

# The costa rican ecology essay sample

[Environment](#), [Ecology](#)



If there are words that perfectly describe this piece of land bridging the continents of north and South America Costa, it can be perfectly describe as a virtual geographic paradise. This “ micro continent” is amazingly situated by nature in a place where it could serve as haven for almost countless species of plants and trees, as a refuge for most endangered species of animals, and as fortress for never before seen species of other small and micro organisms. Scientific studies revealed that Costa Rica was a land formed as a result of the “ shifting of tectonic plates of the continents of North and South America that happened millions of years ago.” (Travel To Costa Rica). This 50, 895 km <sup>2</sup> served as a bridge through which migration between the two continents was made possible. Lying just ten degrees north of the equator, Costa Rica is considered to be geographically blessed as its variety of geographic environments made it a comfortable zone for an amazing biodiversity distinct and unique the natural way.

As a tropical country, Costa Rica experiences only wet and dry seasons. Its altitude greatly influences the country’s temperature which slightly varies between seasons. The coastal regions of the country have warmer temperature with an average of 30°C at daytime and 21°C at night in the Caribbean. Bordering the country are Nicaragua in the north, Panama in the south, bordered by the Caribbean Sea in the East, and the Pacific ocean in the West. This position in the globe contributed a lot in making Costa Rica a “ country of amazing biodiversity.” (globaladrenaline) Along the coast of Nicaragua borders is a chain of volcanic mountains which runs all the way to the Panamian borders. This unique feature gives Costa Rica a diverse coastal topography.

From alpine forests and open savannahs, to steamy tropical jungles and lush rainforests, the country is evidently a land of rich variety of geographic environments. Considering the rugged mountains and the active volcanoes; the lagoons, swamps and estuaries, Costa Rica is a land gifted and blessed by nature. Visitors will be amazed by its alpine and cloud forests and its steamy tropical jungles. Costa Ricans are proud of their sandy white beaches, its offshore coral reefs and its pastures of grazing cattle. Lagoons, open savannahs, estuaries and swamps are features that made the country famous among adventurers. The country has four distinct mountain ranges and seven active volcanoes and is a part of the Pacific Rim of Fire.

“ *Ticos* ” are the native and friendly people of Costa Rica. The Caribbean coast is inhabited mostly by black people of the protestant faith. They speak an English dialect called “ *Creole* ”. The majority of its people are of the Roman Catholic faith. Their primary language is Spanish although English is popular in tourist destination areas. In remote areas Indian native languages are spoken which is the “ *Bribri* ” estimated to be understood by about 10,000 people. Costa Ricans are noted for their being peace-loving, courteous and freedom-loving citizens. They are known for their hospitality and family-centeredness.

The government of Costa Rica is very committed to preserving its nature, and in fact has reserved and developed a quarter of its land area for environmental protection. It has passed and implements strict laws relative to the nature preservation projects. For this the “ concept of ecotourism was born in Costa Rica.” (Travel to Costa Rica)

Because of its topography, the existence of diverse tropical forests of Costa Rica is very much possible. The country has Cloud Forests and Tropical Rainforests in the South Pacific and Caribbean Coasts, and Dry Tropical Forests in the North Pacific Coasts. These forests provide the perfect habitat for the wide range of floras and faunas including endangered species and that of the species found only in the country. Of its total land area the country's forest area covers 2, 391, 000 hectares that is about 47% of the total land area. Of this figure 7. 5% is covered by primary forest, almost half is dedicated to the modified natural forest covers that are, 1, 319, 000 hectares and the rest accounts for plantations. As to forest classification, Costa Rica's forests had 24. 3% classified as public forest areas and 75. 7% private.

