



NATURAL VEGETATION TYPES IN SOUTHERN BAHIA

Wm. Wayt Thomas

New York Botanical Garden, Bronx, NY 10458-5126, EUA, wthomas@nybg.org

INTRODUCTION

The vegetation of southern Bahia will be classified by type of vegetation and by north to south zones bounded by west to east flowing rivers (Appendix I, Thomas 2003). Different assemblages of plants (and, by default, the associated fauna) can be distinguished as separate vegetation types. This classification can provide a simple and rapid means of determining priorities for conservation by minimizing redundancy and maximizing the biotic diversity preserved.

The distributions of many species of plants and animals are restricted to areas between the large river systems that drain the Atlantic coastal forest of southern Bahia. These rivers apparently act as barriers to the migration of many species of plants and animals and, consequently, many species may be endemic to one of these inter-fluvial zones.

Thus, the ideal conservation strategy would preserve areas of each vegetation type within each inter-fluvial zone. Such a strategy would maximize the biotic diversity protected as well as ensure the protection of the maximum number of endemic species.

VEGETATION TYPES

Below are discussed the different vegetation types that will be mapped and that should be considered as distinct when planning conservation corridors. Some vegetation types are too limited in extent to be mapped separately and must be preserved within the context of their surrounding vegetation. Many of these are aquatic habitats such as flood plain forests, marshes, and gallery forests. It is possible that the mussununga forests may have to be conserved and mapped as part of the tabuleiro forests. From east to west in each zone, the following mappable vegetation types may be encountered:

Beach strand

Mangrove

Restinga

- open restinga
- flooded restinga
- restinga forest

Southern Bahian Wet Forest, subdivided as follows:

- lowland over latissols
- lowland over richer soils (podzols?)
- montane forests
- tabuleiro forests
- mussununga

Southern Bahian Moist Forest (mesophyllous, semideciduous)

Deciduous Forest (Mata de Cipó)

Beach Strand:

This comprises the sandy area above the high-tide line as well as beach-derived sand dunes. There are few species, and these are usually widely distributed throughout the tropics. Species include *Ipomoea pes-caprae*, *Remira maritima*, *Hydrocotyle* spp. and *Spartina* spp. Dune species include *Schinus terebenthifolius* and species of cacti.

Mangrove:

Although comprising few species, mangrove associations are critical habitats for many kinds of marine life. Mangroves are found primarily along river mouths and other areas of calm, brackish water. The common species include *Rhizophora mangle* (Red Mangrove) and species of *Avicennia* (Black Mangrove).

Restinga:

In earlier geological periods, sea levels were higher and beach sands were deposited in areas that are now well above current sea levels. Where present, these sands usually only extend several hundred meters inland, but in some places extend 5-10 km inland. They support an assemblage of plants that usually form a

savanna but which, under proper conditions can grow taller, forming a forest. Within the restinga formation, there are three types to be distinguished:

Open restinga – open, savanna-like formation with scattered small trees and shrubs and an extensive layer of herbs, grasses and sedges. There are local endemics as well as species disjunct between the restinga and the cerrado or the campo rupestre. **Key features: sandy soil, low, shrubby vegetation.**

Inundated restinga – Some areas of restinga are frequently inundated and support unusual species characteristic of wetlands. One, *Lagenocarpus guianensis*, is disjunct between the restinga and the Guianas. **Key features: Sandy, wetlands soil, presence of aquatic plants.**

Restinga forest – Some species characteristic of restingas are found primarily in the forests and not in the open restinga. These include the Piassava palm (*Attalea funifera*) and the legume, *Brodriguesia santosii*. **Key features: Sandy soils and presence of Piassava palm.**

Southern Bahian Wet Forest:

These forests usually exhibit the classic structure of rain forests, with emergents and canopy, subcanopy and herbaceous layers. Species diversity is high and epiphytes are plentiful, but orchids are often not as diverse as they are in wetter forests. They are characterized by at least 1300 mm/year of rain with no significant, regular dry season, although short dry periods can occur. This forest type occurs on a wide variety of soil types and at different elevations and is characterized by the presence of species such as *Euterpe edulis* (Jussara). Certain assemblages of plant species appear to be correlated with soil types or elevation. Because of this, several types of southern Bahian wet forest are distinguished:

Lowland forest over latisols – These lower fertility soils are the predominant soil type north of the Rio de Contas. They are found between the Rio Jequitinhonha and the Rio de Contas primarily near the coast, including the areas of the Una Biological Reserve and the Serra do Condurú State Park. The monotypic subcanopy tree, *Harleyodendron*, is found only in these

forests. **Key features: Tall forest over red to orange clay, presence of Jussara palm.**

Lowland forest over podzols (good cacao soils) – These red-yellow eutrophic podzols are mostly restricted to the area between the Rio de Contas and the Rio Jequitinhonha. Two rare plants that appear to be restricted to these forests are the primitive grass, *Anomochloa*, and the monotypic *Andreadoxa*, a tree in the orange family. **Key features: Tall forest over brownish to tan-yellow clay-loam, presence of Jussara palm.**

