

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

270 - Humid Mountains and Valleys

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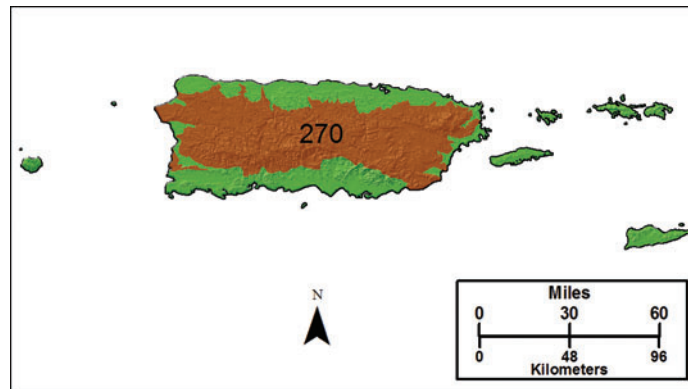


Figure 270-1: Location of MLRA 270 in Land Resource Region Z

Introduction

This area is in central Puerto Rico (fig. 270-1). It makes up about 1,800 square miles (4,660 square kilometers), which is 53 percent of Puerto Rico. From west to east, the towns of Las Marías, Maricao, Adjuntas, Utuado, Jayuya, Villalba, Orocovis, Barranquitas, Comerío, Cidra, Caguas, San Lorenzo, and Las Piedras are in this area. A number of State parks and forest preserves are in the area. Examples are the “Monte del Estado,” the “Bosque de Guilarte,” and part of the “Bosque de Susúa.” The Caribbean National Forest (El Yunque), a rain forest, is at the eastern end of the area.

Physiography

This mountainous area has very steep slopes and very narrow to indistinct valleys. Landslides are common in the area. Elevation ranges from 160 to 4,400 feet (50 to 1,340 meters).

Three different mountain ranges occur in the area. The Central Ridge, “Cordillera Central” as it is known locally, is the highest and largest of the three. It is truly in the center of the island and is oriented in a general east-west direction. Cerro de Punta, its highest peak, is 4,389 feet (1,338 meters) above sea level. Los Tres Picachos and Monte Guilarte are about 3,952 feet (1,205 meters) high.

Second in extent and elevation is the Sierra de Luquillo mountain range in the northeastern part of Puerto Rico. The three highest peaks in this range are El Toro, 3,523 feet (1,074 meters) above sea level; El Yunque, 3,493 feet (1,065 meters); and Pico del Este, 3,447 feet (1,051 meters). Because of its elevation and location on the island relative to the easterly trade winds, a rain forest (El Yunque) occurs on the higher parts of this range.

The third mountain range is the Sierra de Cayey, in the east-central part of Puerto Rico. The highest peaks in this range are Cerro La Santa, 2,962 feet (903 meters) high, and Cerro de la Tabla, 2,919 feet (890 meters) high.

Contrasting with the strongly dissected uplands are the small areas of undulating landscapes that occur at elevations of 1,640 to 1,970 feet (500 to 600 meters) near Barranquitas in east-central Puerto Rico. These landscapes are remnants of a Miocene geomorphic surface, known as the St. John Penplain, that escaped erosion.

The only Hydrologic Unit Area (identified by a four-digit number) that makes up this MLRA is Puerto Rico (2101). This MLRA includes the headwaters of almost all of the rivers and streams on the island.

Geology

Most of this MLRA consists of volcanic rocks that formed below sea level during the Cretaceous period (135 to 70 million years ago). The various formations consist mainly of volcanoclastic rocks (andesite, volcanic sandstone and siltstone, breccia, lava breccia, and pillow lava) of andesitic composition. Large intrusions of plutonic rocks into the volcanic strata occur in the Utuado area in west-central Puerto Rico and in the San Lorenzo area in southeastern Puerto Rico. These batholiths consist of granodiorite and quartz diorite. Plutonic rocks crop out in many small areas throughout the island. Ultrabasic rocks called serpentinite occur in the Cerro Las Mesas, Monte del Estado, and Bosque de Susúa areas in southwestern Puerto Rico. They formed in the late Jurassic period, probably 150 million years ago. The present area of the MLRA emerged from the sea during the early Tertiary period as a result of uplift caused by plate tectonics. The uplift of the island produced numerous fractures and fault zones and tilted the originally horizontal strata.

