



FIELD GUIDE FOR COSTA RICA



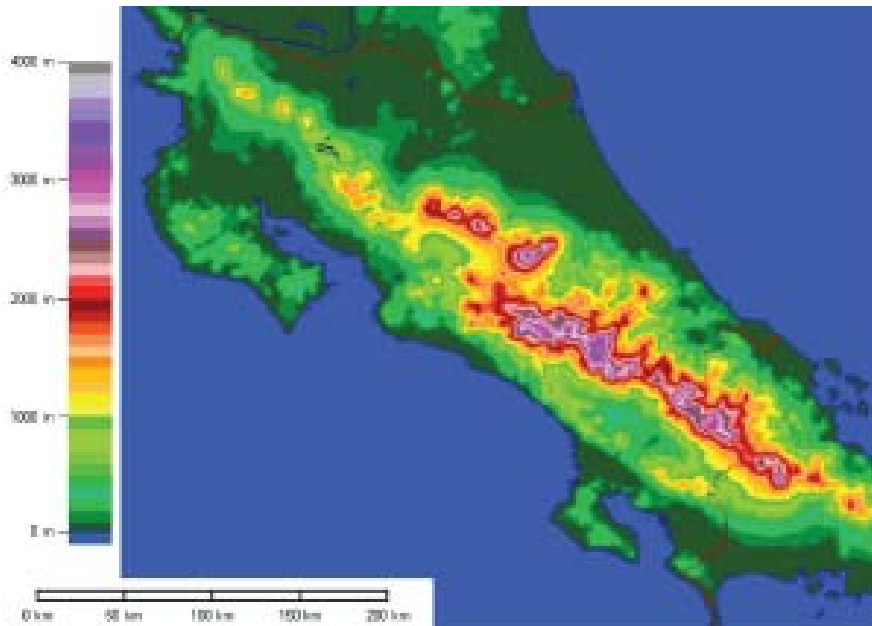
THE UNIVERSITY OF UTAH

The Center for Science
and Mathematics Education

GEOLOGY OF COSTA RICA

There are two mountain ranges that run the length of Costa Rica. The northern range (Cordillera de Tilaran) consists of a chain of young volcanoes, many of them active. Volcan Arenal erupted in 1968, killing 78 people and spreading ash over hundreds of square miles.

The southern range is the uplifted core of an earlier volcanic chain. This southern range (the Talamacas) contains Cerro Chirripo, the highest peak in Costa Rica at 12,300 feet (3819 m) where it snows occasionally, unusual for a tropical latitude!



GEOGRAPHY OF COSTA RICA

Costa Rica is a small country (total area is 19,739 square miles) the area of West Virginia. It has a variety of destinations including active and dormant volcanoes, sandy beaches, mountaintop cloud forests, and cultural epicenters.



- San Jose is the capital city of Costa Rica. The surrounding Central Valley has coffee plantations, forests, and farm towns.
- The Northern Region is where the volcano Arenal is located, as well as the Monteverde Cloud Forest Reserve.
- The Northern Pacific area has beaches, as well as the Santa Rosa National Park which hosts Central America's largest area of dry forest.
- The Central Pacific region is home to Manuel Antonio National Park.
- The South Pacific region is the most remote of the country. Drake Bay is here as well as the Corcovado National Park
- The Caribbean Coast region is where Tortuguero with turtle breeding and some of the best wildlife viewing in Costa Rica can be found.

CLIMATE



Most regions have a rainy season (May-November) and a dry season (December-April). The rainfall almost everywhere follows a predictable schedule. In general, highland ridges are wet--and windward sides always the wettest. Pronounced dry seasons occur in the Pacific lowlands (Guanacaste Province) with very little rain falling between February and May.

Temperatures are dictated more by elevation and location than by season,

and range from tropical on the coastal plains to temperate in the interior highlands. Temperatures fall steadily with elevation (about one degree for every 100-meter gain). Mean temperatures average 82° F (28° C) at sea level on the Caribbean coast and 89° F (32° C) on the Pacific lowlands. San José and the Meseta Central have an average year-round temperature of 74° F (23° C).

Annual precipitation averages 100 inches (254 cm) nationwide. Depending on the region, the majority of this may fall in relatively few days--sometimes fewer than 15 per year.

