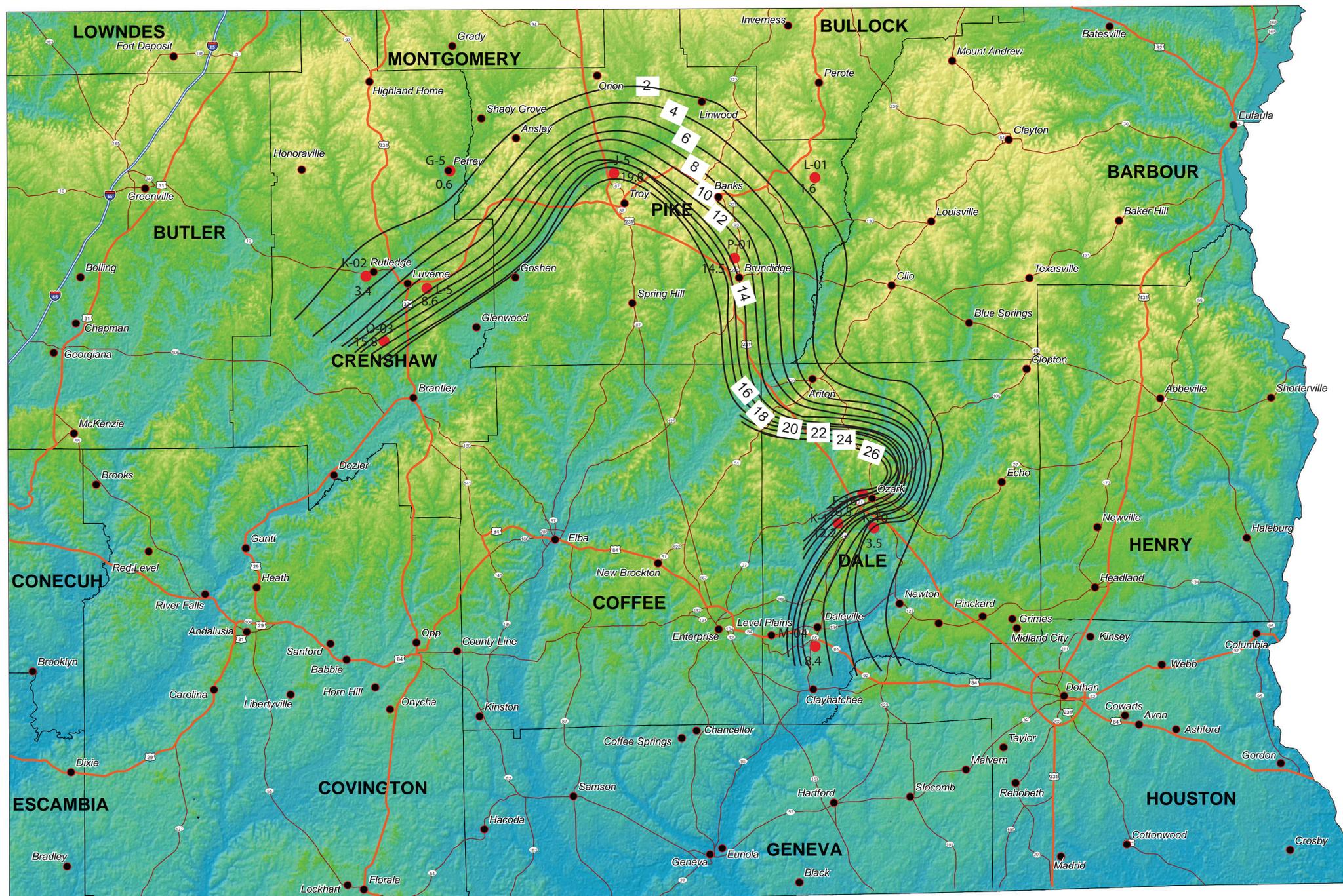
Interstate highway  
 United States highway  
 State highway  
 Line of equal depth to water (contour interval 50 ft.)

**Depth to Groundwater in Selected Wells Constructed in the Ripley Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 K-10  
 ● Well and specific capacity (g/ft. drawdown)  
 3.5

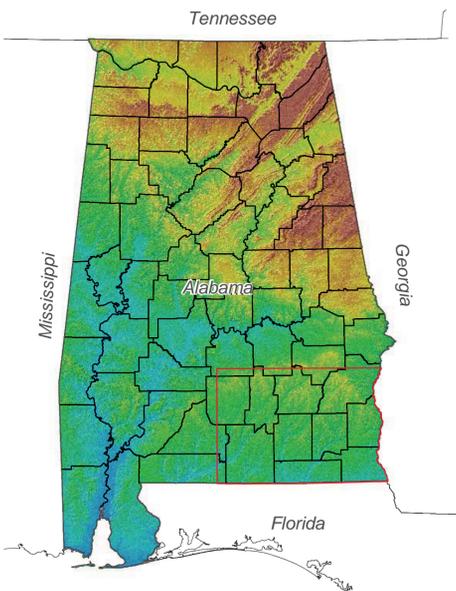
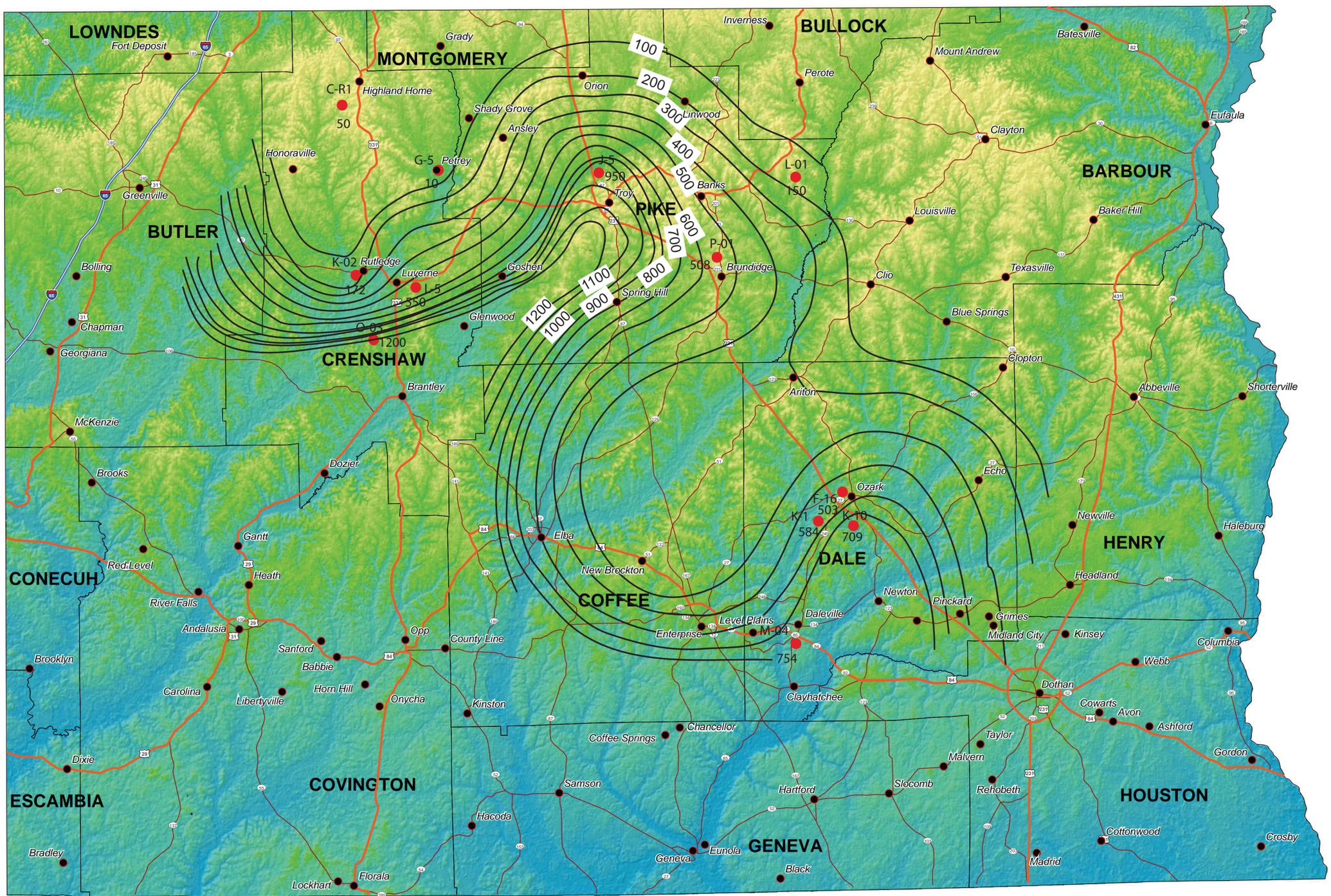
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal specific capacity (contour interval 2 g/ft. drawdown)

**Specific Capacities in Selected Wells Constructed in the Ripley Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 ● Well and pumping rate (gpm)  
 709

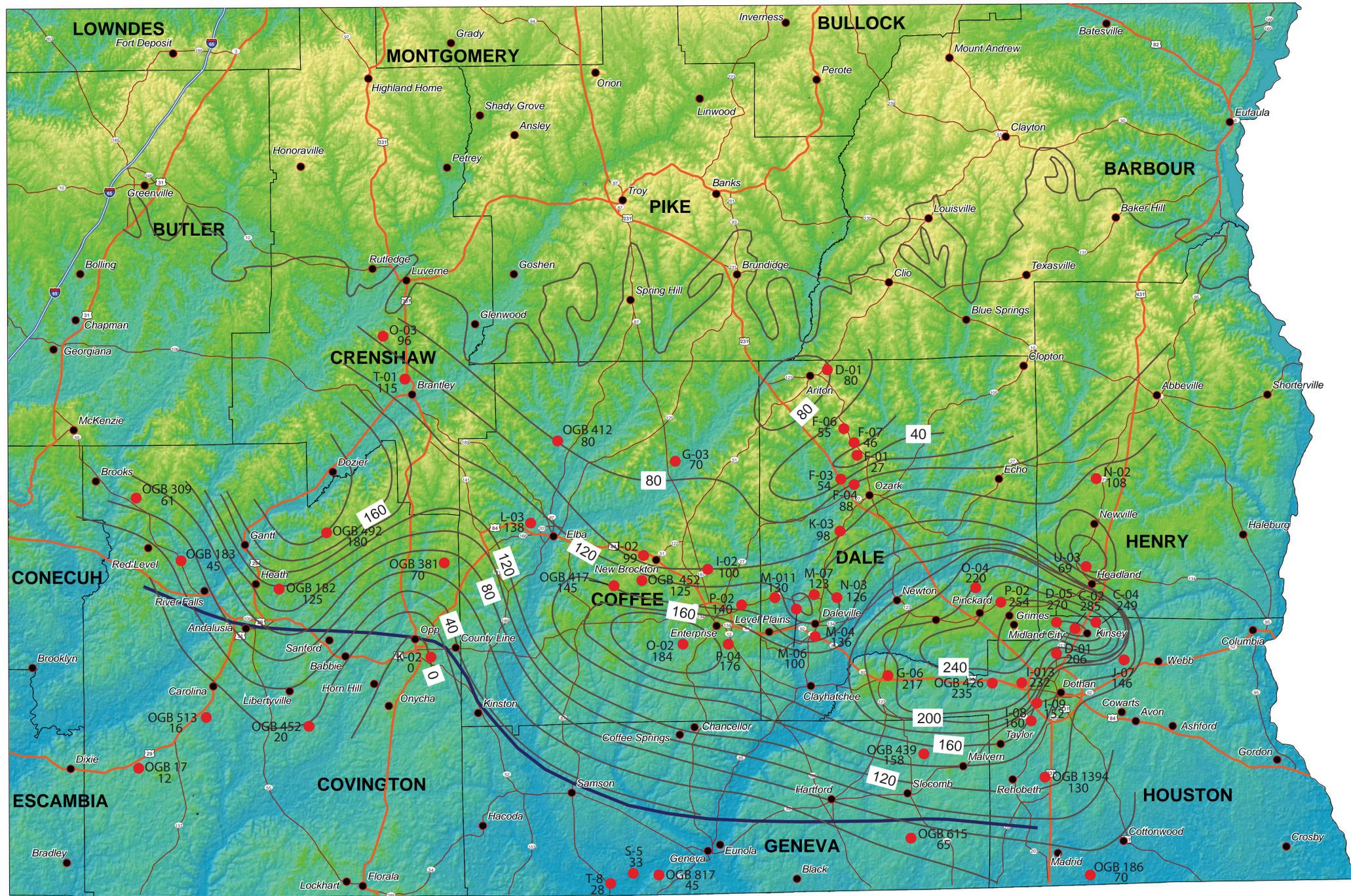
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal pumping rate (contour interval 100 gpm)

**Pumping Rates in Selected Wells Constructed in the Ripley Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

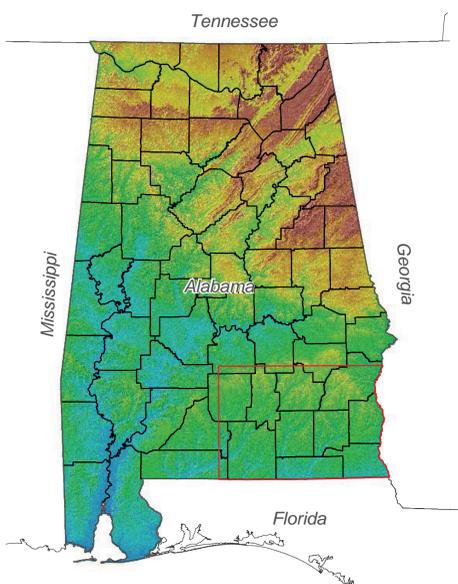
Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

— DOWNDIP LIMIT OF FRESH WATER IN THE CLAYTON AQUIFER

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 ● Clayton well and net sand value (ft.)

— Limited access interstate  
 — Highway  
 — Major road  
 — Clayton line of equal net sand (contour interval 20 ft.)

— Interstate highway  
 — United States highway  
 — State highway

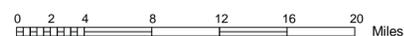
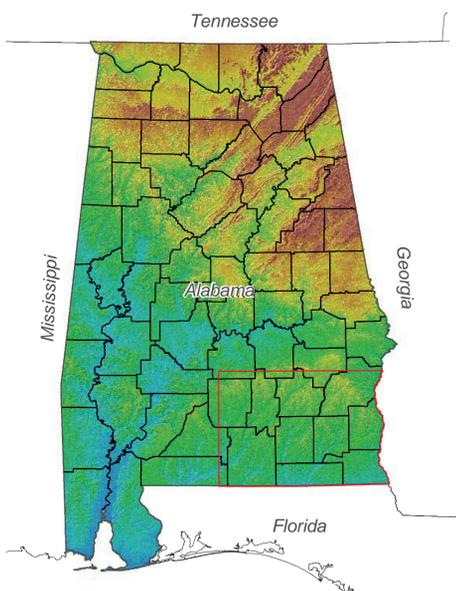
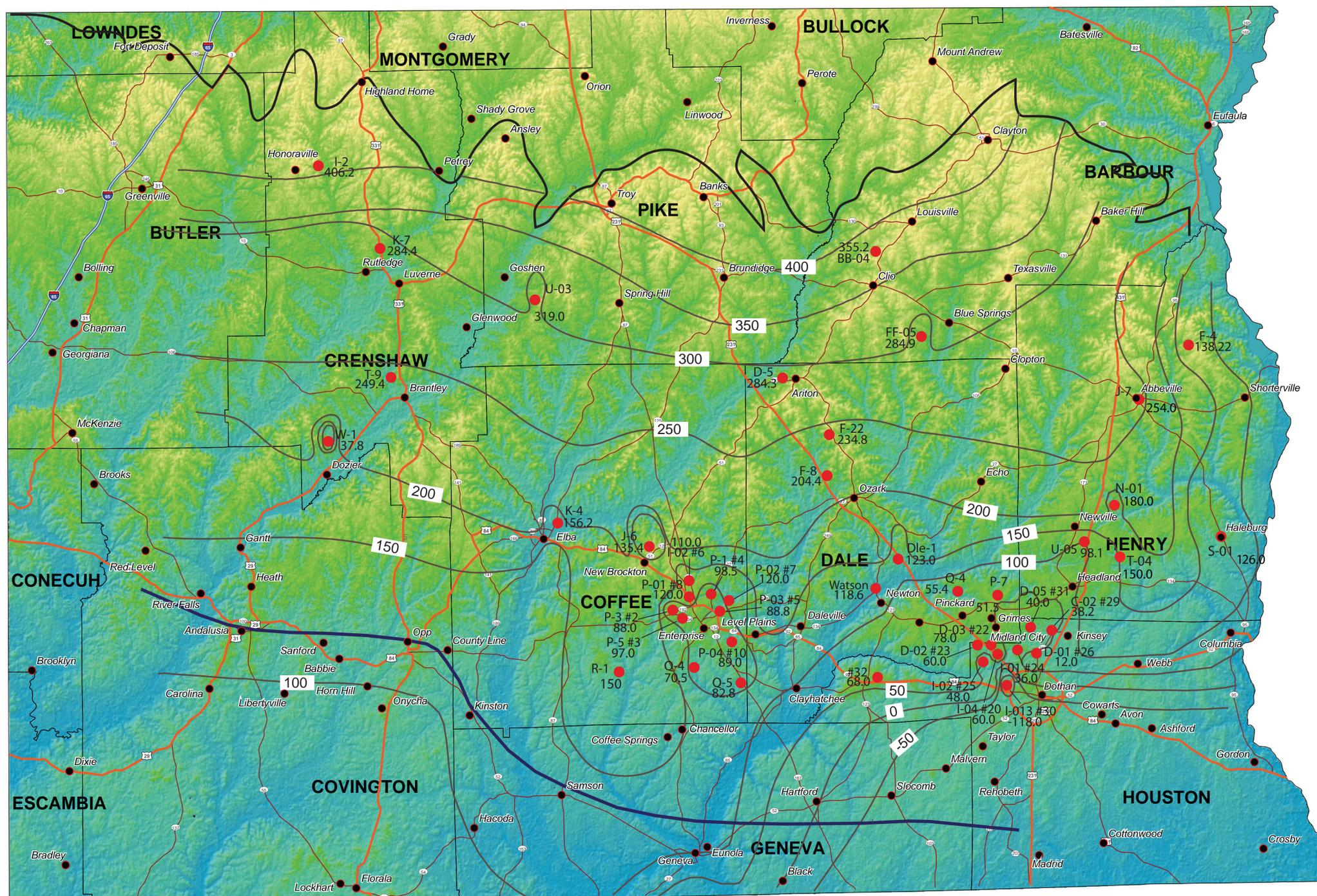


**Net Sand Map for the Clayton Aquifer  
 in Southeast Alabama**

By  
 Stephen P. Jennings and Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

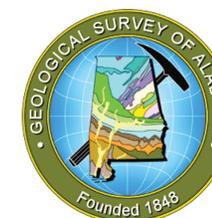
▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 — Down-dip limit of fresh water in the Clayton aquifer

— Limited access interstate  
 — Highway  
 — Major road  
 ● F-8 204.4 Well and water level elevation (ft. MSL)

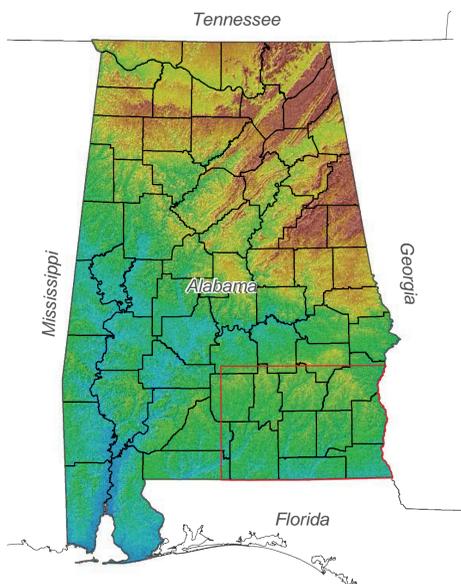
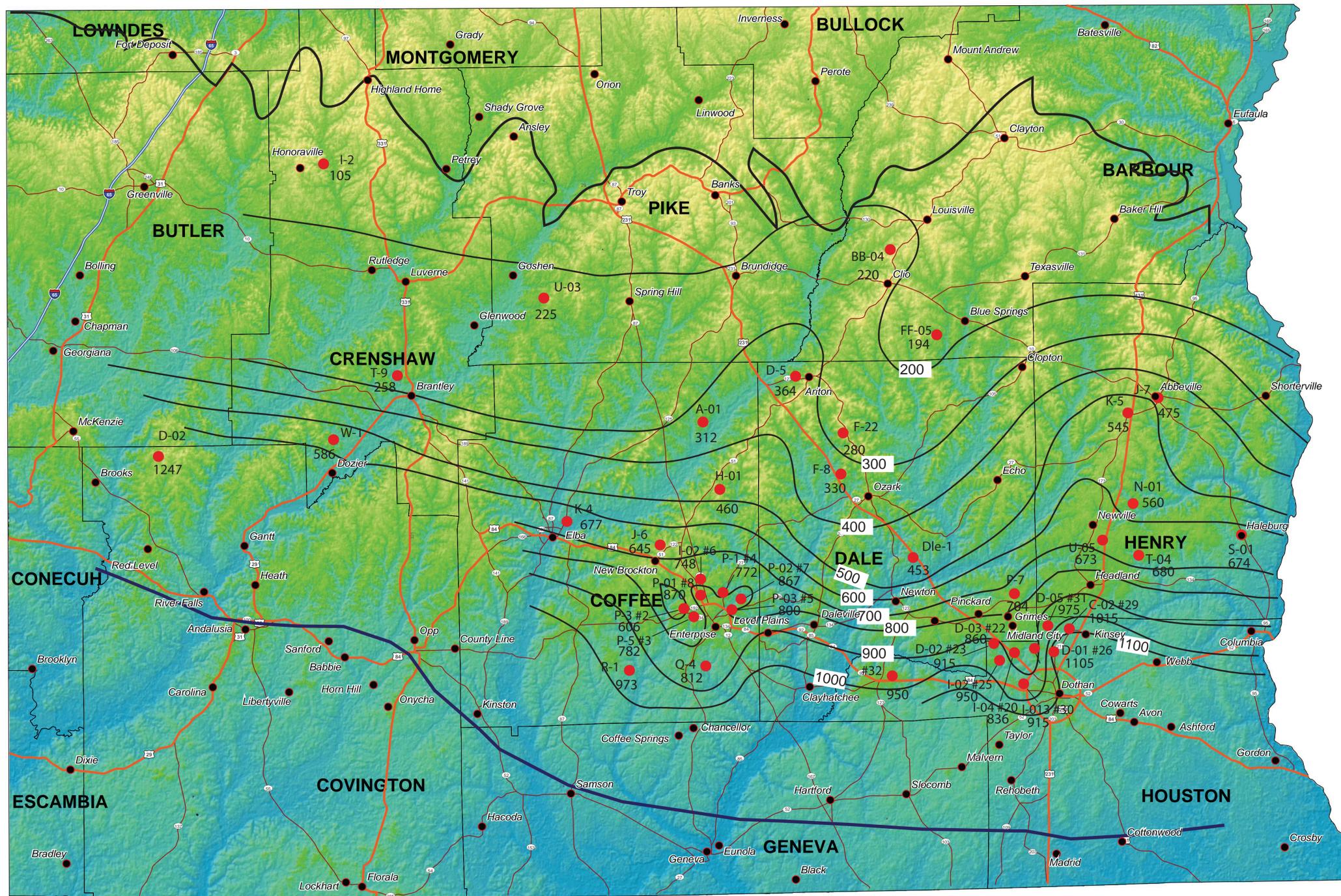
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal water level elevation (ft. MSL) (contour interval 50 ft.)

**Potentiometric Surface for the Clayton Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

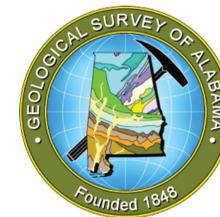
- Southeast Alabama groundwater irrigation assessment area
- County boundary
- Rivers
- DOWNDIP LIMIT OF FRESH WATER IN THE CLAYTON AQUIFER

- Limited access interstate
- Highway
- Major road
- R-1 ● Well and depth (ft.)  
973

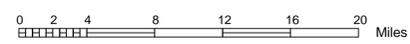
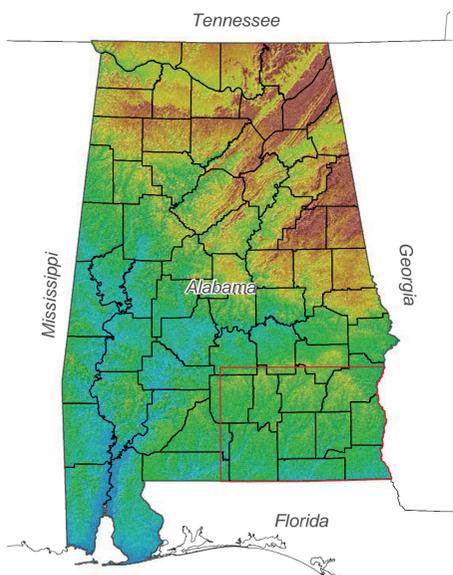
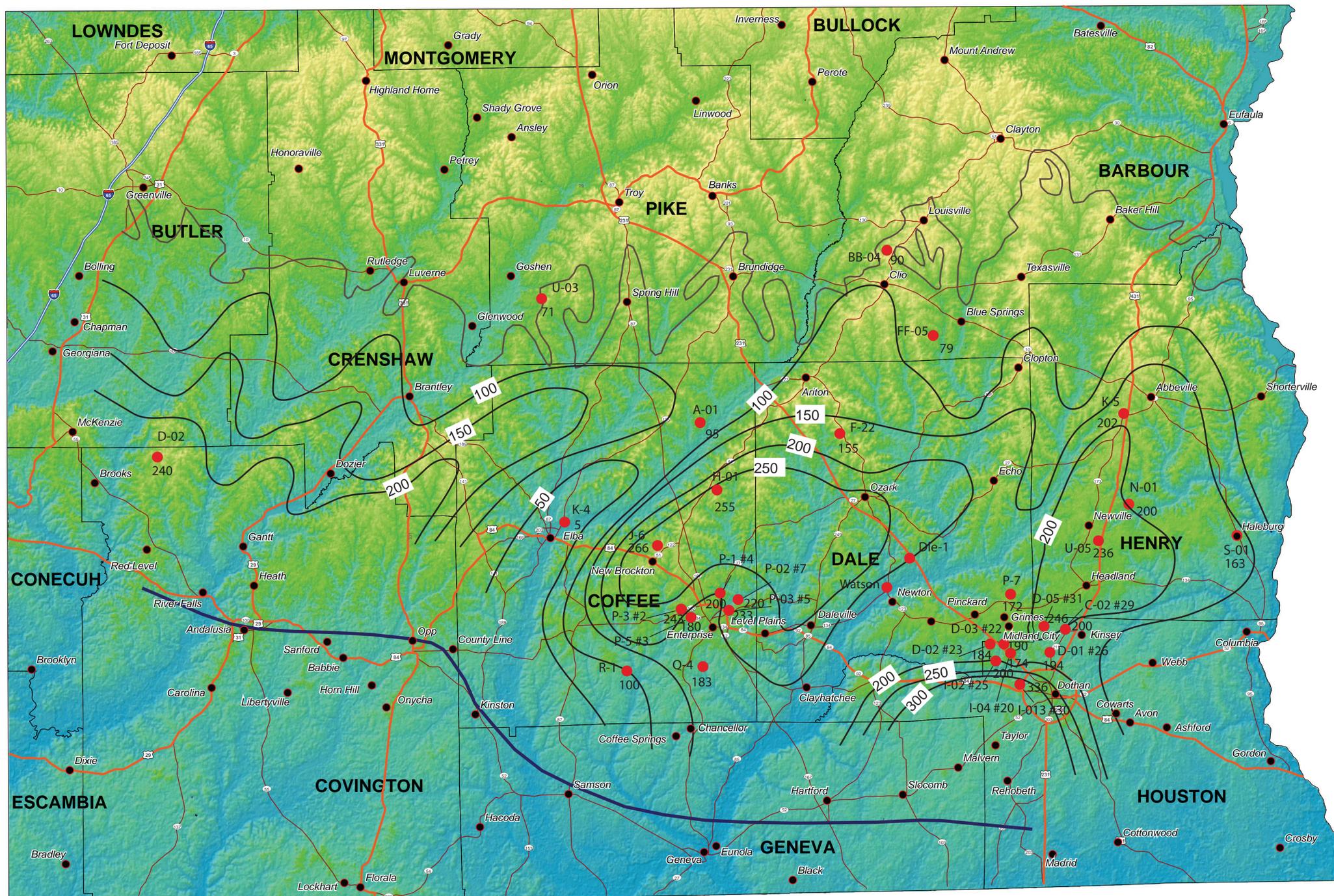
- Interstate highway
- United States highway
- State highway
- Line of equal well depth (contour interval 100 ft.)

