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Mississippi Soil Surveys

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Historical Accounts

General information and early inferences about soils and landscapes of Mississippi before European settlement may be obtained from historical accounts of early explorers. Hernando DeSoto's 16th Century expedition described the grassed prairies surrounded by forest in the state (Rostland 1957). Early French settlers along the coast described the terrain, vegetation, and waters of the region and lower Pearl River basin (Rowland et al. 1932), and terminology such as "quaking ground" still persists. J.F.H. Clairborne's trip through the "Piney Woods" section of the state in the early 1800s described the forest of tall yellow pines with little vegetative understory (Clairborne 1906).

E.W. Hilgard (1860) recognized soils as natural bodies during his research in Mississippi and became recognized as a founder of soil science in the United States. The German-born Hilgard, Mississippi's state geologist, published data on soils of the major physiographic regions of the state. He provided vivid descriptions of the soils, vegetation, and agriculture in the 1850s. Hilgard's research established the foundation of our understanding of Mississippi's soil resources, which continues to grow with modern technology. Some of Hilgard's terminology persists today, such as the flatwoods, hammock soils, bald prairie soils. He noted the catastrophic soil erosion present in the 1850s and discussed the technique of "circling or horizontalizing" to prevent soil from washing away (Hilgard 1860, p. 293).

Soil Formation

Diverse soil parent materials and topography give rise to great soil diversity in Mississippi. Soil parent materials range in age from Cretaceous (oldest) in the northeastern part of the state to recent Holocene (youngest) in the Delta region. Soils in Mississippi have developed from marine, alluvial, and eolian sediments. Elevations range from sea level in the coastal counties to 806 feet at Woodall Mountain in Tishomingo County. Eight of the 12 soil orders (broad soil groups) recognized in the United States occur in Mississippi.

Soil Surveys

Mississippi has a rich tradition in soil research and participation in the National Cooperative Soil Survey. Shortly after the inception of the national soil survey program in 1899, soil surveys were

produced for the Yazoo area in 1901, Biloxi and Jackson areas in 1904, and the Smedes area in 1902. The Sharkey soil series, established in Yazoo County in 1901, was one of the first soil series classified and is one of the most extensive soils in the United States.

Logan (1913, 1916) presented detailed reports on the soils of Mississippi, including their occurrence, mode of formation, and physical, and chemical properties. He discussed soils in the major physiographic regions of the state including: Northeast Prairie, Pontotoc Ridge, Flatwoods, Shortleaf Pine, Brown Loam and Loess, Yazoo Basin or Delta, Central Prairie, Long Leaf Pine, and Gulf Coast.

Vanderford (1975) presented maps and data on the genesis of soils and their distribution in major land resource areas in the state. Properties of the major soil series and their classification and interpretations were discussed. Pettry (1977) published a map of the major soil resource areas and discussed the dominant soils and their agricultural potentials. Land resource regions and major land resource areas of the state and nation were delineated and discussed in Agricultural Handbook 296 (USDA 1981).

Thirty-nine Mississippi counties have had two soil surveys published since the inception of the soil survey program in 1899 (Table 1). Prentiss County has three soil surveys, which were published in 1907, 1957, and 1997. Soil surveys published from 1902 to 1944 are out of print and not available. The early surveys were done on a non-photographic base map at a scale of 1 inch equals 1 mile. Modern soil surveys use aerial photographs as base maps, which allows greater detail of soil types, slopes, erosion, cultural features, and enhancement of individual parcels. Soil surveys published since 1955 are at map scales of 1:20,000 (1 inch = 1,666.6 feet), 1:15,840 (1 inch = 1,320 feet), or 1:24,000 (1 inch = 2,000 feet).

A soil classification system (Soil Taxonomy) adopted in the United States in 1965 is more comprehensive and detailed, and is supported by comprehensive laboratory analyses. The greater detail and broader data base permit it extensive multipurpose soil interpretations. The National Soil Information System (NASiS) is a new national soil database containing interpretations for Mississippi soils.

