Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin

MLRA Explorer Custom Report

O - Mississippi Delta Cotton and Feed Grains Region
- 131A - Southern Mississippi River Alluvium

P - South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock Region
- 135A - Alabama and Mississippi Blackland Prairie
- 134 - Southern Mississippi Valley Loess
- 133A - Southern Coastal Plain

T - Atlantic and Gulf Coast Lowland Forest and Crop Region
- 152A - Eastern Gulf Coast Flatwoods
- 151 - Gulf Coast Marsh

MLRA 131A - Southern Mississippi River Alluvium

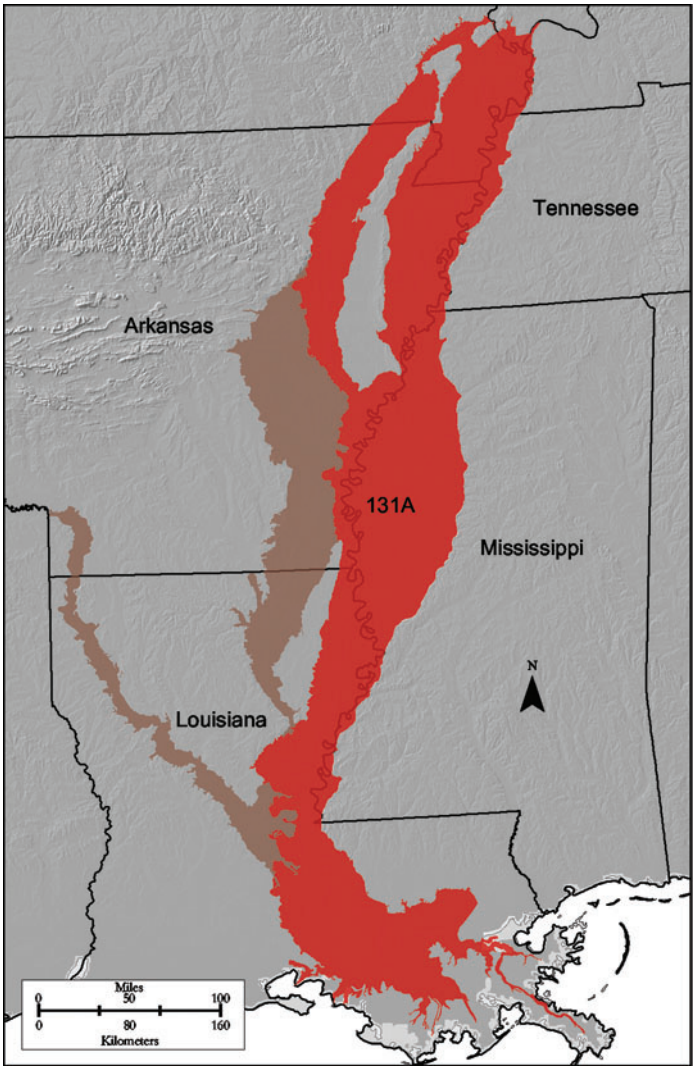


Figure 131A-1: Location of MLRA 131A in Land Resource Region O

Introduction

This area (shown in fig. 131A-1) is in Louisiana (32 percent), Arkansas (26 percent), Mississippi (26 percent), Missouri (12 percent), Tennessee (3 percent), and Kentucky (1 percent). A small part of Illinois also is in the area. This MLRA makes up about 29,555 square miles (76,585 square kilometers). It includes the towns or cities of Lake Providence, Morgan City, and Houma, Louisiana; Greenville, Yazoo City, and Clarksville, Mississippi; Eudora, Helena, and West Memphis, Arkansas; Caruthersville, Kennett, and Sikeston, Missouri; and the west edge of Memphis, Tennessee. The cities of Baton Rouge and New Orleans, Louisiana, are just outside this area. From north to south, Interstates 57, 55, 40, 20, and 10 cross this area. The Delta National Forest is in the part of this area in Mississippi. Numerous national wildlife refuges and State parks are throughout this area. Eaker Air Force Base and a small portion of the St. Francis National Forest is in the part of the area in Arkansas. This area is along a major flightpath for migratory waterfowl.

Physiography

This area makes up most of the Mississippi Alluvial Plain Section of the Coastal Plain Province of the Atlantic Plain. It is on the alluvial plain along the lower Mississippi River, south of its confluence with the Ohio River. The landforms in the area are level or depressional to very gently undulating alluvial plains, backswamps, oxbows, natural levees, and terraces. The parts of the MLRA south of Baton Rouge, Louisiana, are on a deltaic plain. Landform shapes range from convex on natural levees and undulating terraces to concave in oxbows. These shapes differentiate water-shedding positions from water-receiving positions, both of which have a major role in soil formation and hydrology. Average elevations start at sea level in the southern part of the area and gradually rise to about 330 feet (100 meters) in the northwestern part. Maximum local relief is about 15 feet (5 meters), but relief is considerably lower in most of the area.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Lower Mississippi-St. Francis (0802), 30 percent; Lower Mississippi-Yazoo (0803), 25 percent; Louisiana Coastal (0808), 8 percent; Boeuf-Tensas (0805), 7 percent; Lower Mississippi-Lake Maurepas (0807), 6 percent; Lower Mississippi (0809), 6 percent; Upper White (1101), 6 percent; Lower Red-Ouachita (0804), 5 percent; Lower Mississippi-Hatchie (0801), 5 percent; and Lower Mississippi-Big Black (0806), 2 percent. The lower Mississippi River and its tributaries drain nearly all of the MLRA, but the Atchafalaya River drains the extreme southwest part.

Geology

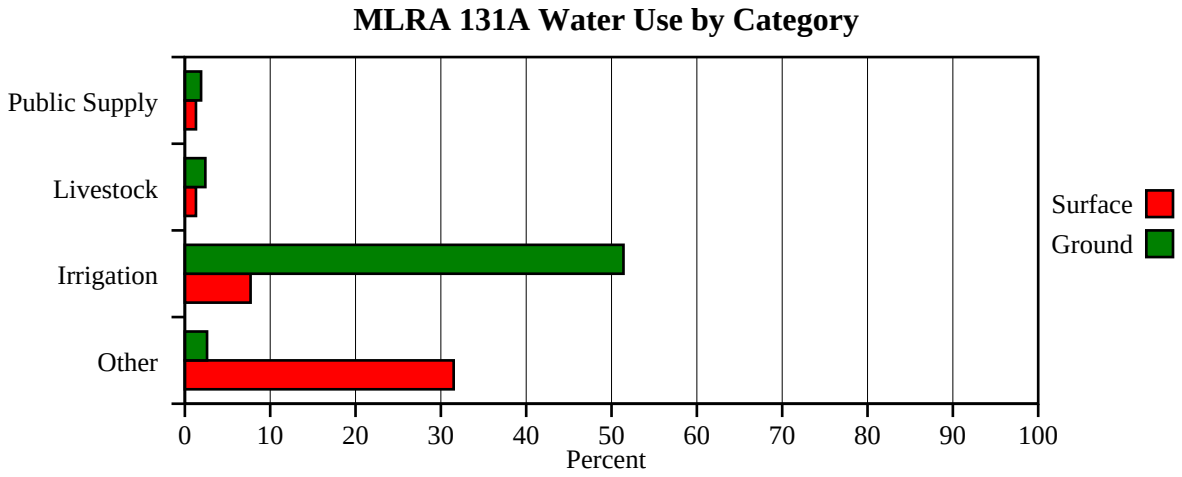
Bedrock in this area consists of Tertiary and Cretaceous sands formed as beach deposits during the retreat of the Cretaceous ocean from the midsection of the U.S. Alluvial deposits from flooding and lateral migration of the Mississippi River typically lie above the bedrock. These sediments are sandy to clayey fluvial deposits of Quaternary age and are many meters thick. The Yazoo, Tensas, and Atchafalaya Basins and the modern deltaic plain are in areas of Holocene deposits. The St. Francis Basin, in the northwestern part of the MLRA, and some surfaces surrounded by the Yazoo Basin, in the central part of the MLRA, are in areas of Wisconsin Stage deposits of Pleistocene age. Some small areas in the western part of the MLRA are covered by a thin mantle of pre-Wisconsin, Quaternary-age loess deposits.

Water

The total withdrawals average 7,965 million gallons per day (30,150 million liters per day). This is the sixth highest amount of water among all of the MLRAs. About 58 percent is from ground water sources, and 42 percent is from surface water sources. In most years the supply of moisture is adequate for maximum crop production. Surface water for public supply, industrial use, and some irrigation is available in quantity from the bayous, oxbow lakes, canals, and rivers throughout this area. The dominant use of the surface water in the area is for cooling thermoelectric power plants. Farms and small communities use treated surface or ground water for most purposes, except for irrigation. Numerous small, above-ground water impoundments are used for raising commercial catfish throughout the area. Most of the surface water is of good quality and is suitable for most uses with some treatment. High concentrations of suspended sediments, agricultural chemicals, and municipal and industrial wastewater discharges contribute to some local water-quality problems. Flooding is a major concern in most of the area.