**Depth of Selected Wells Constructed in the Clayton Aquifer  
 in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



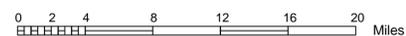
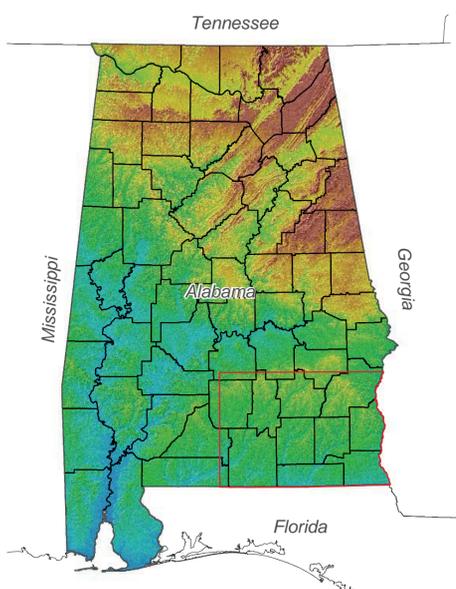
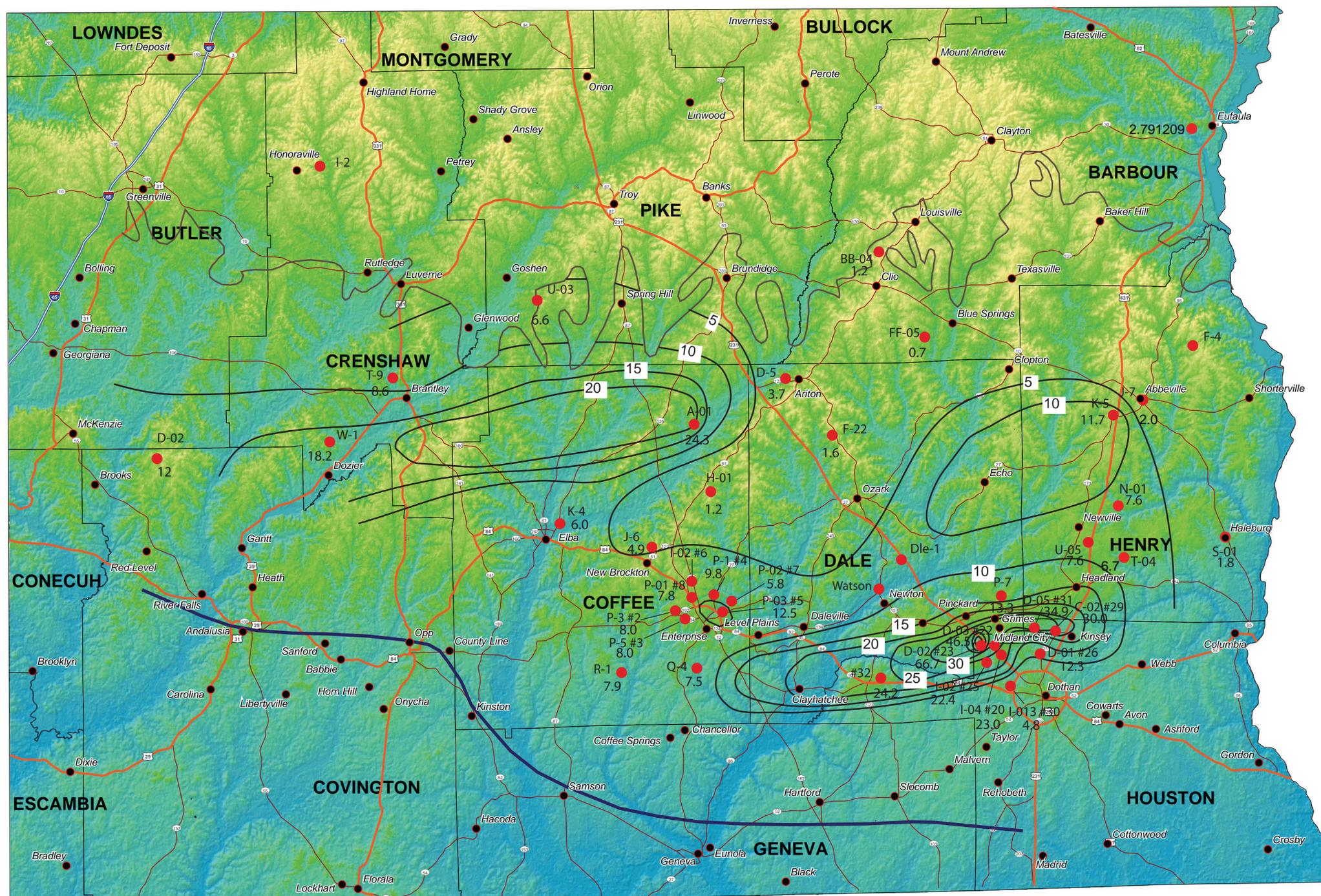
**Explanation**

- |   |  |   |  |
|---|--|---|--|
| <p>Elevation in feet above NGVD 1929</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> High : 715</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Low : 0</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: black; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> City</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid red; margin-right: 5px;"></span> Southeast Alabama groundwater irrigation assessment area</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> County boundary</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid blue; margin-right: 5px;"></span> Rivers</li> <li><span style="display: inline-block; width: 20px; border-bottom: 3px solid blue; margin-right: 5px;"></span> Downdip limit of fresh water in the Clayton aquifer</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid blue; margin-right: 5px;"></span> Limited access interstate</li> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid orange; margin-right: 5px;"></span> Highway</li> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid red; margin-right: 5px;"></span> Major road</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> Q-4 Well and depth to water (ft.)<br/>183</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #CCCCCC; border: 1px solid black; margin-right: 5px;"></span> Interstate highway</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #CCCCCC; border: 1px solid black; margin-right: 5px;"></span> United States highway</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #CCCCCC; border: 1px solid black; margin-right: 5px;"></span> State highway</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> Line of equal depth to water (contour interval 50 ft.)</li> </ul> |
|---|--|---|--|

**Depth to Groundwater in Selected Wells Constructed in the Clayton Aquifer in Southeast Alabama**

By  
Marlon R. Cook  
2011





**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

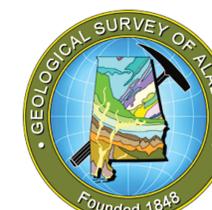
□ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 — Down-dip limit of fresh water in the Clayton aquifer

— Limited access interstate  
 — Highway  
 — Major road  
 ● Well and specific capacity (gpm/ft. drawdown)

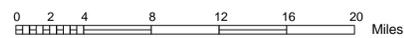
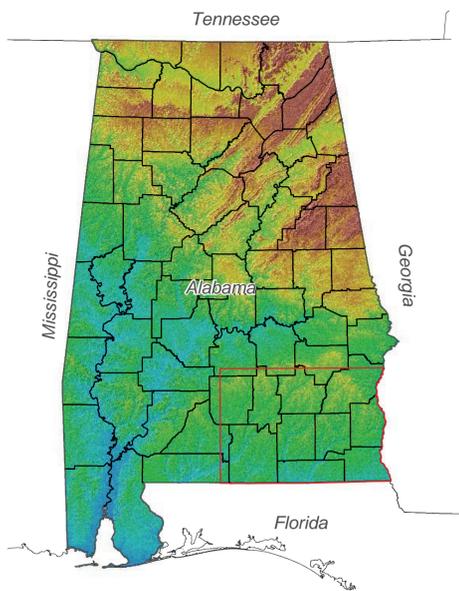
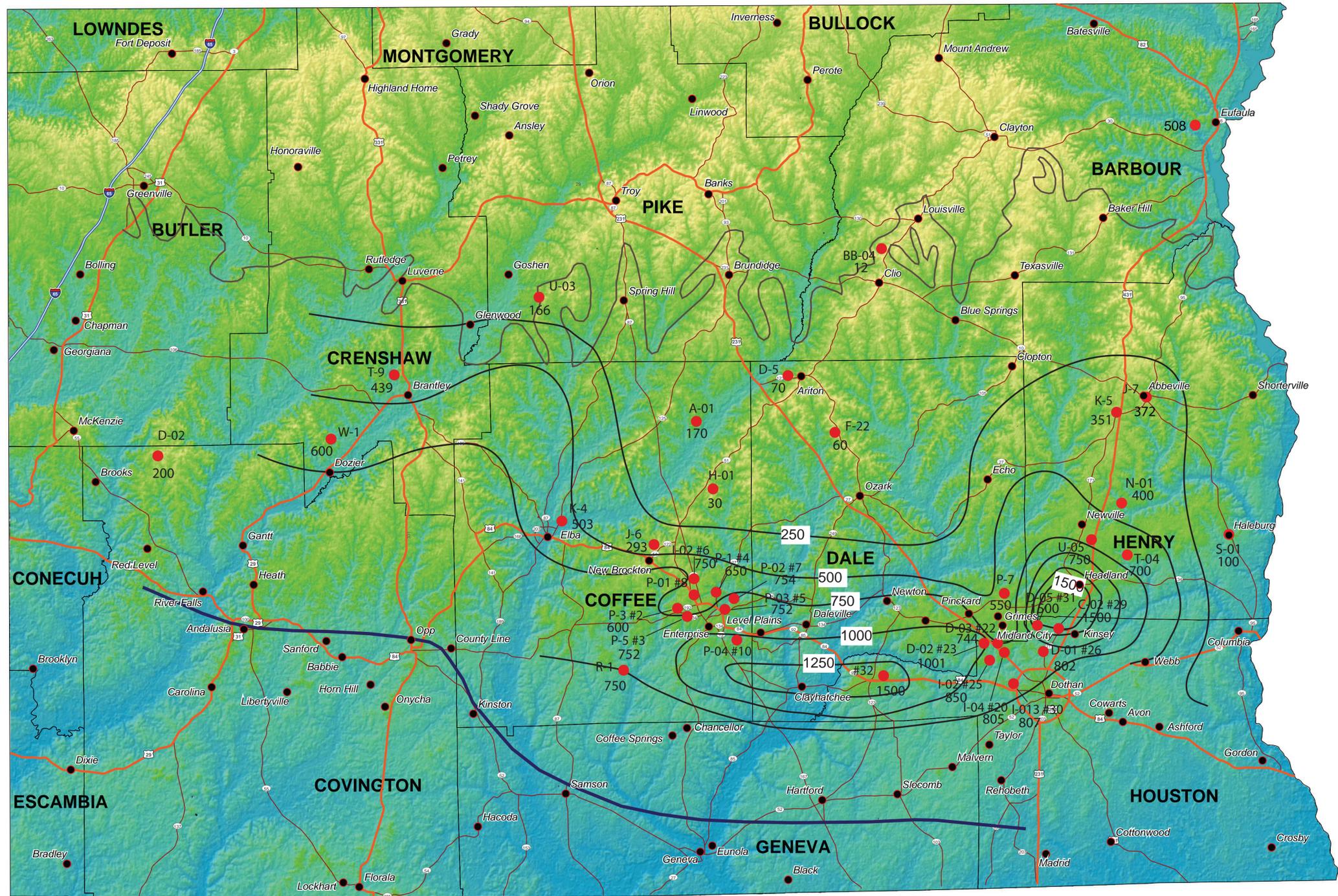
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal specific capacity (contour interval 5 gpm/ft. drawdown)

**Specific Capacities in Selected Wells Constructed in the Clayton Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

□ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 — Down-dip limit of fresh water in the Clayton aquifer

— Limited access interstate  
 — Highway  
 — Major road  
 N-01 400 Well and pumping rate (gpm)

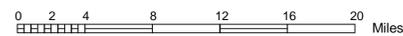
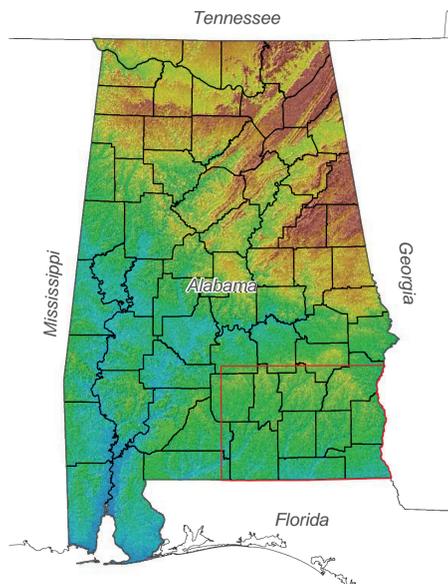
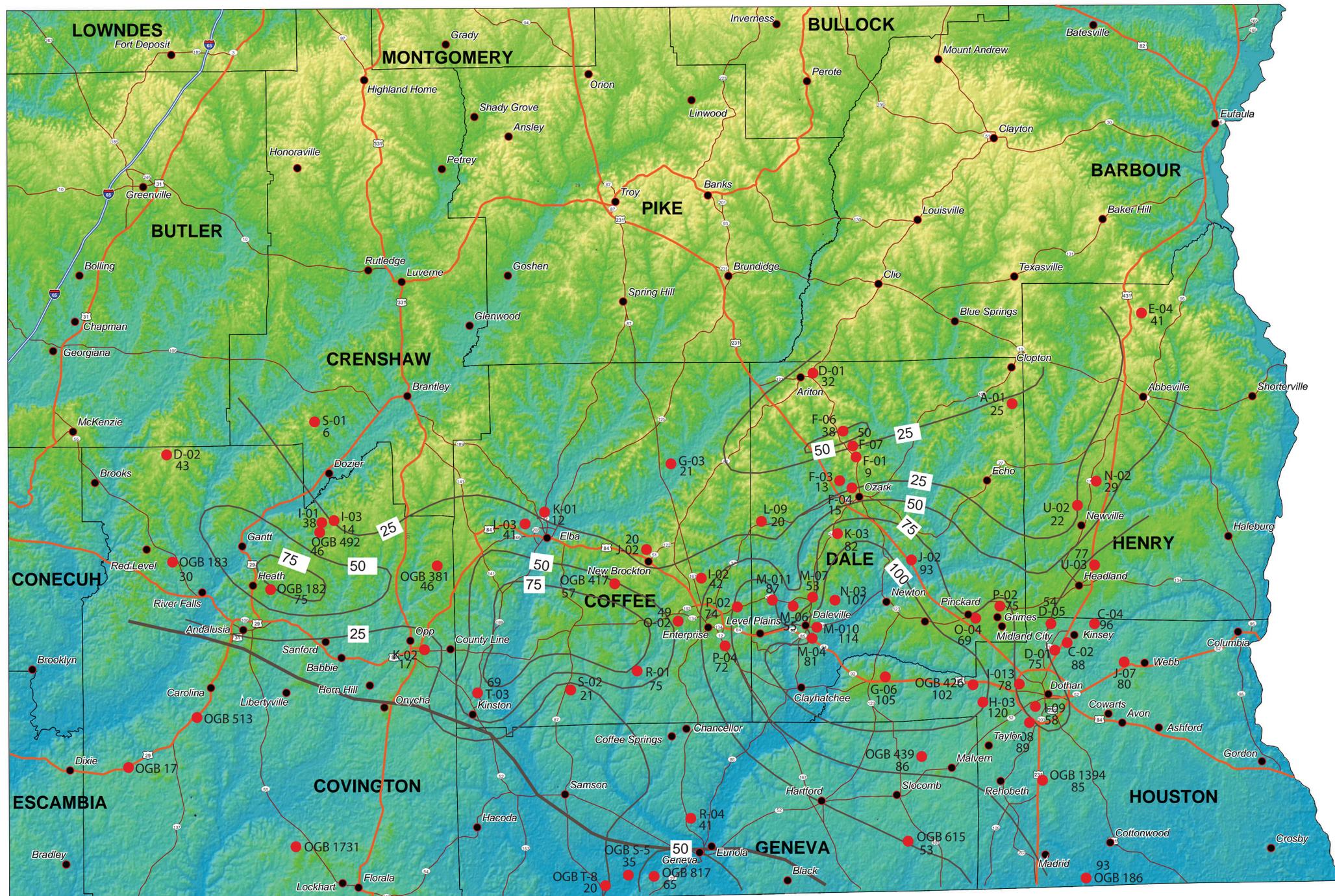
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal pumping rate (contour interval 250 gpm)

**Pumping Rates in Selected Wells Constructed in the Clayton Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City  
 Downdip limit of fresh water in the Clayton aquifer

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 R-01  
 75 ● Nanafalia well and net productive interval value (ft.)

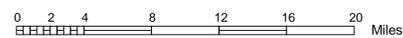
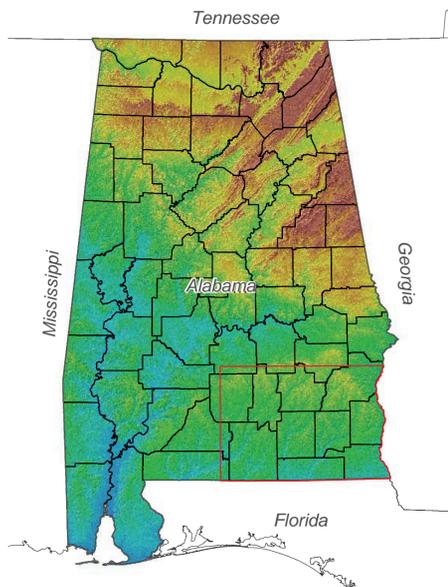
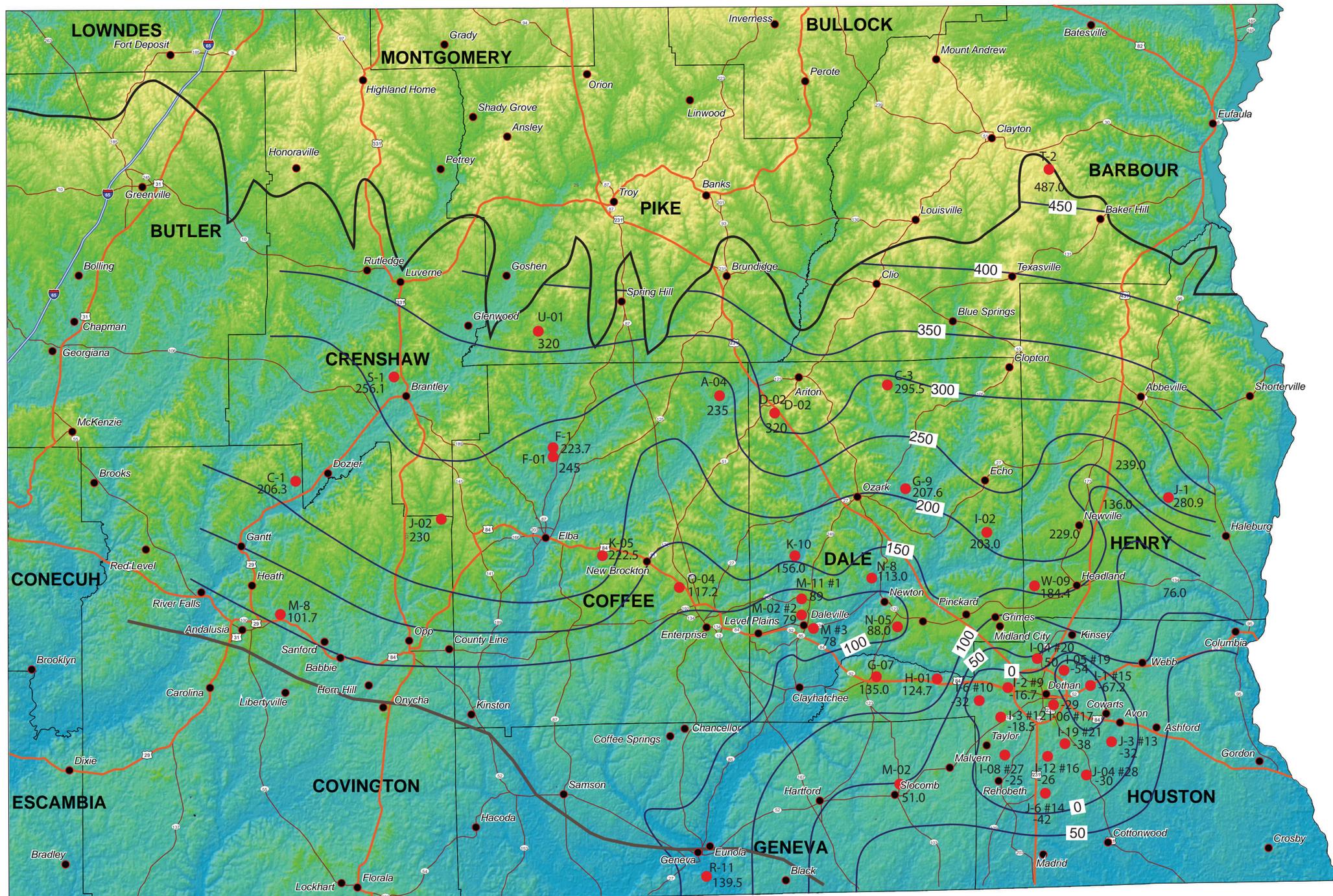
— Limited access interstate  
 — Highway  
 — Major road  
 — Nanafalia line of equal net productive interval (contour interval 25 ft.)  
 — Interstate highway  
 — United States highway  
 — State highway

**Net Productive Interval Map for the Nanafalia Aquifer in Southeast Alabama**

By  
 Stephen P. Jennings and Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 — Down dip limit of fresh water in the Nanafalia aquifer

— Limited access interstate  
 — Highway  
 — Major road  
 ● R-11 Well and water level elevation (ft. MSL)  
 139.5

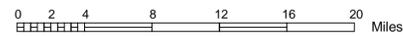
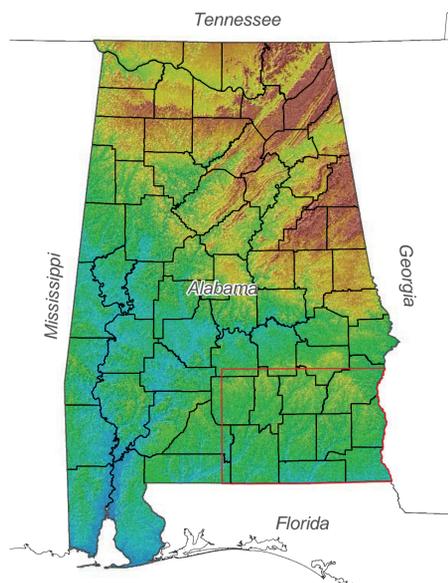
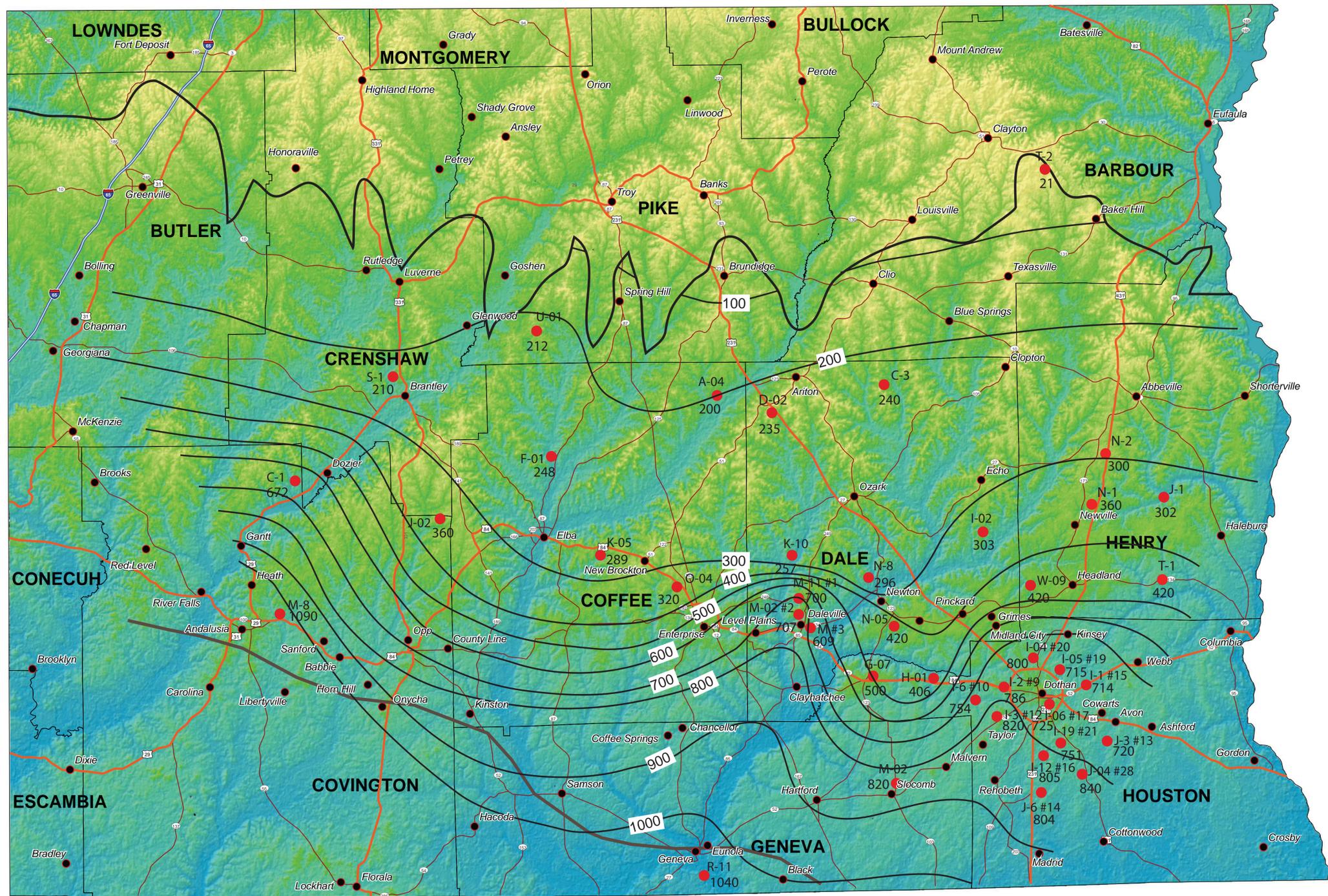
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal water level elevation (ft. MSL) (contour interval 50 ft.)

**Potentiometric Surface for the Nanafalia Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers  
 Downdip limit of fresh water in the Nanafalia aquifer

Limited access interstate  
 Highway  
 Major road  
 Well and depth (ft.)  
 R-11 1040

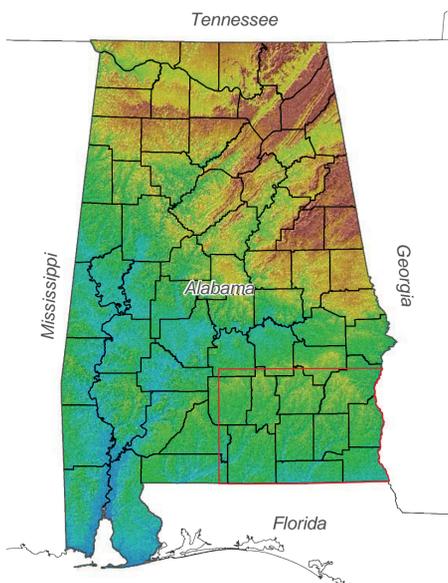
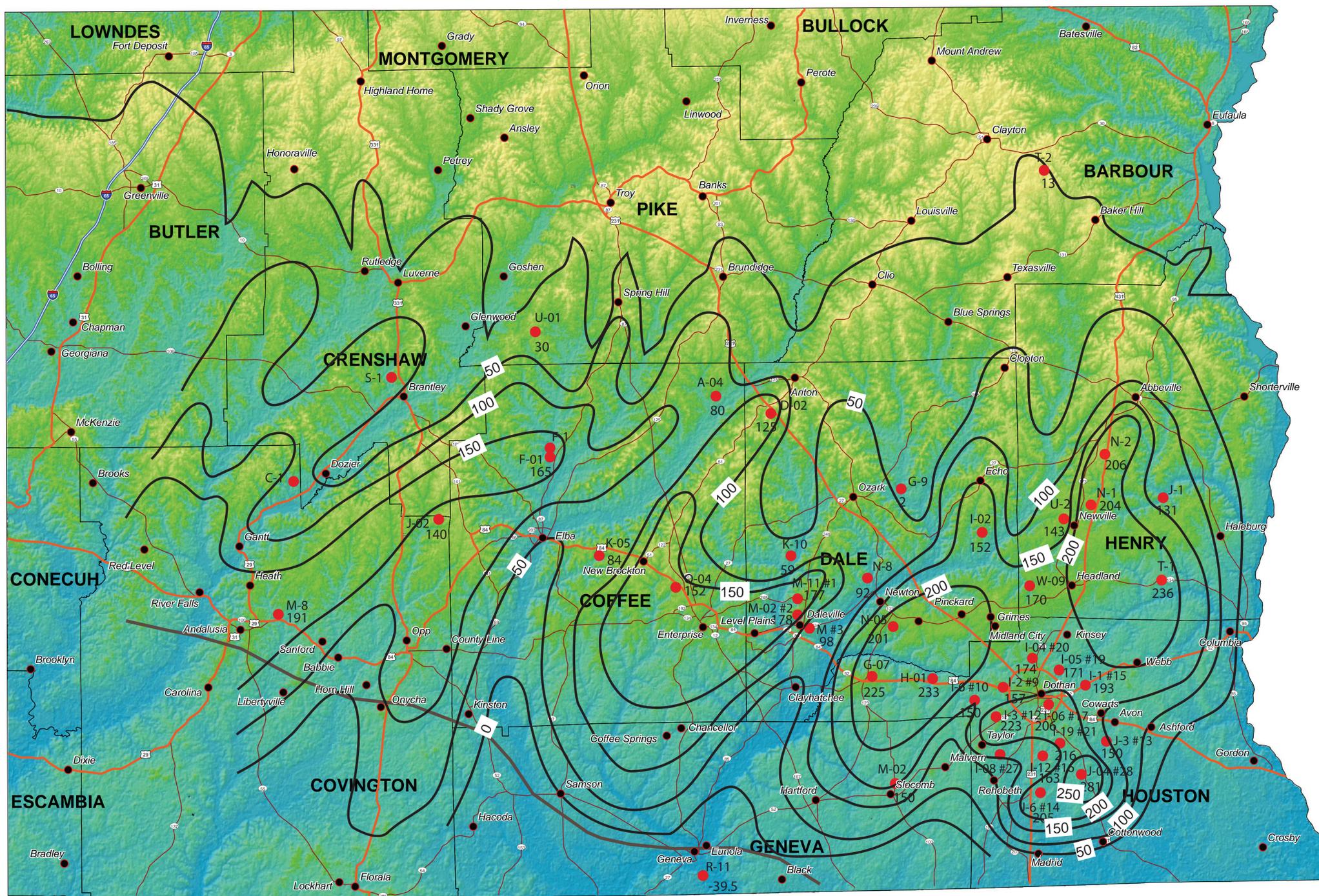
Interstate highway  
 United States highway  
 State highway  
 Line of equal well depth (contour interval 100 ft.)