Climate

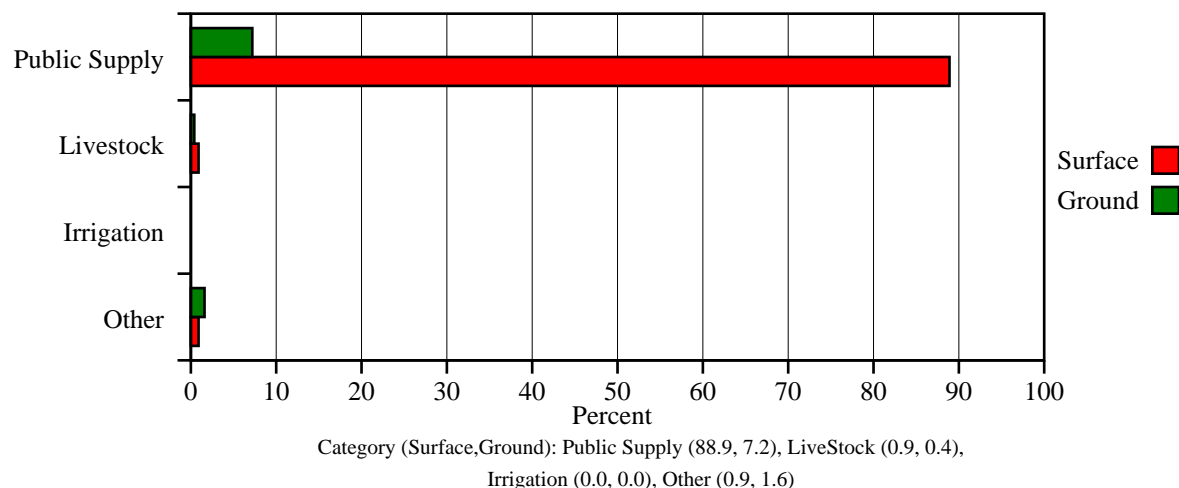
The average annual precipitation is 80 to 85 inches (2,030 to 2,160 millimeters) in most of this area. It can be as low as 60 inches (1,525 millimeters) along the northern and southern edges of the area and can be 120 to 200 inches (3,050 to 5,080 millimeters) at the highest elevations. Most of the rainfall 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 local flooding and landslide problems. The area is typically drier from December to March, rainy during April and May, semidry in June and July, and wet from August to November. The average annual temperature is less than 70 degrees F (21 degrees C) at the higher elevations and 74 degrees F (23 degrees C) at the lower elevations. There is little difference in air temperature between the summer and winter seasons. This MLRA is freeze-free.

Water

The total withdrawals average 30 million gallons per day (115 million liters per day). About 9 percent is from ground water sources, and 91 percent is from surface water sources. Rainfall, perennial streams, and lakes provide ample amounts of surface water. Manmade lakes are used to trap and store runoff for public supply and irrigation at the lower elevations outside this MLRA. The surface water generally meets the recommended standards for all uses. Fecal coliform contamination can occur at times in streams.

The ground water in this area is of good quality, but it is little used. The principal aquifer is the dense and massive volcanic rock underlying most of the area. Fractures and joints in the rock trap and hold the water. Another source of ground water consists of alluvial deposits of very limited extent in narrow valleys.

MLRA 270 Water Use by Category



Soils

The dominant soils in this MLRA are Inceptisols, Ultisols, or Oxisols. The dominant suborders are Udepts, Humults, and Udox. Most of the soils have an isohyperthermic or isothermic soil temperature regime, a udic soil moisture regime, and mixed mineralogy and are clayey or loamy. The soil moisture regime in the Luquillo area is perudic. Shallow and moderately deep Eutrudepts (Caguabo, Mucara, Quebrada, and Morado series) are on steep side slopes, mainly in the east-central part of Puerto Rico. Deep, very fine textured Haplohumults (Humatas series) and Hapludox (Los Guineos series) are on steep side slopes in the west-central part of Puerto Rico. Deep, extremely weathered Acrudox (Nipe series) are of minor extent in the western part of Puerto Rico.

Biology

The dominant plant species in this area are carpetgrass, whorled dropseed, pendejuelo, knotroot bristlegrass, creeping wheatgrass, St. Augustine grass, woodland grass, foxtail grass, beardgrass, matojito, flor de conchitas, bitterbrush, sensitive plant, tick trefoil, burbrush, albizia tree, false moneywort, black manzanilla, shepherdsneedle, black sage, rattleweed, wireweed, boton blanco, wild sage, guava, coconut tree, flame tree, white oak, turkey berry, camasey, higuillo, yagrumo hembra, yagrumo macho, guano, tabonuco tree, mango tree, treefern, palma de sierra, Christmas tree, Puerto Rico royal palm, palo de doncella, and basora prieta.

Some of the major wildlife species in this area are Anolis species, bananaquit, bridled quail dove, cattle egret, Eleutherodactylus species, green-throated carib, Antillean nighthawk, elfin woods warbler, gray kingbird, greater Antillean grackle, killdeer, mangose (invasive), merlin, plain pigeon, Puerto Rican boa, Puerto Rican bullfinch, Puerto Rican emerald hummingbird, Puerto Rican lizard cuckoo, Puerto Rican nightjar, Puerto Rican screech owl, Puerto Rican tanager, Puerto Rican tody, Puerto Rican woodpecker, Puerto Rico vireo, red-tailed hawk, rodents, ruddy quail dove, scaly-naped pigeon, sharp-shinned hawk, smooth-billed ani, and West Indian whistling duck.

Land Use

The grassland in the area is pasture that supports improved forage and native grasses. Approximately 7 percent of the area is used for the production of coffee beans. Most of the coffee beans are grown in the shade, but some are grown in sunlight. The food crops grown in the area include plantains, bananas, taniers, yams, and pigeon peas. Orchard crops also are grown. The climax vegetation in the area consists of forest species. Urban expansion is becoming a serious land use problem in the area.

The major soil resource concerns are water erosion (sheet and rill and ephemeral gully or concentrated flow) and mass movement of soil; maintenance of the content of organic matter, tilth, and fertility of the soils; and water infiltration. Water-quality concerns include surface water contaminants derived from organic and inorganic fertilizers.

Conservation practices on cropland generally include conservation crop rotations, contour farming, hillside ditches, grassed waterways, crop residue management systems (especially no-till systems), and nutrient and pest management. Conservation practices on pasture generally include fencing, pasture and hayland planting, watering facilities, and prescribed grazing.

MLRA 270 Land Use by Category