Many of the older surveys, particularly the Delta counties, were mapped before 1965, and new surveys or updates using modern technology and taxonomy are needed. Seven soil survey areas were mapped and published during the transitional period. These publications are widely used, and data are updated in local Natural Resources Conservation Service/Soil & Water Conservation District Field Office Technical Guides. Improved methodology is enhancing our ability to better understand soils in their natural landscapes. Modern soil surveys examine soils much deeper and more extensively, and they utilize supporting laboratory data. The increased data greatly enhance soil interpretations and open new applications for many land uses.

Mississippi will have an initial soil survey when mapping underway in Greene, Leake, Wayne, Scott, Tunica, and Wilkinson counties is completed (Figure 1). Projection of mapping progress by the Natural Resource Conservation Service (formerly Soil Conservation Service) indicates these counties will be completed by 2006. Intensive land use and rapidly developing technologies require modern, detailed soil surveys for optimum utilization and benefits. Efforts to digitize completed modern soil surveys are underway and will add new dimensions to effective use of the data.

Both our past and future in Mississippi are closely tied to our soil resources. We depend on soils to produce the food, fiber, and natural products that sustain life. Soil surveys are a basic inventory of the soils, showing their location on the landscape and evaluating their potential for agronomic and urban uses. Modern soil surveys provide a valuable blueprint for orderly growth and wise use of this precious natural resource.

Table 1. Soil Survey reports published in Mississippi, by county and date of publication.

County	Publication date[1]
Adams	1910, 1970
Alcorn	1921, 1971
Amite	1917, 1976
Attala[2]	Pending
Benton	1977
Bolivar	1958
Calhoun	1965
Carroll	1989
Chickasaw	1915, 1974
Choctaw	1920, 1986
Claiborne	1926, 1963
Clarke	1914, 1965
Clay	1909, 1976
Coahoma	1915, 1959
Copiah	1984
Covington	1918, 1965
DeSoto	1959
Forrest	1911, 1979
Franklin	1995
George	1922, 1971
Greene[3]	1932
Grenada	1915, 1967
Hancock	1930, 1981
Harrison	1924, 1975
Hinds	1916, 1979
Holmes	1908
Humphreys	1959
Issaquena	1961
Itawamba	1979
Jackson[2]	1927, 1964, Pending
Jasper	1907, 1979
Jefferson	1980
Jefferson Davis	1915, 1976
Jones	1913, 1986
Kemper	1999

County	Publication date[1]
Leflore[2]	1959, Pending
Lincoln	1912, 1963
Lowndes	1911, 1979
Madison	1917, 1984
Marion	1938, 1985
Marshall	1972
Monroe	1908, 1966
Montgomery	1906, 1975
Neshoba	1981
Newton	1916, 1960
Noxubee	1910, 1986
Oktibbeha	1907, 1973
Panola	1963
Pearl River	1918, 1983
Perry[2]	1922, Pending
Pike	1918, 1968
Pontotoc	1906, 1973
Prentiss	1907, 1957, 1997
Quitman	1958
Rankin	1926, 1987
Scott[3]	Pending
Sharkey	1962
Simpson	1919, 1996
Smith[2]	1920, Pending
Stone[1]	Pending
Sunflower	1959
Tallahatchie	1970
Tate	1967
Tippah	1966
Tishomingo	1944, 1983
Tunica	1956
Union	1979
Walthall	1968

Lafayette	1912, 1981	Warren	1912, 1964
Lamar	1919, 1975	Washington	1961
Lauderdale	1983	Wayne[3]	1911
Lawrence	1978	Webster	1978
Leake[3]	Pending	Wilkinson[3]	1913
Lee	1916, 1973	Winston[2]	1912, Pending
		Yalobusha	1978
		Yazoo	1975

[1]Reports from 1944 and before are out of print and not available for distribution.
[2]Modern soil mapping has been completed, and the report is in publication process.
[3]Modern Soil Survey is in progress.

Where to Obtain Soil Survey Information

Soil surveys published since 1955 and still in print are available by request from local Soil and Water Conservation District offices; Mississippi State University Extension Service county offices; the Natural Resources Conservation Service (1321 Federal Building, 100 West Capitol Street, Jackson, MS 39269); or the Mississippi Agricultural Forestry Experiment Station (Box 9740, Mississippi State, MS 39762).

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