

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

MLRA Explorer Custom Report

Z - Caribbean Region

273 - Semiarid Coastal Plains

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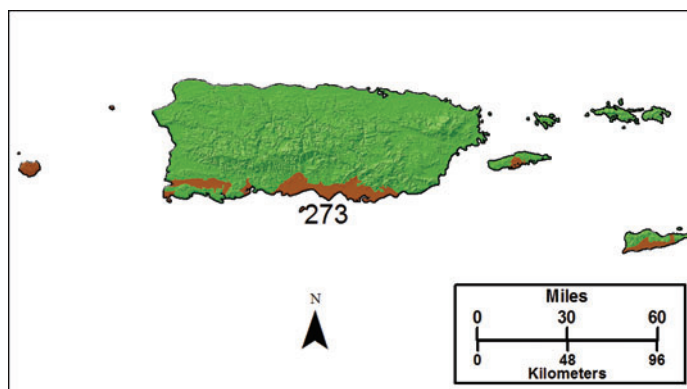


Figure 273-1: Location of MLRA 273 in Land Resource Region Z

Introduction

This area (shown in fig. 273-1) is on the south coast of Puerto Rico (81 percent) and mostly on the southern side of St. Croix in the Virgin Islands (10 percent) and the outlying islands of Vieques, Desecheo, and Mona (9 percent). It makes up about 305 square miles (785 square kilometers). The part of the area on St. Croix is 28 square miles (72 square kilometers). The MLRA includes the towns of Cabo Rojo, Lajas, Guanica, Ponce, Juana Díaz, Salinas, Guayama, and Arroyo, Puerto Rico; Hamilton, St. Croix; and Isabel Segunda, Vieques. The Puerto Rico National Guard Camp (Campamento Santiago) is at the eastern end of the area, and a number of State parks are in the area, primarily on the coast in Puerto Rico.

Physiography

The coastal half of the part of this area in Puerto Rico gently slopes up from the Caribbean Sea. Most of the towns are at an elevation of 5 to 50 feet (2 to 15 meters). The inland half of the MLRA rises sharply to an elevation of 250 feet (75 meters). Steep foothills are at the base of the southern slopes of the central mountain chain (Cordillera Central), which extends from east to west across the length of the island. The part of the area in the “Valle de Lajas” is a flat coastal plain surrounded by steep foothills on three sides.

A rolling plain marks the part of this area on St. Croix. It generally is at an elevation of 10 to 140 feet (3 to 45 meters). It is flatter on the coast and more rolling in inland areas. The MLRA extends to the coast on both the south and north sides of the eastern end of St. Croix. Elevation rises to almost 200 feet (60 meters) in the area connecting the northern and southern parts of this MLRA. The MLRA separates two mountainous areas on the north side of the island.

The extent of the major Hydrologic Unit Areas (identified by four-digit numbers) that make up this MLRA is as follows: Puerto Rico (2101), 81 percent; Virgin Islands (2102), 10 percent; and Caribbean Outlying Islands (2103), 9 percent. In the “Valle de Lajas,” the main river flows west, but all of the other streams in the part of this MLRA in Puerto Rico flow south. None of the streams in the MLRA are perennial.

Geology

The geology of this MLRA is very similar to that of the low part of MLRA 271. An important feature is the Lajas Valley, which formed in a geosyncline. This low area was produced by a deeper lying graben or down-dropped block between two gravity faults. This valley is in the western part of the MLRA, south of the footslopes of the Cordillera Central and north of the Sierra Bermeja. It is filled with as much as 240 feet (75 meters) or more of clayey sediments.

Gravel, sands, silts, and clays deposited in the Quaternary period by rivers typically occur on the flatter parts of this MLRA near the coast. Limestone and volcanic rocks occur in the higher, steeper parts. The flatter alluvial deposits are not very extensive. Of all the Virgin Islands, St. Croix is the only one in which limestone occurs as parent material. Volcanic rocks form the interior and higher parts of the Virgin Islands and the other outlying islands around Puerto Rico.

