

## **Rio De Janeiro, Brazil**

[http://en.wikipedia.org/wiki/Rio\\_de\\_Janeiro](http://en.wikipedia.org/wiki/Rio_de_Janeiro)

Rio de Janeiro is one of the 26 states of Brazil. It is located in the Brazilian geopolitical region of the Southeast (assigned by IBGE) and its boundaries, all of them with other Brazilian states in the Southeast region (Rio de Janeiro is the only state in the Southeast to share borders exclusively with other states in the same macro region), are with Minas Gerais (N and NW), Espírito Santo (NE) and São Paulo (SW), and plus its shore line, in the Atlantic Ocean, to its East and South.

## **Santa Cruz, Rio De Janeiro, Brazil**

[http://en.wikipedia.org/wiki/Santa\\_Cruz,\\_Rio\\_de\\_Janeiro](http://en.wikipedia.org/wiki/Santa_Cruz,_Rio_de_Janeiro)

Santa Cruz is an extensive, populous, mostly low-income neighborhood in the West Side of Rio de Janeiro, the most distant of the central area of the city, at about 60 km (37 miles) from downtown Rio. Traversed by the Central do Brasil suburban railway, it has a quite diversified landscape, with rural, commercial, residential and industrial areas. Santa Cruz is over 440 years old, having originated from a farm founded in 1567.

It is the headquarters of Rio's 19th Administrative Area, which also includes the nearby neighborhoods of Paciência and Sepetiba.

The opening of nearby Itaguaí harbor has spurred some growth. It is, however, a neighborhood of contrasts. It is one of Rio's most populous neighborhoods (191,836 inhabitants in the 2000 census), but due to its vast area (125 km<sup>2</sup>), at the same time it is one of the least densely populated. Santa Cruz has strong industry, but also many rural areas and one of lowest HDIs of the city.

Today, Santa Cruz is a growing neighborhood.<sup>*[citation needed]*</sup> It has large shopping areas including a large shopping mall, several bank branches, schools, Dom Pedro II State Hospital (planned to be a reference hospital for treatment of burns), two large military facilities (Santa Cruz Air Force Base and the Engineering School Battalion), and a state-run theme park for children and teenagers. Casa da Moeda do Brasil, the Brazilian mint, where all Brazilian coins, banknotes, stamps, passports and other secure official documents are made, is also located in Santa Cruz. New industrial enterprises are being built in the area, most notably Companhia Siderúrgica do Atlântico (CSA), a new steel mill with its own private docks on Sepetiba Bay, planned to be South America's largest steel works.

Like most low-income communities, Santa Cruz has many problems regarding public transportation, sanitation and environmental degradation. The large distance to downtown Rio de Janeiro makes commutes very long and tiresome.

## **Paraíba do Sul (River that contributes water to low lying area around S.C.)**

[http://en.wikipedia.org/wiki/Para%C3%ADba\\_do\\_Sul](http://en.wikipedia.org/wiki/Para%C3%ADba_do_Sul)

The Paraíba do Sul, or simply termed Paraíba, is a river in the southeast of Brazil. It flows 1,120 kilometres west to northeast from its source at the junction of the Paraitinga and Paraibuna rivers to the sea near Campos.

Its main tributaries are the rivers Jaguari, Buquira, Paraibuna, Preto, Pomba and Muriaé. These last two are the longest and join the main river 140 kilometres and 50 kilometres from the mouth respectively.

The valley of the Paraíba do Sul is located between the latitudes 20°26' and 23°39'S and the longitudes of 41° and 46°30'W and covers an area of about 57,000 km<sup>2</sup> distributed over three states. The main economic activities are industry and cattle raising.

## Geography

<http://botany.si.edu/projects/cpd/sa/sa15.htm>

The State of Rio de Janeiro has much topographic diversity (Domingues 1976). The mountainous region is formed by the Serra do Mar and inland Serra da Mantiqueira, consisting of crystalline rocks of the Brazilian Shield.

The Serra do Mar often presents a steep slope, both abrupt and continuous, in crossing the state from west-south-west to east-north-east, from the border with the State of São Paulo to the municipality Campos. The range emerges directly from the ocean; from this point northward, it distances itself from the coastline but remains parallel, separated by alluvial plains. In the north it finally is transformed into a series of peaks and isolated hills. The relief is very pronounced, with elevations from sea level to c. 2300 m. The highest points are in the area of Teresópolis; outstanding are Pedra do Sino (2263 m), Pedra Acu (2230 m) and Pico Dedo de Deus (1695 m). The Serra da Mantiqueira rises farther inland to the west, where the states of Rio de Janeiro and São Paulo meet the State of Minas Gerais, and continues from west-south-west to the northeast in Minas Gerais. In Rio de Janeiro this mountain range often is very dissected, having its more accentuated topography in the south, where the peaks of Itatiaia reach nearly 2800 m.

