ICMBio

Brazil has 1,730 conservation units at the federal, state and local levels, in addition to 1,215 private natural heritage reserves. Together, they cover a combined area of 258.9 million hectares, accounting for 19.07% of the country's continental surface and 26.5% of its territorial sea.

The Chico Mendes Institute for Biodiversity Conservation (ICMBio) is an autonomous federal agency under the Ministry of Environment and Climate Change. It is responsible for managing federal conservation units and overseeing all private natural heritage reserves.

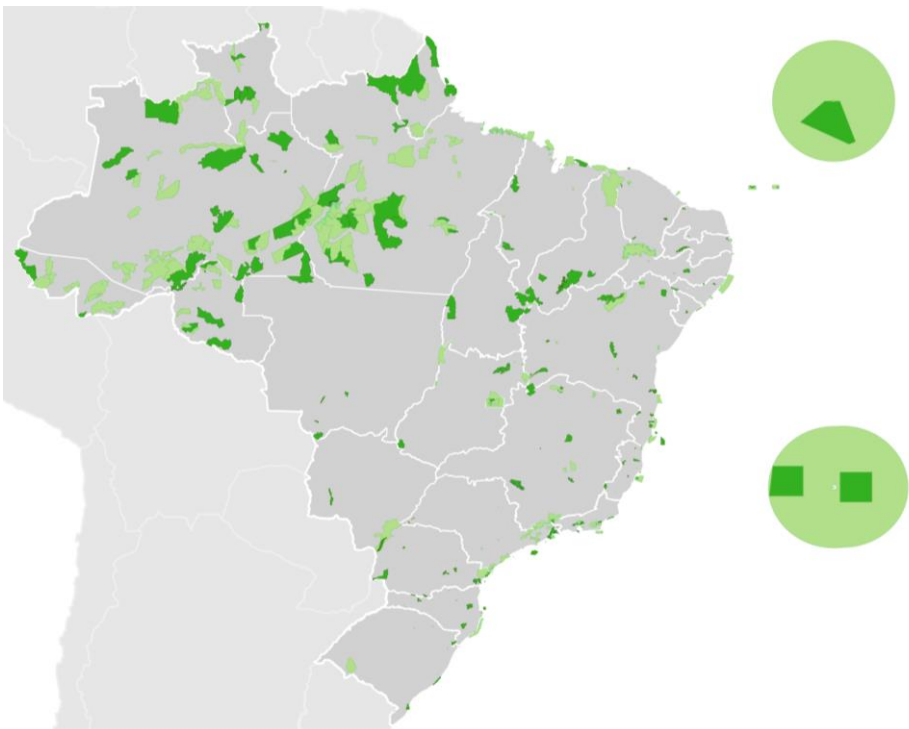
Federal conservation units in Brazil cover 79.1 million hectares, accounting for more than 9% of the country's continental surface—an area larger than Turkey and over six times the size of England. In addition, protected marine areas total 92.4 million hectares, approximately 25.4% of the Brazilian territorial sea. This makes ICMBio the world's largest government agency dedicated to the conservation of tropical biodiversity.

Tijuca National Park—as with all National Parks in Brazil—is a federal conservation unit under ICMBio.