**Depth of Selected Wells Constructed in the Nanafalia Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers  
 Downdip limit of fresh water

Limited access interstate  
 Highway  
 Major road  
 I-02  
 Well and depth to water (ft.)  
 152

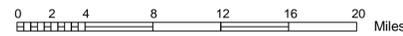
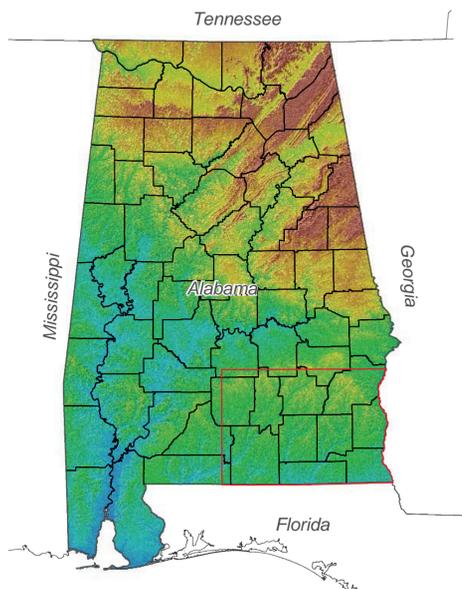
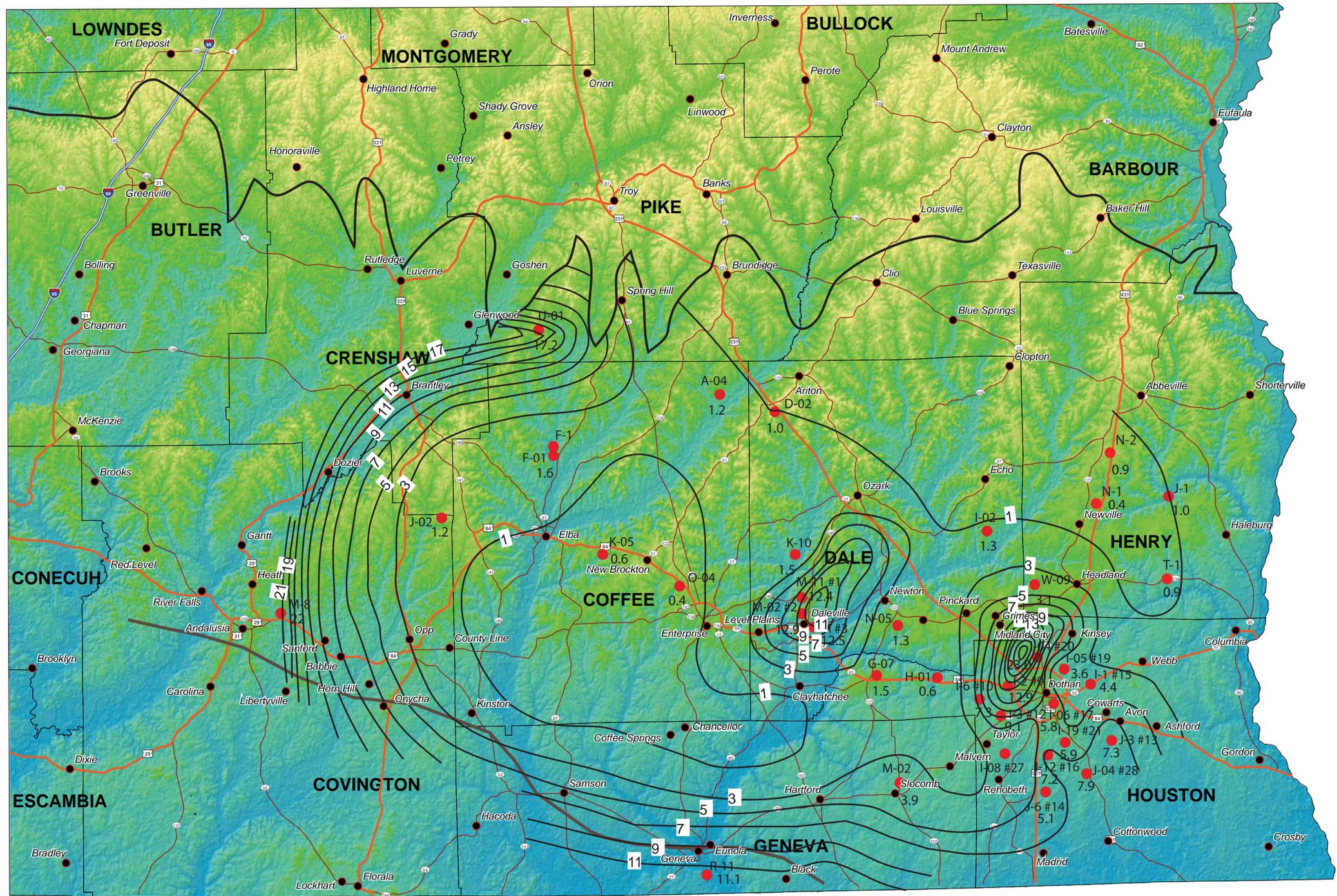
Interstate highway  
 United States highway  
 State highway  
 Line of equal depth to water (contour interval 50 ft.)

**Depth to Groundwater in Selected Wells Constructed in the Nanafalia Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

Southwest Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers  
 Downdip limit of fresh water in the Nanafalia aquifer

Limited access interstate  
 Highway  
 Major road  
 M-02 Well and specific capacity (gpm/ft. drawdown)  
 3.9

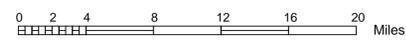
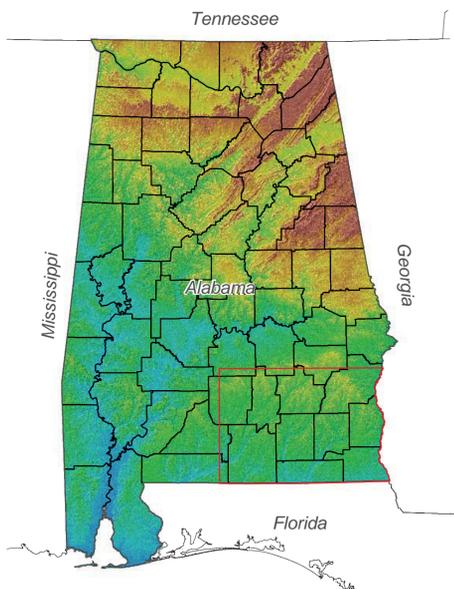
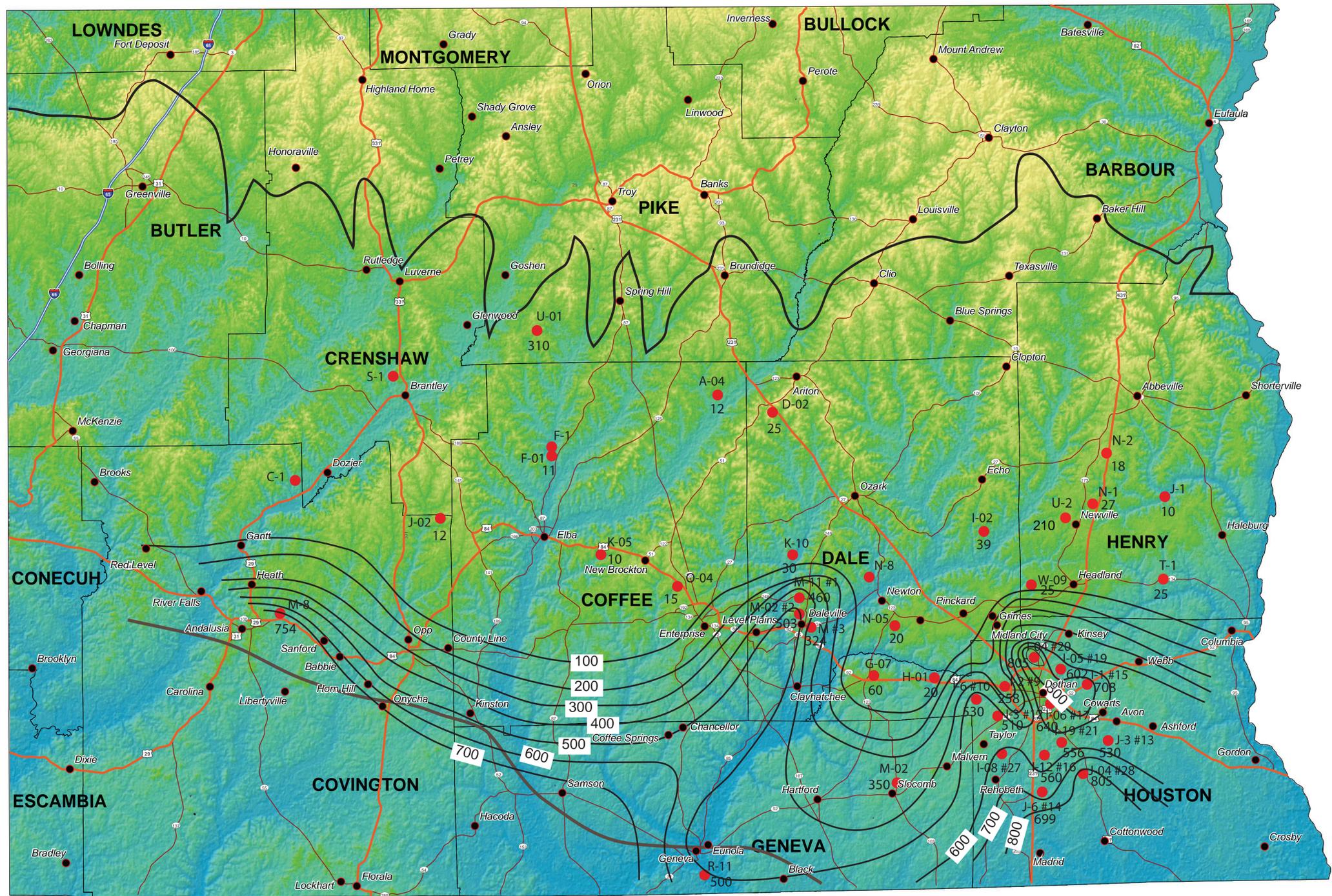
Interstate highway  
 United States highway  
 State highway  
 Line of equal specific capacity (contour interval 5 gpm/ft. drawdown)

**Specific Capacities in Selected Wells Constructed in the Nanafalia Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers  
 — Downdip limit of fresh water in the Nanafalia aquifer

— Limited access interstate  
 — Highway  
 — Major road  
 ● R-11 Well and pumping rate (gpm)  
 500

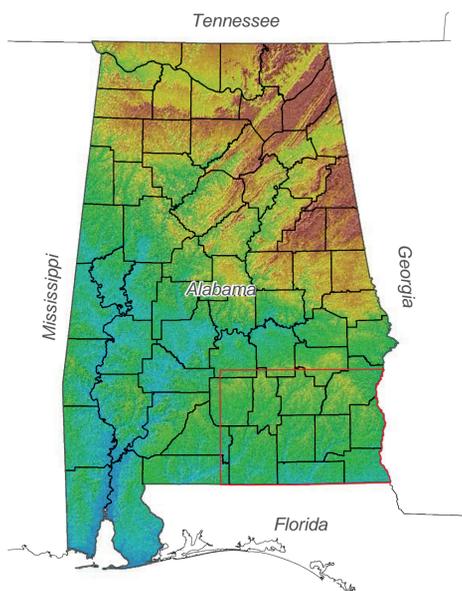
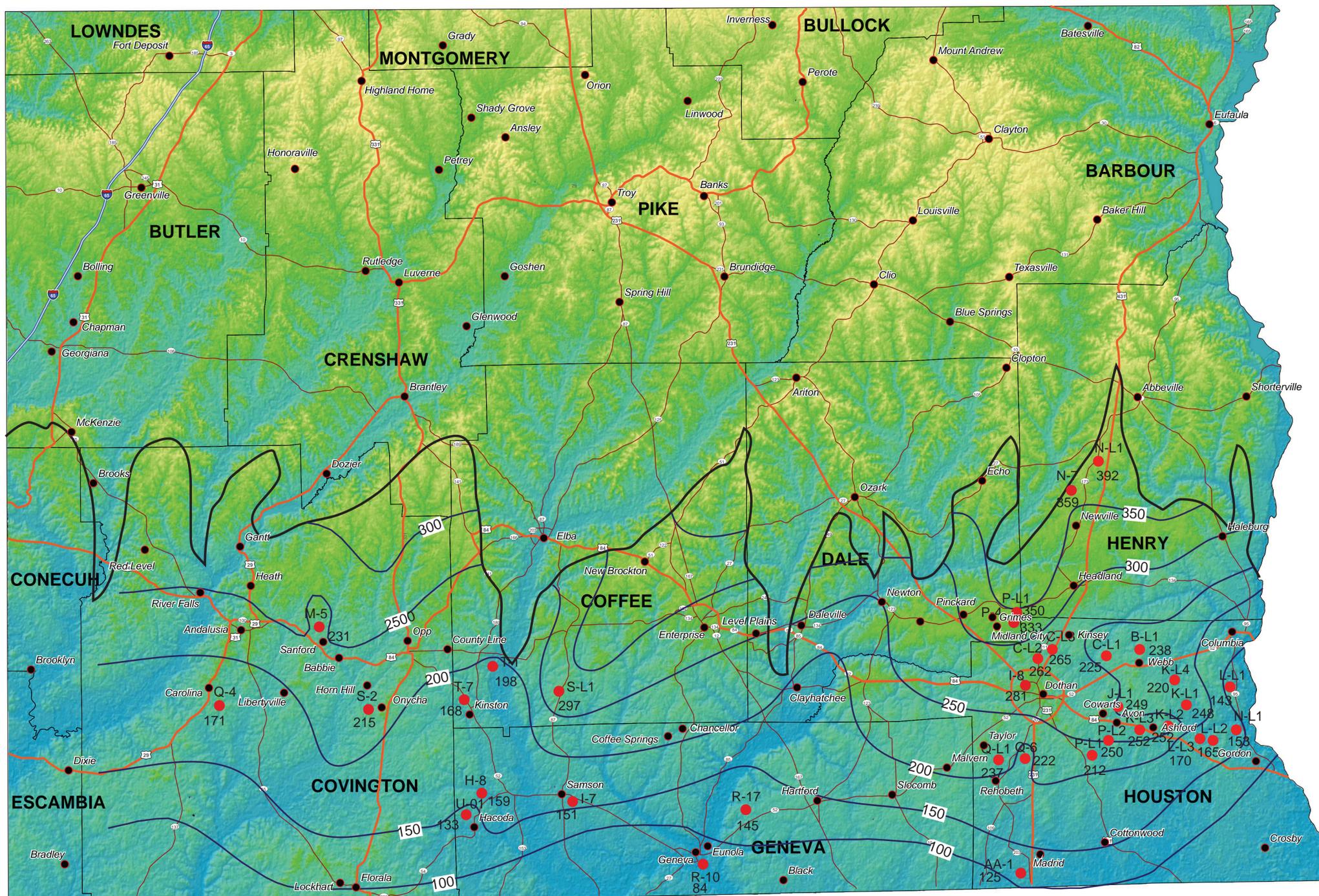
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal pumping rate (contour interval 100 gpm)

**Pumping Rates in Selected Wells Constructed in the Nanafalia Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 ● Well and water level elevation (ft. MSL)  
 R-10 84

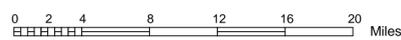
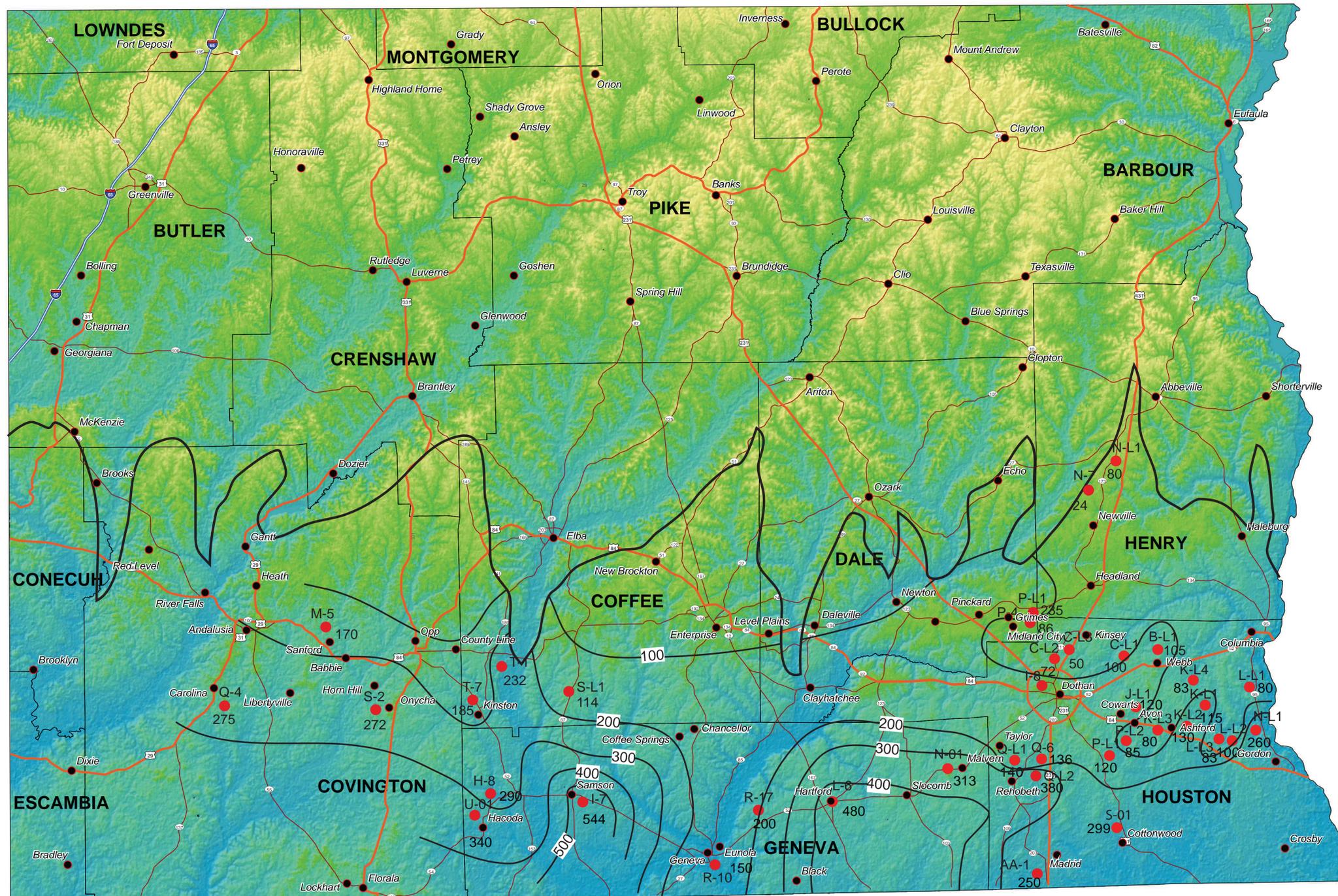
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal water level elevation (ft. MSL) (contour interval 50 ft.)

**Potentiometric Surface for the Lisbon Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

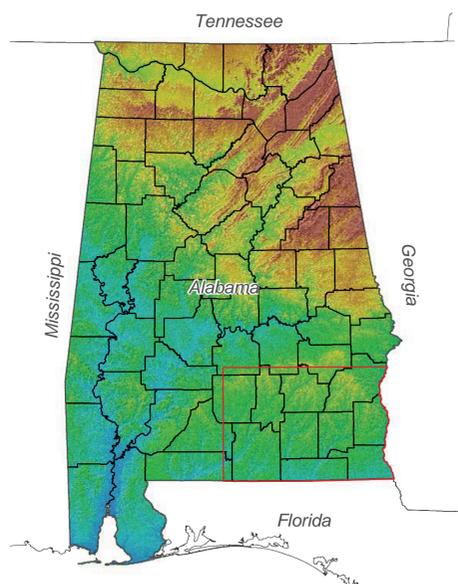
▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 ● R-10 150  
 Well and depth (ft.)

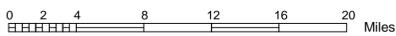
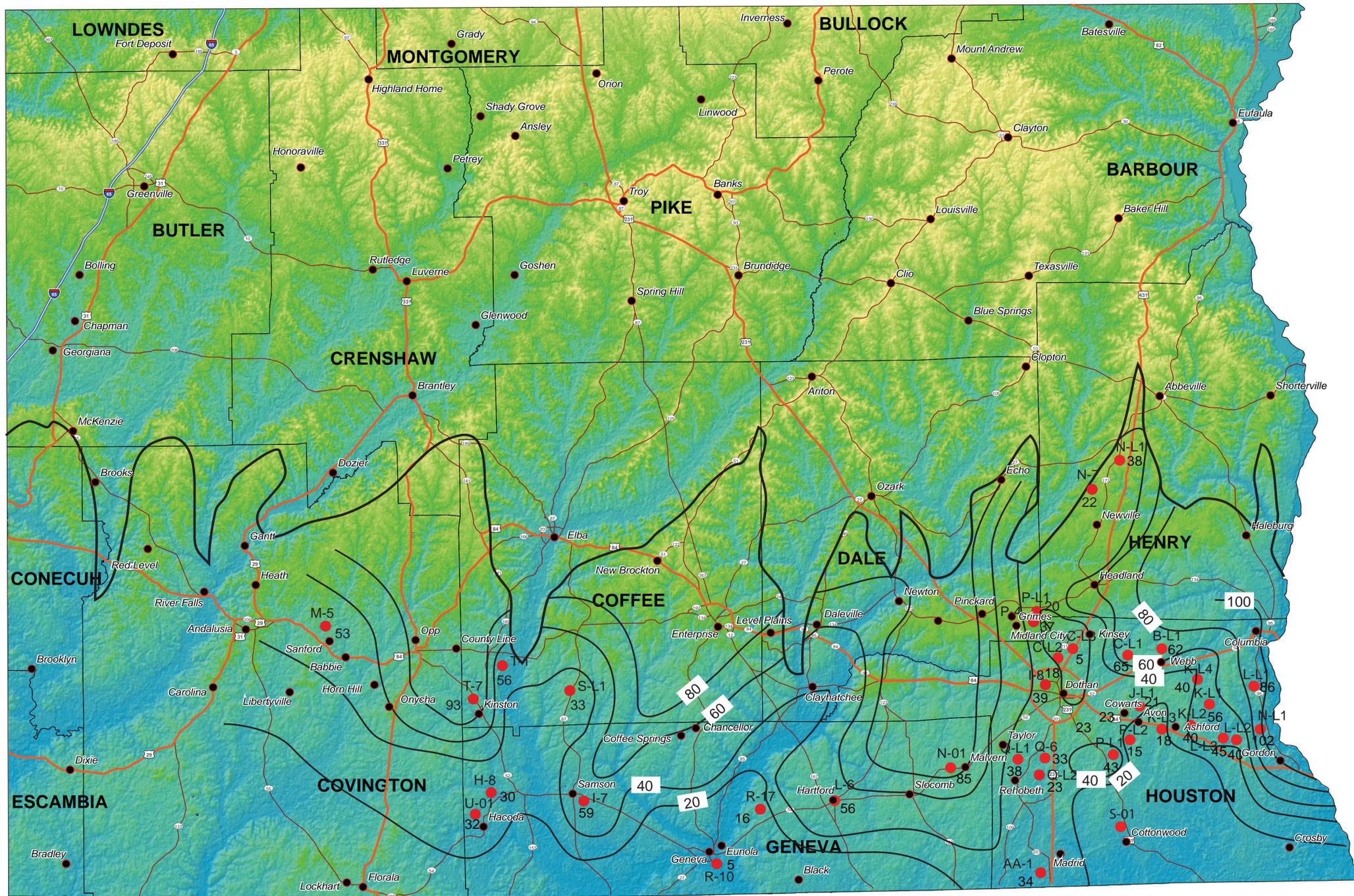
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal well depth (contour interval 100 ft.)

**Depth of Selected Wells Constructed in the Lisbon Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

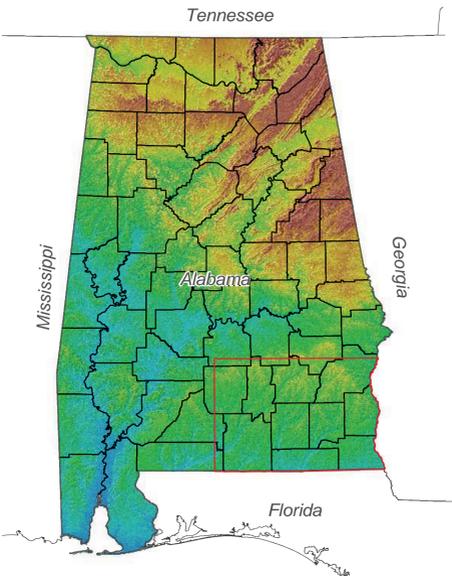
Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road  
 Well and depth to water (ft.)

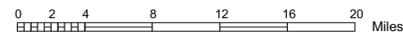
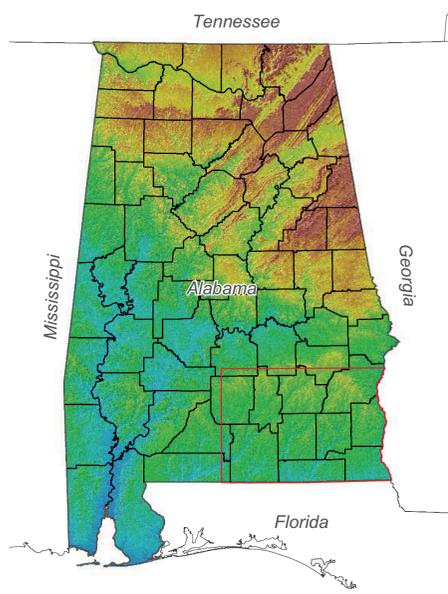
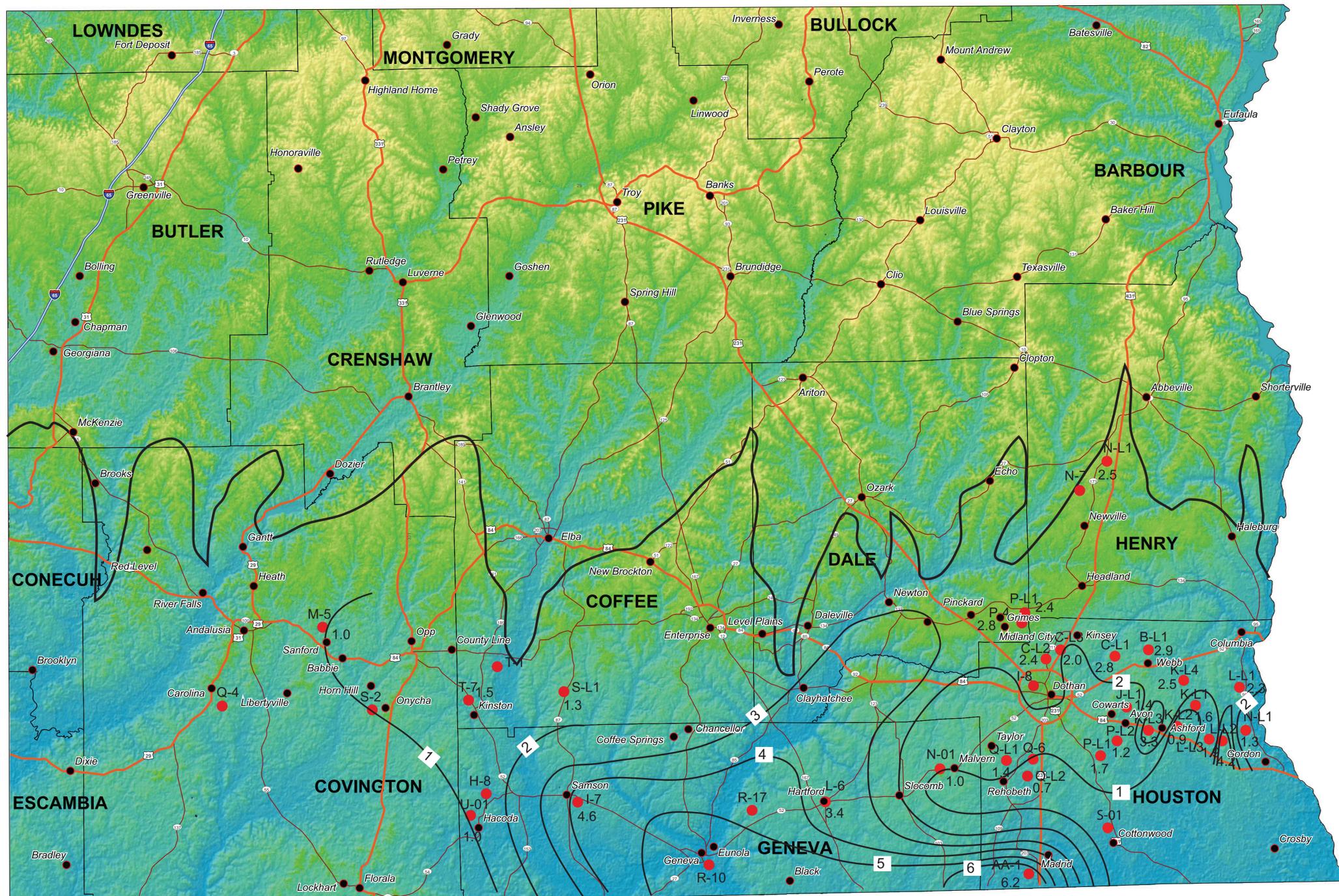
Interstate highway  
 United States highway  
 State highway  
 Line of equal depth to water (contour interval 20 ft.)