The principal sources of ground water in this area are sandy and loamy materials in the Mississippi River alluvial deposits. For example, 74 percent of all the ground water used in Mississippi and almost all the irrigation water used in the “boot heel” area of Missouri are pumped from alluvial aquifers. Impermeable or very slowly permeable, smectitic clay layers many meters thick overlie these aquifers in many parts of the MLRA. Water moves through the clays via large desiccation cracks that open during dry periods and swell closed during wet periods. The ground

water is used primarily for domestic purposes and irrigation, but it also is used for public supply and industry. It typically has levels of total dissolved solids that are less than the national secondary drinking water standard of 500 parts per million (milligrams per liter). At the extreme southern end of the area, in Louisiana, however, intrusion of seawater has raised the level of total dissolved solids enough that this water is not suitable for drinking or industrial use. Calcium, manganese, sodium, sulfate, and bicarbonate are the major ions in the ground water. Water in the river alluvium is generally hard or very hard. The iron content is extremely high in Arkansas but generally is not a significant problem in other parts of the area. Where the ground water in the alluvial aquifer is of poor quality, rural landowners obtain better quality drinking water from Tertiary and Cretaceous sands below the river alluvium.



Category (Surface,Ground): Public Supply (1.3, 1.9), LiveStock (1.3, 2.4), Irrigation (7.7, 51.4), Other (31.5, 2.6)

Soils

The dominant soil orders in this MLRA are Alfisols, Vertisols, Inceptisols, and Entisols. The soil temperature regime is thermic in most of the MLRA. It is hyperthermic, however, south of Baton Rouge, Louisiana. The soils in the MLRA dominantly have an aquic soil moisture regime, smectitic clay mineralogy, and mixed sand and silt fraction mineralogy. The soils are very deep, dominantly poorly drained and somewhat poorly drained, and dominantly loamy or clayey. Nearly level Epiaquerts (Sharkey series), Vertic Epiaquepts (Tunica series), and Vertic Endoaquepts (Dowling series) dominate the alluvial flats and backswamps of Holocene to late Pleistocene age. Nearly level to gently sloping Endoaquepts (Commerce series), Udifluvents (Robinsonville series), and Fluvaquents (Convent series) dominate the natural levees of Holocene age. Nearly level to gently undulating, sandy Udifluvents (Bruno series) and Udipsamments (Crevasse series) dominate the levee splays and point bars of Holocene age. Nearly level to gently undulating Endoaqualfs (Dundee series), Hapludalfs (Dubbs series), and Epiaqualfs (Tensas series) dominate the terraces of Pleistocene age.

Land Use

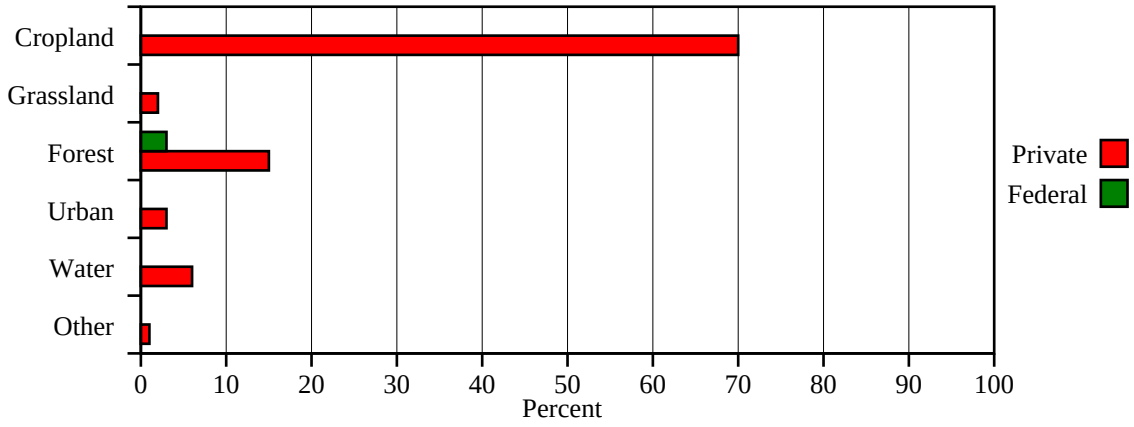
Most of this area is in farms, which produce mainly cash crops. Cotton, soybeans, milo, and corn are the main crops, and sugarcane is a major crop in the southernmost part of the area. Furrow irrigation is used in many areas during droughty parts of the growing season. Rice is grown in some land-leveled, flood-irrigated areas. Catfish and crawfish are produced commercially on farm ponds that are contained by levees. The catfish are produced throughout the MLRA, and the crawfish are produced in the southern part of the area. Migratory waterfowl are harvested throughout the area. Hardwood timber is harvested on most forested wetlands, and most of the

forested areas are managed for wildlife.

About 29 percent of this MLRA is not protected from flooding, and flooding occurs occasionally or frequently in these unprotected areas. Levees protect nearly all of the cropland, urban land, and grassland from flooding. Most areas of forested wetlands are not protected from flooding. Networks of drainage canals and ditches help to remove excess surface water from the cropland.

The major resource concerns are control of surface water, management of soil moisture, and maintenance of the content of organic matter and productivity of the soils. Conservation practices on cropland generally include nutrient management, crop residue management, and alternative tillage systems, especially no-till systems that reduce the cost of tillage. In many areas land leveling or shaping optimizes the control of surface water. Other major cropland management practices are control of competing vegetation and insects through aerial or ground spraying and fertility management programs that make use of chemical fertilizers.

MLRA 131A Land Use by Category



Category (Private,Federal): Cropland (70.0, 0.0), Grassland (2.0, 0.0), Forest (15.0, 3.0), Urban (3.0, 0.0), Water (6.0, 0.0), Other (1.0, 0.0)

MLRA 135A - Alabama and Mississippi Blackland Prairie

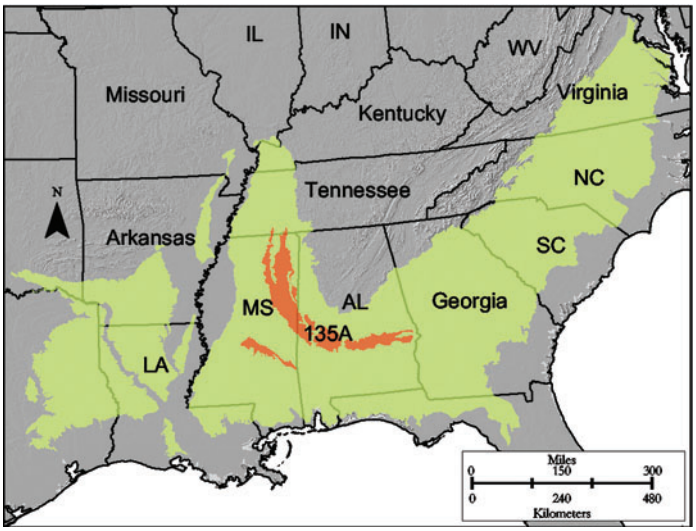


Figure 135A-1: Location of MLRA 135A in Land Resource Region P

Introduction

This area (shown in fig. 135A-1) is in Alabama (53 percent) and Mississippi (47 percent). It makes up about 6,370 square miles (16,510 square kilometers). Tupelo, Mississippi, is the only major town in this MLRA. The small towns of Demopolis and Uniontown are in west Alabama. The cities of Montgomery and Selma are just outside this area, on terraces along the Alabama River, which bisects the MLRA. Interstates 20 and 20/59 cross parts of this area, and U.S. Highway 80 runs through the center of the part of the MLRA in Alabama. The Bienville National Forest is in the part in Mississippi.

Physiography

This area is in the East Gulf Coastal Plain Section of the Coastal Plain Province of the Atlantic Plain. The northern part of the area is a slightly elevated plain that is hilly, and the separate southwestern part is locally known as the Jackson Prairie portion of the East Gulf Coastal Plain Section in Mississippi. Elevation ranges from 100 to 590 feet (30 to 180 meters). Local relief is mainly 50 to 100 feet (15 to 30 meters).

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Mobile-Tombigbee (0316), 55 percent; Alabama (0315), 28 percent; Pascagoula (0317), 10 percent; and Pearl (0318), 7 percent. Tributaries of the Tombigbee, Pearl, and Pascagoula Rivers cross the part of this area in Mississippi. The valleys along the Tombigbee and Alabama Rivers separate the three parts of this area in Alabama.

Geology

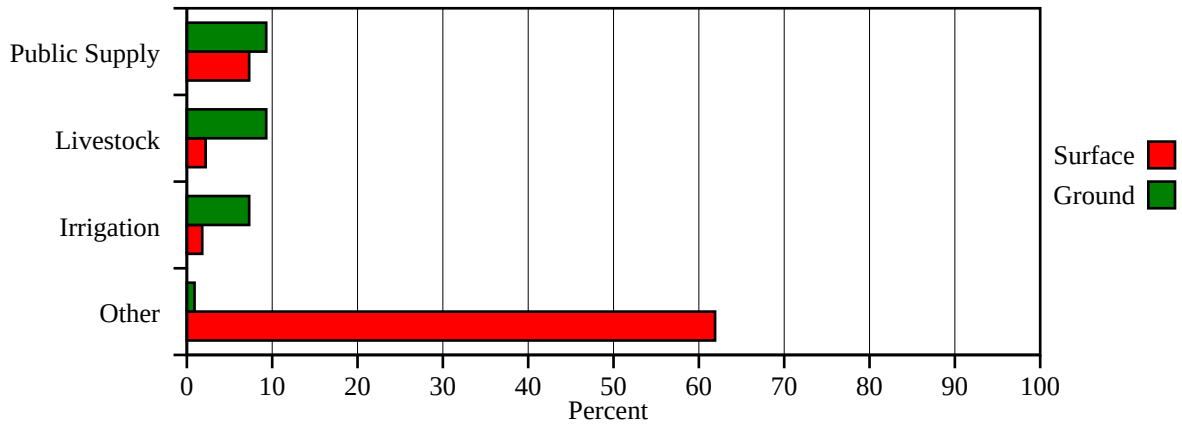
Most of this area is underlain by Cretaceous-age clay, marl, soft limestone, or chalk of the Selma Group. The Jackson Prairie part, in southern Mississippi, and parts of the area in southwest Alabama are underlain by Tertiary-age clay, marl, soft limestone, or chalk of the Vicksburg and Jackson Groups.