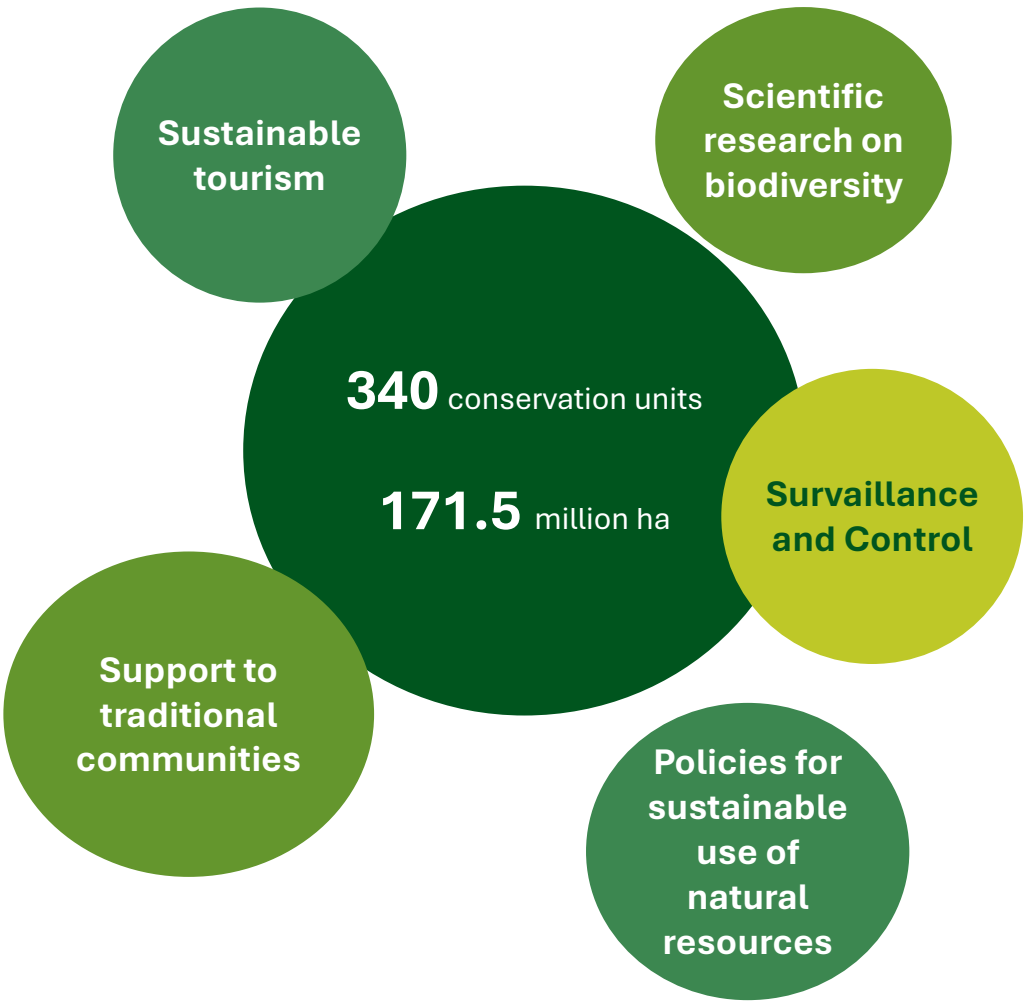
Federal conservation units

Full protection conservation units are primarily designed to preserve nature and do not permit the direct use of natural resources.

Sustainable use conservation units aim to balance nature conservation with the sustainable use of some of its natural resources.

