

THE NATURAL VEGETATION OF THE LOWER RIO GRANDE VALLEY OF TEXAS

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The Lower Rio Grande Valley, as considered in this paper, occupies the American side of the Rio Grande delta in the extreme southern part of Texas, between latitudes 25 degrees 50 minutes and 26 degrees 50 minutes. The area lies within three degrees of the Tropic of Cancer.

Although favored with a moderately high rainfall, averaging near 25 inches a year, the region has dominantly a xeric environment, due to the high rate of evaporation. Some hydrophytes grow along the swampy coastal plain of the inner margin of Laguna Madre.

Natural Vegetation Subdivisions

Most writers on the vegetation of the United States have generalized their maps to such an extent that it becomes quite difficult to follow any one classification. Livingston and Shreve class all of the South Texas region as semi-desert, but qualify their classification by referring to it as the "Mesquital-Grassland Complex". Shantz maps the entire area as "Thorn-Bush and Mesquite Grass", while Harshberger considers it as the southern part of the Texas prairie. Bray considers the Lower Rio Grande region a "dilute xerophytic tropical" area, further subdividing it as follows:

- (1) Tall Grass (prairie grassland).
- (2) Marsh Grass (marsh grassland).
- (3) Creosote Bush (southern desert shrub).

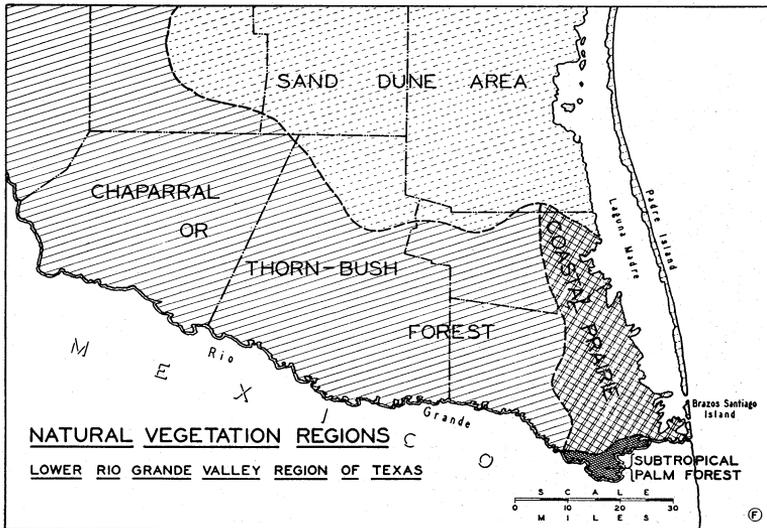


Fig. 1. Natural Vegetation Regions of the Lower Rio Grande Valley.

The chief difference between the map by Shantz and Zon and the one here presented (Fig. 1) lies in minor variations in the boundary lines based on field observations, and the addition of another area along the lower course of the river, designated as "Sub-Tropical Palm Forest". The classification used is as follows:

(1) *The sand-dune area*, in the sand hill region to the north, on Padre Island, and Brazos Santiago Island.

(2) *The coastal prairie*, extending along the inner margin of Laguna Madre from the river northward to the sand hills area.

(3) *The sub-tropical palm forest*, along the Rio Grande below Brownsville.

(4) *The chaparral or thorn-bush forest*, including most of the area, and locally known as "brush".

Since the sub-divisions are easily recognizable in the field, and occupy rather definite areas of varying size, they merit a brief description.

The Sand-Dune Area

This region extends along the outer Texas coast on both Brazos Santiago and Padre Islands, but reaches its maximum development in the sand-hills region to the north. In some parts of the area where the sand is deep and constantly shifting, there is practically no vegetal cover, but where vegetation can become rooted a tall grass vegetation accompanied by herbaceous plants appears. The sands apparently afford better moisture conditions than other parts of the Rio Grande plain.