Water

The total withdrawals average 55 million gallons per day (208 million liters per day). About 27 percent is from ground water sources, and 73 percent is from surface water sources. Precipitation and perennial streams are important sources of water. Ponds provide water for livestock and are used locally for recreation. A few large reservoirs are available for recreation and other uses. The surface water in the area is suitable for all uses. Most of it is used for cooling thermoelectric power plants.

Moderately deep and deep wells are the principal sources of ground water for both domestic and municipal uses in this area. In Alabama, good-quality ground water is obtained primarily from Tertiary and Cretaceous sand aquifers. The southern part of the area in Alabama also has access to the Floridan and Citronelle aquifers. The ground water in Alabama generally is hard but is low in total dissolved solids. Most of the part of this area in Mississippi has no significant aquifers. The Cockfield silty clay and sand aquifer underlies parts of the isolated portion of this area in southern Mississippi. The water from this aquifer is soft and generally has less than 400 parts per million (milligrams per liter) total dissolved solids. It generally exceeds the color standard for drinking water, which is 15 units. The color has no known effects on health.

MLRA 135A Water Use by Category



Category (Surface,Ground): Public Supply (7.3, 9.3), LiveStock (2.2, 9.3), Irrigation (1.8, 7.3), Other (61.9, 0.9)

Soils

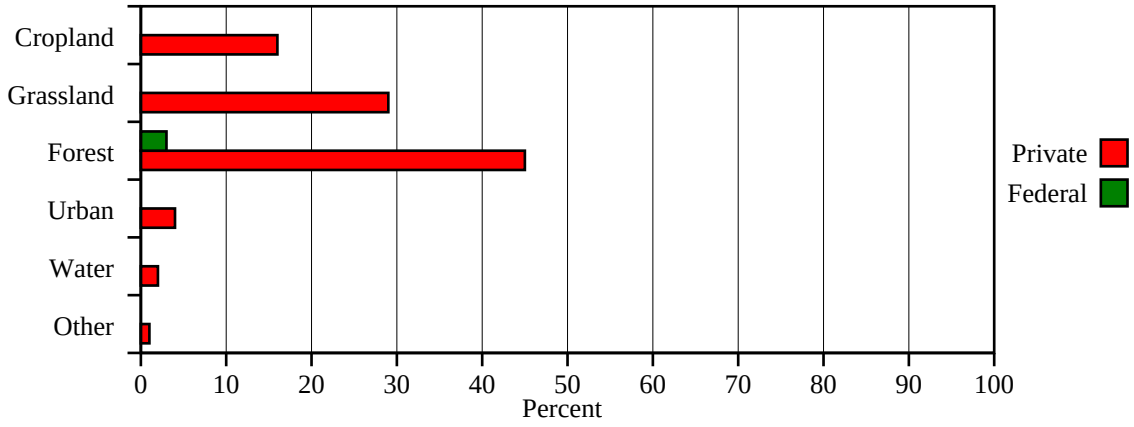
The dominant soil orders in this MLRA are Inceptisols and Vertisols. The soils in the area dominantly have a thermic soil temperature regime, a udic or aquic soil moisture regime, and smectitic or carbonatic mineralogy. They are shallow to very deep, generally well drained to somewhat poorly drained, and loamy or clayey. Epiaquepts (Leeper and Urbo series), Epiaquerts (Sucarnoochee and Houlka series), and Hapludolls (Catalpa series) formed in clayey alluvium on flood plains. Eutrudepts formed in loamy alluvium on flood plains (Marietta series) and in clayey sediments and residuum on uplands (Sumter series). Dystruderts (Oktibbeha, Hannon, Watsonia, and Vaiden series), Hapluderts (Brooksville, Okolona, and Houston series), and Paleudalfs (Kipling and Searcy series) formed in clayey sediments on uplands. Udorthents (Demopolis series) formed in residuum on ridges and hills.

Land Use

Most areas have been disturbed, and only small remnants of the former prairie vegetation remain. The major crop on the cropland in the area is soybeans, but corn, small grains, and cotton also are grown. Pastures are used mainly for beef production, but in some areas dairying is an important industry. About three-fourths of the forestland in the area is privately owned, and about one-fourth is owned by industry. The production of pond-raised catfish is important in west Alabama. Some areas are used for urban development.

The major soil resource concerns are water erosion, maintenance of the content of organic matter and productivity of the soils, and management of soil moisture. Water erosion and the infestation of Johnsongrass are major management concerns in cultivated areas. Conservation practices on cropland generally include systems of crop residue management, cover crops, crop rotations, water disposal, pest management, and nutrient management. The most important conservation practice on pasture is prescribed grazing. Pastures commonly are overseeded with small grains and/or legumes to supplement forage production during winter. Haying also helps to provide supplemental feed during the long winters. Critically eroding areas and areas where animals congregate should be monitored and treated.

MLRA 135A Land Use by Category



Category (Private,Federal): Cropland (16.0, 0.0), Grassland (29.0, 0.0), Forest (45.0, 3.0), Urban (4.0, 0.0), Water (2.0, 0.0), Other (1.0, 0.0)

MLRA 134 - Southern Mississippi Valley Loess

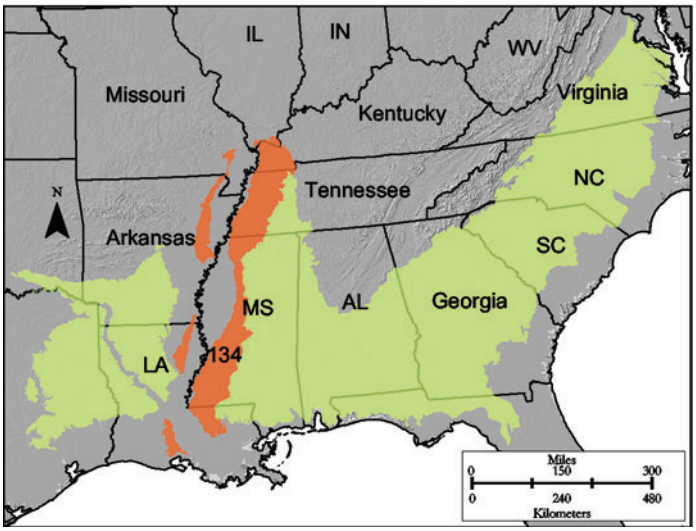


Figure 134-1: Location of MLRA 134 in Land Resource Region P

Introduction

This area is in Mississippi (39 percent), Tennessee (23 percent), Louisiana (15 percent), Arkansas (11 percent), Kentucky (9 percent), Missouri (2 percent), and Illinois (1 percent). It makes up about 26,520 square miles (68,715 square kilometers). The northern part of the area includes Paducah and Murray, Kentucky; Paragould, Jonesboro, and Forrest City, Arkansas; and Memphis, Dyersburg, Bartlett, and Germantown, Tennessee. The southern part includes Yazoo City, Clinton, and Jackson, Mississippi, and Baton Rouge, Opelousas, Lafayette, and New Iberia, Louisiana. Interstates 24, 55, 40, 20, 12, 49, and 10 cross this area. The area includes the Homochitto National Forest in Mississippi, the St. Francis National Forest in Arkansas, and the Shawnee National Forest in Illinois. A number of State parks and a few national wildlife refuges are in the southern part of this MLRA.

Physiography

This area is in the Coastal Plain Province of the Atlantic Plain. Most of the part of the area east of the Mississippi River is in the East Gulf Coastal Plain Section of the province. Parts of the western edge of the area, the part of the area in Arkansas, and the isolated part in northern Louisiana are in the Mississippi Alluvial Plain Section. The farthest southwest part in Louisiana is in the West Gulf Coastal Plain Section. The sharply dissected plains in this MLRA have a loess mantle that is thick at the valley wall and thins rapidly as distance from the valley wall increases. Valley sides are hilly to steep, especially in the western part of the area. The intervening ridges generally are narrow and rolling, but some of the interfluves between the upper reaches of the valleys are broad and flat. Stream valleys are narrow in the upper reaches but broaden rapidly downstream and have wide, flat flood plains and meandering stream channels. Elevation ranges from 80 to 600 feet (25 to 185 meters). Local relief is mainly 10 to 20 feet (3 to 6 meters), but it can be 80 to 165 feet (25 to 50 meters).

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Lower Mississippi-Hatchie (0801), 28 percent; Lower Mississippi-Big Black (0806), 20 percent; Lower Mississippi-St. Francis (0802), 12 percent; Lower Mississippi-Yazoo (0803), 12 percent; Lower Mississippi-Lake Maurepas (0807), 9 percent;

Boeuf-Tensas (0805), 5 percent; Louisiana Coastal (0808), 4 percent; Pearl (0318), 4 percent; Lower Tennessee (0604), 4 percent; and Lower Ohio (0514), 2 percent. There are no major rivers in the part of this area west of the Mississippi River. A tributary of the Tennessee River (and lake) is in the part of this area in the southwest corner of Kentucky. The Obion and Hatchie Rivers are in the part of the area in Tennessee. The Hatchie River is a National Wild and Scenic River. Many of the tributaries of the Yazoo River are in the part of the area in northern Mississippi. The Big Black River crosses this area in southern Mississippi. The Mississippi River is in the extreme southeast corner of the area, near Baton Rouge, Louisiana.