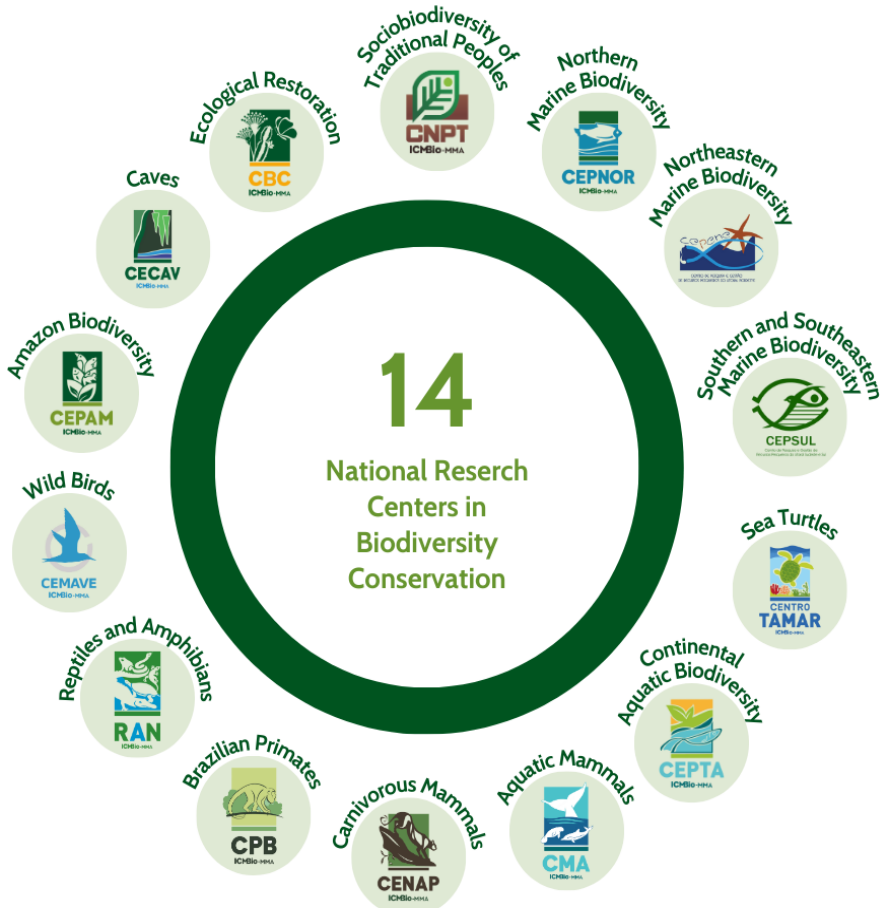


ICMBio's responsibilities



ICMBio & Research

ICMBio operates 14 research centers dedicated to biodiversity and conservation, and further collaborates with universities and other research institutions.



The Park

The Tijuca National Park covers 40 square kilometers of mountainous rainforest in the heart of Rio de Janeiro. It shelters a vast diversity of plant and animal species, and features pristine creeks, rumbling waterfalls, and impressive peaks such as Pedra da Gávea, Pico da Tijuca, and Christ the Redeemer's Corcovado—iconic landmarks in the city's highlands backdrop.

The Park

The area that comprises today's Tijuca National Park was originally covered by dense tropical vegetation typical of the Brazilian Atlantic Forest. However, from the mid-1700s onwards, logging for wood and charcoal led to the progressive loss of the primary cover. By the end of the century, the first coffee plantations were established on the slopes of the Tijuca Massif, and in the early 1800s, when Rio de Janeiro became the seat of the Portuguese Empire, land clearing for agriculture intensified, dramatically altering the landscape.

The effects of replacing the forest with cropland were quickly felt. The resulting shortages in the water supply and more frequent flash floods soon prompted a change in course. In 1817, D. João VI issued a decree protecting the Carioca River basin, and in 1861, D. Pedro II sponsored a pioneering reforestation project. The replanting of trees took 13 years and was carried out by six enslaved individuals—Eleutério, Constantino, Manuel, Mateus, Leopoldo, and Maria.

The Tijuca National Park is the result of combined reforestation and natural forest regeneration—a process that continues to this day.

The Park

The park is one of the last refuges of Atlantic Forest in the urban area of Rio de Janeiro; however, many native species have become locally extinct. Acknowledging that the health of a forest depends on interactions between species as well as between individuals, Tijuca National Park launched the Refauna Project, which is restoring long-lost ecological interactions through the reintroduction of vertebrates.

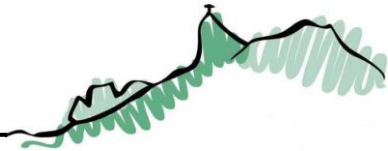
The Park

The Tijuca National Park is one of the main tourist attractions in Brazil and the most visited conservation unit in the country, catering to over 4 million visitors each year from around the globe.

The park offers a variety of attractions, including trails, waterfalls, viewpoints, climbing routes, and picnic areas, which are extremely popular for recreation, sightseeing, and outdoor sports among both tourists and locals. Some of its most well-known attractions include Christ the Redeemer, Vista Chinesa, Pedra da Gávea, and the Tijuca Forest itself.