## COSTA RICA'S 12 LIFE ZONES

The concept of vegetation classification called zoning was introduced by I. h. Holdridge in 1947. These zones are classified “ according to the combinations of temperatures, rainfalls and seasonality.” (C. Baker) In the case of Costa Rica, there are 12 life zones in its area of responsibility where, as Baker says, “ each zone has a distinctive natural vegetation and ecosystem.” Ranging from the mangrove swamps, tropical and dry rainforests, lowland and cloud forests, the country has been blessed by nature to be entrusted with all these life zones. Sub-alpine dwarf vegetations, the premontane, montane and lower montane life zones are amazingly packed in just one country: The Costa Rica

## THE PLANT LIFE OF COSTA RICA

“ Costa Rica is home to over 9, 000 identified species of vascular plants and over 900 different species of trees.” (Rara Avis) The forest of Costa Rica has 117 native tree species, four of which are critically endangered, 33 species are classified as endangered, and 74 species are venerable. At the Santa Rosa National Park large deciduous trees found their home at seasonal dry forests. Tree species like the meadow oak, poro, jacaranda, corteza, and the one named *flame of the forest* are the ones blooming at the beginning of the dry season. It gives the forest a colorful combination of white, red, yellow, orange, purple and pink leaves.

Species of palm tree, ferns, lianas and epiphytes abound in the lowland rainforests of Costa Rica. Epiphytes are plants which live on trees in order to get sunlight necessary for their survival. These plant species have the ability to feed off water, dust and nutrients and thus are not considered parasites. In fact these epiphytes enhance the water-gathering ability of the trees where they live. Orchids and bromeliads including ferns are the most common species among the epiphytes. Treetops and vines together with the epiphytes “ create a canopy that preserves the moisture within the forest.” (Rara Avis)

Costa Rica as houses more than 800 species of ferns *Heliconias* we familiarly known as the “ birds of paradise”, which are of the banana family abound as many as 30 species. Begonias, anthuriums, and blood of Christ, named for the red splotches on the underside of its leaves, are common. There are as the species of the *labios ardientes*; we call the hot lips and the *labios de puta*

, or the hooker lips which are known for their bright red bracts. There are as the foul-smelling odor from the trees of the morning glory and the carnal red.

“ The most abundant floras in the rainforest are ferns which can be found from sea level to the highest elevations.” (Rara Avis) Ferns exist as early as the prehistoric times which said to have been the food for some beasts.

There are big-tree ferns called the *rabo de mico* or the monkey-tail ferns that grow as high as four meters tall. There are some which grow long leaves that can grapple upward for 20 meters or more.

Banana palms and ginger plants, with the *heliconias* and *cecropias* have their big broad leaves spread over in order to gain sunlight, giving them enough nutrients to flower and to fruit. Another prominent plant is the poor man's umbrella (*sombrilla de pobre*), which have really giant leaves perfect as an impromptu shelter.

Because rainforests provide enough moisture for the flora of Costa Rica, its rainforest cathedral is also rich with ferns, saplings and herbaceous plants. Because these plants cannot support themselves in order to gain nutrients from the sunlight, they cling on trees and clutch on the limbless trunks of rainforest tree species for support. Some species snake through the treetops, some cling around the host like spirals, and some attached itself like cement using its three-pronged tendrils; other epiphytes gain foothold on the host from tiny spores that sprouts from the bark of trees. They will then spread themselves like green carpets, consuming all available surfaces, bringing *elkhorn* and ferns into a glorious stand in the hanging gallery. These epiphytes sometimes reach the lengths of 30 meters bringing much weight

to the host and thus will sooner tear away the tree limbs and then will crash down.

The diversity of tree species along with the plants Costa Rica's forests host a vigorous competition for nutrients, both from the grounds and up for the sunlight. Trees grow as high as 35 meters tall and have evolved into producing branchless trunks that were long and tender enough to ensure that it gets through a space for reaching light. There are few species which grow like towers of 70 meters high. The density of the trees brought about by its flat-topped crowns and dense foliage makes up the great vaulted canopy where ninety percent of photosynthesis takes place. Baker refers to it as the rainforest cathedral. Monte Verde Reserve is a home for 500 types of trees and 2, 500 kinds of plants. (Tropical Science Center) It is one of the 12 rainforests in the world where trees have never been cut. As its name implies, the Green Mountains is protected as a primary forest.

It is also important to note that fungi, which serve as the key to providing nourishment to the forest life cycle, also proliferate in the jungles of Costa Rica. Through these fungi, fallen leaves from trees decompose as fast as one month. Strange-shaped umbrella, globes and curtains are the most prolific types of fungi in the Costa Rican rainforests.