**Depth to Groundwater in Selected Wells Constructed in the Lisbon Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

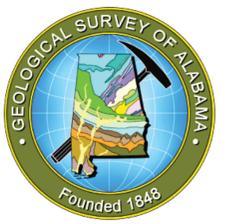
▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 ● I-7 4.6 Well and specific capacity (gpm/ft. drawdown)

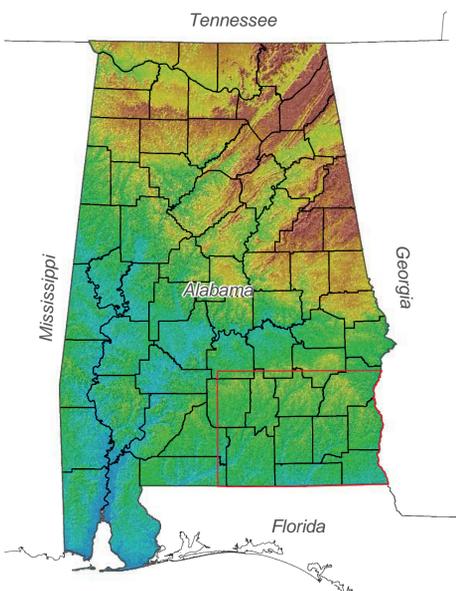
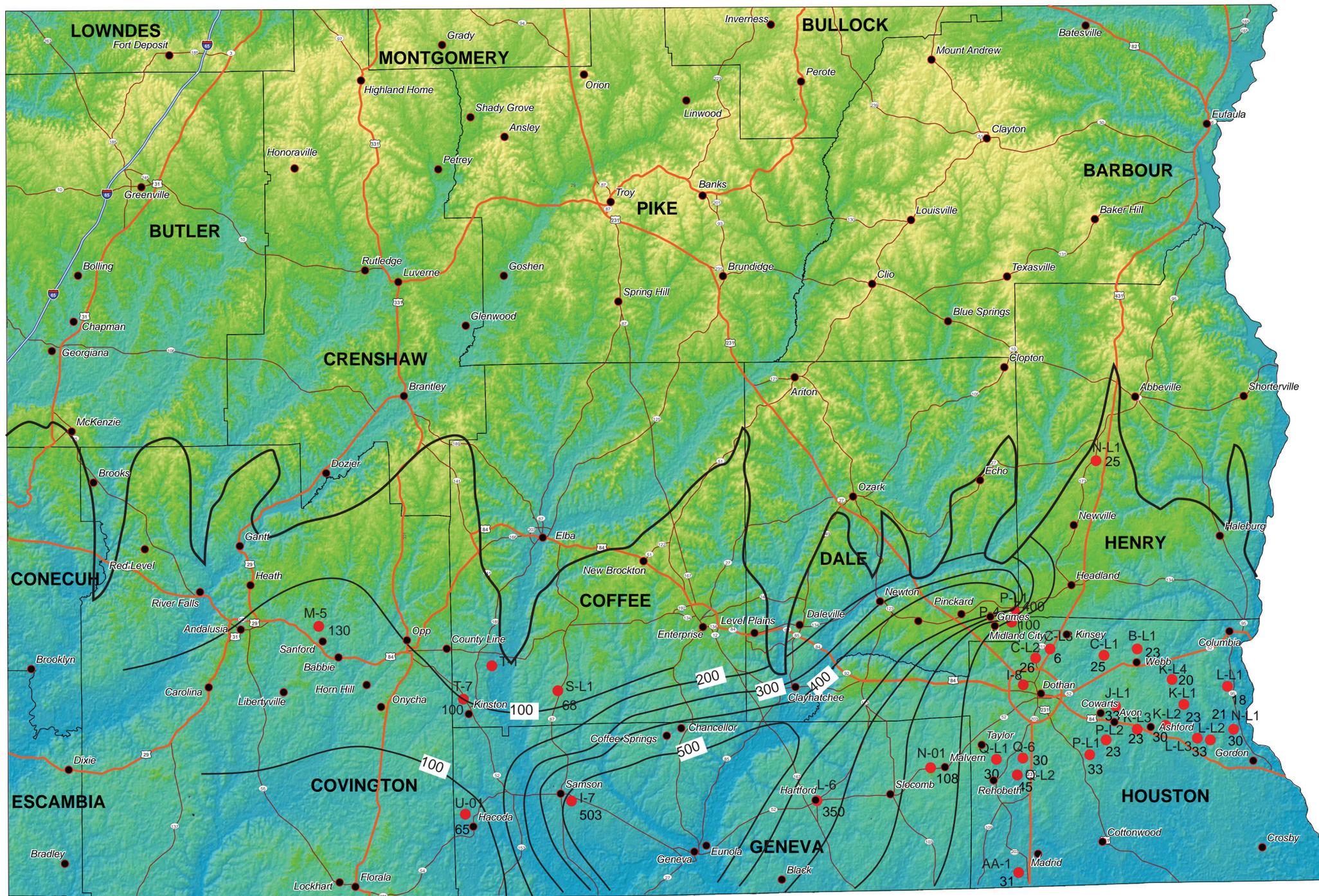
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal specific capacity (contour interval 1 gpm/ft. drawdown)

**Specific Capacities in Selected Wells Constructed in the Lisbon Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 L-6 ● Well and pumping rate (gpm)  
 350

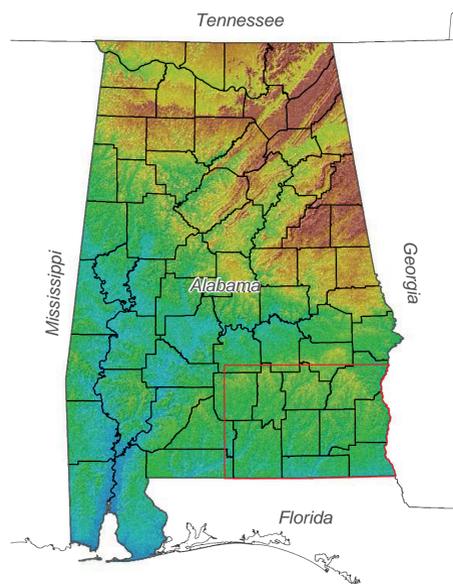
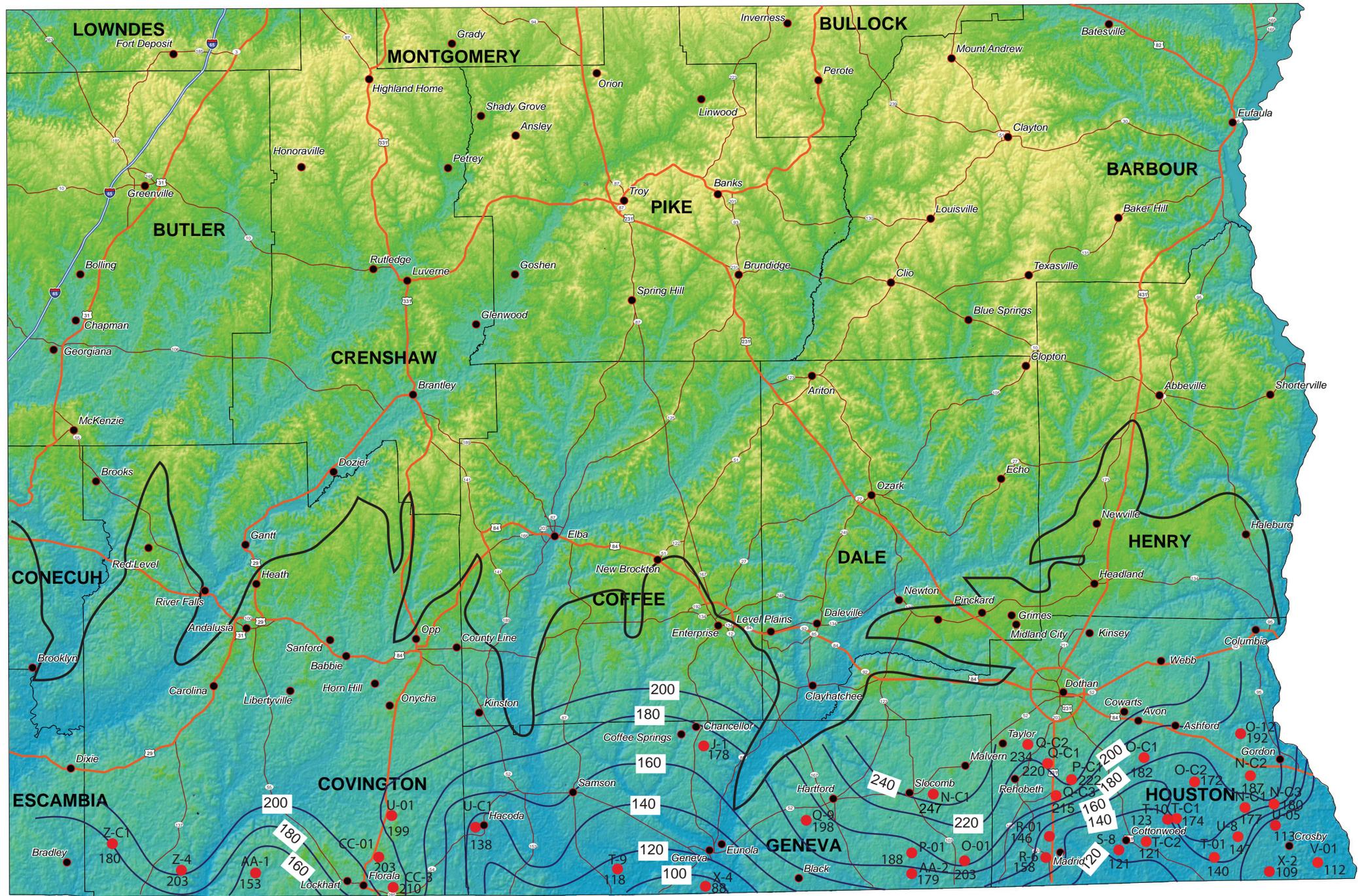
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal pumping rate (contour interval 100 gpm)

**Pumping Rates in Selected Wells Constructed in the Lisbon Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 ● City

▭ Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 T-9  
 ● Well and water level elevation (ft. MSL)  
 118

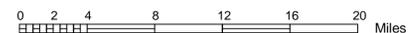
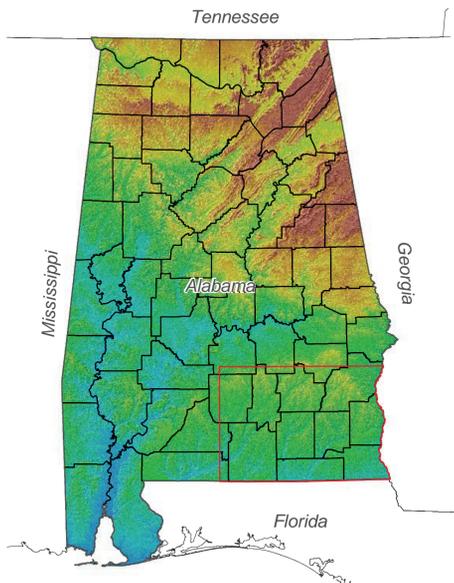
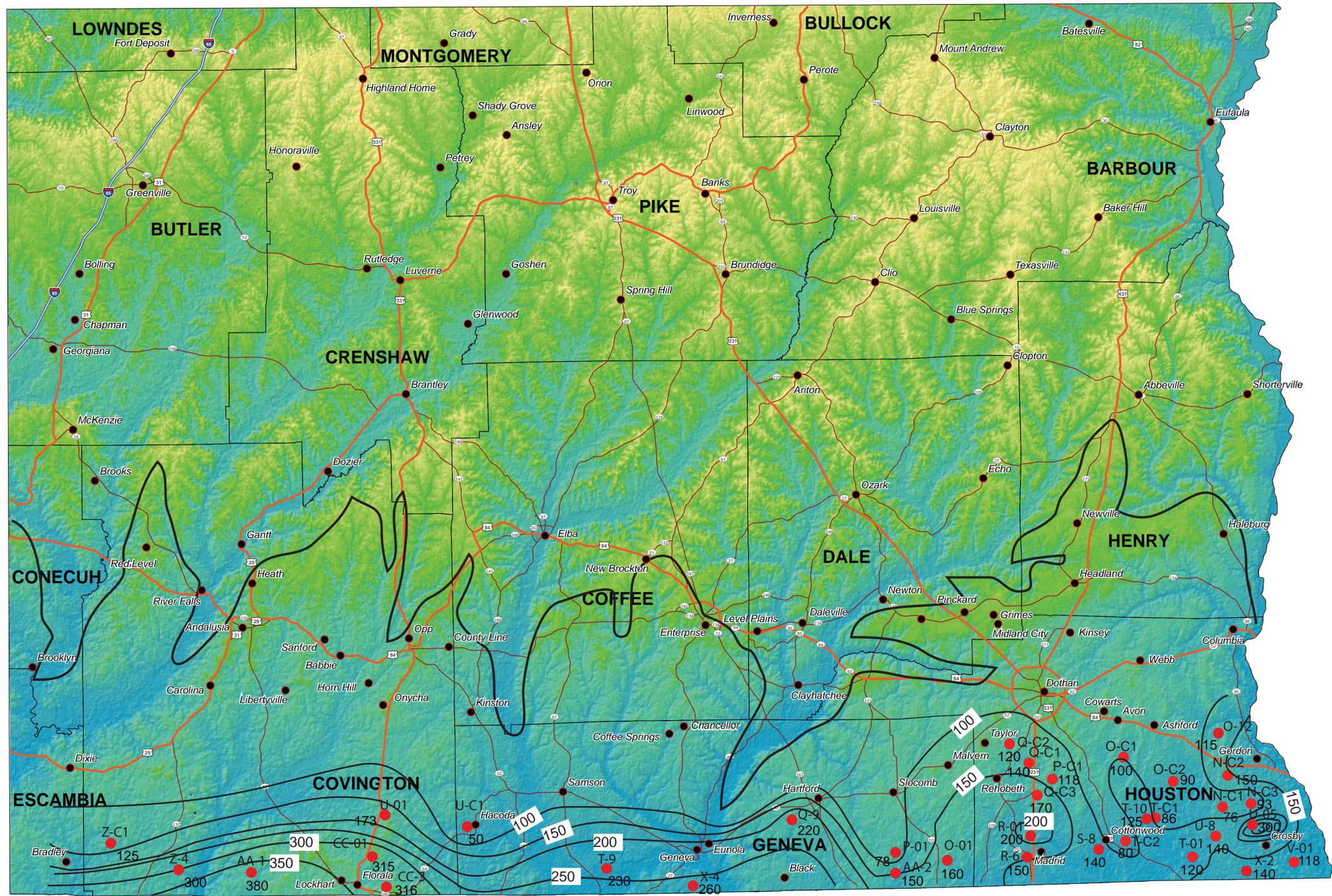
— Interstate highway  
 — United States highway  
 — State highway  
 — Line of equal water level elevation (ft. MSL) (contour interval 20 ft.)

**Potentiometric Surface for the Crystal River Aquifer in Southeast Alabama**

By Marlon R. Cook  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

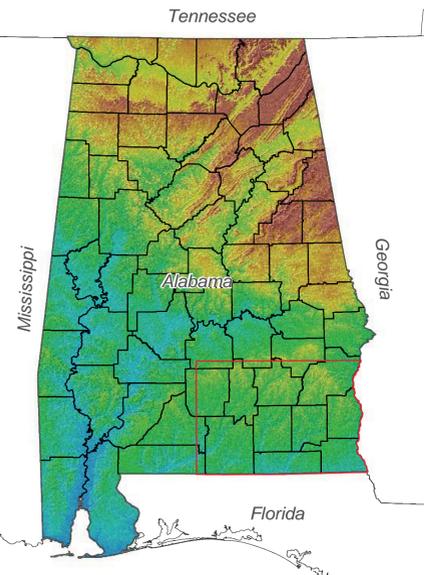
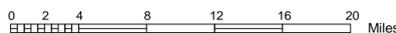
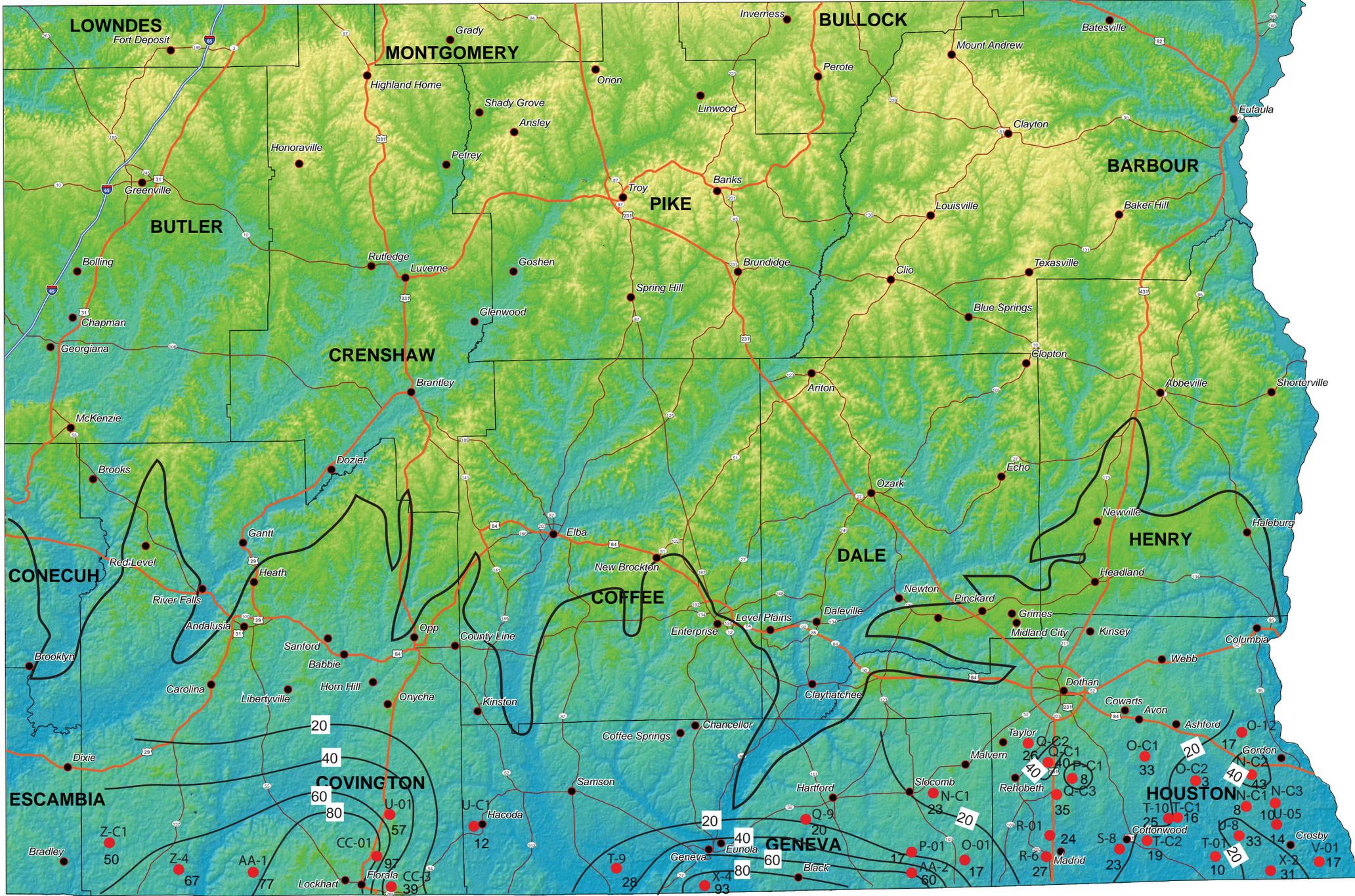
- |  |   |  |  |
|--|---|--|--|
| <p>Elevation in feet above NGVD 1929</p> <ul style="list-style-type: none"> <li>High : 715</li> <li>Low : 0</li> <li>City</li> </ul> | <ul style="list-style-type: none"> <li>Southeast Alabama groundwater irrigation assessment area</li> <li>County boundary</li> <li>Rivers</li> </ul> | <ul style="list-style-type: none"> <li>Limited access interstate</li> <li>Highway</li> <li>Major road</li> <li>X-4 Well and depth (ft.)</li> </ul> | <ul style="list-style-type: none"> <li>Interstate highway</li> <li>United States highway</li> <li>State highway</li> <li>Line of equal well depth (contour interval 50 ft.)</li> </ul> |
|--|---|--|--|

**Depth of Selected Wells Constructed in the Crystal River Aquifer in Southeast Alabama**

By  
Marlon R. Cook  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist

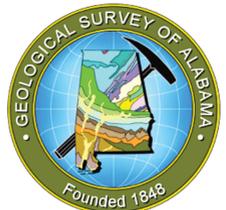


**Explanation**

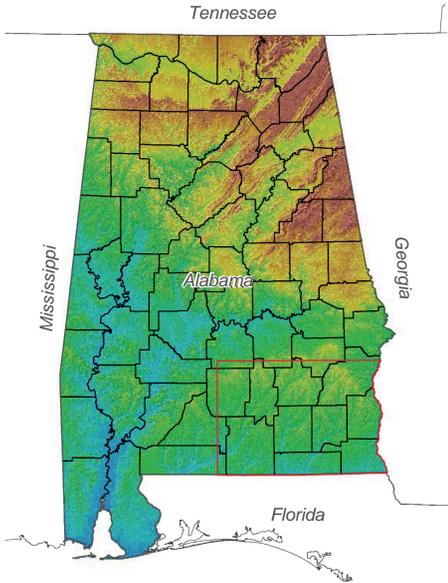
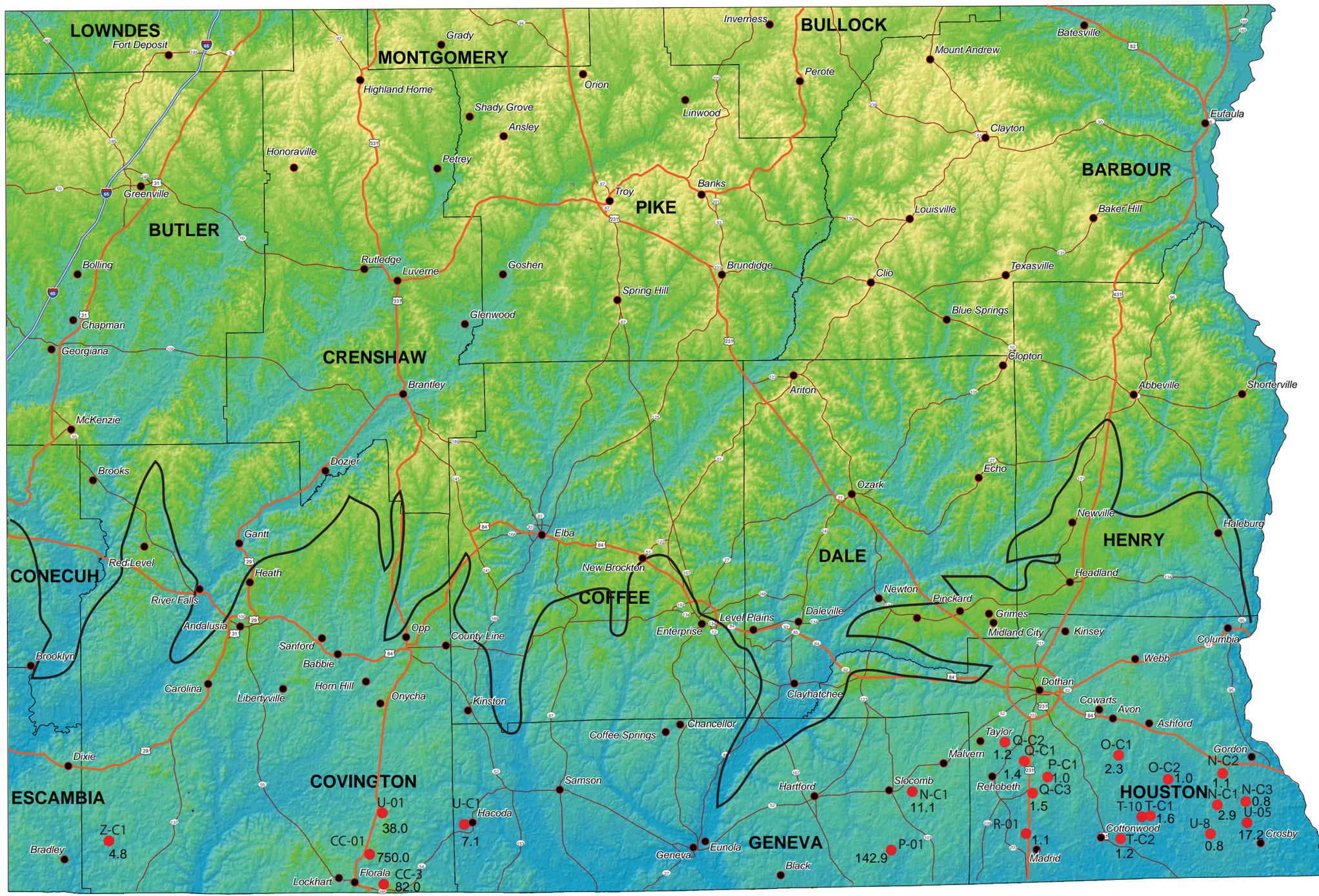
- Elevation in feet above NGVD 1929
  - High : 715
  - Low : 0
- City
- ▭ Southeast Alabama groundwater irrigation assessment area
- County boundary
- Rivers
- Limited access interstate
- Highway
- Major road
- Well and depth to water (ft.)  
O-C1 33
- Interstate highway
- United States highway
- State highway
- Line of equal depth to water (contour interval 20 ft.)

**Depth to Groundwater in Selected Wells Constructed in the Crystal River Aquifer in Southeast Alabama**

By  
Marlon R. Cook  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

Southeast Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road

Interstate highway  
 United States highway  
 State highway

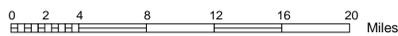
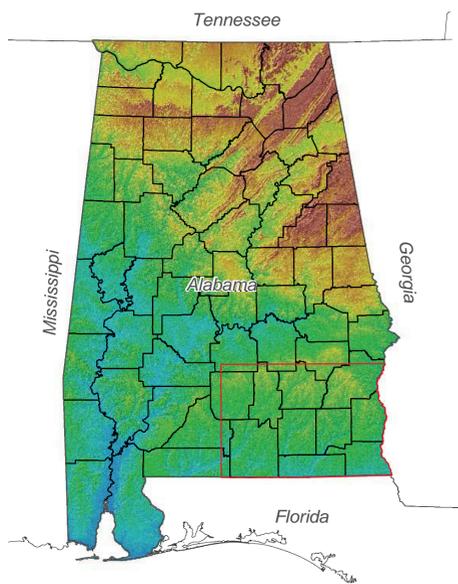
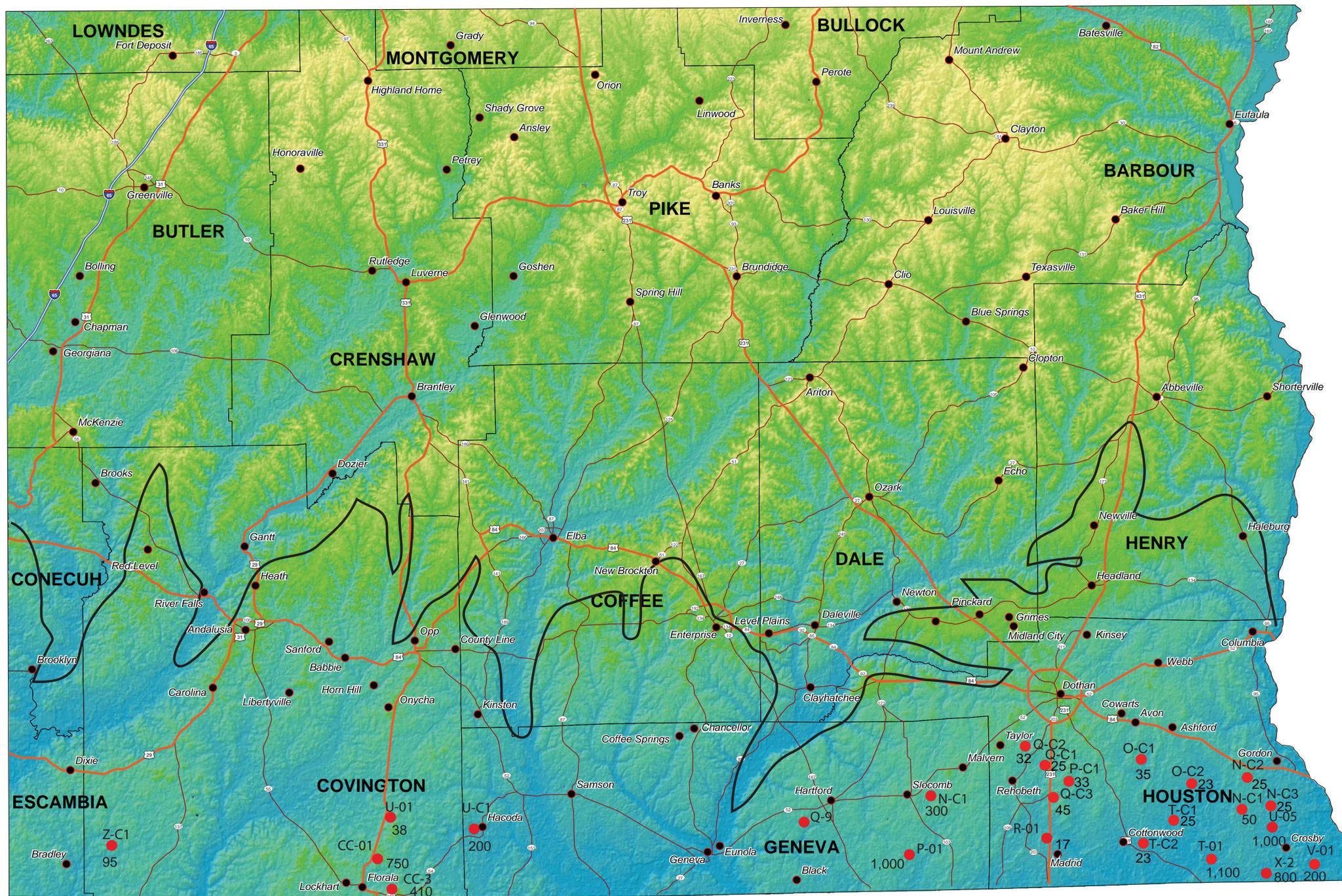
N-C1  
 Well and specific capacity (gpm/ft. drawdown)  
 11.1