To ensure a quality experience for visitors, the park has established public-private partnerships, notably with Trem do Corcovado and Paineiras Corcovado, which operate under concession to offer transportation and reception services for visitors to Christ the Redeemer.

Moreover, Tijuca National Park provides highly relevant environmental services, such as climate regulation, slope protection, erosion control, water production, and air purification, among others.

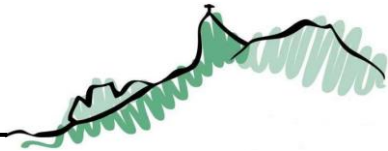


The Forest of Tomorrow

During the technical visit to Tijuca National Park, representatives from the countries attending the 4th Meeting of the G20 Environmental and Climate Sustainability Working Group will be invited to plant a tree sapling in the Tijuca Forest.

Present-day Tijuca Forest emerged from a pioneering reforestation project. By the mid-19th century, the primary forest had been replaced by coffee plantations, sugarcane fields, and pastureland. Acknowledging the negative impacts of deforestation on the water supply of Rio de Janeiro, then the capital city of Brazil, Emperor Dom Pedro II, a ruler known for his appreciation of science, decided to repurchase the farmland, remove the crops, and replant the hills and valleys with tree species.

The Tijuca Forest we see today, in all its splendor, is, therefore, proof that investing in the restoration of natural ecosystems—just as conserving those that remain intact—is one of the greatest legacies that today's leaders can leave for future generations.



The Forest of Tomorrow

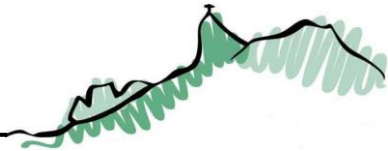
For the G20 Forest of Tomorrow, ICMBio has chosen eight native species from the Atlantic Forest: pau-brasil, jacarandá da Bahia, saboneteira, paineira rosa, sibipiruna, jenipapeiro, ipê-amarelo, and copaíba. These species were selected based on their ecological interactions and to ensure biological diversity in this new stretch of rainforest.

Beyond the environmental services they provide, each of the chosen species is remarkable for its uses and applications, both ancestral and modern: a fruit that can be eaten fresh or used to make liqueurs, jams, preserves - and body paint; another that can replace both soap and herbicides, and also help to catch fish; a flower that can be served in salads or left for the bees to make honey; an oil that is a medical marvel, while also being employed in the cosmetics, perfume, varnish, and paint industries; barks, roots, leaves, and fruits that heal a wide range of health issues; canopies that provide shade, birdsong, and color to the forests and the cities; and different woods for architecture, art, design, and music.

The G20's Forest of Tomorrow will showcase the potential that a standing tropical forest holds, when managed sustainably, to serve as a source of innovative solutions, as well as a driver of development and prosperity for local communities.

Pau-brasil | Brazilwood

Paubrasilia echinata, a species in the Fabaceae family, is endemic to the Atlantic Forest. Adult trees typically grow to heights between 5 and 15 meters. The bark ranges in color from brown to nearly black and peels off in large, woody plates. The heartwood is red, and the trunk exudes red sap when cut. The tree's bright yellow flowers display a distinctive blood-red spot on the inner side of the central petal.



Brazil was named after this tree species, whose common name in Portuguese, pau-brasil, refers to the ember-like color of its trunk. Originally, pau-brasil was used by Indigenous peoples to make bows and arrows and to paint ornaments with the red dye extracted from its pulp. Its native name, Ibirapitanga, means 'red wood'.

After the arrival of the Portuguese in 1500, pau-brasil was subjected to massive logging. The wood was extracted for sale in the European market, primarily for producing red dye for fabric coloring, as well as for crafting furniture and musical instruments. Predatory exploitation nearly drove the species to extinction. In 1978, pau-brasil was officially designated the national tree of Brazil.

Pau-brasil plays an important role in the restoration of the Atlantic Forest, particularly in enrichment planting aimed at promoting biodiversity. It enhances soil quality, provides food and shelter for pollinating insects, and supports other plant species, such as bromeliads. Classified as an endangered species by the IUCN, its primary threats are habitat loss and illegal logging for the production of bows for string instruments, such as violins.