## THE ORCHIDS OF COSTA RICA

The orchid is the national flower of Costa Rica. It is the largest family of flowering plants and considered the most diverse. Costa Rica was able to identify 1, 200 species of orchids and is the richest orchid in Central America.

Of these 88% are classified as epiphytes. (Infocostarica) These orchids grow and proliferate in partnership with the fungi. Their roots rely on fungus which helps them take nutrients during the seedling stage. It is still however considered a nature's miracle how orchids have grown in number, and how it has evolved into many species. The seeds of orchids are said to be too small like dusts which enable these seeds to be easily carried away in the air. Theory says that this is probably the method which made the orchids grow in different areas thus, making the evolution of its species possible.

Orchids have ingenious pollination techniques –others self-pollinate while other employ sexual impersonation that attracts insects. Orchids are capable of deceiving male insects. There are species which can produce flowers which look like a female wasp which seems to have eyes antennae and wings and can even give off an odor like that of a female wasp. This technique easily deceives real male wasps which allow them to deposit pollen within the orchid flower. The cycle of producing new female-wasp-like flowers will then continue. Bees are as victims of the orchids' expertise in guile. Some species produce intoxicating nectar that causes its victim to totter up, wiggle its wings, enabling the pollen to shower.

For over 140 years there were more than 50, 000 hybrid orchid species that were artificially produced and have been registered. Its main value is mainly as ornamentals other than as a source of Vanilla flavoring from the orchid specie of Vanilla. At Costa Rica, orchids bloom at any time of the year but it is suggested that orchid viewing are favorable at the beginning of both the dry and the wet seasons. The country is rich in orchid species with flowers as



small as a millimeter size and with those as large as half a meter. Experts suggest that orchid lovers visit the cloud forests of Costa Rica as it houses most varieties of orchids. Since most orchids are epiphytes, the unique humid-not-wet-midelevation environments of Costa Rica's cloud forests provide a comfortable home for most orchid species. There are those which bloom only for one day and those which last for several weeks. So orchid lovers have their choices of their length of stay depending on the orchid variety they wish to enjoy viewing. Lankester Gardens, which features about 800 orchid species, the Orchid Alley at the Central Highlands, and Poas Volcano National Park are some of the well-known places that house an array of orchid species.

#### THE Mangroves of COSTA RICA

Halophytes thrive in salty conditions. Costa Rica provides that perfect condition for such types of plants we commonly call mangroves. In fact Costa Rica's shorelines are home to five species of mangroves. Costa Rica is also known for its mangrove swamps protected and preserved for its vital role in the maintenance of a well-balanced ecosystem.

Mangrove swamps serve as nursery for marine life species like birds, snakes, raccoons, fish, and insects. "The mangroves draw oxygen from the air through small patches of spongy tissue on their bark." (Baker) The irrepressible, reddish-barked, shrubby mangroves rise from the dark water on interlocking stilt roots. Swamps serve as havens for water birds like cormorants, frigate birds, pelicans, herons, and egrets. These water birds which feed and nest in the mangrove swamps as many as a thousand in

numbers, enabling it to produce guano that makes the mangroves grow faster.

Oysters and sponges attached to the roots of the mangroves, small stingrays and tiny fish are also abundant inhabitants of the swamps. Baby black-tipped sharks also live in the mangrove roots which give them the shield out of large predators. During high tide seasons, mangrove snappers and young barracudas can be found in the mangrove swamps. Raccoons, snakes, insects and other arboreal creatures are also inhabitants of the mangroves. There is even an arboreal mangrove tree crab (*Aratus pisonii*), which eats mangrove leaves and the arboreal crab called *Goniopsis pulcra*.

## THE ANIMAL LIFE OF COSTA RICA

### birds

There are over 850 species have been identified living in the forests of Costa Rica. Among them are the *resplendent quetzal*, with its shimmering green plumage, scarlet belly, white tail feathers and green tail coverts that trail over 60 cm (2 ft) behind its body and the rare *harpy eagle*, which can snatch a monkey or a sloth right out of its branch in the treetops. Of the total number of species, Monte Verde have 400 of them. “ There are over 50 species of hummingbirds, 15 parrots (including the *scarlet macaw*, ) six toucan species, 75 different flycatchers, 45 tanagers, 29 ant birds and 19 cotingas.” (Tropical Science Center)

**mammals**

Over 200 mammal species have been recorded in Costa Rica 100 of which are found at Monte Verde Reserve. The country has four types of monkeys: *howler, spider, white-faced capuchin* and *squirrel monkeys*. It's got two types of sloth: the often-viewed *three-toed a diurnal animal, and the rarely seen nocturnal two - toed sloth*. Three types of anteaters reside in Costa Rica; the frequently seen *tamandua* and the *giant* and *silky anteaters*.