Between the escarpments of the Serra da Mantiqueira and Serra do Mar is the valley of the Paraíba do Sul River, which is much lower than the crests of the two ranges. Another important topographic feature is the lowlands along the coast ("baixadas"). Their width (to 25 km) varies greatly, as the proximity of the foothills of the Serra do Mar to the sea is variable.

The only major river is the Paraíba do Sul, which leaves the Serra do Mar *sensu lato* at the north-eastern end of Serra Grande and flows into the ocean. It drains part of the Serra da Mantiqueira and the Serra do Mar's north-western slope. The crest of the Serra do Mar is a watershed boundary that directs shorter south-eastern rivers to the ocean.

The climate of the state is very variable because of the elevation and orientation of the mountain ranges. The coastal lowlands, Serra do Mar, Paraíba do Sul Valley, and Serra da Mantiqueira are all oriented west-south-west to east-north-east and have dramatically different elevations. The frequent arrivals of cool fronts of polar origin and polar anticyclones also are important factors affecting the regional climate. These are all significant influences that result in an uneven distribution of rainfall in Rio de Janeiro.

Summer (December-March) is warmer and in general wetter than winter (June-September). In the lowlands the climate is predominantly hot and humid, with the mean annual temperature c. 24°-26°C and the mean annual rainfall usually a little above 1000 mm. In the Paraíba valley, the rainfall is c. 1500 mm and the temperature also between 24°-26°C. In the mountainous regions the rainfall is high (2000-2500 mm) with no dry months and the temperature normally c. 18°-19°C (Nimer 1989; Domingues 1976).

## Vegetation

The evergreen vegetation of these mountain ranges shows a diversified physiognomy, shaped mainly by the topographic and climatic factors. There is considerable variation in height, stratification and floristic composition. The vegetation can be classified in three types that, although distinct, often show intermediate characteristics: low-mountain forest, high-mountain forest and high-altitude fields.

## Low-mountain forest

The rounded hills and extremely carved hillsides between 60-800 m form the foothills above which the crests of the Serra do Mar and Serra da Mantiqueira rise. The foothills are covered by a dense forest with a continuous canopy that can reach 35 m. The canopy is characterized among others by *Cariniana estrellensis*, *Hyeronima alchorneoides*, *Viola oleifera*, *Jacaratia spinosa*, *Ocotea* spp., *Pseudopiptadenia inaequalis*, *Moldenhawera floribunda*, *Chrysophyllum imperiale*, *Eugenia* spp. and *Aspidosperma parvifolium*. In the understory, the common taxa are *Miconia* spp., *Erythroxylum* spp., *Myrcia* spp., *Eugenia* spp., *Faramea* spp., *Psychotria* spp., *Geonoma* spp., *Euterpe edulis* and *Astrocaryum aculeatissimum*. In the valleys and ravines, some species common in the herbaceous strata are *Calathea aemula*, *Aphelandra squarrosa*, *Heliconia laneana*, *Anthurium* spp., *Philodendron* spp. and many ferns.

## High-mountain forest

When the vegetation reaches c. 800 m, it becomes a shady humid forest with huge trees sustaining a wide variety of epiphytes and lianas ([picture](#)). The most outstanding taxa composing the canopy include *Ocotea* spp., *Nectandra* spp., *Cinnamomum* spp., *Eugenia* spp., *Tibouchina* spp., *Solanum swartzianum*, *Vernonia arborea*, *Cabralea canjerana* and *Symplocos variabilis*. The understorey is composed of *Hedyosmum brasiliensis*, *Myrcia* spp., *Psychotria velloziana*, *Guatteria nigrescens*, *Euterpe edulis* in large numbers and populations of tree ferns (*Cyathea delgadii*).

Above 1400 m and extending to 1600-1800 m is a more open, upland forest formation with smaller trees. The soil is very shallow and there are huge uncovered rocks. The trees are represented by *Miconia* spp., *Rapanea* spp., *Lamanonia speciosa*, *Weinmannia* spp. and *Drimys brasiliensis*. The liana *Fuchsia regia* is well represented. Foliaceous and filamentous lichens appear in large quantities on the tree branches.