HUMAN HISTORY



Spanish explorers landed in present day Costa Rica in the 16th century and found a land populated by native tribes (such as Bri bri, Teribes, and Huetares, only a small number of whom remain). It was quickly

colonized, but little growth occurred until the 18th century.

San Jose was established in 1737 when exports of wheat and tobacco helped create a sounder economy. Independence from Spain in 1821 had little effect on Costa Rica because it had limited colonial government before this. In 1823, local quarrels became full out civil war and the progressives won. Democracy emerged earlier here than in other parts of Central America and coffee cultivation was encouraged with free land grants to coffee growers.

The country underwent many changes in leadership over the next century. A civil war erupted in 1948 and led to the foundations of the modern state where social and economic progress has helped the nation achieve stability.

Costa Rica has enjoyed more peace and stability compared to other Latin American nations. The Army was abolished, and so greater financial support could be given to education. Costa Rica has the highest literacy rate in Central America. It also has a positive reputation for conservation, with more than 12% of its land protected in national parks. There have been 13 Presidential elections since 1953.

RELIGION AND ECOLOGY

Christianity is the predominant religion and Roman Catholicism is the official state religion according to the 1949 Constitution. However, the Constitution also guarantees freedom of religion.

In a 2007 nationwide survey of religion, 70.5% of Costa Ricans are Roman Catholics, 13.8% are Evangelical Protestants, 11.3% reported not having a religion, and 4.3 % belonged to an alternative religion. There are more than 35,000 members of The Church of Jesus Christ of Latter-day Saints and there is a temple in San Jose.



RELIGION AND ECOLOGY

BASICS OF CATHOLIC TEACHING

Roman Catholics believe that the Pope and the bishops, as successors of the Apostles, have the power to teach and govern the faithful. The Roman Catholic Church recognizes the Pope as the visible head of the Church. Catholics believe that the Pope is the successor of the Apostle Peter. The Catholic Church ordains only men to the priesthood to perform their sacred office. The Bible is the collection of sacred writings, containing the inspired word of God.

Roman Catholics believe that when Mary herself was conceived through Immaculate Conception, she was without original sin and that the Virgin Mary is the Mother of God, because Jesus who is the Son of God is also the Son of the Blessed Virgin Mary. They believe that the Church cannot err when she teaches doctrine, faith, or morals.

Catholics believe that the Eucharist during communion is the body and blood of Jesus Christ under the appearance of bread and wine ("transubstantiation"). They believe that Baptism is a sacrament that makes us Christians, and adopted children of God. They believe that prayer is the raising of mind and heart to God. Catholics also "pray" to the saints in the sense that they ask the saints for their help and prayer. The Catholic religion honors the saints, and invokes the saints to intercede for them. Catholics believe the saints are with God.

Catholics use statues and images to teach and remember Jesus and the saints, just as a person uses a photograph to remember someone.

The Catholic Church teaches that salvation depends on faith, works and sacraments, all of which are the grace of God. They also believe that salvation is lost when a responsible person commits a mortal sin. Catholics believe forgiveness of sin is achieved through sacrament of

RELIGION AND ECOLOGY

reconciliation, with the assistance of a priest in confession. They also believe hell is a state where the wicked are condemned, are deprived of the sight of God, and are suffering torment and pain.

They believe purgatory is a state after death in which souls are cleansed due to their sins before they can enter heaven.

Christianity and Ecology: Wholeness, Respect, Justice, Sustainability

Dieter T. Hessel Program on Ecology, Justice, and Faith
<http://fore.research.yale.edu/religion/christianity/>

Increasing numbers of Christian theologians and ethicists are responding to the environmental challenge, as the world gets hotter, stormier, unequal, crowded, more violent, and less biodiverse. Below are key themes that take into account Christian thought for how we can contribute to secure the earth community's well being.

- 1) All of the earth community is valuable to God, who continues to create, sustain, and redeem the whole. Biblical images portray the Spirit as "a healing and subversive life-form—as water, light, dove, mother, fire, breath . . . wind,"² and comforter of the suffering.
- 2) The relations between cosmology, spirituality and morality are complex, knowing that the cosmos (and this planet) are part of the power, wisdom, and love of God.
- 3) Christian theology played a key role in cultural and ecological malformed assumptions underlying modern philosophy, religion, and politics by giving impetus to the rational, scientific conquest of nature.
- 4) Christianity requires both sound theology and sound practice.
- 5) There are affirmations about God, Christ, finitude, world, soul/body relations, sin, evil, redemption, and the "end" with ecological seriousness.