Climate

The average annual precipitation in most of this area is 30 to 45 inches (760 to 1,145 millimeters). It is lower near the coast and higher on the inland hills. It is 10 to 30 inches (255 to 760 millimeters) in a few small, isolated areas. Almost all of the rainfall is lost through evapotranspiration, and the year-round air temperatures are high. Thus, the climate is semiarid. Most of the rainfall occurs in the afternoons as frequent, trade-wind showers from May to October, but tropical storms and hurricanes can produce high amounts of rain that can result in widespread flooding problems. The area typically is drier from December through March, rainy during April and May, semidry in June and July, and wet from August through November. The average annual temperature is about 79 degrees F (26 degrees C). The variation in mean monthly temperatures is only 5 to 8 degrees F (3 to 4 degrees C). This MLRA is freeze-free.

Water

The total withdrawals average 225 million gallons per day (850 million liters per day). About 30 percent is from ground water sources, and 70 percent is from surface water sources. Rainfall provides an ample supply of surface water in the part of this area in Puerto Rico, but 90 percent of the precipitation is lost through evapotranspiration before it can reach streams or the ground water table. Manmade lakes are used to trap and store runoff water for public supply and some irrigation. The area has no perennial streams. Fecal coliform levels generally are high during periods when the streams are flowing. During dry periods, the effluent from sewage treatment plants typically makes up almost all of the flow in streams near population centers.

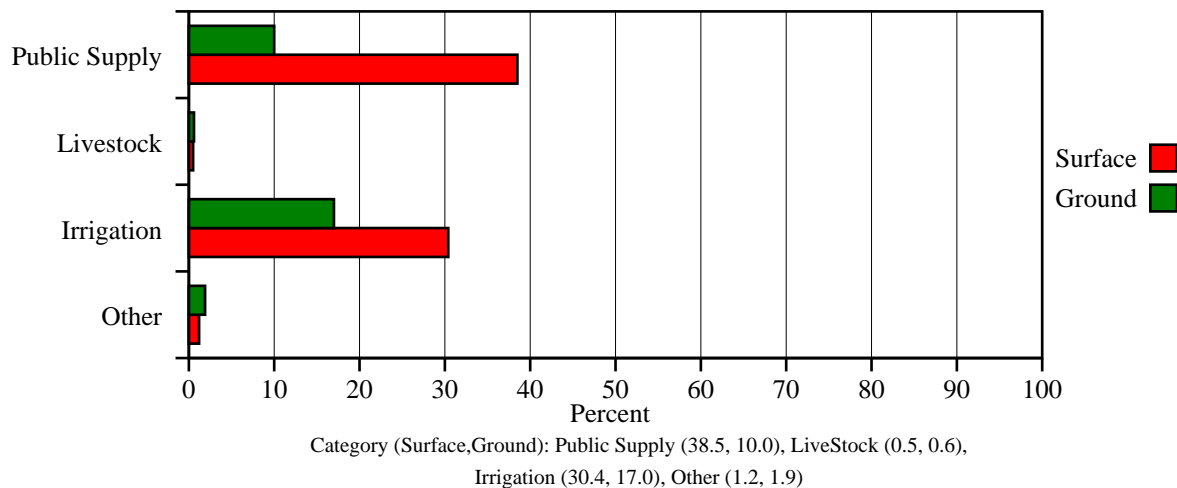
The South Coastal Plains aquifer, one of the two most important aquifers in Puerto Rico, underlies this MLRA. This alluvial deposit generally holds calcium bicarbonate water. Along the coast, however, the intrusion of saltwater changes the ground water to a sodium chloride type. The surface water and ground water generally meet the recommended standards for all uses. The ground water is very hard, and the highest concentrations of nitrate occur in the South Coastal Plains aquifer. Nitrate levels are still below the limit allowed for drinking water (10 parts per million or milligrams per liter).