Geology

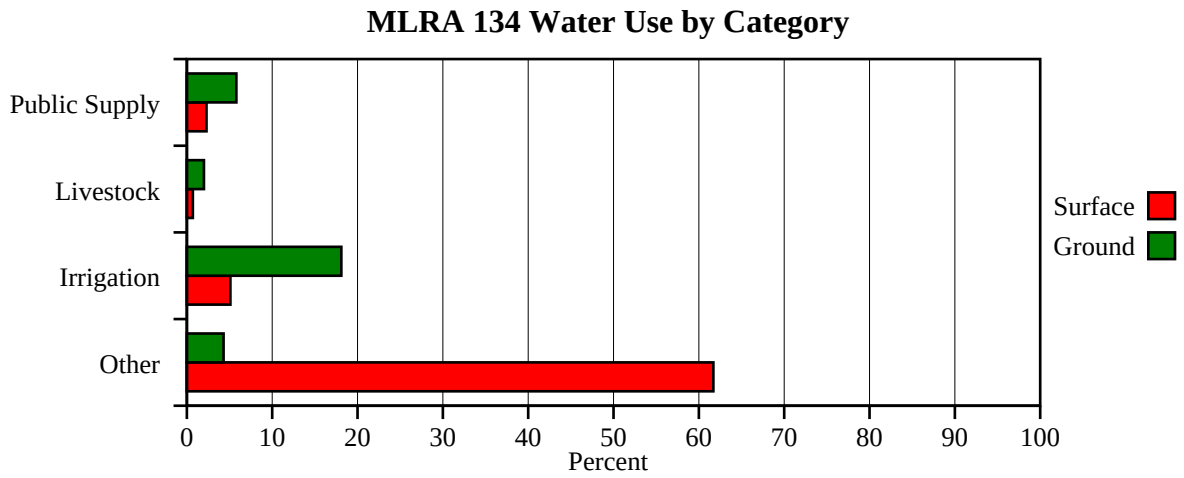
This area is mantled with loess, which varies in thickness. The area is underlain by unconsolidated sand, silt, and clay, mainly of marine origin. Crowley's Ridge is underlain by Pliocene sand and gravel. The seas extended up the present-day valley of the Mississippi River in Tertiary time, when these sediments were deposited by rivers draining the surrounding uplands. Throughout Quaternary and Recent time, the valley floor received fine grained sediments each time the Mississippi River flooded. After these sediments dried, winds picked them up and deposited them as loess in the higher areas on each side of the valley. There are five known periods of loess deposition in the area. The surface deposit is the Peoria Loess, which is of Late Wisconsin age (about 10,000 years ago). Pre-Peorian Loess, which is of Middle Wisconsin age (about 20,000 to 40,000 years ago), occurs in some areas. This loess is thinner than the Peorian Loess and is generally redder or darker. Loveland-Sicily Island Loess, which is of pre-Wisconsin age (85,000 to 130,000 years ago), is at the surface in some areas in the southern part of this MLRA. It has a well developed reddish paleosol (buried soil). Two other loess deposits have been described on Crowley's Ridge. They have been identified as Marianna Loess and Crowley's Ridge Loess. These deposits are not exposed at the surface. They have well developed paleosols.

Water

The total withdrawals average 5,270 million gallons per day (19,945 million liters per day). About 30 percent is from ground water sources, and 70 percent is from surface water sources. Precipitation is abundant, but most streams are small and flow intermittently. They flow most of the time in winter and spring. In summer and autumn, however, they flow only during and immediately after storms. Reservoirs store water for use when flows in streams decline. In the uplands, ponds and rural water systems are the main sources of water for domestic use and livestock. The surface water in the area is suitable for almost all uses. Most of the water used is for cooling thermoelectric power plants.

Ground water is abundant in this area, but shallow wells provide small quantities of water. In the uplands, shallow wells are used to fill cisterns for domestic use and livestock. Deep wells in the underlying unconsolidated sand and gravel of Cretaceous and Tertiary age yield large quantities of water. Most of the ground water east of the Mississippi River is suitable for all uses. It is soft and generally has less than 200 parts per million (milligrams per liter) total dissolved solids. Some of the water in the part of this area in Kentucky requires treatment for high levels of iron if it is to be used as drinking water.

In the part of Louisiana west of the Mississippi River, water from the Chicot aquifer system exceeds the drinking water standards for iron and water from the alluvial aquifer generally is not suitable for drinking because of high levels of total dissolved solids and iron and hardness. In Arkansas, water from the alluvial aquifer is very hard and has a median level of iron of almost 4,000 parts per billion (micrograms per liter). Water from the Sparta and Wilcox aquifers is soft, but most samples tested show levels of iron exceeding the 300 parts per billion (micrograms per liter) secondary standard for drinking water. All of the water west of the Mississippi River is very fresh and has median levels of total dissolved solids in the range of 100 to 350 parts per million (milligrams per liter).



Category (Surface,Ground): Public Supply (2.3, 5.8), LiveStock (0.7, 2.0), Irrigation (5.1, 18.1), Other (61.7, 4.3)

Soils

The dominant soil orders in this MLRA are Alfisols, Entisols, Inceptisols, and Ultisols. The soils in the area are very deep or deep, are medium textured, and have a thermic soil temperature regime, a udic soil moisture regime, and mixed mineralogy.

Well drained, nearly level to very steep Hapludalfs (Memphis series) are on uplands. Nearly level to steep, well drained Hapludalfs (Memphis, Coteau, and Feliciana series), moderately well drained and somewhat poorly drained Fraglossudalfs (Olivier, Grenada, and Calloway series), moderately well drained Fragiudalfs (Loring series), and well drained Eutrudepts (Natchez series) formed in thick deposits of loess. Nearly level to gently sloping, somewhat poorly drained Epiaqualfs (Patoutville series), moderately well drained Fragiudults (Gigger, Toula, and Tangi series), well drained to somewhat poorly drained Hapludalfs (Colyell and Dexter series), and well drained Paleudults (Lytle series) formed in deposits of loess 2 to 4 feet (1 meter) thick. Nearly level and very gently sloping, somewhat poorly drained and poorly drained Glossaqualfs (Calhoun, Encrow, and Frost series), somewhat poorly drained Glossudalfs (Egypt series), somewhat poorly drained Hapludalfs (Satsuma series), and somewhat poorly drained Argiaquolls (Jeanerette series) formed in a thin mantle of loess over loamy alluvium or mixed loess and loamy alluvium. Deep, gently sloping, well drained Eutrudepts (Weyanoke series), somewhat poorly drained Fragiudults (Bude series), and somewhat poorly drained Fraglossudalfs (Fluker series) formed in silty material or in a mantle of loess and the underlying late Pleistocene loamy terrace material.

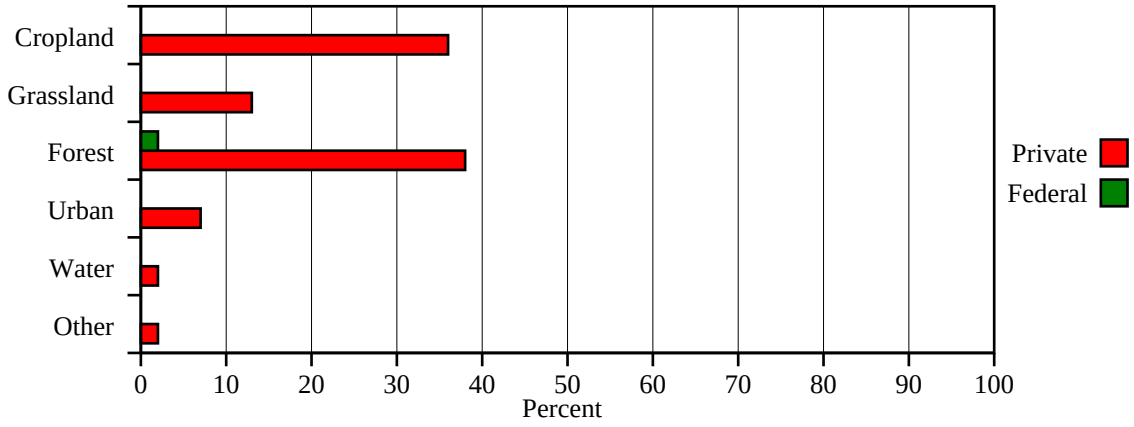
In the eastern part of the area, where the loess mantle thins, well drained Paleudalfs (Lexington series), moderately well drained Fragiudalfs (Dulac and Providence series), well drained Hapludults (Brandon and Silerton series), and well drained Paleudults (Smithdale series), all of which are gently sloping to steep, are on ridgetops and side slopes. Well drained Dystrudepts (Ariel series), moderately well drained Udifluvents (Collins series), moderately well drained Dystrudepts (Oaklimeter series), and somewhat poorly drained Fluvaquents (Gillsburg series) are on flood plains.

Land Use

Most of this area is in farms. A small acreage is federally owned. About one-third of the area is cropland, but the proportion varies greatly from county to county, depending on the soils and the topography. This is largely a cash-crop area. Cotton, corn, rice, soybeans, and wheat are the major crops. Strawberries are important in Louisiana. Feed grains and forage are grown on dairy farms. Less than 15 percent of the area is pasture or hayland. About two-fifths is forest of mixed pine and hardwoods. Lumber is the major forest product, and some pulpwood is harvested. The present trend is toward the conversion of pasture and forest to cropland. Some areas are used for urban development, which is expanding near the metropolitan areas.