**Specific Capacities in Selected Wells Constructed in the Crystal River Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist



**Explanation**

Elevation in feet above NGVD 1929  
 High : 715  
 Low : 0  
 City

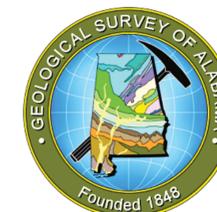
— Southeast Alabama groundwater irrigation assessment area  
 — County boundary  
 — Rivers

— Limited access interstate  
 — Highway  
 — Major road  
 O-C1 Well and pumping rate (gpm)  
 35

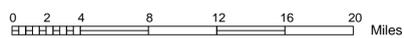
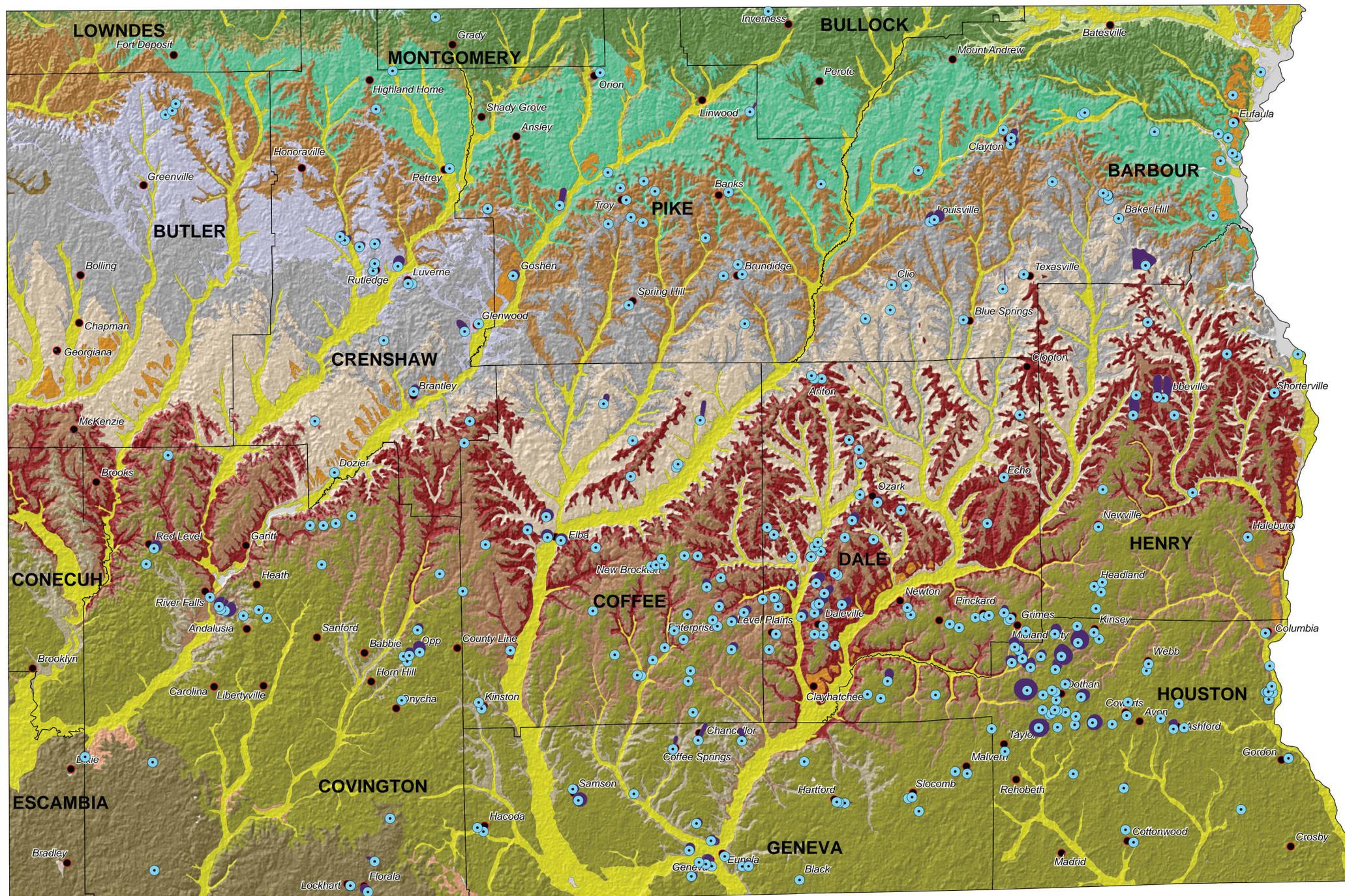
— Interstate highway  
 — United States highway  
 — State highway

**Pumping Rates in Selected Wells Constructed in the Crystal River Aquifer in Southeast Alabama**

By  
 Marlon R. Cook  
 2011



Berry H. (Nick) Tew, Jr.  
 State Geologist

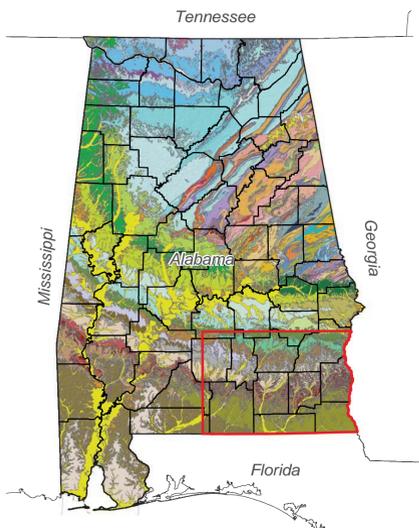


**Explanation**

- |   |  |  |   |
|---|--|--|---|
| <p><b>Eocene</b></p> <ul style="list-style-type: none"> <li>Jackson Group undifferentiated</li> <li>Lisbon Formation</li> <li>Tallahatta Formation</li> <li>Hatchetigbee Formation</li> </ul> <p><b>Paleocene</b></p> <ul style="list-style-type: none"> <li>Tusahoma Sand</li> <li>Nanafalia Formation</li> <li>Naheola Formation</li> <li>Porters Creek Formation</li> <li>Clayton Formation</li> </ul> | <p><b>Quaternary</b></p> <ul style="list-style-type: none"> <li>Alluvial, coastal, and low terrace</li> <li>High terrace deposits</li> <li>Citronelle Formation</li> </ul> <p><b>Tertiary</b></p> <ul style="list-style-type: none"> <li>Miocene Series undifferentiated</li> <li>Oligocene Series undifferentiated</li> <li>Eocene-Oligocene</li> <li>Residuum</li> </ul> | <p><b>Cretaceous</b></p> <ul style="list-style-type: none"> <li>Prairie Bluff Chalk</li> <li>Providence Sand</li> <li>Ripley Formation</li> <li>Demopolis Chalk</li> <li>Cusseta Sand Member of the Ripley Formation</li> <li>Blufftown Formation</li> <li>Other Symbols</li> <li>Water</li> </ul> | <ul style="list-style-type: none"> <li>Southeast Alabama groundwater irrigation assessment area</li> <li>County boundary</li> <li>City</li> <li>Public water supply well</li> <li>Source water assessment area</li> </ul> |
|---|--|--|---|

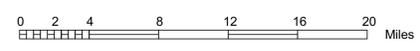
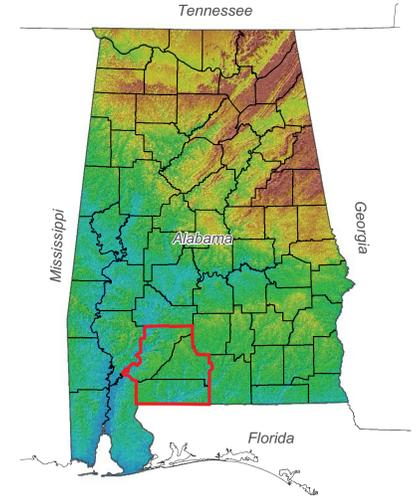
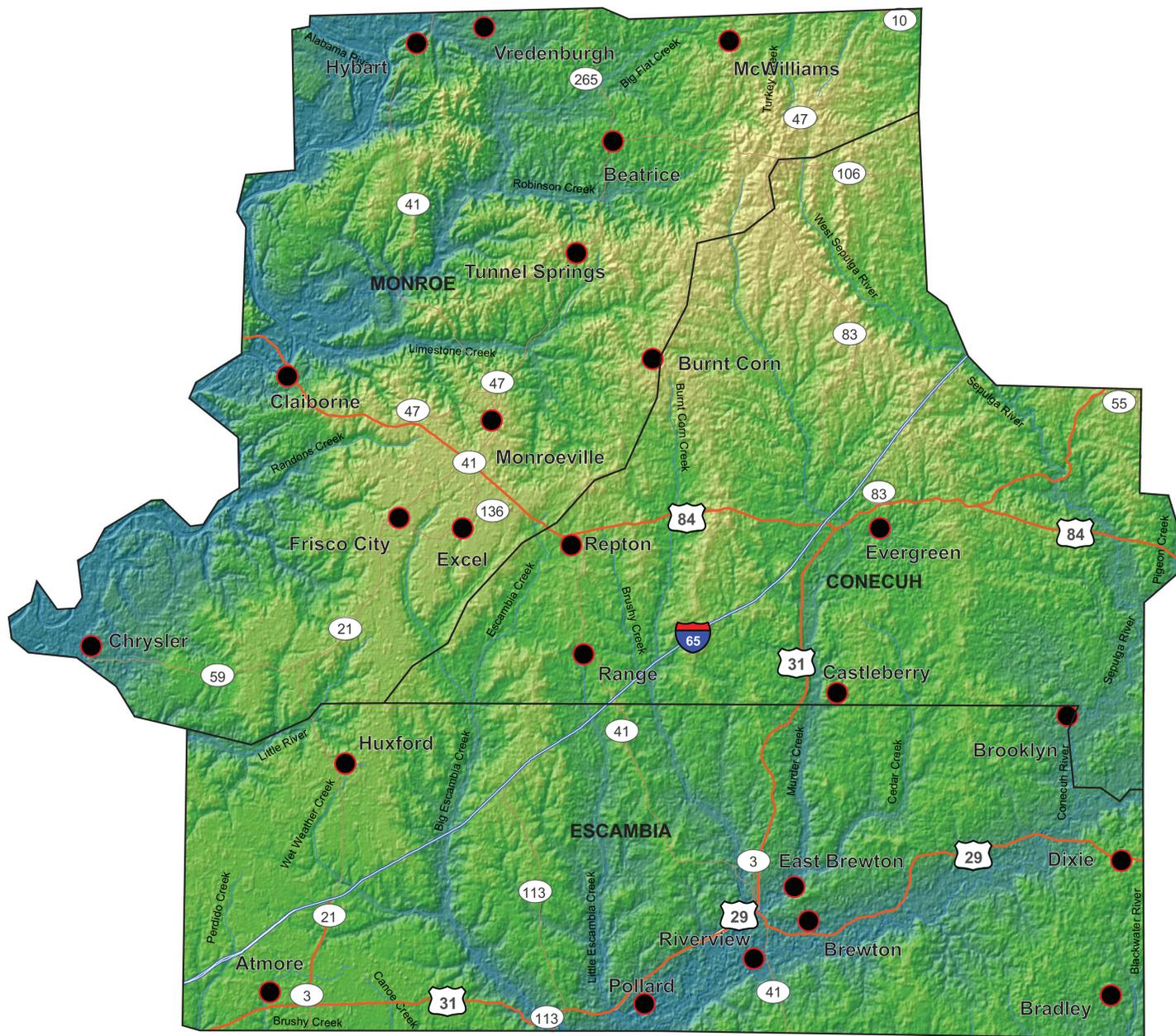
**GEOLOGIC MAP AND LOCATION OF PUBLIC WATER SUPPLY WELLS AND SOURCE WATER ASSESSMENT AREAS FOR THE SOUTHEAST ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(Geology from Geological Survey of Alabama, 2006)

By  
Alana Rogers  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist





**Explanation**

Elevation in feet above NGVD 1929  
 High : 614  
 Low : 13  
 ● City

South-central Alabama groundwater irrigation assessment area  
 County boundary  
 Rivers

Limited access interstate  
 Highway  
 Major road

Interstate highway  
 United States highway  
 State highway

**LOCATION MAP OF THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

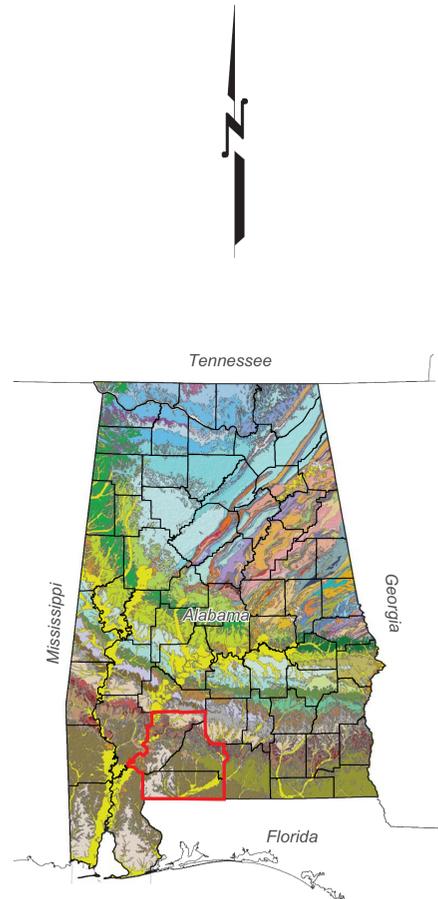
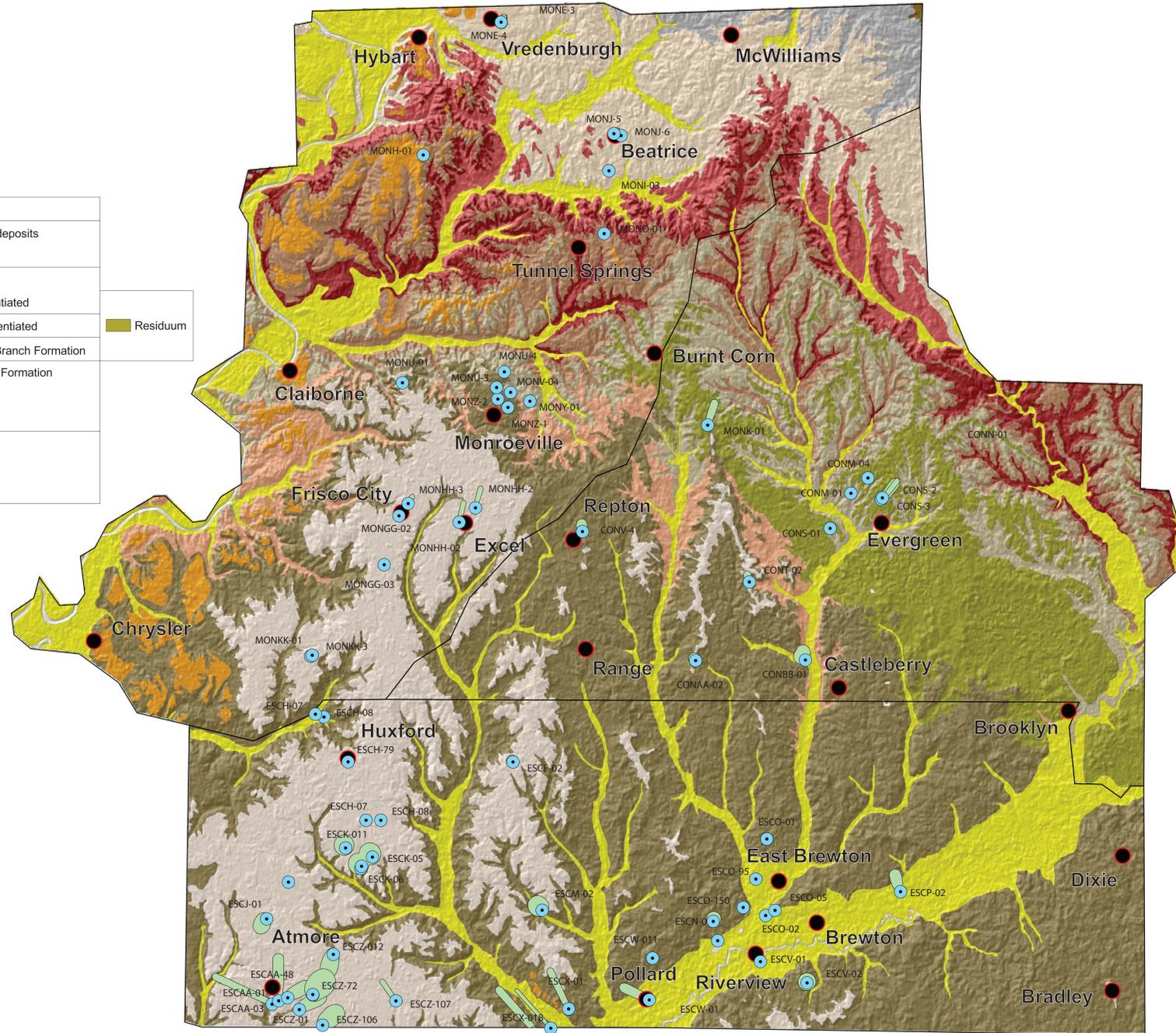
By  
 Blakeney Gillett  
 2011



**Explanation**

- County boundary
- City
- Public water supply well, SWAA, and GSA well number

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT	
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits	
			High terrace deposits	
Tertiary	Pliocene and Miocene		Citronelle Formation	
			Miocene Series undifferentiated	
	Oligocene	Vicksburg	Oligocene Series undifferentiated	
		Jackson	Yazoo Clay and Moodys Branch Formation	
	Eocene	Claiborne		Gosport Sand and Lisbon Formation
				Lisbon Formation
		Wilcox		Tallahatta Formation
				Hatchetigbee Formation
	Paleocene		Tusahoma Sand	
			Nanafalia Formation	



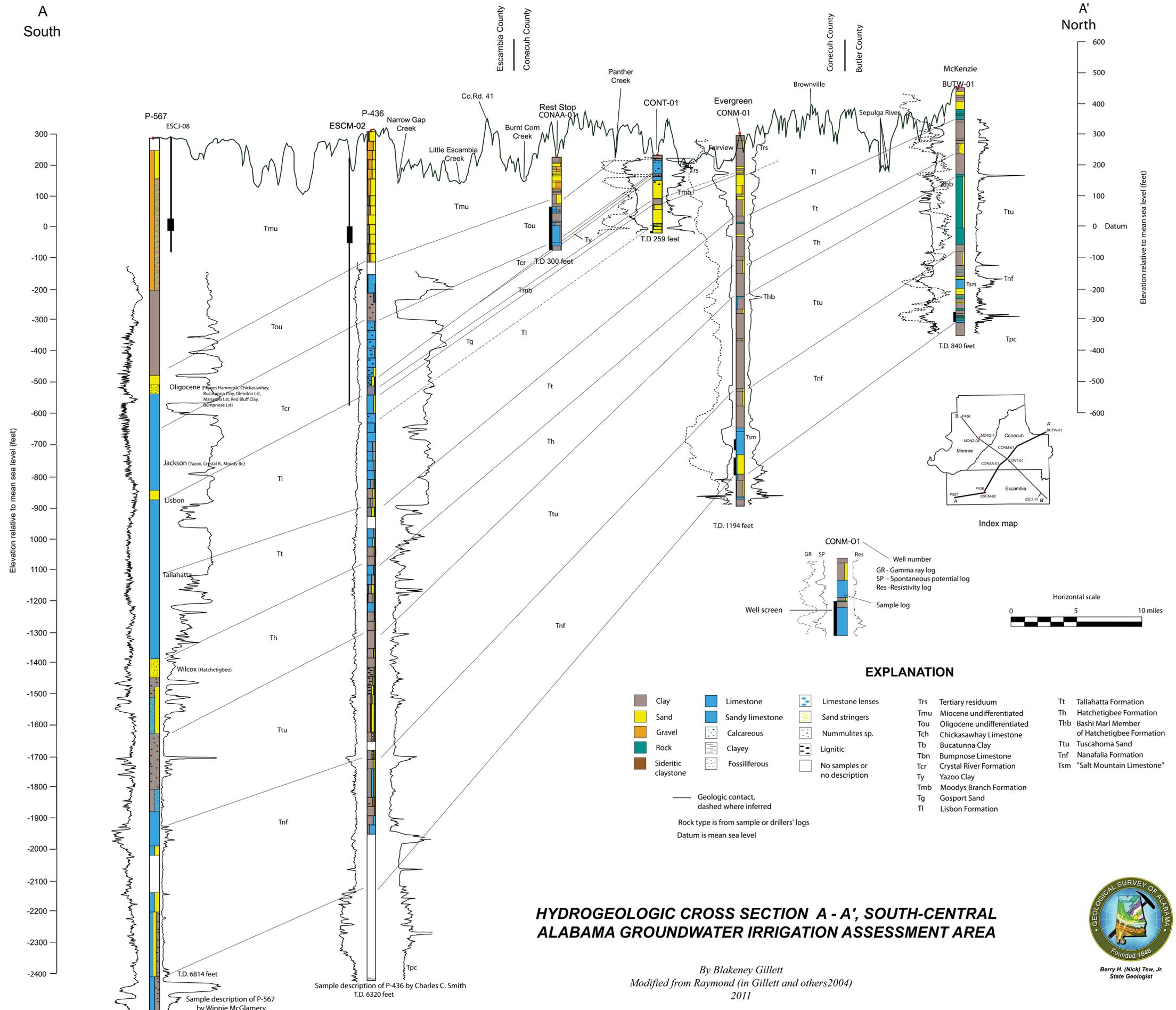
**GEOLOGIC MAP, LOCATION OF PUBLIC WATER SUPPLY WELLS, AND SOURCE WATER ASSESSMENT AREAS FOR THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

By  
Blakeney Gillett  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist

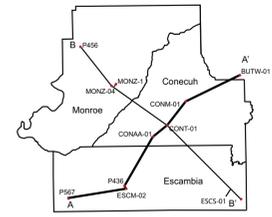


A  
South

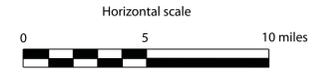
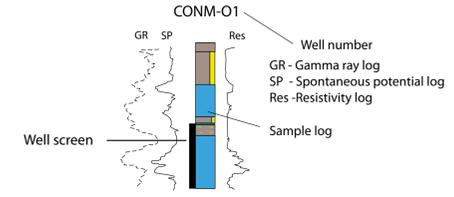
A'  
North

Elevation relative to mean sea level (feet)

Elevation relative to mean sea level (feet)



Index map



**EXPLANATION**

- |                     |                 |                              |     |                            |     |   |
|---------------------|-----------------|------------------------------|-----|----------------------------|-----|---|
| Clay                | Limestone       | Limestone lenses             | Trs | Tertiary residuum          | Tt  | Tallahatta Formation                        |
| Sand                | Sandy limestone | Sand stringers               | Tmu | Miocene undifferentiated   | Th  | Hatchetigbee Formation                      |
| Gravel              | Calcareous      | Nummulites sp.               | Tou | Oligocene undifferentiated | Thb | Bashi Marl Member of Hatchetigbee Formation |
| Rock                | Clayey          | Lignitic                     | Tch | Chickasawhay Limestone     | Ttu | Tusahoma Sand                               |
| Sideritic claystone | Fossiliferous   | No samples or no description | Tb  | Bucatumna Clay             | Tnf | Nanafalia Formation                         |
|                     |                 |                              | Tbn | Bumpnose Limestone         | Tsm | "Salt Mountain Limestone"                   |
|                     |                 |                              | Tcr | Crystal River Formation    |     |   |
|                     |                 |                              | Ty  | Yazoo Clay                 |     |   |
|                     |                 |                              | Tmb | Moodys Branch Formation    |     |   |
|                     |                 |                              | Tg  | Gosport Sand               |     |   |
|                     |                 |                              | TI  | Lisbon Formation           |     |   |
- Geologic contact, dashed where inferred  
 Rock type is from sample or drillers' logs  
 Datum is mean sea level

**HYDROGEOLOGIC CROSS SECTION A - A', SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

By Blakeney Gillett  
 Modified from Raymond (in Gillett and others 2004)  
 2011



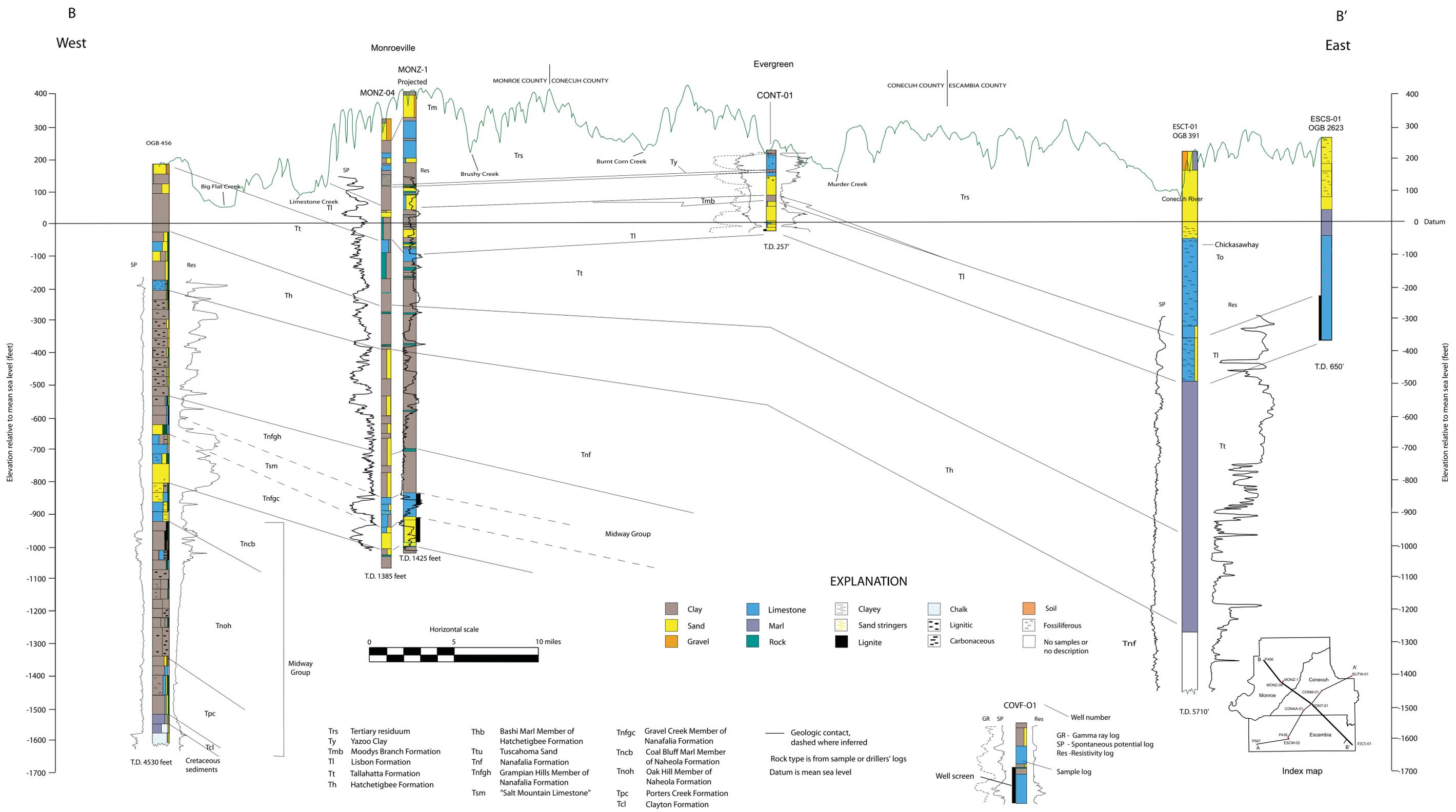
T.D. 6814 feet  
 Sample description of P-567 by Winnie McGlamery  
 Sample description of P-436 by Charles C. Smith  
 T.D. 6320 feet

T.D. 1194 feet

T.D. 840 feet

T.D. 259 feet

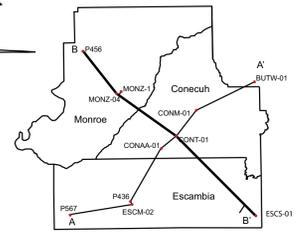
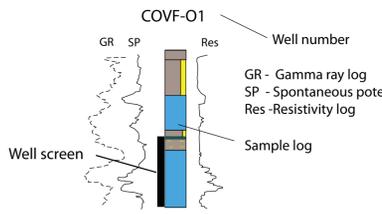
T.D. 300 feet



- |     |                         |      |  |       |   |
|-----|-------------------------|------|--|-------|---|
| Trs | Tertiary residuum       | Thb  | Bashi Marl Member of Hatchetigbee Formation  | Tnfgc | Gravel Creek Member of Nanafalia Formation  |
| Ty  | Yazoo Clay              | Ttu  | Tusahoma Sand                                | Tncb  | Coal Bluff Marl Member of Naheola Formation |
| Tmb | Moodys Branch Formation | Tnf  | Nanafalia Formation                          | Tnoh  | Oak Hill Member of Naheola Formation        |
| Tl  | Lisbon Formation        | Tnfg | Grampian Hills Member of Nanafalia Formation | Tpc   | Porters Creek Formation                     |
| Tt  | Tallahatta Formation    | Tsm  | "Salt Mountain Limestone"                    | Tcl   | Clayton Formation                           |
| Th  | Hatchetigbee Formation  |      |  |       |   |

- EXPLANATION**
- |  |        |  |           |  |                |  |              |  |                              |
|--|--------|--|-----------|--|----------------|--|--------------|--|------------------------------|
|  | Clay   |  | Limestone |  | Clayey         |  | Chalk        |  | Soil                         |
|  | Sand   |  | Marl      |  | Sand stringers |  | Lignitic     |  | Fossiliferous                |
|  | Gravel |  | Rock      |  | Lignite        |  | Carbonaceous |  | No samples or no description |