The West Coast alluvial valley aquifer underlies the "Valle de Lajas." The water from this aquifer is generally of good quality, except for very high levels of total dissolved solids. The water is normally a calcium bicarbonate type, but it is a sodium chloride type near the coast, where seawater intrusion is common. The Virgin Islands use almost 11 million gallons of freshwater per day (42 million liters per day). About 90 percent of this water is used in the part of this MLRA on the island of St. Croix. Almost all of the water is used for public supply. Streams do not flow throughout the year, and the amount of available ground water is low. Thus, the needs for freshwater in the Virgin Islands typically exceed the annual supplies. Rooftop catchments and seawater conversion plants are used to provide almost all of the potable water on St. Croix and Vieques. Contamination from sewage effluent and septic systems can create water-quality

problems.

Little ground water is used in the Virgin Islands. Most of the ground water that is used comes from the calcareous sediments of the King’s Hill aquifer underlying the center of St. Croix. This alluvial deposit generally holds calcium bicarbonate water. Near the coast, however, the intrusion of saltwater changes the ground water to a sodium chloride type. The water in this aquifer exceeds the drinking water standards for total dissolved solids and chloride and is very hard. It is typically desalinated before it is used as potable water. The levels of nitrates, fecal coliform, and fecal streptococci bacteria commonly exceed drinking water standards. Limited quantities of ground water occur in the fractures and joints in the volcanic rocks on Vieques.

MLRA 273 Water Use by Category



Soils

The soils in this MLRA are dominantly Mollisols or Vertisols. The soils in the part of the area in Puerto Rico have an isohyperthermic soil temperature regime and generally have an ustic soil moisture regime. They generally are clayey or loamy and have mixed or smectitic mineralogy. In a small area around Ensenada, the soils have an aridic soil moisture regime. The dominant suborders on the flood plains are very deep, somewhat poorly drained Aquolls and excessively drained and well drained Ustolls. The dominant suborders on high terraces are deep, expansive clayey Usterts and Aquerts.

The soils in the part of the area on St. Croix have an isohyperthermic soil temperature regime and an ustic soil moisture regime. They generally are clayey or gravelly loam and have mixed or carbonatic mineralogy. The dominant suborders on alluvial fans and terraces are well drained Ustolls and Usterts. The dominant suborders on marine terraces and in valleys in the limestone hills and mountains are clayey and loamy Ustolls.

Biology

The dominant plant species in this area are beachgrass, southern sandbur, saltwort, bermudagrass, Mexican bluegrass, Egyptian grass, matojo de piramide, whorled dropseed, lovegrass, knotroot bristlegrass, sea purslane, heliotrope, chickweed, lechecillo, tautaba, tuna cactus, bayhops, sweet acacia, flame tree, white oak, leucaena, black olive, turpentine, catclaw blackbead, twisted grass, coconut tree, buffer grass, guineagrass, Kleberg’s bluestem, and mesquite. The dominant vegetation on wetlands includes red mangrove, white mangrove, black mangrove, button mangrove, southern cattail, leatherfern, water panicum, and para grass.

Some of the major wildlife species in this area include yellow warbler, cattle egret, lesser woodpecker, Antillean nighthawk, bananaquit, black-bellied plover, Blackpoll warbler, black-whiskered vireo, blue-winged teal, brown pelican, cave swallow, clapper rail, common ground-dove, common moorhen, common yellowthroat, great blue heron, great egret, greater Antillean grackle, greater yellowlegs, green heron, killdeer, least sandpiper, lesser yellowlegs, little blue heron, mangrove cuckoo, northern mockingbird, ovenbird, prairie warbler, semipalmated plover, semipalmated sandpiper, snowy egret, snowy plover, stilt sandpiper, tricolored heron, white-cheeked pintail, white-crowned pigeon, Wilson's plover, and yellow-shouldered blackbird.