Montane forests – While the minimum amount of rainfall needed for a southern Bahian wet forest may be 1300 mm/year, rainfall on mountain slopes is usually much higher, and dry periods rare. These forests start at elevations of 500-1000 m, depending on how far inland the mountain range is; farther inland, they will be found only on the east-facing slopes of the mountain. This resulting in an exuberance of epiphytes, with a higher diversity of Orchidaceae represented; also present are other species requiring high rainfall and high humidity including tree ferns (*Trichopteris*). **Key features: Tall forest above 500 m, on slopes, presence of many epiphytes and Tree Ferns.**

Tabuleiro forests – The tabuleiro forests are found on large sedimentary plains of the Barreiras formation. They are located primarily south of the Rio Jequitinhonha south to the Rio Doce in Espírito Santo, although a small area of tabuleiro soils are found near the Rio Pardo farther north. They are flat formations with deep soils. The forests are comparatively tall (canopy of 40 m) – with more of the aspect of Amazonian forests than other southern Bahian wet forests. **Key features: Tall forest with some very large trees on flat terrain, presence of Jussara palm.**

Mussununga forests – interspersed in the of tabuleiro forests are areas of distinctly shorter trees that are more widely spaced. **Key features: Low forest on sandy soil intercalated within areas of tabuleiro forest.**

Southern Bahian Moist Forest (mesophyllous, semi-deciduous):

This is a tropical forest with rainfall of approximately 1000-1300 mm/year and with a well-defined dry period. The forest can be tall and is often inter-mixed with species from the wet forest or the deciduous forest. Here, xerophytic tree species such as *Cavanillesia arborea*, *Pereskia* spp. and *Cnidocolus marcgravii* may occur beside wet forest species; unlike the wet forest, however, the Jussara palm, *Euterpe edulis*, is rarely found. In the areas where this forest type intergrades with the wet forest, the two forest types may occur in bands, with the moist forest occurring in a band below the wet forest. **Key features: Tall to medium forest lacking the Jussara palm and with some xerophytic species such as *Cavanillesia arborea* and *Cnidocolus marcgravii*.**

Deciduous Forest (Mata de Cipó):

The deciduous forest is found in areas with rainfall usually between 800-1000 mm/year (Gouvêa 1976) and with well-defined rainy and dry periods. The forest is low (usually 20 m or less) with many shrubby understory trees and xerophytic species; many of the trees have very dense wood. **Key features: Low forest with a shrubby understory and xerophytic species.**

The drier caatinga forest differs in having less than 800 mm/year of rain; a distinct and short rainy period; shorter trees with a tortuous appearance. Arboreal cacti, such as *Cereus jamacaru* are a characteristic component of the caatinga forests.

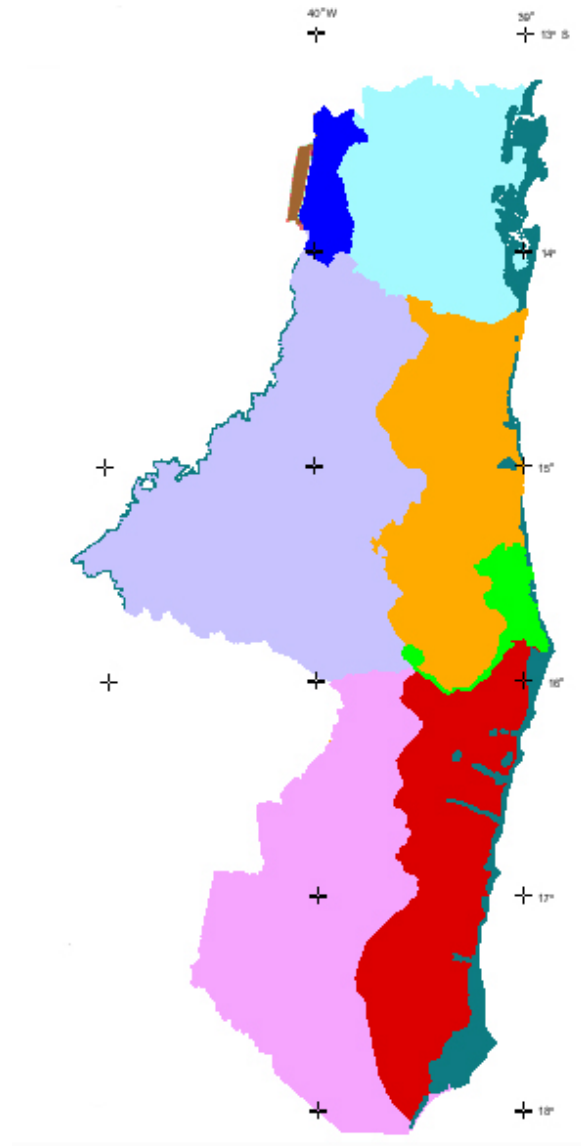
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APENDIX I - Vegetation types in southern Bahia. For digital and printable versions of this map, see Thomas and Carvalho (2003).



- Southern Tabuleiro Forest
- Northern Lowland Forest
- Central Lowland Forest
- Northern Semi-deciduous Forest
- Central Semi-deciduous Forest
- Southern Semi-deciduous Forest
- Northern Caatinga
- Central Tabuleiro Forest
- Coastal, Wetland, and Riverine Systems