— Geologic contact, dashed where inferred  
 Rock type is from sample or drillers' logs  
 Datum is mean sea level



**HYDROGEOLOGIC CROSS SECTION B-B',  
 SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

By Blakeney Gillett  
 Modified from Raymond (in Gillett and others 2004)  
 2011

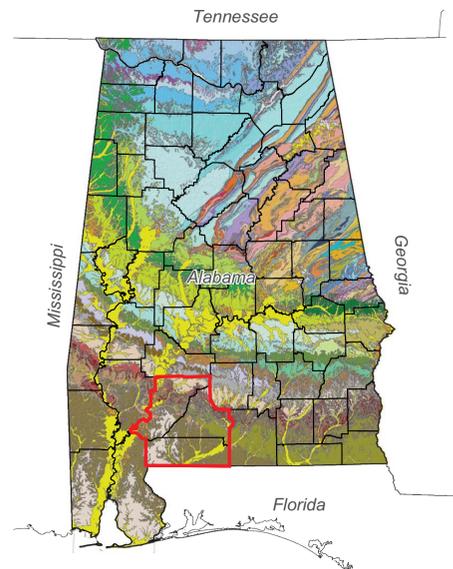
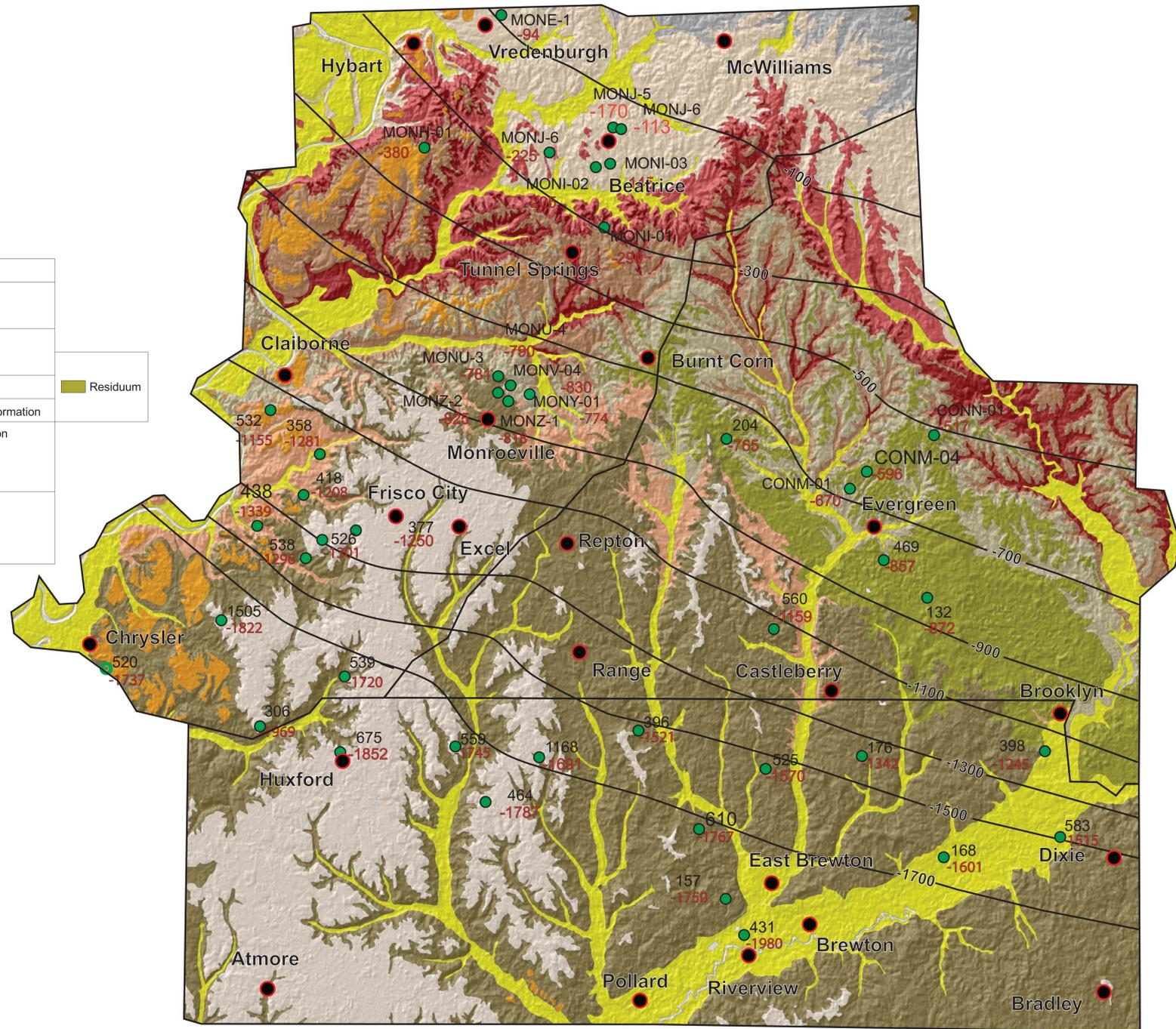


**BERRY H. (NICK) TEW, JR.**  
 State Geologist

**Explanation**

- County boundary
- City
- 600 Contour interval: 200 feet. Datum sea level.
- 157 ● Oil and gas test well and State Oil and Gas Board Permit Number or GSA identifiers
- 1750 ● Elevation, in feet relative to mean sea level, of top of Selma Group

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits
			High terrace deposits
Tertiary	Pliocene and Miocene		Citronelle Formation
			Miocene Series undifferentiated
	Oligocene	Vicksburg	Oligocene Series undifferentiated
		Jackson	Yazoo Clay and Moodys Branch Formation
	Eocene	Claiborne	Gosport Sand and Lisbon Formation
			Lisbon Formation
			Tallahatta Formation
		Wilcox	Hatchetigbee Formation
	Paleocene	Wilcox	Tusahoma Sand
			Nanafalia Formation



**CONFIGURATION OF THE TOP OF THE NANAFALIA FORMATION  
IN THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

By  
Blakeney Gillett  
2011

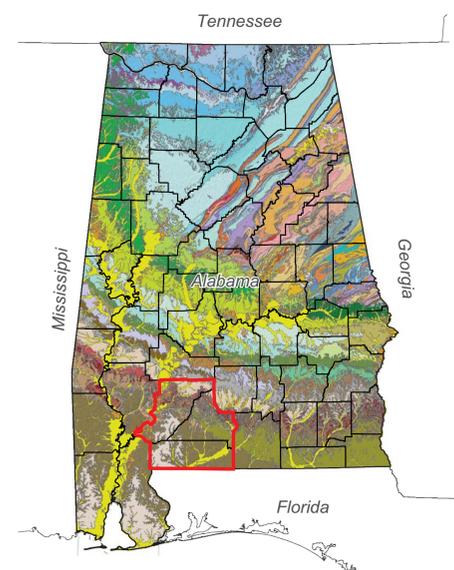
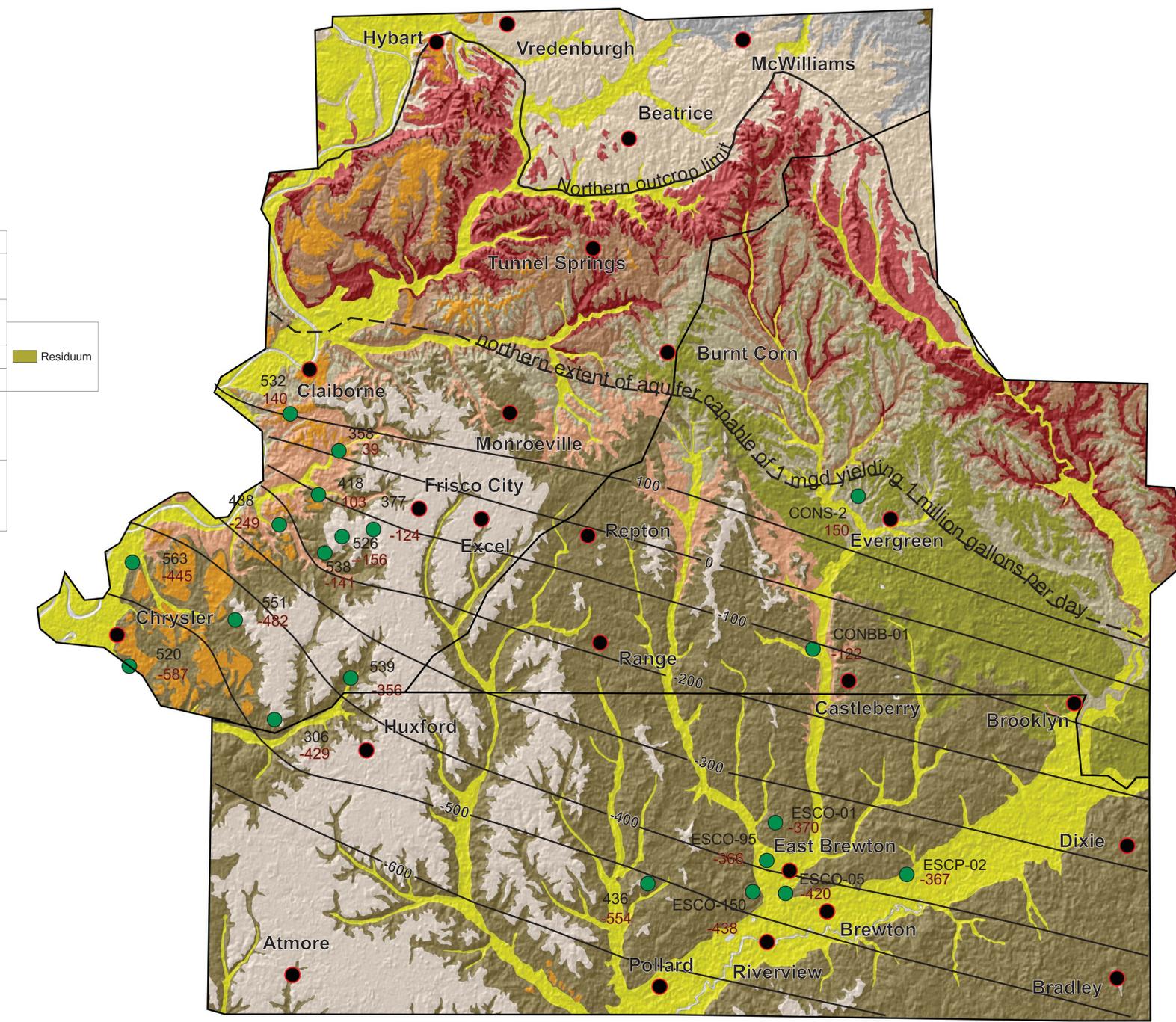


Berry H. (Nick) Tew, Jr.  
State Geologist

**Explanation**

-  County boundary
-  City
-  Contour interval: 200 feet. Datum sea level.
-  Oil and gas test well and State Oil and Gas Board Permit Number or GSA identifiers  
Elevation, in feet relative to mean sea level, of top of Selma Group

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT	
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits	
			High terrace deposits	
Tertiary	Pliocene and Miocene		Citronelle Formation	
			Miocene Series undifferentiated	
	Oligocene	Vicksburg	Oligocene Series undifferentiated	
		Jackson	Yazoo Clay and Moodys Branch Formation	
	Eocene	Claiborne		Gosport Sand and Lisbon Formation
				Lisbon Formation
			Tallahatta Formation	
			Hatchetigbee Formation	
		Wilcox	Tuscahoma Sand	
	Paleocene		Nanafalia Formation	



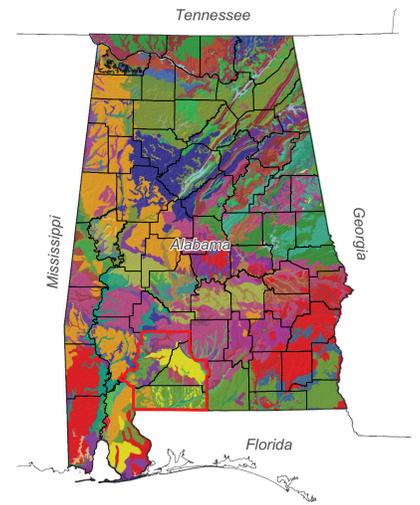
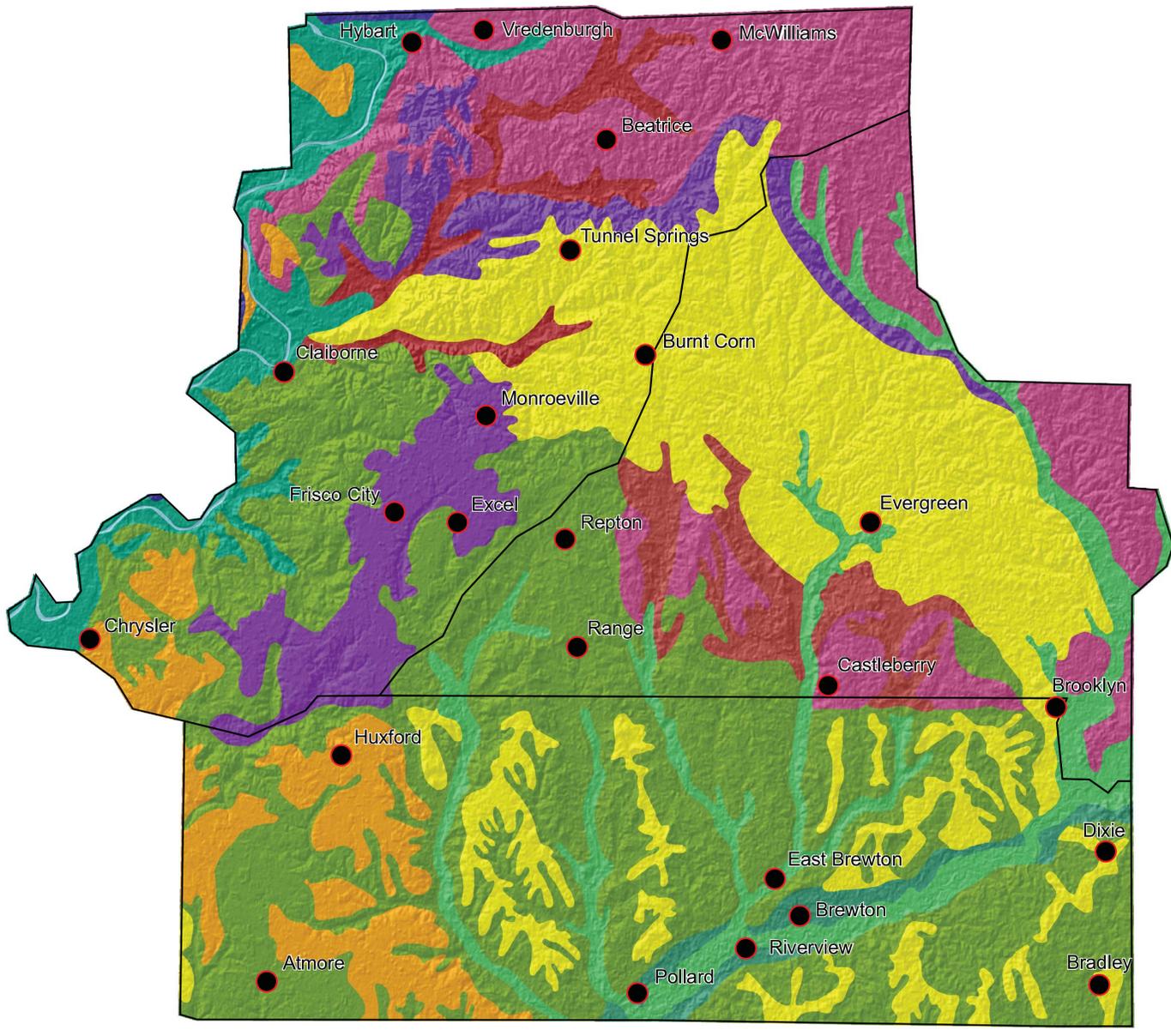
**CONFIGURATION OF THE TOP OF THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

By  
Blakeney Gillett  
2011



Berry H. (Nick) Tow, Jr.  
State Geologist



**Explanation**

- |   |  |
|---|--|
| <b>Ultisols</b>   | <b>Inceptisols</b>   |
| Fine, kaolinitic, thermic Rhodic Kandiudults                      | Fine, mixed, active, acid, thermic Vertic Epiaquepts           |
| Fine-loamy, siliceous, thermic Typic Hapludults and Paleudults    | Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts    |
| Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Typic | Fine-loamy, siliceous, active, acid, thermic Aeric Endoaquepts |
| Fine-loamy, kaolinitic, thermic Plinthic Kandiudults              | <b>Vertisols</b>   |
| Fine-loamy, siliceous, subactive, thermic Rhodic Paleudults       | Very-fine, smectitic, thermic Chromic Dystruderts              |
| Fine, smectitic, thermic Typic Hapludults                         | South-central groundwater irrigation assessment area           |
| Fine, mixed, semiactive, thermic Typic Hapludults                 | County boundary  |
|   | City   |

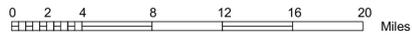
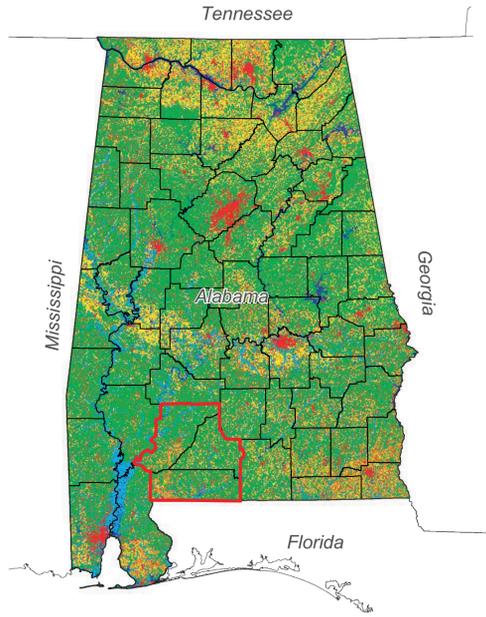
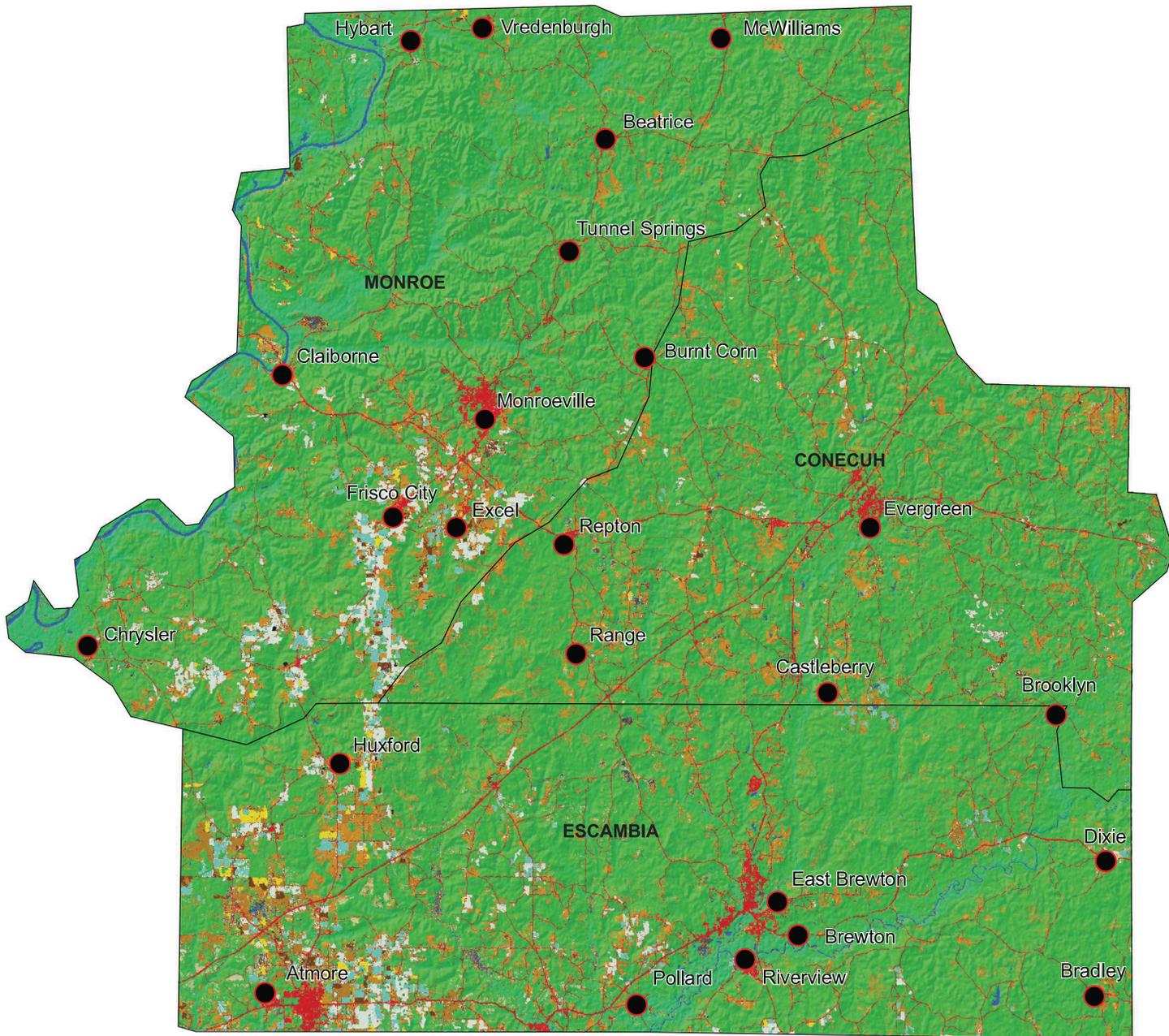
**SOIL ORDER AND TAXONOMIC CLASSIFICATION FOR THE THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(modified from USDA-Cropland Data Layer for Southeastern States, 2010)

By  
Blakeney Gillett  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



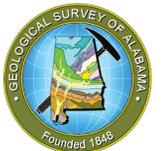
**Explanation**

<b>LULC Classification</b>	Seed/Sod Grass	Open Water	Peanuts
Corn	Pasture/Hay	Developed	Other Symbols
Cotton	Forest	Barren	County boundary
Other Crops	Pecans	Grassland Herbaceous	City
Soybeans	Aquaculture	Wetlands	

**LAND-USE/LAND-COVER CLASSIFICATION FOR THE  
SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

*(LULC- modified from the USDA-Cropland Data Layer for Southeastern States, 2010)*

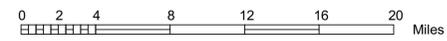
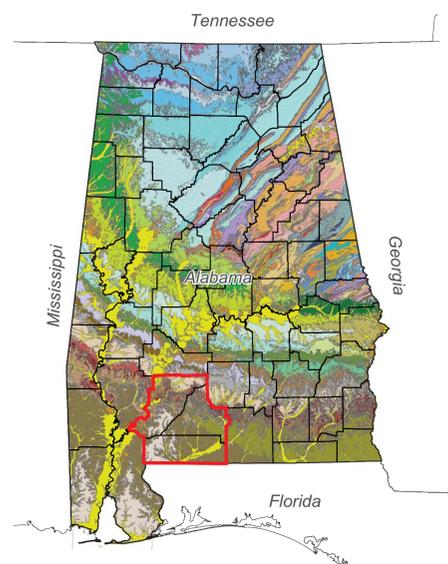
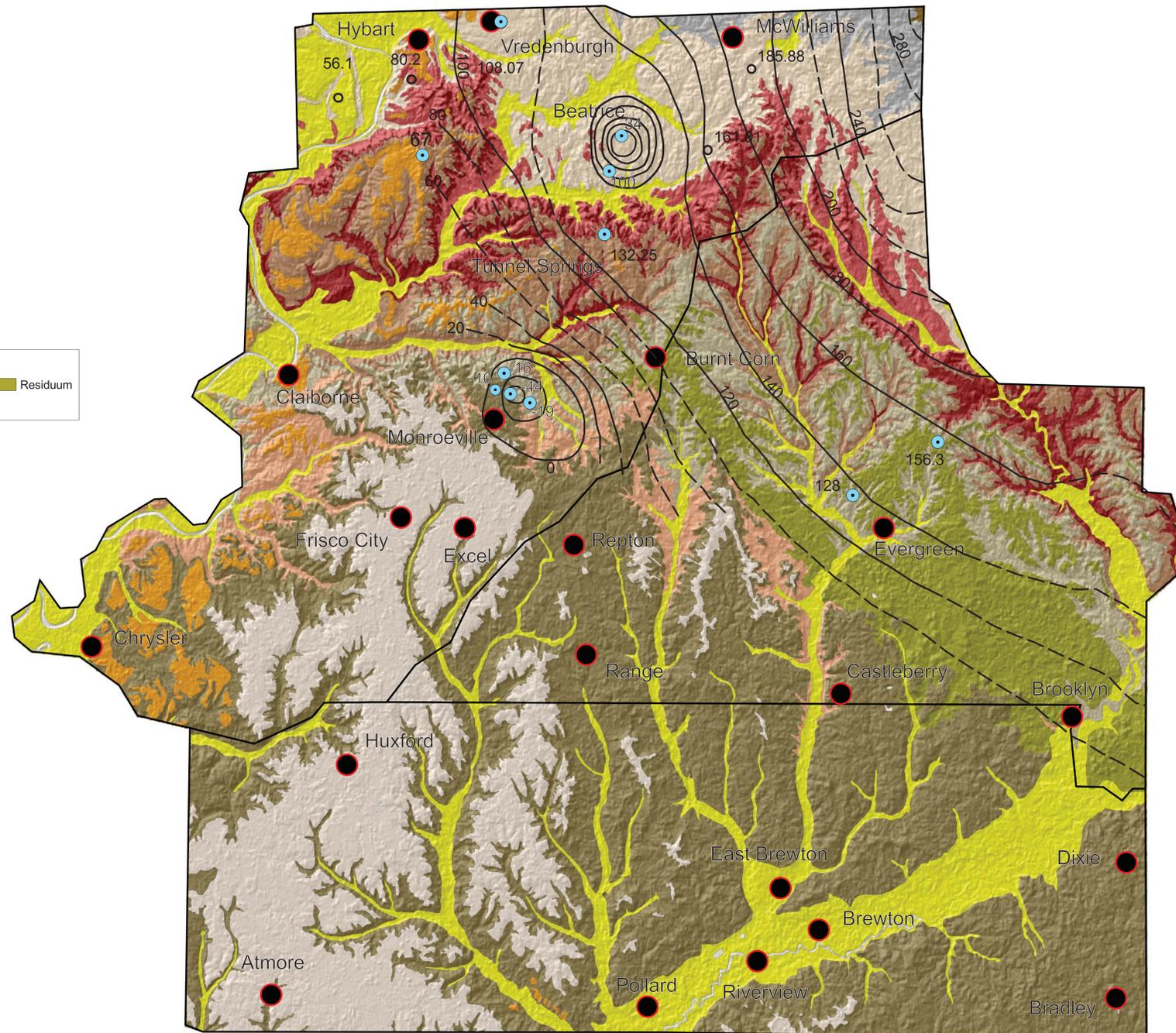
By  
Blakeney Gillett  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist

- Explanation**
- County boundary
  - City
  - 67 Public water supply well and water level in feet above mean sea level
  - 156 Well location and water level in feet below mean sea level

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT	
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits	
			High terrace deposits	
Tertiary	Pliocene and Miocene		Citronelle Formation	
			Miocene Series undifferentiated	
	Oligocene	Vicksburg	Oligocene Series undifferentiated	
		Jackson	Yazoo Clay and Moodys Branch Formation	
	Eocene	Claiborne		Gosport Sand and Lisbon Formation
				Lisbon Formation
			Tallahatta Formation	
			Hatchetigbee Formation	
	Paleocene	Wilcox	Tusahoma Sand	
			Nanafalia Formation	



**CONFIGURATION OF THE POTENTIOMETRIC SURFACE OF THE NANAFALIA AQUIFER IN THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