Land Use

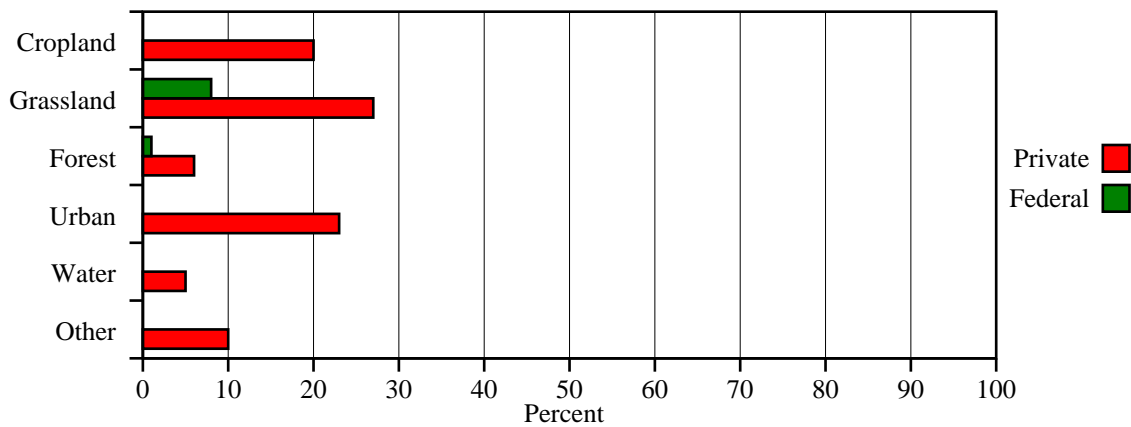
The pastures in this area support native and improved grasses and are used mainly for beef production. The production of hay for racehorses is an important enterprise in some areas. About 38,000 acres (15,380 hectares) is irrigated by different systems and is used mainly for pasture, hay, plantains, or bananas. Several hundred acres are irrigated by drip systems and are used for the production of avocados, mangos, or oranges. The production of irrigated vegetables is of local economic importance. Rapid urban expansion is a land use problem near the larger cities of Puerto Rico. It has increased the need for new roads, schools, recreational developments, and agricultural land.

For many years, sugarcane grown on St. Croix was an important part of the economy, but the sugar mills have been closed. Finding a suitable cash crop has been difficult because of the scarcity of water for irrigation. Approximately 13,665 acres (5,525 hectares) in the Virgin Islands, or 16 percent of the total area, is used for agricultural purposes. Most of this acreage is on St. Croix. More than 78 percent of the acreage is pasture that is grazed by livestock. The main crops are herbs and spices, sugarcane, coconuts, sweet potatoes, yams, and cassava. The commonly grown vegetable crops include cucumbers, eggplant, okra, peppers, and tomatoes. Avocados, bananas, papayas, soursop, sugar apple, guavaberry, citrus fruits, and mangos are the main fruit crops grown on the islands.

The major soil resource concerns in this MLRA are water erosion (sheet and rill) induced by irrigation, surface compaction, maintenance of the content of organic matter and tith of the soils, and water infiltration. Water-quality concerns include surface water contaminants derived from organic and inorganic fertilizers. Water-quantity concerns include runoff, flooding, and water management on irrigated land. In the Virgin Islands, limited supplies of soil moisture and ground water, drought, and poor water quality are serious concerns.

Conservation practices on cropland generally include conservation crop rotations, bedding, deep tillage, grassed waterways, crop residue management systems (especially no-till systems), nutrient and pest management, and irrigation water management. Conservation practices on pasture generally include fencing, pasture and hay planting, watering facilities, and prescribed grazing.

MLRA 273 Land Use by Category



Category (Private,Federal): Cropland (20.0, 0.0), Grassland (27.0, 8.0), Forest (6.0, 1.0),
 Urban (23.0, 0.0), Water (5.0, 0.0), Other (10.0, 0.0)