Jacarandá da Bahia | Bahia Rosewood

Dalbergia nigra (Vell.), from the Fabaceae family, is a semi-deciduous tree endemic to Brazil, reaching heights of 10 to 20 meters and a DBH (Diameter at Breast Height) of 15 to 45 cm, though it can exceptionally grow up to 35 meters tall and 155 cm in DBH. Its flowers form long, yellowish-white, fragrant panicles.

Jacarandá da Bahia is the most treasured timber species in Brazil and one of the most valuable in the world. Commercially exploited for over 300 years, it has been greatly prized for luxury carpentry and woodworking. Due to its unique sound quality, it is also highly regarded for the crafting of string instruments and pianos. In 1970, the car manufacturer Ford released a station wagon nicknamed 'Woody,' which prominently featured jacarandá veneer as part of its exterior design.

The international trade of *Dalbergia nigra* was prohibited in 1992, and the species has been recovering since then; however, smuggling remains a persistent threat, and the IUCN classifies it as "vulnerable".

Lounge chair (1965), designed by Jorge Zalszupin, base covered in jacarandá veneer.

Saboneteira | Western Soapberry

Sapindus saponaria, from the Sapindaceae family, is a deciduous tree species. The tallest individuals can grow up to 16 meters in height and reach 80 cm in DBH (Diameter at Breast Height) when fully mature. However, smaller specimens, as short as 3 meters, are also common. The tree produces long, lush panicles of yellowish flowers.

In Brazil, *Sapindus saponaria* has a wide geographical distribution, occurring in the Atlantic Forest, the Amazon, the Cerrado savannah, and the Pantanal wetlands.

The entire tree contains saponin, a substance with soap-like properties. When the fruits are macerated, they produce a soapy lather traditionally used by rural communities for laundering clothes and by indigenous peoples to stupefy fish, an ancestral fishing technique. The bark, roots, and fruits have a variety of applications in phytotherapy and phytomedicine. Due to the toxic properties of saponin, the Saboneteira tree has also been successfully researched for the production of natural pesticides and herbicides.

Paineira Rosa | Silk Floss Tree

Ceiba speciosa (A.St.-Hil.) Ravenna, from the Malvaceae family, is a deciduous tree that typically grows between 10 and 15 meters in height, with a DBH (Diameter at Breast Height) of 30 to 60 cm. However, it can reach up to 30 meters in height and 120 cm or more in DBH. It has a greenish-gray trunk with blunt spines, which are very sharp on the younger branches. Its flowers are showy and velvety, ranging in color from white-purple to white-reddish.

In Brazil, the species has a wide geographical distribution, occurring across all the country's biomes. Its seeds are encased in a soft, silky down, which serves as a superior alternative to pillow foam and can also be used to fill cushions, blankets, and mattresses, as well as to line coats and in furniture upholstery. It can also be used in the production of flotation devices and life vests, and as an acoustic or thermal insulator. The fiber has been researched as a bioremediation material for crude oil spills, yielding encouraging results.

Different parts of the plant are used by indigenous and traditional communities for a variety of medicinal purposes, including the treatment of burns and asthma. Oil extracted from the seeds, similar to cottonseed oil, is suitable for industrial use.

Sibipiruna

Poincianella pluviosa (DC.) L. P. Queiroz, a species in the Fabaceae family, is a large evergreen tree that can reach heights of up to 28 meters (typically between 6 and 18 meters), with a rounded, highly conspicuous canopy that can extend up to 20 meters in diameter.

Starting in August, the tree blooms lavishly with yellow flowers, and its flowering can continue until the end of summer. In Brazil, the species occurs in the Atlantic Forest, as well as in riparian and refuge woodlands in other regions.

Sibipiruna is regarded as one of the country's native trees with the greatest potential for urban landscaping due to its outstanding aesthetic qualities, rapid growth, and high resistance to pests, diseases, and air pollution.