The major soil resource concerns are water erosion, maintenance of the content of organic matter and productivity of the soils, and management of soil moisture. Water erosion is a hazard in sloping areas that are bare because of tree harvesting. Conservation practices on forestland generally include systems of tree residue management and reforestation. Conservation practices on cropland generally include crop residue management, which increases the content of organic matter in the soils, and applications of lime in areas of low pH. Many of the soils remain wet or have a high water table for some or most of the year. Measures that improve drainage should be applied, or the crops adapted to the wet conditions should be selected for planting.

MLRA 134 Land Use by Category



Category (Private,Federal): Cropland (36.0, 0.0), Grassland (13.0, 0.0), Forest (38.0, 2.0), Urban (7.0, 0.0), Water (2.0, 0.0), Other (2.0, 0.0)

MLRA 133A - Southern Coastal Plain

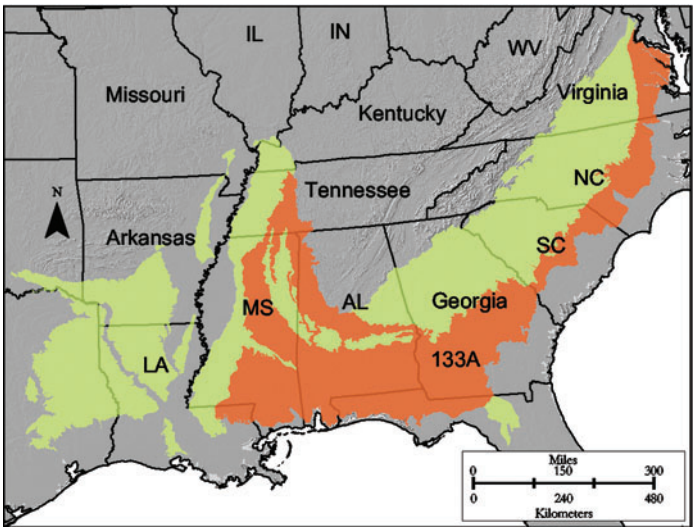


Figure 133A-1: Location of MLRA 133A in Land Resource Region P

Introduction

This area (shown in fig. 133A-1) is in Alabama (26 percent), Mississippi (24 percent), Georgia (21 percent), Florida (8 percent), North Carolina (7 percent), Virginia (5 percent), South Carolina (4 percent), Tennessee (4 percent), and Louisiana (1 percent). It makes up about 106,485 square miles (275,930 square kilometers). It is the largest MLRA in the U.S. The city of Alexandria, Virginia, is at the northernmost tip of the area. The MLRA also includes Fredericksburg, Richmond, and Petersburg, Virginia; Rocky Mount, Goldsboro, Fayetteville, and Lumberton, North Carolina; Florence, Sumter, and Orangeburg, South Carolina; Albany and Tifton, Georgia; Tallahassee, Florida; Tuskegee, Eufaula, Selma, and Tuscaloosa, Alabama; Savannah, Tennessee; Corinth, Starkville, Grenada, Meridian, Hattiesburg, and McComb, Mississippi; and Bogalusa, Louisiana. Interstates 95, 64, 85, 40, 20, 20/59, 26, 16, 75, 10, 65, 59, and 55 cross this area from north to south.

Forts Belvoir and A.P. Hill, Cameron Station Military Reservation, and Quantico Marine Corps Combat Development Command are in the part of this area in Virginia. The MLRA also includes Fort Bragg and Pope Air Force Base near Fayetteville, North Carolina; a small part of Fort Gordon and Fort Stewart in Georgia; Maxwell Air Force Base and Fort Rucker in Alabama; Whiting Naval Air Station and Eglin Air Force Base in Florida; the National Aeronautics and Space Administration's National Space Technology Center in Mississippi; and the western edge of the Department of Energy's nuclear materials production facility at the Savannah River Site in South Carolina.

Mt. Vernon, George Washington's Birthplace National Monument, and Robert E. Lee's birthplace are in the part of this MLRA in Virginia. A number of national wildlife refuges, State forests, and State parks are throughout this area. A number of national forests and National Wild and Scenic Rivers are in the southern part of the area. The Choctaw Indian Reservation is in the part of the area in Mississippi.

Physiography

This area extends from Virginia to Louisiana and Mississippi, but it is almost entirely within three sections of the Coastal Plain Province of the Atlantic Plain. The northern part is in the Embayed Section, the middle part is in the Sea Island Section, and the southern part is in the East Gulf Coastal Plain Section. This MLRA is strongly dissected into nearly level and gently undulating valleys and gently sloping to steep uplands. Stream valleys generally are narrow in their upper reaches but become broad and have widely meandering stream channels as they approach the coast. Elevation ranges from 80 to 655 feet (25 to 200 meters), increasing gradually from the lower Coastal Plain northward. Local relief is mainly 10 to 20 feet (3 to 6 meters), but it is 80 to 165 feet (25 to 50 meters) in some of the more deeply dissected areas.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Mobile-Tombigbee (0316), 12 percent; Choctawhatchee-Escambia (0314), 12 percent; Apalachicola (0313), 10 percent; Pascagoula (0317), 9 percent; Altamaha-St. Marys (0307), 7 percent; Alabama (0315), 6 percent; Pearl (0318), 6 percent; Suwannee (0311), 4 percent; Ogeechee-Savannah (0306), 4 percent; Pee Dee (0304), 4 percent; Lower Mississippi-Yazoo (0803), 4 percent; Lower Chesapeake (0208), 3 percent; Cape Fear (0303), 3 percent; Ochlockonee (0312), 2 percent; Neuse-Pamlico (0302), 2 percent; Lower Mississippi-Hatchie (0801), 2 percent; Lower Tennessee (0604), 2 percent; Chowan-Roanoke (0301), 2 percent; Edisto-Santee (0305), 2 percent; Middle Tennessee-Elk (0603), 1 percent; Lower Mississippi-Lake Maurepas (0807), 1 percent; Lower Mississippi-Big Black (0806), 1 percent; and Potomac (0207), 1 percent. This MLRA stretches from the Chesapeake Bay in the north to just short of the Mississippi River in Louisiana and Mississippi. A great number of major rivers originating in the Appalachian Mountains west of this area cross the MLRA and empty into the Atlantic Ocean or the Gulf of Mexico.

Geology

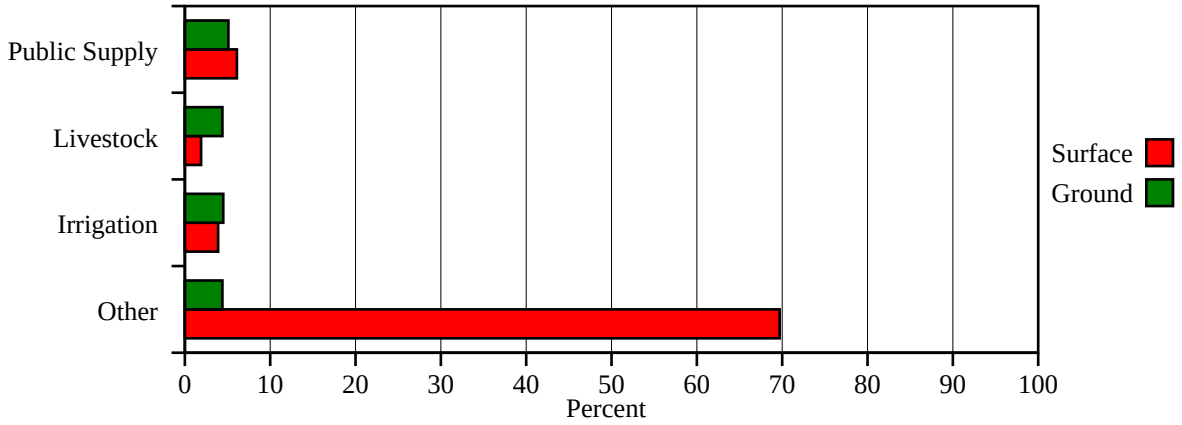
This MLRA is bordered on the west and north by the “fall line.” This line of water falls marks the western and northern extent of the unconsolidated Coastal Plain sediments. It is an erosional scarp formed when this area was the Atlantic Ocean shore in Mesozoic time. The MLRA is underlain by eroded igneous and metamorphic bedrock. Rivers and streams draining the Appalachians deposited a thick wedge of silt, sand, and gravel east and south of the fall line as delta deposits in the Atlantic Ocean. These Jurassic and Cretaceous river sediments were eventually exposed as the Coastal Plain uplifted and the sea level changed. When the sea level rose again, the Coastal Plain was submerged and covered by a thin layer of Cretaceous sands in the eastern half of the area. In the western part of the area, the water was deeper and limestone, dolomite, and calcareous sands were deposited. As the Coastal Plain continued to uplift and the sea level dropped again, Quaternary material consisting of unconsolidated clay, silt, sand, and gravel was deposited over the Tertiary sand and carbonates. Subsequent changes in the sea level created terraces in these younger deposits along many of the streams and rivers draining this area. Much of the MLRA has a “benched” appearance because of the cycles of erosion and deposition that occurred as the area was exposed and submerged numerous times in its geologic history.

Water

The total withdrawals average 7,030 million gallons per day (26,610 million liters per day). This MLRA is among the top 10 MLRAs in total amount of water used. About 18 percent is from ground water sources, and 82 percent is from surface water sources. Precipitation and perennial streams provide an abundance of water. Water for livestock is primarily obtained from perennial streams and small farm ponds. The many perennial streams have the potential for supplying water for municipal use, human consumption, and farming but have been little used for these purposes. A few large reservoirs are available for recreation and other uses. Most of the surface water in this area is used for cooling thermoelectric power plants. The surface water is suitable for all uses.