## Open fields ("Campos de altitude")

Above this upland open forest are open fields ("Campos de altitude"), either directly on rock or on little islands of soil with a depth of 50 cm or less. In this landscape occur large populations of terrestrial bromeliads (*Vriesea* spp., *Pitcairnia* spp., *Tillandsia* spp.), Cyperaceae, Xyridaceae, Eriocaulaceae and Orchidaceae. In the shrub community, the very frequent taxa are Melastomataceae (*Tibouchina* spp., *Trembleya* spp.), Onagraceae (*Fuchsia* spp.), Compositae, Ericaceae and Gramineae (mainly *Chusquea pinnifolia*).

## Flora

The flora of the mountain ranges of Rio de Janeiro has received considerable study since at least the beginning of the 19th century. Although a high number of taxa from the region were covered in *Flora Brasiliensis*, data were very incomplete. The first intensive floristic surveys were during the 1940s in the Serra dos Orgãos (Davis 1945; Veloso 1945; Rizzini 1953-1954) and in the Serra da Mantiqueira, particularly at Itatiaia (Brade 1956). These data, added to those recently obtained in other regions (JBRJ 1990, 1992; Guedes 1989; Martinelli 1989) are beginning to thoroughly demonstrate the great diversity and high level of endemism in the flora of Rio de Janeiro.

About 5000-6000 species of vascular plants occur, with 70-80% endemic to the tropical Atlantic coast. The most important families in numbers of species are Myrtaceae, Lauraceae, Leguminosae, Rubiaceae, Orchidaceae, Compositae, Euphorbiaceae and Sapotaceae. There is an urgent need for floristic inventories to build up precise knowledge about the distribution of the species.

Although data are still very incomplete, the State of Rio de Janeiro is considered one of the centres of endemism for the Atlantic Coast rain forest (Mori, Boom and Prance 1981). These centres are being correlated with possible areas of forest refugia in arid periods during the Pleistocene (Mori 1989).

The high-altitude fields also possess many endemics, including palaeoendemics. Species found within this unique flora very often are restricted to only one mountain ridge. Classical examples include species of *Prepusa*, *Fuchsia*, *Tillandsia* and *Tibouchina*, and the well-known amaryllid *Worsleya rayneri* (Martinelli 1984) and bamboo *Glaziophyton mirabile*.

## Useful plants

The forest resources of the Atlantic coast were heavily exploited during the initial colonization of Brazil. Plants that were useful for a wide variety of purposes such as timber, medicinals and food were intensely exploited as commercially important products. In southeastern Brazil these valuable species included *Caesalpinia echinata* (Brazil-wood) and many other hardwoods - *Dalbergia nigra*, *Melanoxylum brauna*, *Mezilaurus navalium*, *Colubrina glandulosa* and species of *Ocotea*, *Nectandra*, *Aspidosperma* and *Tabebuia*.

Despite the over-exploitation of the last 500 years, the forest plants on the mountain ranges of Rio de Janeiro still have great potential. Recent preliminary studies have shown that c. 35% of the vascular plants in this region have some economic value. This high percentage is even more significant when one considers that the areas covered with natural forest in Rio de Janeiro have been reduced to less than 15% of their former extent.

[http://en.wikipedia.org/wiki/Serra\\_do\\_Mar\\_coastal\\_forests](http://en.wikipedia.org/wiki/Serra_do_Mar_coastal_forests)

<http://www.nationalgeographic.com/wildworld/profiles/terrestrial/nt/nt0160.html>

[http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6V7P-4RH94VK-1&\\_user=10&\\_rdoc=1&\\_fmt=&\\_orig=search&\\_sort=d&\\_docanchor=&view=c&\\_searchStrId=1122702278&\\_rerunOrigin=google&\\_acct=C000050221&\\_version=1&\\_urlVer=0&\\_userid=10&md5=4dead77c458d12030ed57930bca7ef21](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V7P-4RH94VK-1&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=1122702278&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVer=0&_userid=10&md5=4dead77c458d12030ed57930bca7ef21)

[http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt1415\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt1415_full.html)

[http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt0160\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt0160_full.html)

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**The Atlantic Forest of South America: biodiversity status, threats, and outlook**

By Carlos Galindo Leal, Ibsen de Gusmão Câmara

[http://www.cepf.net/WHERE\\_WE\\_WORK/REGIONS/SOUTH\\_AMERICA/ATLANTIC\\_FOREST/ECOSYSTEM\\_PROFILE/Pages/synopsis\\_of\\_threats.aspx](http://www.cepf.net/WHERE_WE_WORK/REGIONS/SOUTH_AMERICA/ATLANTIC_FOREST/ECOSYSTEM_PROFILE/Pages/synopsis_of_threats.aspx)