Jenipapeiro

Genipa americana L., from the Rubiaceae family, typically grows between 5 and 15 meters in height, with a DBH (Diameter at Breast Height) of 20 to 60 cm, but can reach up to 30 meters in height and 90 cm in DBH when fully mature. Its bell-shaped flowers range from white to yellow in color and are mildly aromatic. In Brazil, the species is widely distributed, occurring in the Atlantic Forest, the Amazon, the Cerrado, and the Pantanal.

The fruit, called *jenipapo*, is highly valued for its taste and is sold fresh in many Brazilian cities. However, it is more commonly enjoyed in the form of preserves, sweets and jams. Jenipapo liqueur is a cherished beverage, made at home according to family recipes or produced artisanally for the market by local brands.

Indigenous peoples throughout Brazil use jenipapo to produce a solid black paint for ritual body painting. From the juice of the green fruit, they extract a yellowish oil that turns black after one or two days and is then mixed with charcoal. The fruits, whether green or ripe, along with the bark, leaves, and roots have a wide range of uses in herbal medicine.

Ipê amarelo cascudo | Golden trumpet tree

Handroanthus chrysotrichus (Mart. ex DC.) Mattos, from the Bignoniaceae family, is a deciduous shrub or tree. The largest trees can reach up to 35 meters in height and 130 cm in DBH (Diameter at Breast Height). In late August to early September, when its foliage is all gone, it blossoms profusely with bright yellow, bell-shaped flowers.

Due to its resilience and remarkable beauty, the ipê is one of the most cherished tree varieties in Brazil, while *Handroanthus chrysotrichus* is one of the ipê species most widely used for urban landscaping, lining streets and beautifying public parks and private gardens across the country.

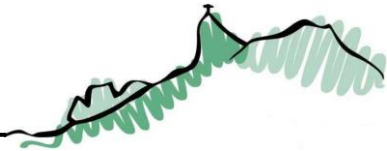
Its melliferous flowers have a sweet fragrance that attracts bees, butterflies, and hummingbirds. They are also considered a non-conventional edible plant (PANC, in Portuguese) and can be consumed raw or cooked.

Ipê wood is prized for its strength, resistance, and beauty, as well as its natural fireproof and thermal properties, making it a highly regarded choice for exposed structural elements, cladding, and flooring, both indoors and outdoors.

"Espécies" (2013), bench designed by Zanini de Zanine, built with reclaimed ipê posts

Copaíba | Copaiba

Copaifera langsdorffii Desf., from the Leguminosae (Caesalpinioideae) family, is a semi-deciduous tree, measuring between 5 and 15 meters in height and 20 to 60 cm in DBH (Diameter at Breast Height), though it can reach up to 35 meters in height and 100 cm in DBH in adulthood, particularly in rainforest environments.



The copaiba tree has a dense, dark green canopy. Its flowers are white with pink spots, and its fruit is a drupe-like pod containing a seed. In Brazil, it can be found in the Atlantic Forest, the Amazon, the Cerrado, and the Caatinga.

The copaiba tree provides an oil that is extracted through small perforations made in the trunk without harming the plant. The oil flows so pure that it can be used in its natural state, without refinement.

Copaiba oil is widely used in the cosmetics industry as an emollient, in the perfume industry as a fixative, in varnish production as a drying agent, and in porcelain paint production as a solvent.