Domestic water supplies in this area are obtained mainly from shallow wells. In most areas one or more aquifers provide ample ground water for irrigation and for municipal and industrial uses. The Floridan aquifer (limestone, dolomite, and calcareous sand) is heavily used in the southern part of the area, and the Cretaceous sand aquifer is extensively used throughout the area. Both of these aquifers have some of the best quality water in the area. The level of total dissolved solids generally is less than 250 parts per million (milligrams per liter), and the water is typically soft or moderately hard. A number of more minor aquifers are used for ground water throughout the area. Mississippi, for example, obtains water from 12 of the 14 principal aquifers in that State. Since the ground water is shallow throughout the area, nitrate contamination from barnyards, confined animal-feeding operations, septic systems, and poor nutrient management practices is always a potential problem. Some ground water in Mississippi has naturally high levels of iron, and many wells in South Carolina pump water that exceeds the national drinking water standard for sodium. Brine water is commonly encountered in wells in the part of this area in Louisiana. The brine originates from salt domes and moves up to the shallow aquifers along faults created by the upward migration of the domes.

MLRA 133A Water Use by Category



Category (Surface,Ground): Public Supply (6.1, 5.1), LiveStock (1.9, 4.4), Irrigation (3.9, 4.5), Other (69.7, 4.4)

Soils

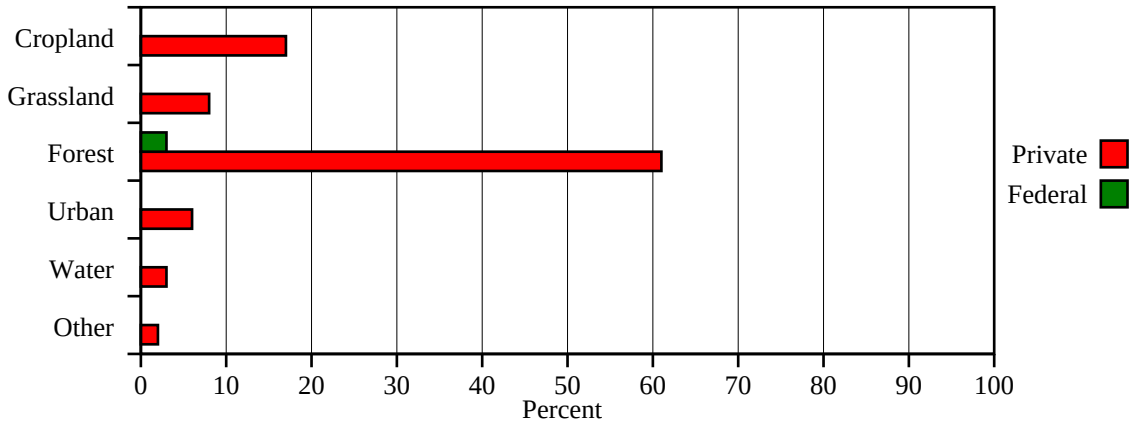
The dominant soil orders in this MLRA are Ultisols, Entisols, and Inceptisols. The soils in the area dominantly have a thermic soil temperature regime, a udic or aquic soil moisture regime, and siliceous or kaolinitic mineralogy. They generally are very deep, somewhat excessively drained to poorly drained, and loamy. Hapludults formed in marine sediments (Luverne and Sweatman series) and mixed marine sediments and alluvium (Smithdale series) on hills and ridges. Kandiudults formed in marine sediments (Dothan, Fuquay, Norfolk, and Orangeburg series) and mixed marine and fluvial sediments (Troup series) on hills and ridges. Fragiudults (Ora and Savannah series) and Paleudults (Ruston series) formed in mixed marine and fluvial sediments on uplands and stream terraces. Fluvaquents (Bibb series) and Endoaquepts (Mantachie series) formed in alluvium on flood plains. Quartzipsamments (Lakeland series) formed in sandy eolian or marine material on uplands. Paleaquults (Rains series) formed in marine and fluvial sediments on terraces.

Land Use

Timber production, cash-grain crops, and forage production are important in this MLRA. Soybeans, cotton, corn, and wheat are the major crops grown throughout the area. Pastures are grazed mainly by beef cattle, but some dairy cattle and hogs are raised in the area.

The major resource concerns are water erosion, maintenance of the content of organic matter and productivity of the soils, control of surface water, artificial drainage, and management of surface compaction and soil moisture. Conservation practices on cropland generally include systems of crop residue management, cover crops, crop rotations, water disposal, subsoiling or deep tillage, pest management, and nutrient management. The most important conservation practice in pastured areas is prescribed grazing. Pastures commonly are overseeded with small grains and/or legumes to supplement forage production during winter. Haying also helps to provide supplemental feed during the long winters. Critically eroding areas and areas where animals congregate should be monitored and treated.

MLRA 133A Land Use by Category



Category (Private,Federal): Cropland (17.0, 0.0), Grassland (8.0, 0.0), Forest (61.0, 3.0), Urban (6.0, 0.0), Water (3.0, 0.0), Other (2.0, 0.0)

MLRA 152A - Eastern Gulf Coast Flatwoods

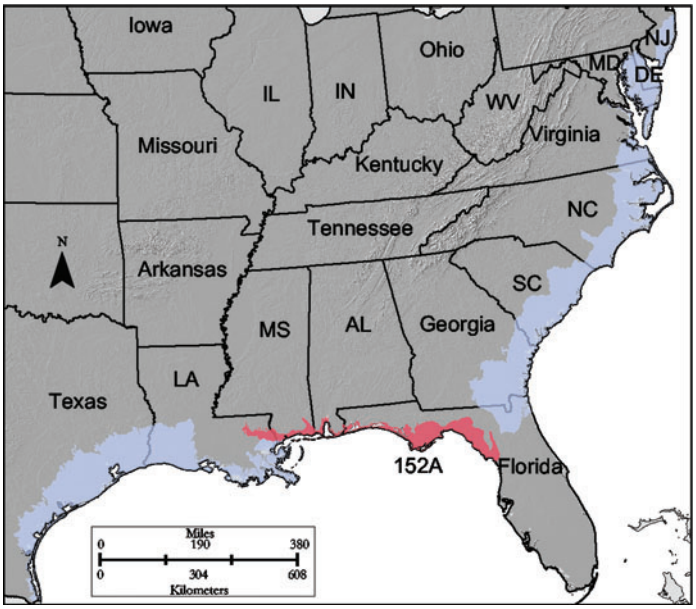


Figure 152A-1: Location of MLRA 152A in Land Resource Region T

Introduction

This area (shown in fig. 152A-1) is in Florida (71 percent), Mississippi (12 percent), Alabama (9 percent), and Louisiana (8 percent). It makes up about 9,860 square miles (25,555 square kilometers). It includes Hammond and Covington, Louisiana; Gulfport, Biloxi, and Pascagoula, Mississippi; Mobile, Alabama; and Pensacola, Panama City, and Perry, Florida. Pascagoula, Mississippi, is one of the great ship-building centers of the world. Interstates 10, 12, 55, 59, and 65 and U.S. Highway 90 are in this area. The De Soto National Forest and the NASA National Space Technology Laboratories are in the part of this area in Mississippi. The Olf Summerdale Naval Military Reservation is in the part in Alabama. The San Marcos de Apalache State Historical Site, Apalachicola National Forest, and Gulf Islands National Seashore are in the part in Florida. The Tyndall and Eglin Air Force Bases and Pensacola Naval Air Station also are in the part in Florida. A number of national wildlife refuges and State parks and a few State forests are throughout this MLRA.

Physiography

Almost all of this area is in the East Gulf Coastal Plain Section of the Coastal Plain Province of the Atlantic Plain. The extreme southeast tip is in the Floridian Section of the same province and division. This MLRA is a nearly level, low coastal plain crossed by many large streams. The part of the area in Florida has many lakes and ponds. Elevation ranges from sea level to 80 feet (0 to 25 meters). Local relief is generally 10 to 20 feet (3 to 6 meters).

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Suwannee (0311), 31 percent; Choctawhatchee-Escambia (0314), 18 percent; Apalachicola (0313), 14 percent; Pascagoula (0317), 13 percent; Ochlockonee (0312), 10 percent; Mobile-Tombigbee (0316), 5 percent; Lower Mississippi (0809), 4 percent; Lower Mississippi-Lake Maurepas (0807), 3 percent; and Pearl (0318), 2 percent. Reaches of four rivers in the part of this area in Louisiana have been designated as National Wild and Scenic Rivers. These are the Amite, Tangipahoa, Tchefuncte, and Bogue Chitto Rivers. The Pearl River forms the

boundary between Louisiana and Mississippi in this area. The Escatawpa River joins the Pascagoula River just before it empties into the Gulf of Mexico in the part of this area in Mississippi. The Tombigbee and Alabama Rivers join just outside this area to form the Mobile River in Alabama. The Perdido River forms the boundary between Alabama and Florida in this area. The major rivers that cross the part of this area in Florida on their way to the Gulf of Mexico are the Escambia, Yellow, Choctawhatchee, Apalachicola, Ochlockonee, and Suwannee Rivers.