Costa Rica's rainforests house *armadillos, agoutis, coatis, peccaries (wild pigs), kinkajous, raccoons, squirrels and bats*. *Jaguars and tapirs* which are now considered endangered species can also be found here.

**THE BEETLES AND THE INSECTS**

Beetles, the largest order of insects, account for about 40% of all known arthropod species. There are about 30 million species of arthropods that estimated to be living in the rainforest trees. And because Costa Rica have these rainforests in its territory, it is but logical enough to conclude that it's got most of such species. " This is due in large part to the diversity of plant life found in these warm and humid environments." (Rara Avis)

Most insects feed on living plant tissue while others are scavengers, predators, or parasites. There are those that feed on plants by extracting from the roots, trunk, stems, bark, shoot tips, leaves, flowers, fruits, and seeds. Some insects are specific to the specie they eat and the parts of the plants they take as food. Because of Costa Rica's wealthy of plant life its tropical rainforests can support these arthropod species. A study have found about 163 species of beetles in just one tree and so we can expect a lot

more species when combined considering the number of trees found in the tropical rainforests of Costa Rica.

Of the 35, 000 species of insects that have been recorded in Costa Rica, the butterflies are the most attractive to visitors. It is estimated that 10% of the world's butterfly species reside in Costa Rica. One of the most beautiful is the *morpho*, with its 15 cm (6-inch) wingspan and electric blue upper wings. When they land, only their brown underwings are visible which serve as a camouflage to protect them from their enemies. Some species look just like the leaves and bark of the trees on which they rest others have wings with spots that seem like real eyes.

#### THE REPTILES AND OTHER AMPHIBIANS

Costa Rica is home to 150 species of amphibians, of which are species of colorful and exotic types. There are *tree frogs* which live above the forest floor. The *poison-arrow frogs*, colored from bright red with blue or green legs to bright green with black markings are also residents of the Costa Rica forests. These frog species are the ones emitting skin toxins lethal to predators.

Of the 200 species of reptiles in Costa Rica, half of them are snakes. However they are rarely encountered since they are nocturnal and have efficient camouflage. What are common are the lizards of which include the *Ameiva* which has white stripe on its back. Bright green *basilisk* lizards can reach a meter (3 ft) in length and the ones resemble like that of the

dinosaurs. They are also known as “ Jesus Christ lizards” because they can run across water when disturbed.

There 14 turtle species including both marine and freshwater varieties identified in Costa Rica. The marine turtles known as the *leatherbacks* have shells as big as 5 feet and they weighing 360 kg. They lay their eggs in the sand of the beaches. *Olive ridleys* nest in the beach sands. What is remarkable with these species is that females thousands of them come up to the shores at night to build their nest and lay their eggs.

## THE NATIONAL PARKS OF COSTA RICA

The forests of Costa Rica are grouped into three categories: Rainforests, Cloud forests and Dry Forests. The ones located at the Atlantic lowlands and the southwest parts of the country are classified are rainforests. These are forests of dimly lit environment with massive trees of high canopies. The tropical dry forest is found in the northwest area. Cloud forests such as the Monte Verde Reserve are featured covering the upper slopes of the mountain tops and the volcanoes.

### The Monte Verde Cloud Reserve

Founded by the Quakers in 1951, Monte Verde Reserve features quetzals, art galleries and a butterfly garden. It currently covers 10, 500 hectares designed and committed to preserving the natural resources unique to Costa Rica. It supports six of the 12 life zones of the country. It houses 100 mammal species, 400 species of birds, 120 amphibians and reptiles, and 2, 500 pant species of which 420 are orchids. Few of its wildlife attractions are

the ocelot, the Baird's tapir, jaguar, bell-necked umbrella bird, the resplendent quetzal and the three-wattled bell bird.