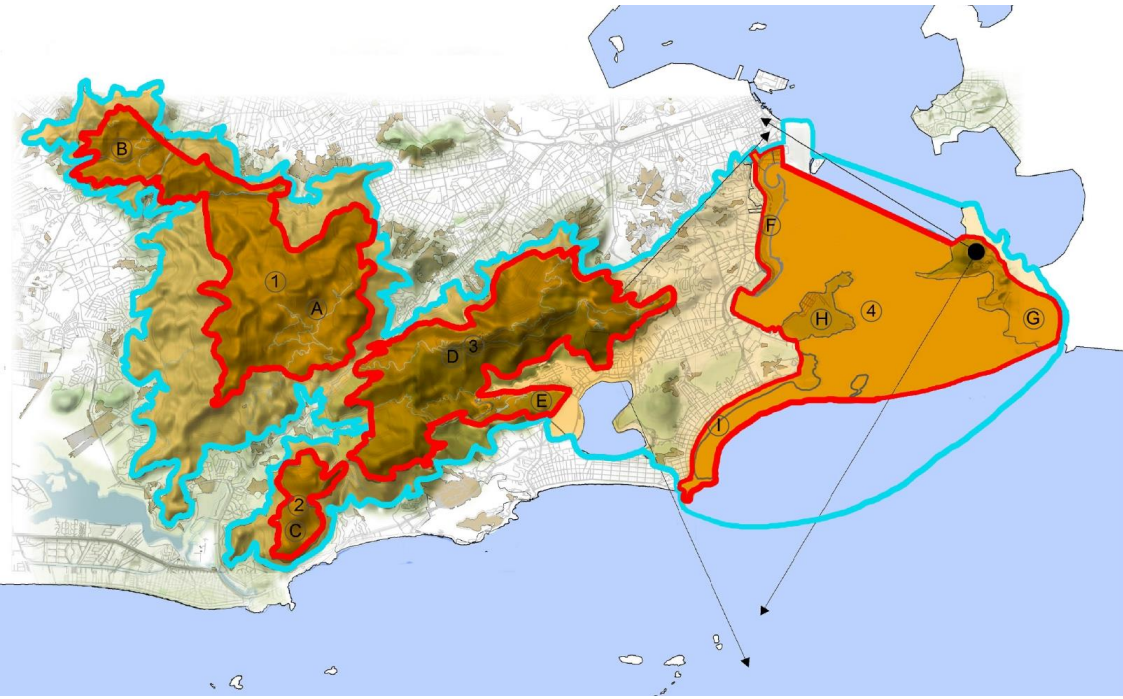
It is also a staple in both indigenous phytotherapy and modern phytomedicine, recognized for its wide range of medicinal uses, most notably its anti-inflammatory and wound-healing properties.

Tijuca National Park: Wold Heritage

Tijuca National Park is part of the World Heritage site ‘Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea’. Inscribed on the UNESCO World Heritage List as a cultural landscape, the site encompasses Rio de Janeiro’s exceptional urban setting, featuring the key natural elements that have shaped and inspired the city's development—from the highest peaks of Tijuca National Park's mountains down to the sea.

The World Heritage site includes the Botanical Gardens, established in 1808; the hills surrounding Guanabara Bay; and the extensive landscaped areas along Copacabana Bay, all of which have contributed to the city's vibrant outdoor living culture and inspired generations of painters, photographers, and musicians.

Crowning the World Heritage site of Rio de Janeiro is Corcovado Mountain, home to the iconic Christ the Redeemer statue, which stands with arms wide open, overlooking and embracing the city.



[Legenda]

The design of Christ the Redeemer was a collaboration between Brazilian civil engineer Heitor da Silva Costa, French-Polish sculptor Paul Landowski, and Romanian sculptor Gheorghe Leonida. Constructed between 1922 and 1931, the elegant Art Deco statue is carved from soapstone and mounted on reinforced concrete. It stands 30 meters tall, excluding its pedestal, with arms that stretch 28 meters wide. In 2000, it was voted one of the New Seven Wonders of the World.

During the technical visit to Tijuca National Park, representatives from countries attending the 4th Meeting of the G20 Environmental and Climate Sustainability Working Group will be invited to visit the summit of Corcovado Mountain and the Christ the Redeemer monument.

The observation decks provide up-close views of the elegant Art Deco statue and stunning vistas of Rio de Janeiro. They offer new perspectives on how magnificently the city, mountains, forest, and sea intertwine to create an extraordinary landscape, and convey an unmistakable hint of how decisive the contribution of Tijuca National Park was to the recognition of Rio de Janeiro as a World Heritage Site.