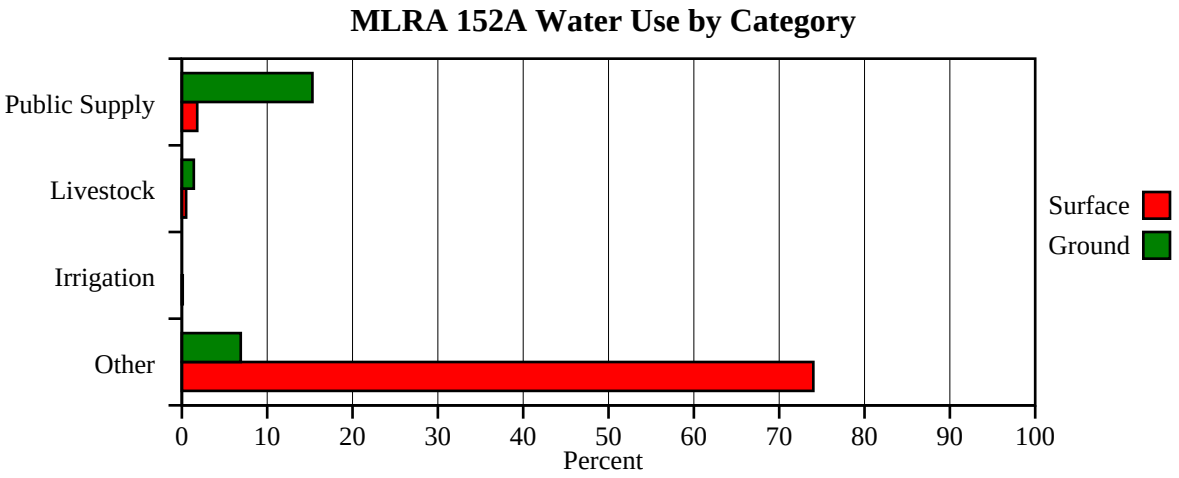
Geology

Pleistocene-age terraces consisting of ancient Mississippi River deposits of unconsolidated fine sand, which grades to coarser sand and gravel at depth, are at the surface in the western end of this area, in Louisiana and Mississippi. The Citronelle Formation is at the surface in most of the parts of this area in Mississippi, Alabama, and the western panhandle of Florida. This formation is a thin layer of silt, sand, and gravel deposited by an ancient predecessor of the Mississippi River during Pliocene time. A thin veneer of Pleistocene-age sand covers the surface of this area farther to the east in Florida. Limestone and dolomite of the Floridan aquifer lie just beneath the sand in the rest of the area in Florida. Karst topography is common in Florida. Recent silt, sand, and gravel deposits fill the valleys along most of the major rivers in the area.

Water

The total withdrawals average 1,030 million gallons per day (3,899 million liters per day). About 24 percent is from ground water sources, and 76 percent is from surface water sources. The abundant rainfall and the many perennial streams are important sources of water. Generally, river water is suitable for most uses with some treatment. Surface waters have been polluted by municipal and industrial wastewater discharges and fecal coliform bacteria. Some improvement in water quality has occurred as communities and industries strive to clean their wastewater before discharging it into nearby rivers or lakes. Most of the surface water is used for municipal and industrial supply and for cooling thermoelectric power plants.

Ground water is plentiful in this area but is affected by salt in many areas near the coast. Soft ground water is obtained from the Pleistocene terraces in Louisiana, Mississippi, and Alabama. This water is generally low in total dissolved solids, but it may be contaminated by septic systems. Where faults occur, brine from salt-dome deposits can move up into the surface aquifers, making the water too salty for most uses. Where the ground water is not suitable, better quality water can be obtained from river valley alluvium. River flows tend to recharge these aquifers annually, so this water is usually suitable for most uses with some treatment. Ground water is plentiful in the Citronelle and Floridan aquifers, in the middle and eastern parts of this area. This water is soft and hard, respectively, and is suitable for most uses. Since these aquifers are close to the Gulf of Mexico, intrusion of seawater is a constant problem.



Category (Surface,Ground): Public Supply (1.8, 15.3), LiveStock (0.5, 1.4), Irrigation (0.1, 0.0), Other (74.0, 6.9)

Soils

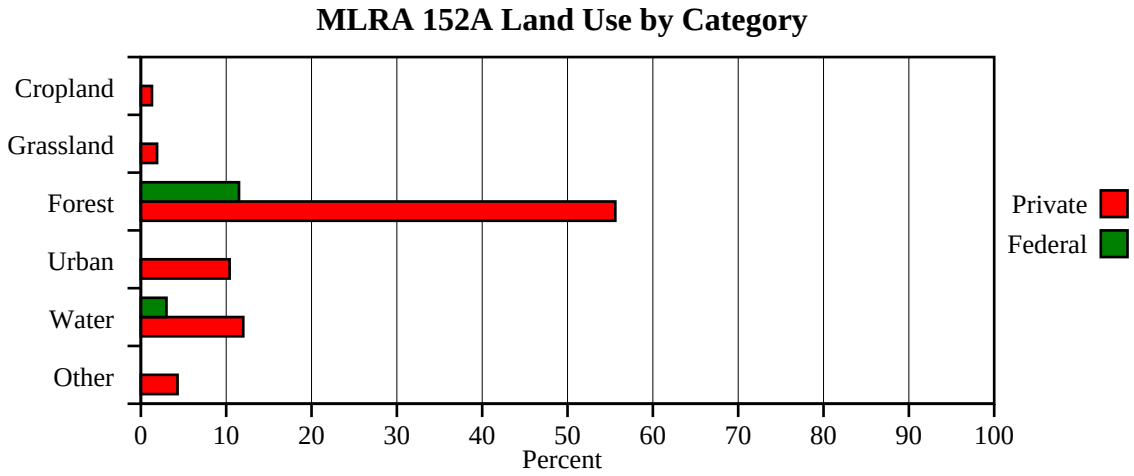
The dominant soil orders in this MLRA are Alfisols, Ultisols, Entisols, Spodosols, and Histosols. The soils in the area dominantly have a thermic or hyperthermic soil temperature regime, an aquic or udic soil moisture regime, and siliceous mineralogy. They generally are deep or very deep; are somewhat poorly drained to very poorly drained; and are loamy, mucky, or sandy. Alaquods (Chaires and Leon series) and Psammaquents (Scranton series) formed in sandy marine sediments on flats and in depressions. Haplosaprists formed in organic deposits in swamps and depressions (Dorovan and Pamlico series) and in marshes and swamps (Lafitte and Maurepas series). Sulfihemists (Handsboro series) and Sulfaquents (Axis series) formed in saltwater and brackish water marshes. Quartzipsamments (Newhan and Corolla series) and Psammaquents (Duckston series) formed on dunes and in interdunal swales on barrier islands. Glossaqualfs (Guyton series) and Hydraquents (Arat and Levy series) formed in alluvium on flood plains. Endoaqualfs (Meadowbrook and Wekiva series) and Albaqualfs (Tooles series) formed in loamy marine sediments on flats and flood plains and in depressions. Endoaquults (Myatt series) and Paleudults (Stough series) formed in mixed fluvial and marine sediments on flats and stream terraces. Paleaquults (Plummer and Bayou series) and Paleudults (Escambia and Ocilla series) formed in loamy and sandy sediments on marine terraces.

Land Use

Very little of this dominantly forested area is in farms. Much of it is in large holdings owned by pulp and paper companies. Pulpwood and lumber are the principal forest products. Some of the forestland is grazed. Some areas are in State and national forests or are used as game refuges or as military training sites. Only a very small acreage is cropped or pastured. Corn, peanuts, tobacco, and soybeans are the major crops.

The major soil resource concerns are water erosion, maintenance of the content of organic matter and productivity of the soils, surface compaction, and management of soil moisture. Conservation practices on forestland generally include forest stand improvement, forest trails and landings, prescribed burning, riparian forest buffers, forest site preparation, bedding, establishment of trees and shrubs, and management of upland wildlife habitat. The most important conservation practice on pasture is prescribed grazing. Over-seeding of pastures with small grains and/or legumes during winter commonly supplements forage production. Haying also provides additional feed during the long winters. Conservation practices on cropland generally include systems of crop residue management, cover crops, crop rotations, water disposal, subsoiling or deep tillage, pest management, and nutrient management. Critically eroding areas and areas where animals

congregate must be monitored regularly and treated promptly.



Category (Private,Federal): Cropland (1.3, 0.0), Grassland (1.9, 0.0), Forest (55.6, 11.5), Urban (10.4, 0.0), Water (12.0, 3.0), Other (4.3, 0.0)

MLRA 151 - Gulf Coast Marsh

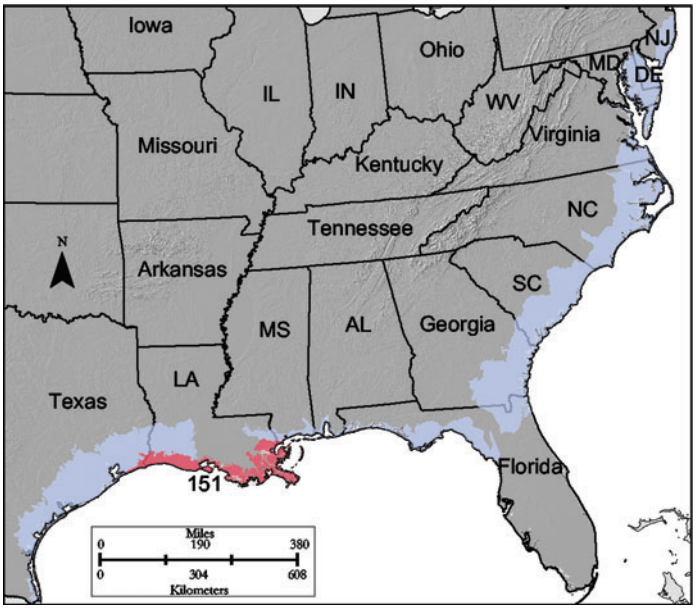


Figure 151-1: Location of MLRA 151 in Land Resource Region T

Introduction

This area (shown in fig. 151-1) is in Louisiana (95 percent), Texas (4 percent), and Mississippi (1 percent). It makes up about 8,495 square miles (22,015 square kilometers). The towns of Gretna, Chalmette, and Marrero, Louisiana, and the city of New Orleans, Louisiana, are in the eastern part of this MLRA. The town of Port Arthur, Texas, is in the western part. Interstate 10 and U.S. Highway 90 cross the area. The New Orleans Naval Air Station is in this MLRA. Fort Jackson, overlooking the mouth of the Mississippi River, and the Jean Lafitte National Historic Park and Preserve are in the MLRA. A number of national wildlife refuges and State parks occur throughout this area.