By  
Blakeney Gillett  
2011

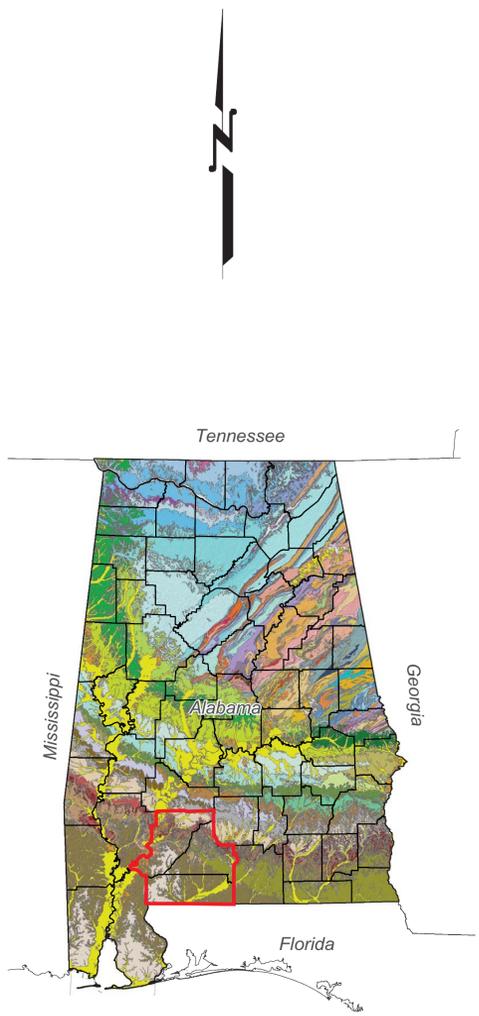
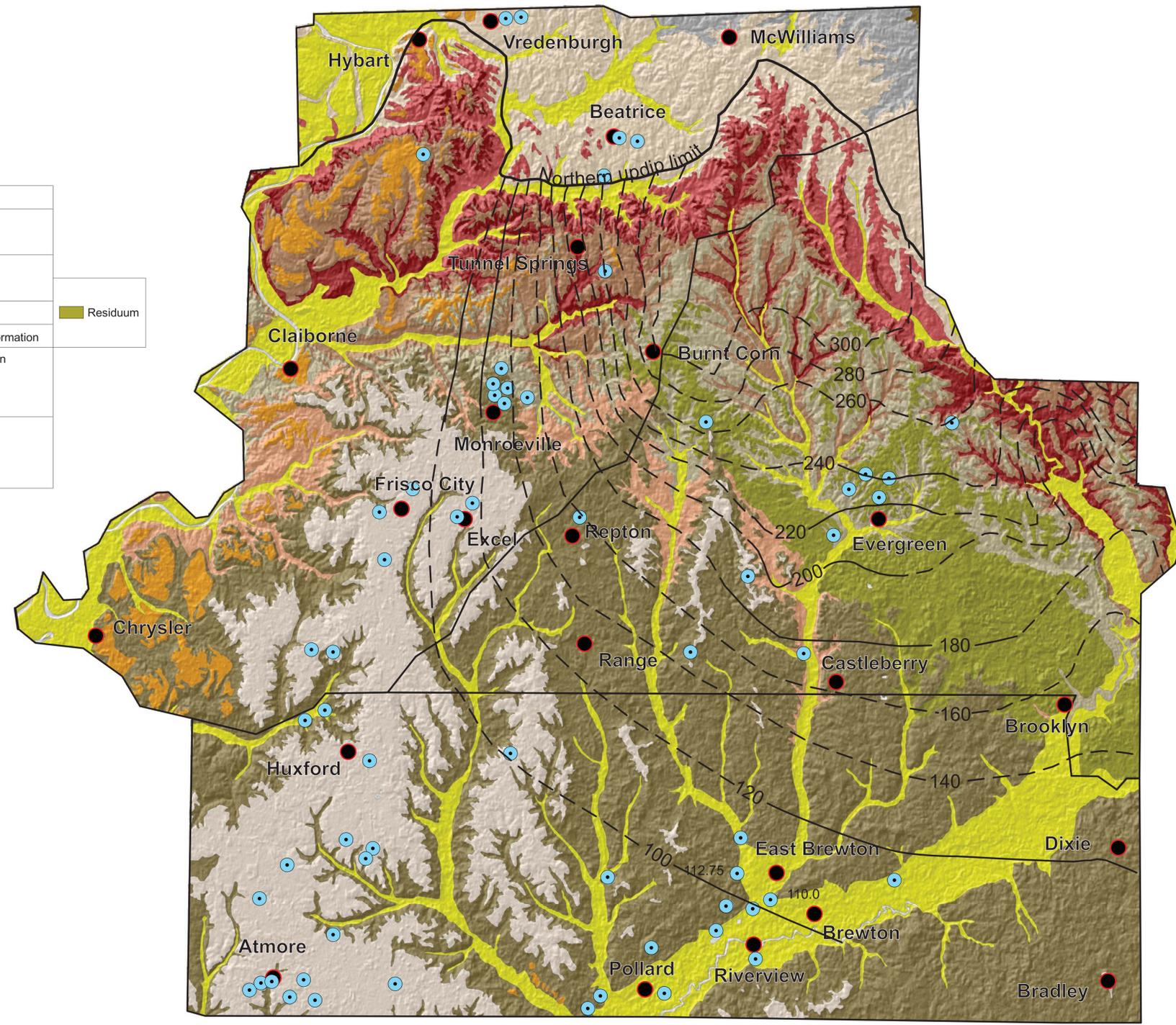


Berry H. (Nick) Tew, Jr.  
State Geologist

**Explanation**

- County boundary
- City
- 200 Potentiometric contour, dashed where inferred. Datum is mean sea level. Contour interval is 20 feet.
- Well location and water level in feet below mean sea level

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits
			High terrace deposits
Tertiary	Pliocene and Miocene		Citronelle Formation
			Miocene Series undifferentiated
	Oligocene	Vicksburg	Oligocene Series undifferentiated
		Jackson	Yazoo Clay and Moodys Branch Formation
	Eocene	Claiborne	Gosport Sand and Lisbon Formation
			Lisbon Formation
		Wilcox	Tallahatta Formation
			Hatchetigbee Formation
	Paleocene	Wilcox	Tusahoma Sand
			Nanafalia Formation



**CONFIGURATION OF THE POTENTIOMETRIC SURFACE OF THE LISBON AQUIFER IN THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

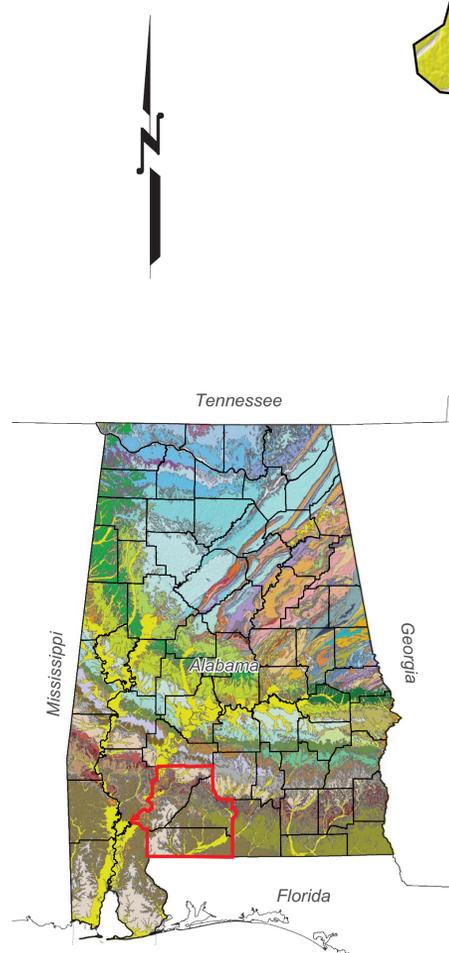
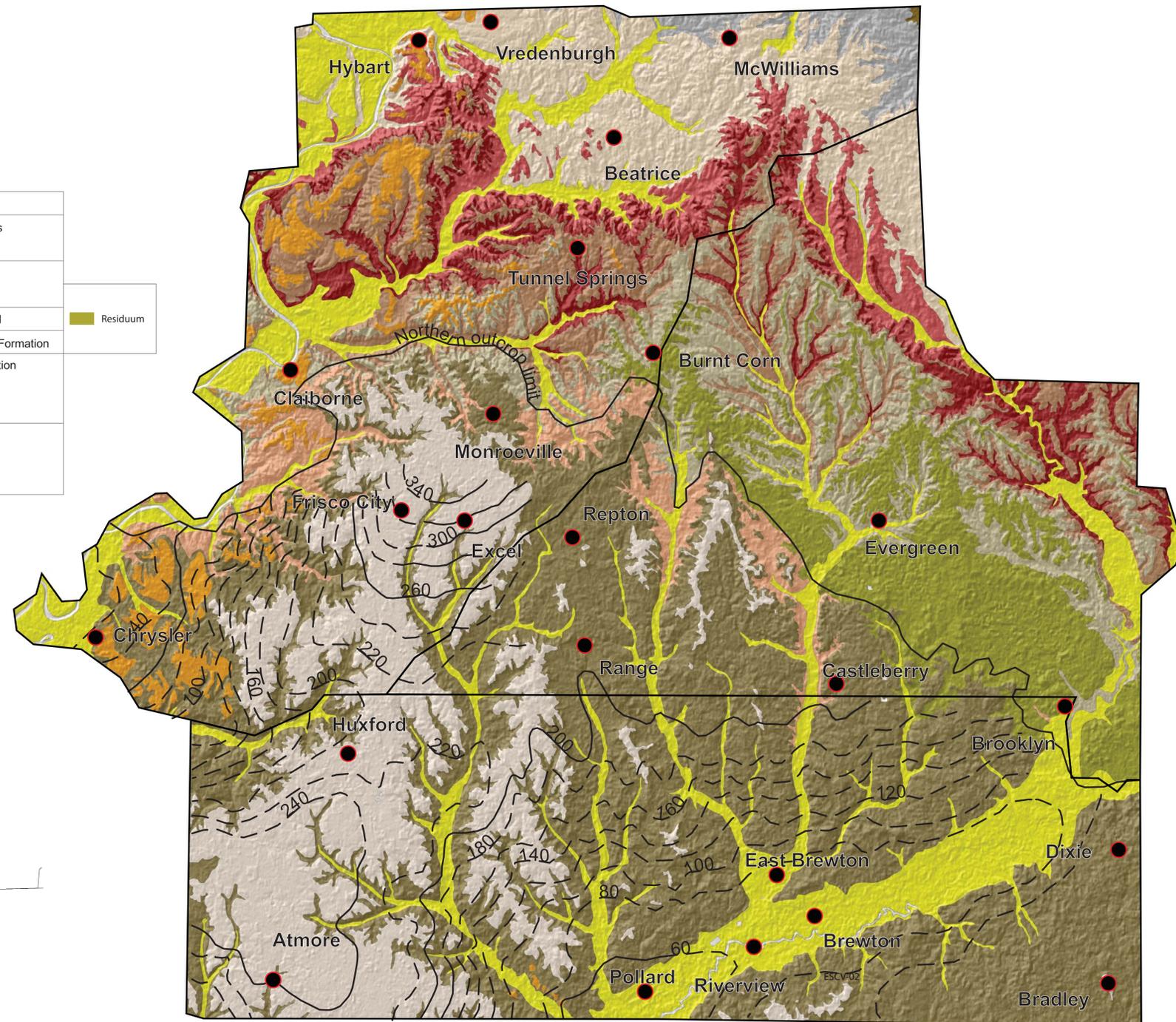
By  
Blakeney Gillett  
2011



**Explanation**

- County boundary
- City
- Potentiometric contour, dashed where inferred. Datum is mean sea level. Contour interval is 20 feet.

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT	
Quaternary	Holocene and Pleistocene		Alluvium and low terrace deposits	
			High terrace deposits	
Tertiary	Pliocene and Miocene		Citronelle Formation	
			Miocene Series undifferentiated	
	Oligocene	Vicksburg	Oligocene Series undifferentiated	
		Jackson	Yazoo Clay and Moodys Branch Formation	
	Eocene	Claiborne		Gosport Sand and Lisbon Formation
				Lisbon Formation
		Wilcox		Tallahatta Formation
				Hatchetigbee Formation
	Paleocene		Tuscahoma Sand	
			Nanafalia Formation	



**CONFIGURATION OF THE POTENTIOMETRIC SURFACE OF THE MIOCENE AQUIFER  
IN THE SOUTH-CENTRAL ALABAMA GROUNDWATER IRRIGATION ASSESSMENT AREA**

(from Geological Survey of Alabama, 2006)

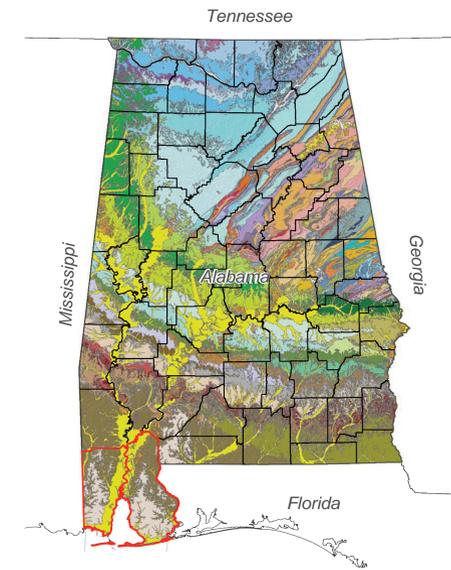
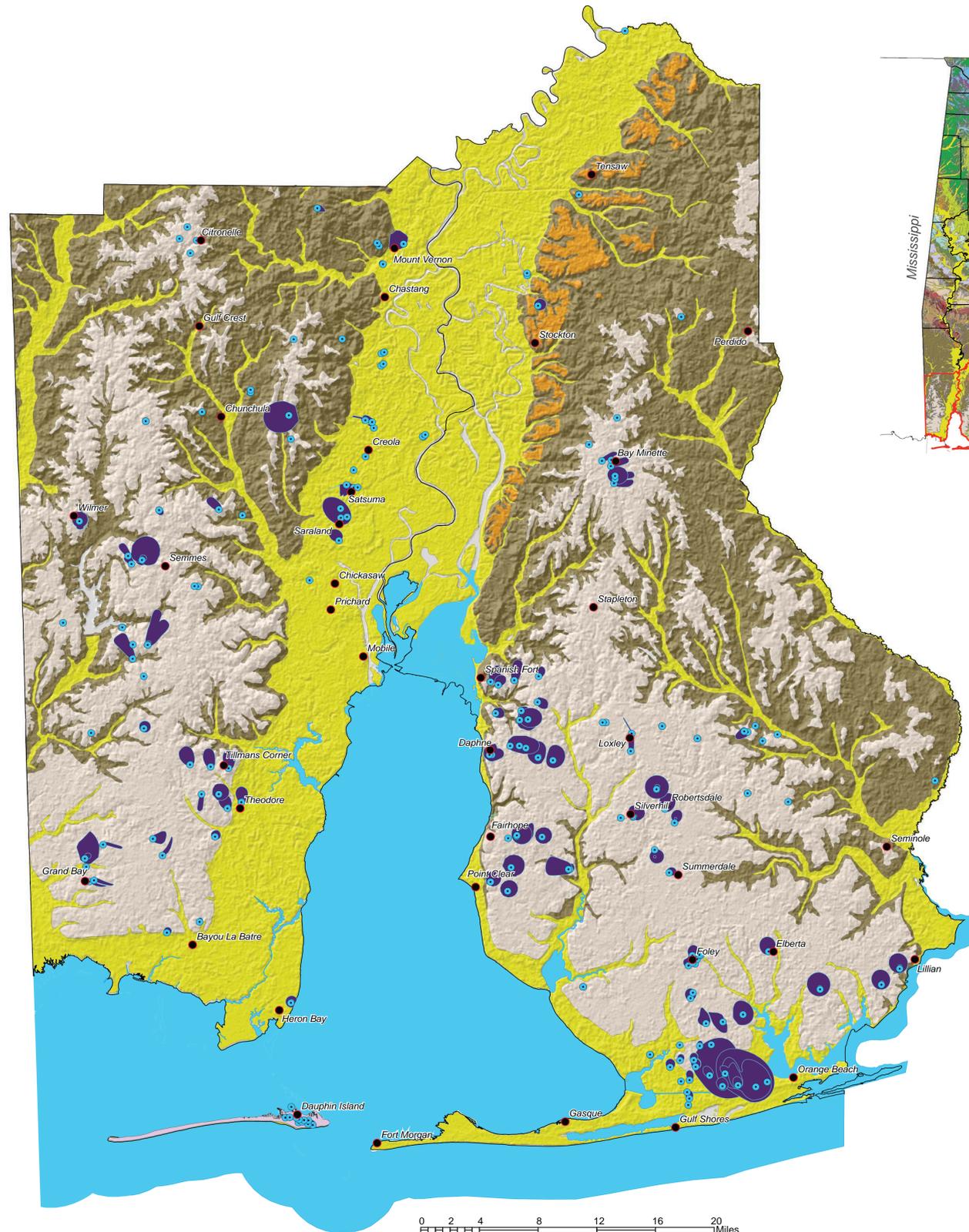
By  
Blakeney Gillett  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist







**Explanation**

- Geology
  - Quaternary
    - Alluvial, coastal, and low terrace
    - High terrace deposits
  - Tertiary
    - Citronelle Formation
    - Miocene Series undifferentiated
- Other symbols
  - Water body
  - Southwest groundwater irrigation assessment area
  - County boundary
  - City
  - Public water supply well
  - Source water assessment area



**GEOLOGY, PUBLIC WATER SUPPLY WELLS, AND SOURCE WATER  
ASSESSMENT AREAS FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**  
(Geology from Geological Survey of Alabama, 2006)

By  
Dorina Murgulet  
2010



Berry H. (Nick) Tew, Jr.  
State Geologist

**Explanation**

Soil classification

Entisols

- Coarse-loamy, mixed, superactive, nonacid, thermic
- Fine, mixed, semiactive, thermic
- Fine, mixed, superactive, nonacid, thermic
- Thermic, uncoated

Ultisols

- Coarse-loamy, siliceous, semiactive, thermic
- Fine, kaolinitic, thermic
- Fine, mixed, semiactive, thermic
- Fine-loamy, kaolinitic, thermic
- Fine-loamy, siliceous, subactive, thermic
- Loamy, kaolinitic, thermic

Histosols

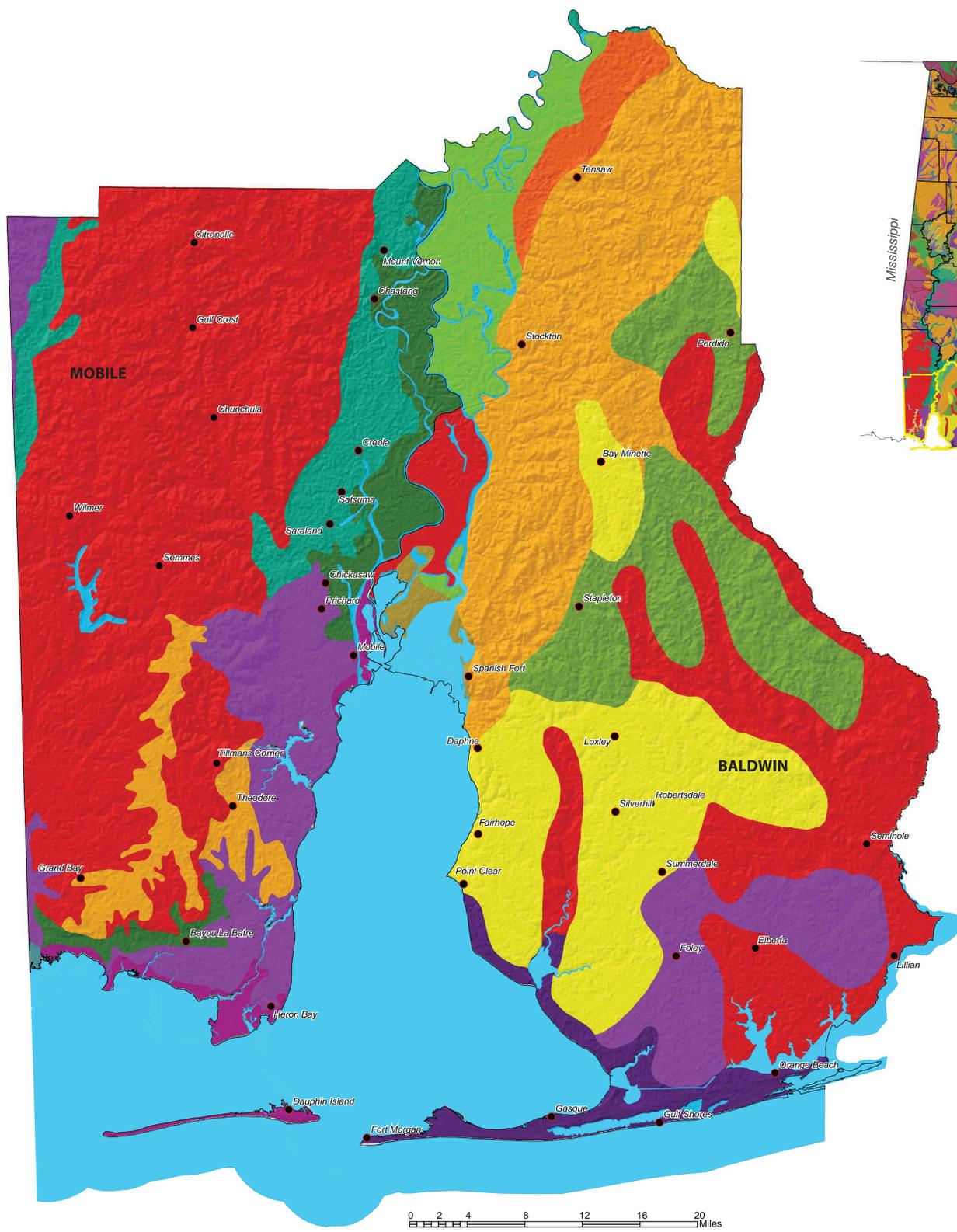
- Dysic, thermic
- Euic, hyperthermic

Inceptisols

- Fine, mixed, active, thermic

Other symbols

- Water body
- Southwest groundwater irrigation assessment area
- County boundary
- City

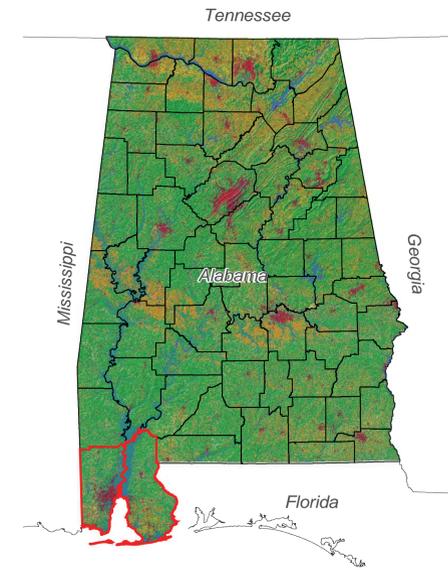
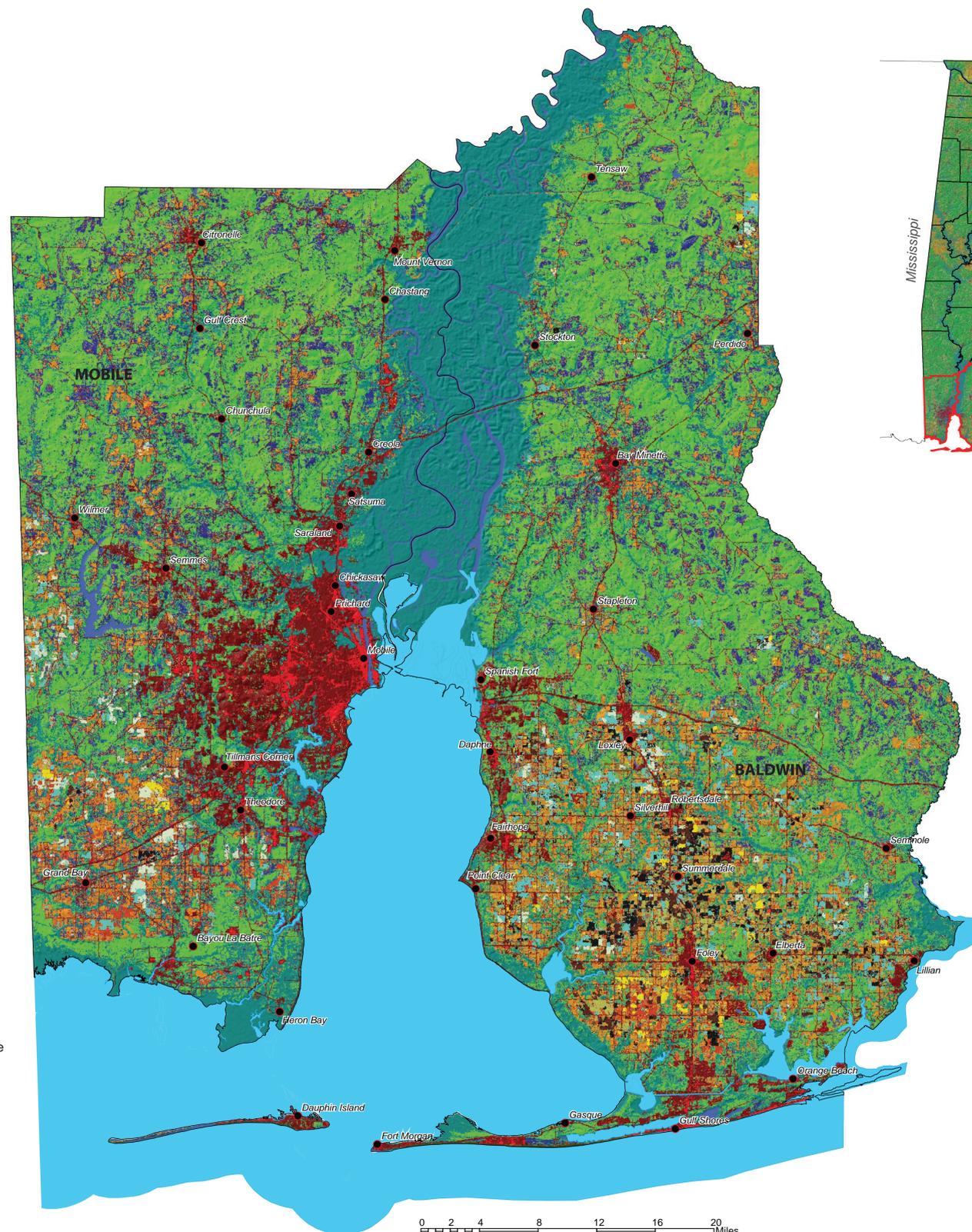


**SOIL ORDER AND TAXONOMIC CLASSIFICATION FOR THE SOUTHWEST  
GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(modified from USDA-NRCS: Web Soil Survey, 2009)

By  
Dorina Murgulet  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

**LULC Classification**

**Agricultural**

- Corn
- Cotton
- Other Crops
- Soybeans
- Peanuts/Pecans
- Double Crop/Cotton, Soybeans, Oats, and Winter Wheat
- Pasture/Hay/Grass
- Seed/Sod Grass
- Fallow/Idle Cropland

**Nonagricultural**

- Open Water
- Developed/Low Intensity and Open Space
- Developed/Medium and High Intensity
- Barren
- Forest
- Shrubland
- Wetlands

**Other Symbols**

- Water Body
- Southwest groundwater irrigation assessment area
- County boundary
- City



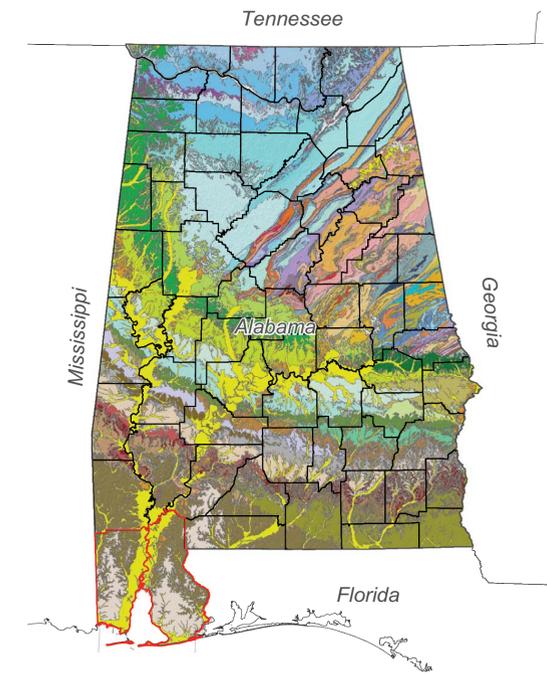
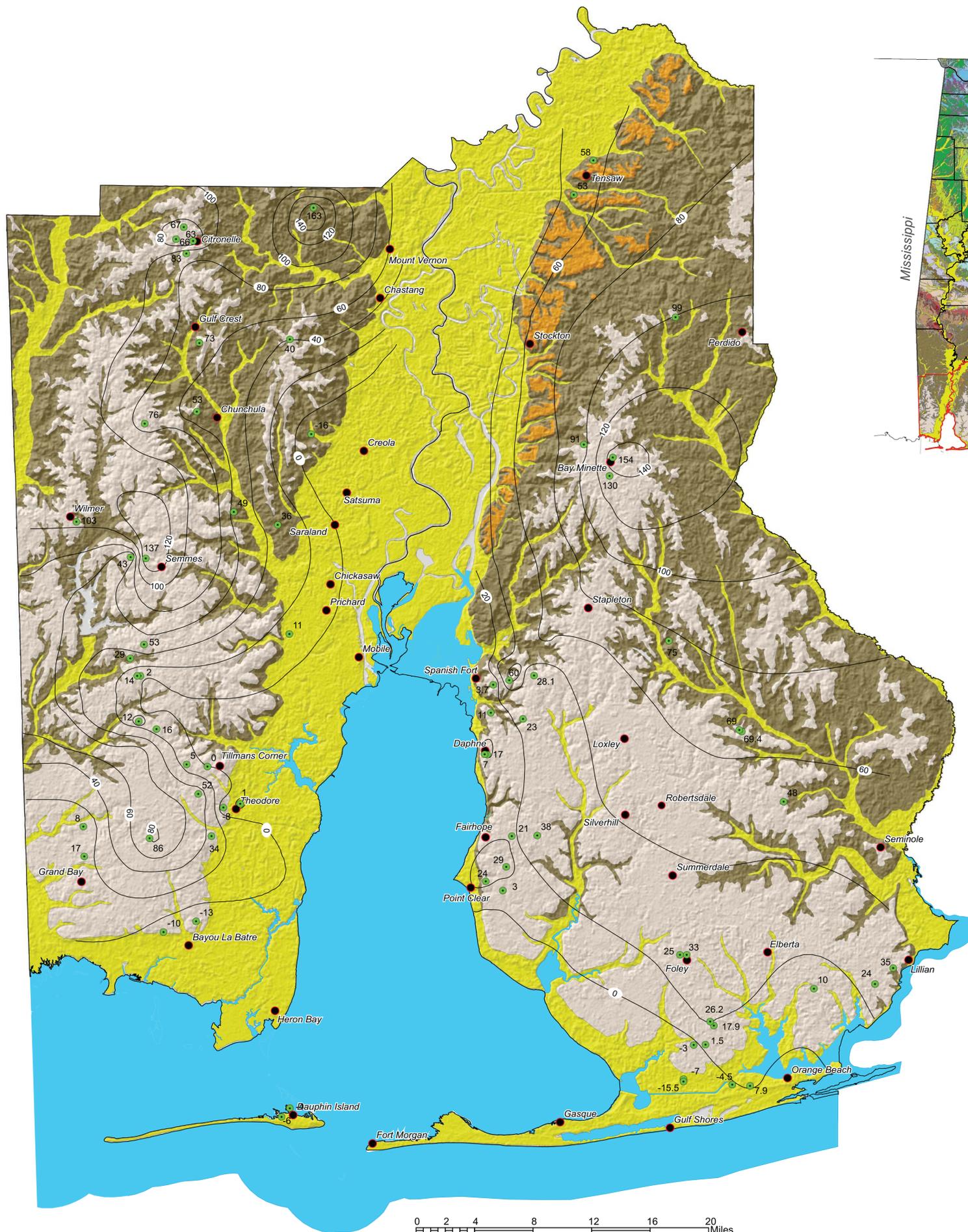
**LAND-USE/LAND-COVER CLASSIFICATION FOR THE SOUTHWEST  
GROUNDWATER IRRIGATION ASSESSMENT AREA**  
(modified from the USDA-Cropland Data Layer for the Southeast States, 2010)