The reserve's temperature ranges from 16 to 18 degrees Celsius and an annual average rainfall of 3, 000. It is located on top of the Continental Divide in western Costa Rica and extends down the Caribbean and the Pacific shores. Its attitude varies from 600 meters in the lower Penas Blanca River and 1, 842 meters at the top of Cerro Tres Amigos. Its protected forest coves are home for orchids, bromeliads, ferns, vines and mosses.

#### The Carara National Park

The Carara National park covers three different life zones: the Tropical Humid Forest and the Transitional Forest which includes the pre-montane, tropical the pre-montane, rain forest and the montane rain forest. Created in 1978, the reserve is part of a *Hacienda Coyar* having an area of 5, 242 hectares. It has mean annual precipitation of 2, 800 mm and a mean annual temperature of 27 degrees Celsius.

The reserve houses 360 bird species and is famous for its 320 scarlet macaws inhabiting the area. Among its residents are the capuchin monkeys, howler monkeys, sloth, iguanas, American crocodiles, great anteaters, ocelots, great curassows and fiery billed aracaris. The endangered species of black and green poison frogs and the blue morph butterflies are also found here.

#### The a Selva Biological Station

Selva is one of the world's premier ecosystem research sites. It covers an area of 1, 600 hectares located between the two major rivers in the Caribbean lowlands in Northern Costa Rica. It has an average of 4 meter rainfall evenly spread throughout the year. It has four major tropical life zones and diverse species of fauna. It houses 5, 000 species of vascular plants of which are over 700 species of trees. It is a home for 400 species of migratory birds and thousands of arthropod species. The reserve is also famous for its resident jaguars, pumas and bushmasters.

#### THE MEDICINAL PLANTS OF COSTA RICAN RAINFORESTS

Of the 265, 000 species of flowering plants that have been identified on this planet, only 0. 5% of them have been studied in detail for chemical composition and medicinal value. (S. Bozse) Scientists actually has only 5% of these plants they have thoroughly studied and have identified its composition. There are however studies which revealed that indigenous peoples who live in the rainforest are more knowledgeable on the uses of these plants in terms of medicine and said to actually identify specific uses for 49-82% of the trees in their local environment (Weeks, 2000).

Costa Rica's rainforest has this medicinal benefits derived from its native plant species. Among them are the Saragundi or the Wild Senna of theCaesalpiniaceae family. Itsleaves and flowers are used as infusion for fever and is also used to treat skin problems. The middle veins are beneficial as laxatives and are used is treatments for arthritis and rheumatism. More importantly, these plants are used for herpes and psoriasis.

The Manzanilla, Camomila, Chamomile, Pineapple weed, and Wild chamomile are used as Antiphlogistic, musculotropic, antispasmodic which promotes wound healing. They serve as deodorant, antibacterial, bacteriostatic, and are beneficial as skin metabolism stimulants. Its other uses include treatments for stomach distress and nausea, menstrual cramps and as a mild sedative and to diminish appetite.

The flower head of *Juanilama* are used as treatments for stomach aches and muscle aches. They are also as antispasmodic, as sedatives, anti-diabetic, diaphoretic and anti-inflammatory and anti-rheumatic treatments.

*Quininagru* are commercially used its wood extracts as food flavorings, for beverages and baked goods, and also in certain laxative medications. The *Quassia* wood tinctures are effective control for head lice without side effects. It is also used as insecticidal, bitter tonic, antiparasitic and pediculicide.

The rich biodiversity of Costa Rica made the country famous in the world, not only because of its unique features and species that can be found only in their rainforests. The country is known and respected for their commitment in the preservation of these natural resources and thus their love for nature are obviously and remarkable. However, like other natural habitats around the world, Costa Rican rainforest are also at risk and endangered from losing its natural set up. As part of industrialization, the country also has to undergo pavement of its roads and other developmental projects that somehow affects the rainforests. Economic reasons, as the probable loss of business when they continue to limit the number of visitors coming in for



adventure and mere studies, also contribute to the possible breakdown of the country's paradise. It is therefore important that the country continue on its commitment to preserve its nature and strengthen the laws and policies that protect their natural resources.

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