Physiography

Vermilion Bay splits this area into an eastern half and a western half. The eastern half is in the Mississippi Alluvial Plain Section of the Coastal Plain Province of the Atlantic Plain. The western half is in the West Gulf Coastal Plain Section of the same province and division. The land east of Vermilion Bay, part of the Mississippi River Delta, has a ragged shoreline. The land west of Vermilion Bay has a smoother shoreline. Low, narrow sandy ridges characterize much of the area. There are many rivers, lakes, bayous, tidal channels, and manmade canals. Elevation generally ranges from sea level to about 7 feet (2 meters). It is as much as 10 feet (3 meters) on beach ridges, canal spoil banks, and natural levees and as much as 165 feet (50 meters) on salt dome islands. Some areas that are protected by levees have subsided below sea level.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Lower Mississippi (0809), 60 percent; Louisiana Coastal (0808), 31 percent; Galveston Bay-San Jacinto (1204), 5 percent; Lower Mississippi-Lake Maurepas (0807), 2 percent; Sabine (1201), 1 percent; and Pearl (0318), 1 percent. The Sabine River forms the boundary between Texas and Louisiana in this area, and the Beckwith and Calcasieu Rivers are at the western end of the area, in Louisiana. Other rivers in the part of the area in Louisiana include the Bayou Nezpique, Mermentau, Vermilion, Bayou Teche, Atchafalaya, and Mississippi Rivers.

Geology

The surface of this area is primarily Mississippi River clay, silt, and fine sand deposited over the past 2 million years. The eastern half of the area, part of the Mississippi River Delta, is underlain by a mixture of Recent alluvial material and Pleistocene-age marine sediments. The area west of Vermilion Bay is underlain by older alluvial and marine sediments. Salt domes, natural gas, and petroleum deposits are below the surface in this area.

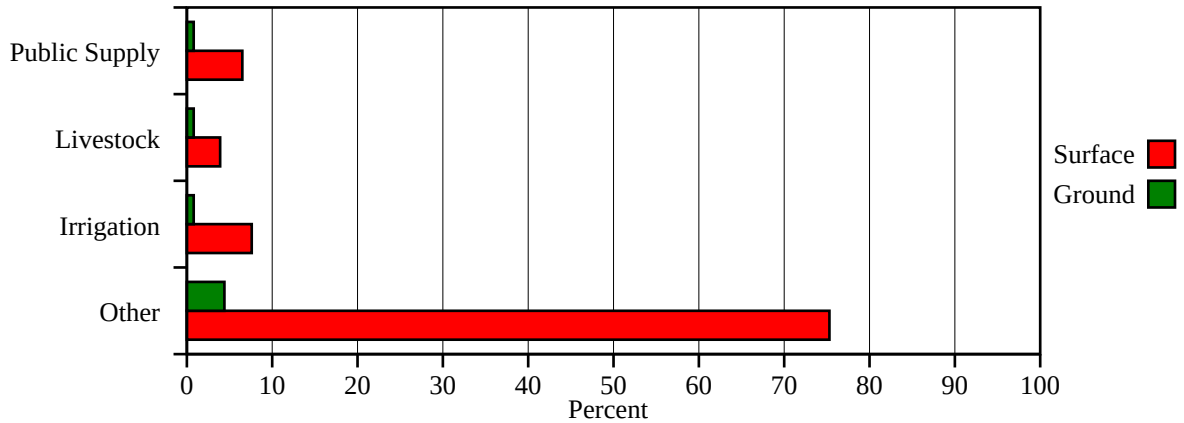
Water

The total withdrawals average 1,310 million gallons per day (4,958 million liters per day). About 7 percent is from ground water sources, and 93 percent is from surface water sources. Most of the water used in this area is for public supply, thermoelectric power plants, and industry in the northeast corner. This area has many rivers, lakes, bayous, tidal channels, and manmade canals. About one-half of the marsh is fresh, and one-half is salty. Tidal channels allow free movement of salty water from the Gulf of Mexico into the parts of this area adjacent to the Gulf. Most of the area is susceptible to flooding either by freshwater drained from lands adjacent to the marsh or by saltwater from the Gulf of Mexico. Daily tides flood some areas. High tides and storm surges resulting from hurricanes or tropical storms can be as much as 10 feet (3 meters) above sea level and can flood most of the area.

River water in this area is generally of poor quality and requires treatment prior to human consumption. Contamination by fecal coliform bacteria is high in some rivers, and sediment problems from nonpoint sources and contamination by industrial wastes can occur in all of the rivers. Most soils of this area are very poorly drained, having a water table at or above the surface most of the time.

Ground water is scarce east of Vermilion Bay, in the Mississippi Delta. Fresh ground water is available in moderate to large quantities from the Gulf Coast (Texas) and Chicot (Louisiana) aquifer systems west of Vermilion Bay. The water from these Pleistocene-age river deposits is hard, and its median level of total dissolved solids is 300 to 450 parts per million (milligrams per liter). Iron concentrations exceed the national secondary standard for drinking water and approach 1,000 parts per billion (micrograms per liter) in some wells in Louisiana.

MLRA 151 Water Use by Category



Category (Surface,Ground): Public Supply (6.5, 0.8), LiveStock (3.9, 0.8), Irrigation (7.6, 0.8), Other (75.3, 4.4)

Soils

The dominant soil orders in this MLRA are Entisols and Histosols. The soils in the area dominantly have a hyperthermic soil temperature regime, an aquic soil moisture regime, and smectitic mineralogy. They generally are very deep, very poorly drained, and clayey. Hydraquents (Bancker, Creole, Larose, and Scatlake series) formed in clayey sediments in coastal marshes. Haplosaprists formed in organic deposits over alluvium (Allemands, Clovelly, and Lafitte series) or entirely in organic deposits (Kenner and Timbalier series).

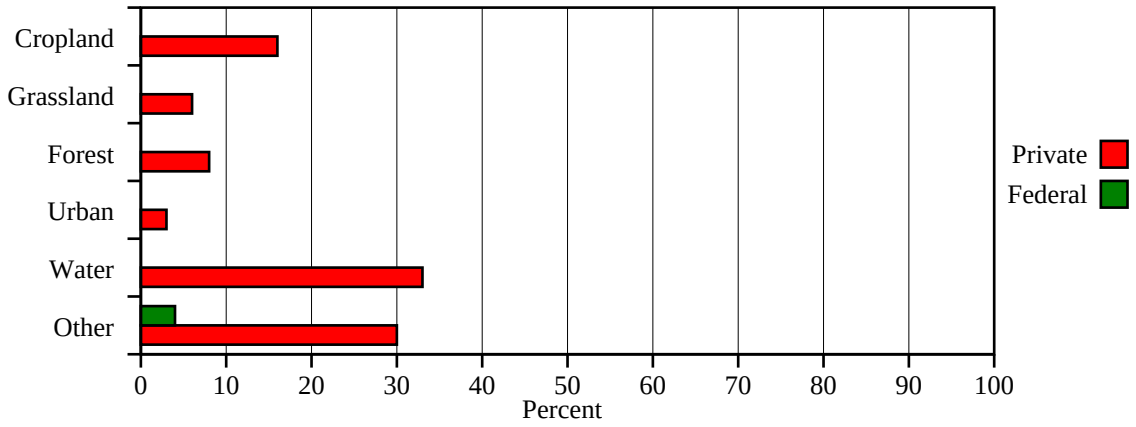
Land Use

Most of this area supports marsh vegetation and is used for wildlife habitat. The area is almost treeless. Much of the area is uninhabited. The area is in the fertile and productive estuarine complex that supports the marine life of the Gulf of Mexico. The area provides wintering ground for millions of migratory ducks and geese and habitat for many fur-bearing animals and for alligators. A significant acreage west of Vermilion Bay is firm enough to support livestock and is grazed by cattle in winter. A small acreage of freshwater marsh is drained by pumping systems and is used for pasture or for rice.

The major resource concerns are determined by land use and marsh type. Flooding is a major concern in New Orleans. The concerns in areas of native marsh include maintenance of the salinity level in the soils, ingress and egress of freshwater or saltwater, and the content of organic matter in the soils. The concerns on pasture and cropland include maintenance of the content of organic matter and control of the salinity level in the soils. Erosion caused by overland water from high rainfall or a storm surge in the Gulf is a concern in areas where the native vegetation has been altered.

Conservation practices on cropland include systems of crop residue management, which help to control erosion and maintain the content of organic matter in the soils. Timely tillage and planting can help to maintain tilth and the supply of soil moisture and control salinity. The practices on pasture include prescribed grazing, brush and pest management, prescribed burning, and watering facilities. Management of upland and wetland wildlife habitat is needed.

MLRA 151 Land Use by Category



Category (Private,Federal): Cropland (16.0, 0.0), Grassland (6.0, 0.0), Forest (8.0, 0.0), Urban (3.0, 0.0), Water (33.0, 0.0), Other (30.0, 4.0)