By  
Dorina Murgulet  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist





**Explanation**

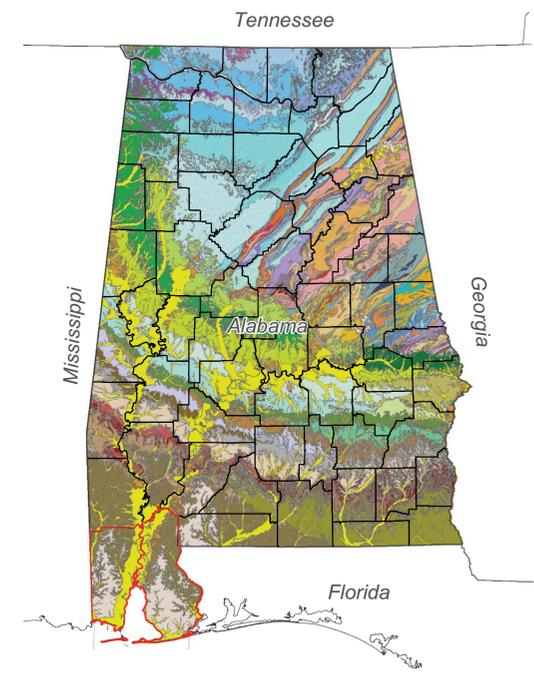
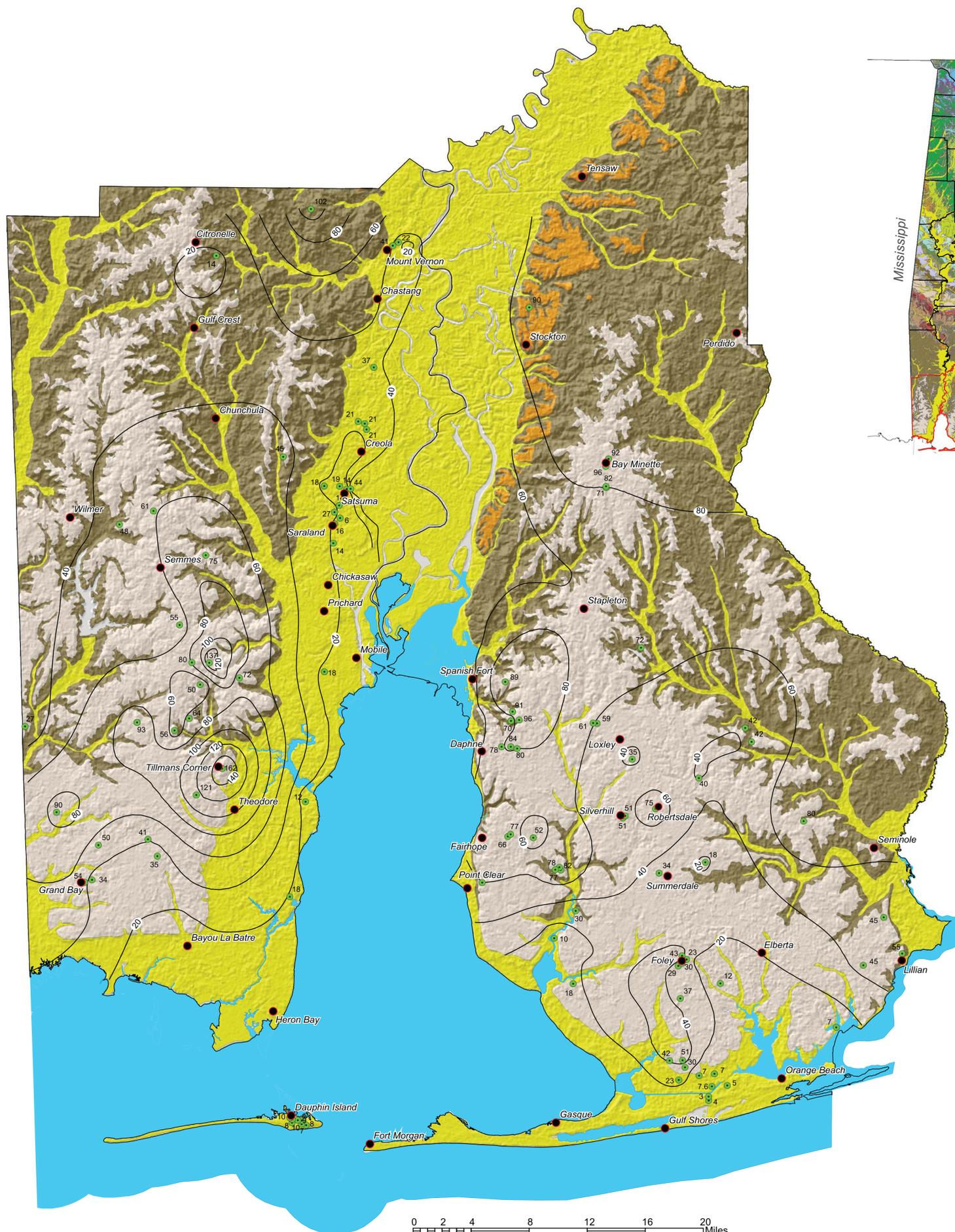
- Geology**
- Quaternary
    - Alluvial, coastal, and low terrace
    - High terrace deposits
  - Tertiary
    - Citronelle Formation
    - Miocene Series undifferentiated
- Other symbols**
- Water body
  - Southwest groundwater irrigation assessment area
  - Location and water level for wells with screens ranging between 200 and 1,000 feet below land surface
  - Potentiometric contours (feet, datum mean sea level; contour interval 10 feet)
  - County boundary
  - City

**GROUNDWATER POTENTIOMETRIC SURFACE OF AQUIFERS AT DEPTHS RANGING FROM 200 TO 1,000 FEET FOR THE SOUTHWEST GROUNDWATER IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011



BERRY H. (NICK) TEW, JR.  
State Geologist



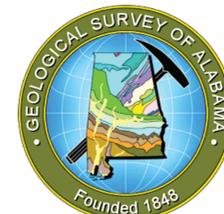
**Explanation**

- Geology**
- Quaternary**
- Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary**
- Citronelle Formation
  - Miocene Series undifferentiated
- Other symbols**
- Water body
  - Southwest groundwater irrigation assessment area
  - 35 Location and water level for wells with screens ranging between 47 and 220 feet below land surface
  - Potentiometric contours (feet, datum mean sea level; contour interval 20 feet)
  - County boundary
  - City

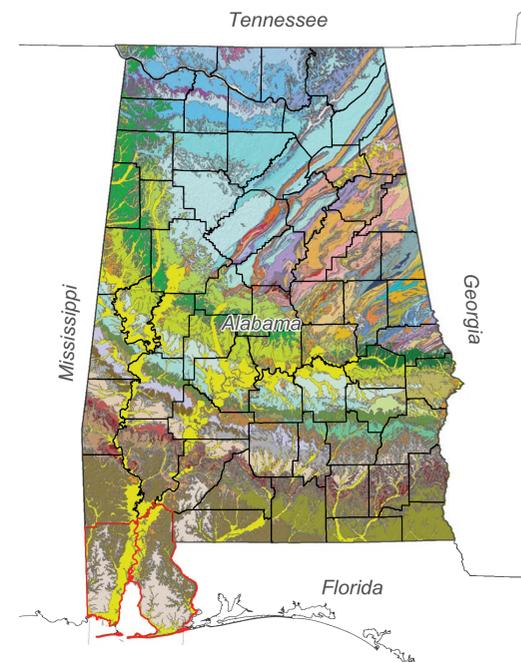
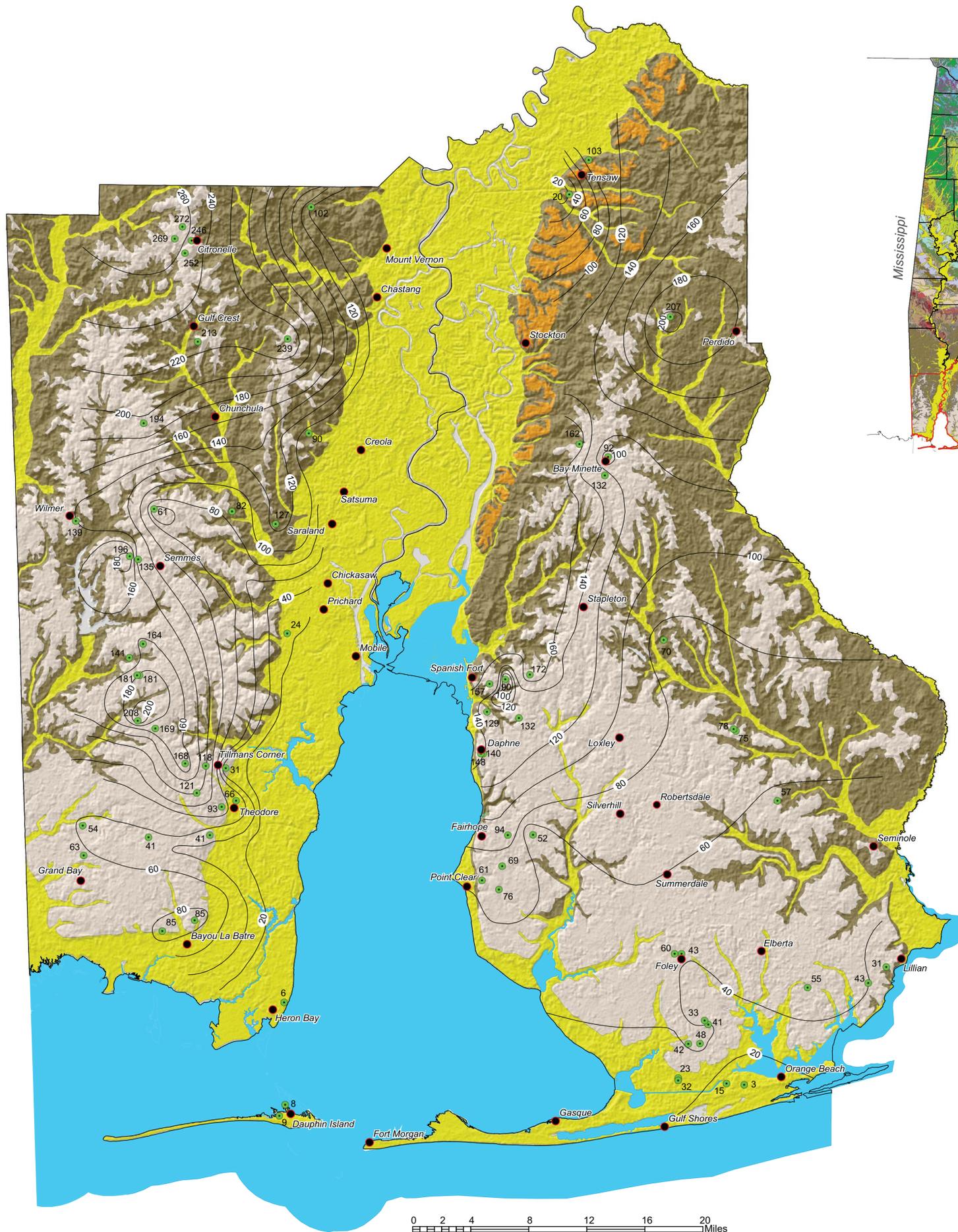


**DEPTH TO WATER FOR AQUIFERS AT DEPTHS RANGING FROM  
47 TO 220 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011



BERRY H. (NICK) TEW, JR.  
State Geologist



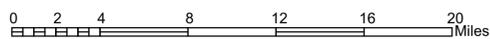
**Explanation**

**Geology**

- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Citronelle Formation
  - Miocene Series undifferentiated

**Other symbols**

- Water body
- Southwest groundwater irrigation assessment area
- Location and water level for wells with screens ranging between 200 and 1,000 feet below land surface
- Potentiometric contours (feet, datum mean sea level; contour interval 20 feet)
- County boundary
- City

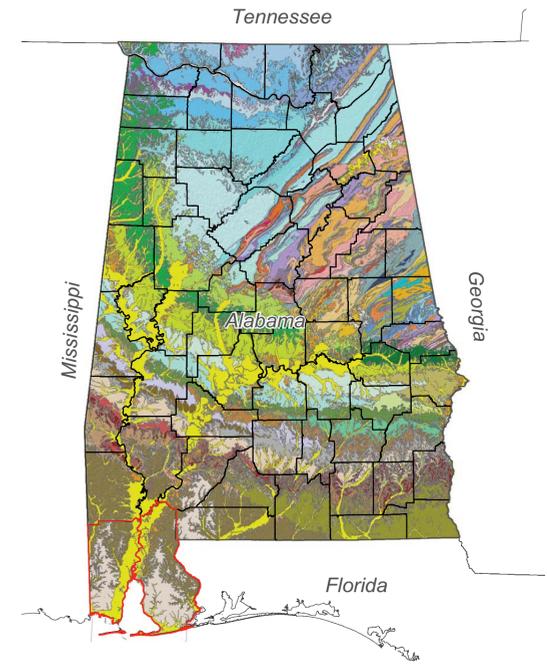


**DEPTH TO WATER FOR AQUIFERS AT DEPTHS RANGING FROM  
200 TO 1,000 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011

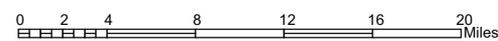


BERRY H. (NICK) TEW, JR.  
State Geologist



**Explanation**

- Geology
  - Quaternary
    - Alluvial, coastal, and low terrace
    - High terrace deposits
  - Tertiary
    - Citronelle Formation
    - Miocene Series undifferentiated
- Other symbols
  - Water body
  - Southwest groundwater irrigation assessment area
  - County boundary
  - Line of equal pumping rate (contour interval 100 gpm)
  - City
  - Water wells with screens ranging between 47 and 220 feet below land surface

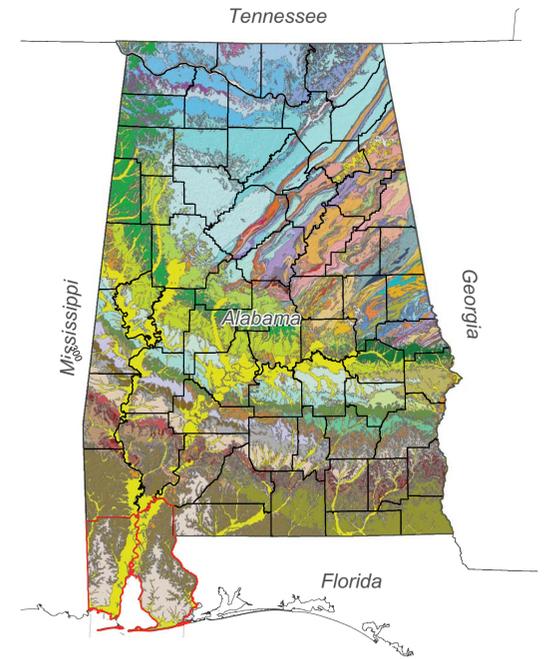


**PUMPING RATES FOR AQUIFERS AT DEPTHS RANGING FROM  
47 to 220 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011



BERRY H. (NICK) TEW, JR.  
State Geologist



**Explanation**

**Geology**

**Quaternary**

- Alluvial, coastal, and low terrace
- High terrace deposits

**Tertiary**

- Citronelle Formation
- Miocene Series undifferentiated

**Other symbols**

- Water body
- Southwest groundwater irrigation assessment area
- Water wells with screens ranging between 200 and 935 feet below land surface
- Line of equal pumping rate (contour interval 100 gpm)
- County boundary
- City

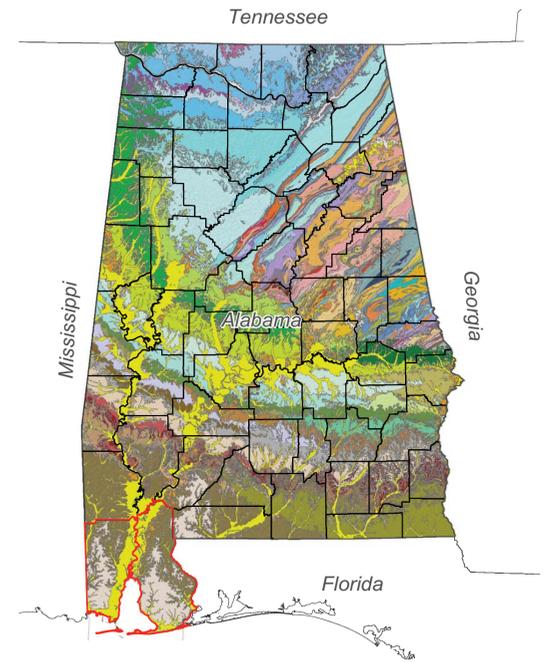
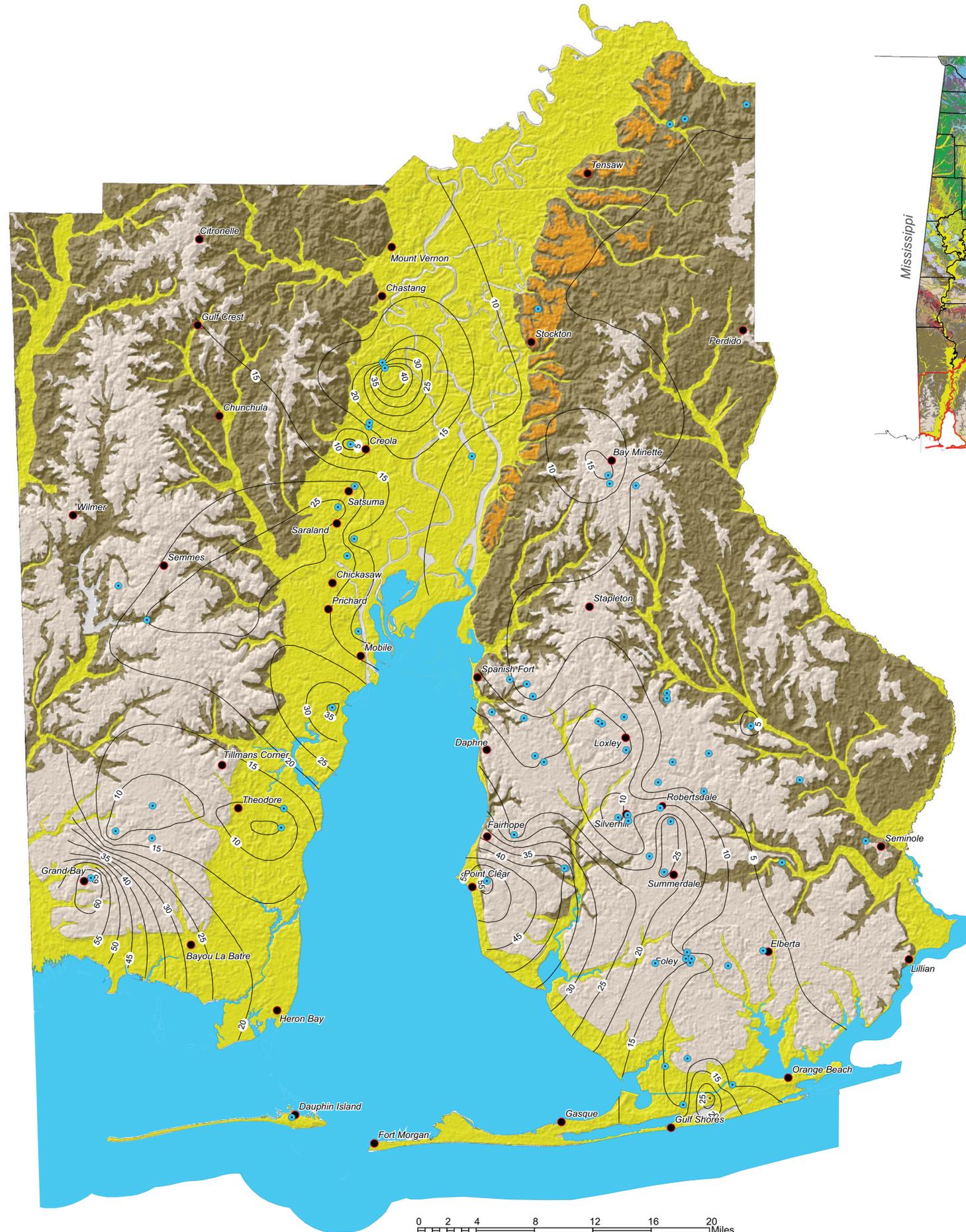


**PUMPING RATES FOR AQUIFERS AT DEPTHS RANGING FROM  
200 TO 935 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011



Berry H. (Nick) Tew, Jr.  
State Geologist



**Explanation**

**Geology**

- Quaternary
  - Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
  - Citronelle Formation
  - Miocene Series undifferentiated

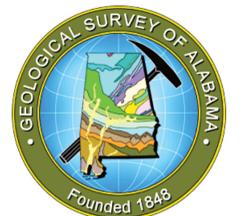
**Other symbols**

- Water body
- Southwest groundwater irrigation assessment area
- Water wells with screens ranging between 47 and 220 feet below land surface
- Line of equal specific capacity (contour interval 5 gpm/ft)
- County boundary
- City



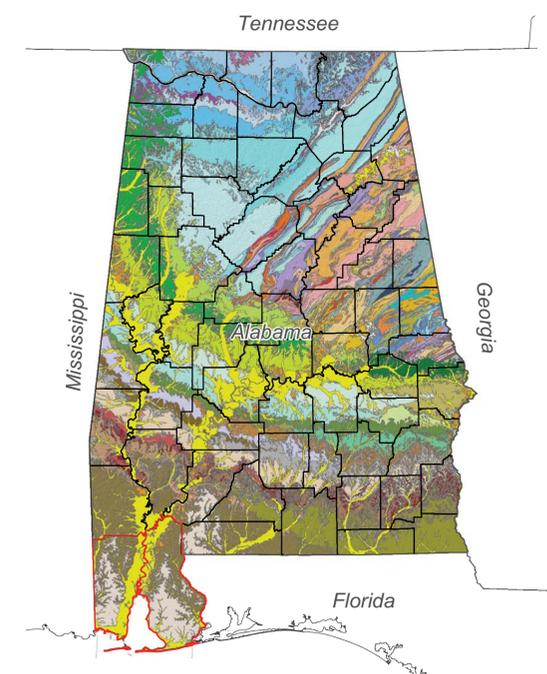
**SPECIFIC CAPACITY FOR AQUIFERS AT DEPTHS RANGING FROM  
47 TO 220 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**

By  
Dorina Murgulet  
2011



BERRY H. (NICK) TEW, JR.  
State Geologist





**Explanation**

- Geology**
- Quaternary**
  - Alluvial, coastal, and low terrace
  - High terrace deposits
  - Tertiary**
  - Citronelle Formation
  - Miocene Series undifferentiated

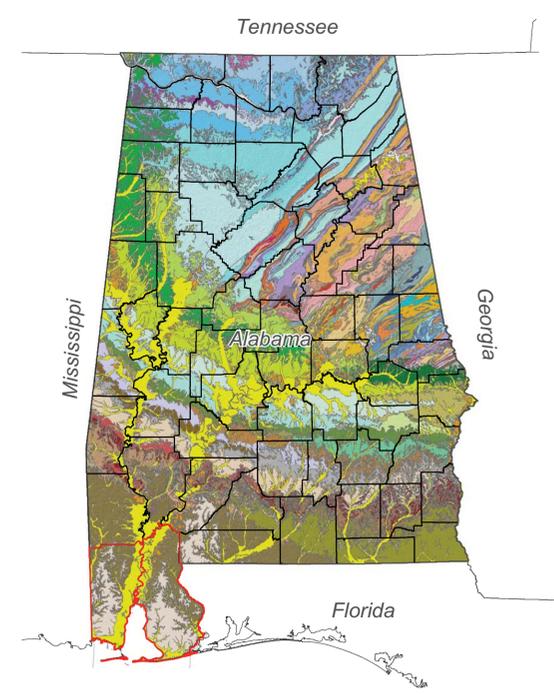
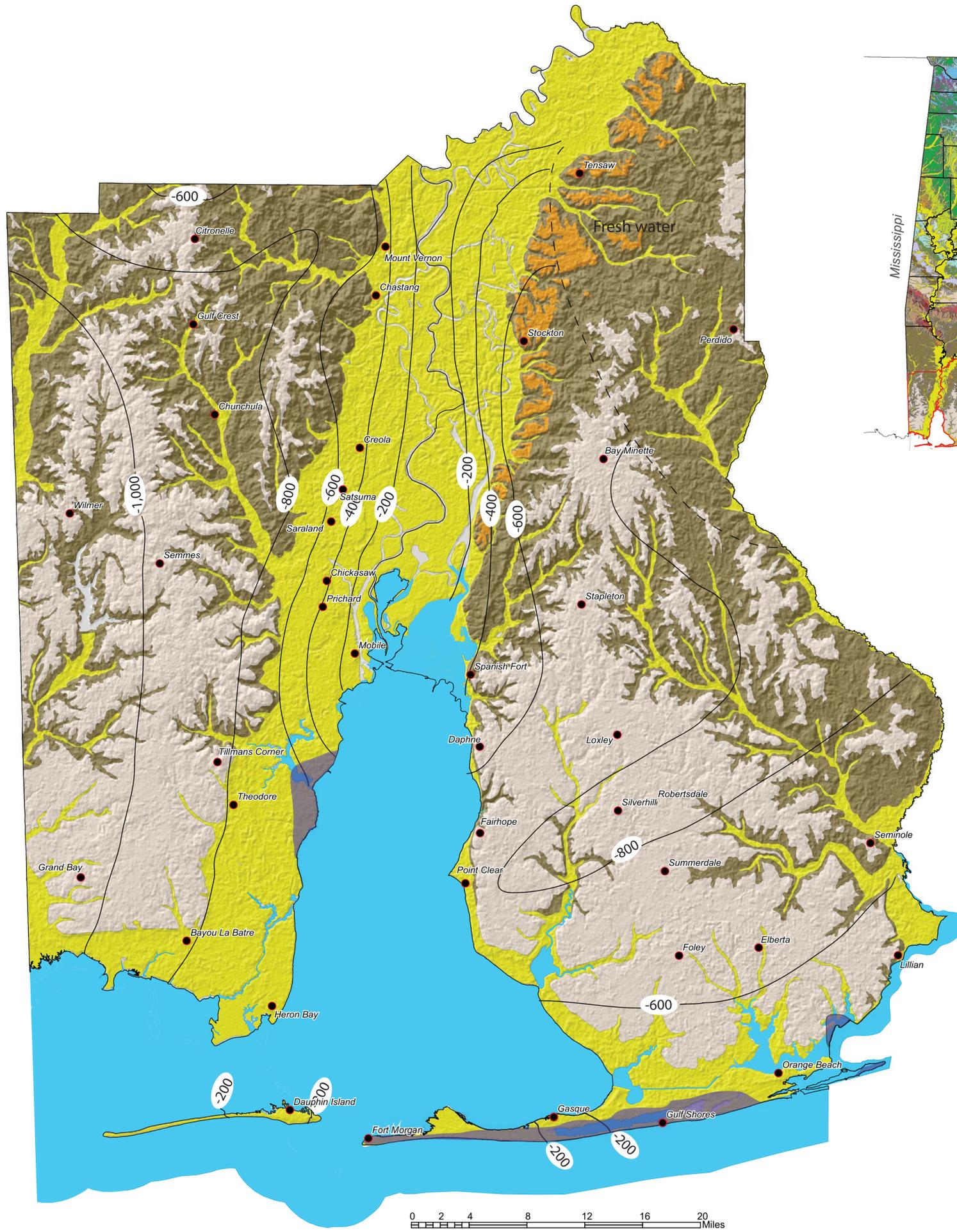
- Other symbols**
- Water body
  - Southwest groundwater irrigation assessment area
  - Water wells with screens ranging between 200 and 935 feet below land surface
  - Line of equal specific capacity (contour interval 5 gpm/ft)
  - County boundary
  - City

**SPECIFIC CAPACITY FOR AQUIFERS AT DEPTHS RANGING FROM  
200 TO 935 FEET FOR THE SOUTHWEST GROUNDWATER  
IRRIGATION ASSESSMENT AREA**



BERRY H. (NICK) TEW, JR.  
State Geologist

By  
Dorina Murgulet  
2011



**Explanation**

- Geology**
- Quaternary
- Alluvial, coastal, and low terrace
  - High terrace deposits
- Tertiary
- Citronelle Formation
  - Miocene Series undifferentiated

- Other symbols**
- Water body
  - Southwest groundwater irrigation assessment area
  - County boundary
  - City
  - Chloride concentrations > 50 mg/L
  - Depth in feet (below msl) to groundwater with approximately 1,000 mg/L TDS as NaCl at 25° C (contour interval 200 ft)



**DEPTH TO GROUNDWATER WITH APPROXIMATELY 1,000 mg/L OF TOTAL DISSOLVED SOLIDS (modified from Moser and Chermock, 1978) AND CHLORIDE CONCENTRATIONS IN WATER FROM SELECTED WELLS CONSTRUCTED AT DEPTHS RANGING FROM 47 TO 220 FEET (modified from Murgulet and Tick, 2007) FOR THE SOUTHWEST GROUNDWATER IRRIGATION ASSESSMENT AREA**



Berry H. (Nick) Tew, Jr.  
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By  
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2011