The Coastal Prairie

Along the inner margin of Laguna Madre, extending from the Rio Grande to the sand-hills section, and back from the coast for an average distance of about ten miles, is a low, flat, swampy coastal plain, dominantly grassland. Because of the high water-table of this area, the vegetation consists of various grasses and sedges of mesic character, such as would be found along any low, wet coast. Locally this area is broken by islands of chaparral vegetation on the higher lands of the "clay dunes", where the water-table is lower, and a local xeric environment is established. Toward the western margin of this coastal plain, with lower rainfall, higher position above sea level, and with water-table farther below the surface, lies a transition zone between the wet coastal prairie and the xeric chaparral of the interior. The zone is in some places several miles wide. As one journeys inland, the first plant seen is *Yucca elata*, followed by prickly pear (*Opuntia lindheimeri*). Toward the western margin the mesquite appears, and finally the Texas ebony (*Siderocarpus flexicaulis*).

The Sub-Tropical Palm Forest

While the palm forest area is of small size, and by no means comparable to the other regions recognized on the map, its distinctive nature warrants its classification separately from the coastal prairie, of which it is sometimes

considered a part. According to Small, it is one of the four arborescent palm areas occurring in continental United States outside of Florida, the other three being the Southeastern Atlantic Coast region, the Mississippi Delta area, and the Southern California deserts. The area covered by the palm forest begins on the Texas side of the river about ten miles below Brownsville, and extends along the river for three or four miles, reaching its maximum development on the Frank Rabb ranch, where about 100 acres are covered by palms. The palms in the grove reach

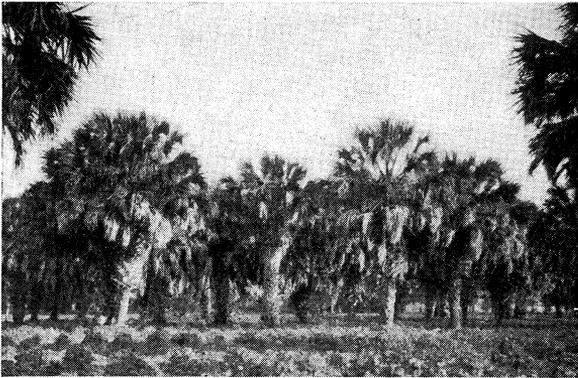


Fig. 2. The Texas Cabbage-Tree (*Sabal texana*) in the sub-tropical palm forest area.

a maximum height of fifty feet, and grow in tropical profusion. In addition to the Texas cabbage-tree (*Sabal texana*) (Fig. 2), the dominant plant of the area, many other smaller plants appear that, taken together, form in places an almost impenetrable jungle.

The Chaparral, or Thorn-Bush Forest

The area included in the thorn-bush forest is by far the most extensive vegetation area of the Lower Rio Grande Valley, and its extent is in fact much greater than the Valley alone, as the Valley occupies only the southeastern part of a far more extensive area. Chaparral vegetation covers



Fig. 3. The dense uninviting growth of vegetation in the chaparral, or thorn-bush forest. Prickly pear cacti dominate the foreground, while mesquite, huisache, and ebony make up the background.

almost the entire area of the Rio Grande Plain, and forms one of the most densely grown areas of thorn-bush forest found in the United States. Because of drouths and overgrazing, the grass formations of the area are being driven out, and their place taken by the chaparral.

The chief trees found in the area are the mesquite, ebony, and huisache (*Acacia farnesiana*), while prickly pear and yucca occupy the area between the trees. Together they form a dense, uninviting growth (Fig. 3) of prime significance in the development of agricultural lands in the Lower Rio Grande Valley.

The area supports a number of varieties of cacti. Outstanding in abundance is a prickly pear (*Opuntia lindheimeri*).

The yucca, known locally as the Spanish dagger, forms one of the conspicuous plants of this forest. While not so common as the prickly pear, it is nevertheless important.

One of the most interesting members of this forest family is the Texas ebony. It forms a small, symmetrical tree, and with its dark-green small leaves is quite notice-

able in the chaparral. Prized in places as a shade tree, it is frequently left in cultivated areas, after the rest of the "brush" has been destroyed.

Huisache is a medium-sized tree, with small leaflets and many thorns.

Mesquite (*Prosopis juliflora glandulosa*), possibly the dominant, as well as the most important tree of the chaparral, is a deciduous tree, with many sharp, needle-like thorns. Its leaves are light green and very thin and feathery. Under the most favorable conditions the tree sometimes grows to be quite large.

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