RELIGION AND ECOLOGY

- 6) There is an emergence of Christian ecological virtue ethics that lead to a practice of frugality, humility, esteem for everyone, beneficence, and justice toward all. It shows ethical imperatives for the age of high technology and genetic manipulation; e.g., respect the evolutionary wisdom and divine activity embodied in the natural world; be accountable to the common good and to future generations; foster a communal and less resource-consumptive vision of "the good life."
- 7) This emphasizes human obligations in every place and pursuit, which express respect and care for Earth as God's creation and life's home, while seeking justice for a biodiverse otherkind as well as humankind.

THE METRIC SYSTEM

The metric system is an international decimalized system of measurement. France was first to adopt a metric system, in 1799, and a metric system is now the official system of measurement, used in almost every country in the world. The United States is the only industrialized country in the world that does not use the metric system as its official system of measurement.

Conversion of US Linear Measure to Metric System

1 inch = 2.54 centimeters (cm)

1 foot = 0.3048 meters (m)

1 yard = 0.9144 meters (m)

1 mile = 1609.3 meters (m) or 1.6093 kilometers (km)

0.3937 in = 1 centimeter (cm)

39.37 in. = 1 meter (m)

Conversion of US Weight Measure to Metric System

0.0353 ounces = 1 gram

1 ounce = 28.35 grams

1 pound = 454 grams

2.2046 pounds = 1 kilogram (kg)

To convert a Fahrenheit temperature to Centigrade,

do the following:

- a. Subtract 32 b. Multiply by 5 c. Divide by 9

To convert a Centigrade temperature to Fahrenheit,

do the following:

- a. Multiply by 9 b. Divide by 5 c. Add 32

CULTURE AND EDUCATION

Costa Rica has a population of 4,640,000, with whites and mestizos making up 94% of the population; 3% are black or Afro-Caribbean, 1% Native American, 1% Chinese, and 1% other races. Costa Rica hosts many refugees, mainly from Columbia and Nicaragua. Some Nicaraguans migrate for seasonal work opportunities and then return to their country.

The primary language spoken in Costa Rica is Spanish. About 10% of Costa Rican's adult population speaks English. Beans, rice, cabbage, plantains, and beef are staples. Food tends to not be very spicy.

Costa Rican cuisine is a blend of Native American, Spanish, African and many other origins.



The literacy rate in Costa Rica is 95%, one of the highest in the world. Students who finish 11th grade receive a Costa Rican Bachillerato Diploma accredited by the Costa Rican Ministry of Education.

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COMMON PLANTS

Costa Rica hosts more than 9,000 species of “higher plants” including 800 species of ferns, 30 ‘birds of paradise’ species, and 1,400 species of orchids.

Bromeliads are flowering, spiky-leaved plants that span up to 47 inches (120 cm) across. Their stiff leaves hold large quantities of rainwater and decaying material. They have special hairs on their leaves that absorb water and nutrients from these pools. Their roots have only “hold fast” functions; they do not tap into their host trees’ resources.



There are over 2,000 species, including the pineapple.

Bullhorn Acacia (Acacia cornigera) has hollowed-out swollen thorns in pairs at the base of leaves which are compound pinnate. The tree generally grows to a height of 33 ft (10 m). It has a symbiotic relationship with a type of ant (*Pseudomyrmex*) that lives in the hollow thorns. Ants eat the nectar and protein nodules in the leaflets and protect the leaves from herbivores.



COMMON PLANTS



Gaulin (Alfaroa costaricensis) is a nut bearing timber tree that grows in cloudy areas at elevations between 1968 and 7217 feet (600 and 2200 m). It can reach 88 feet (27 m) in height and 23.6 in (60 cm) diameter by height. The leaves are compound and hairy.



Walking Palm (Socratea exorrhiza) is a rainforest palm that can grow to a height of 82 feet (25 meters) with a stem diameter of up to 7 inches (17 cm). This tree has stilt roots and many species of epiphyte have been found growing on the palms.

COMMON PLANTS

Strangler Fig (*Ficus aurea*) is a tree that germinates in the canopy of a host tree with the seedling living as an epiphyte until the roots establish contact with ground. Then it enlarges and eventually replaces its host. They can reach 98 feet (30 m) in height. It is an evergreen with leaves 4 inches (10 cm) or shorter that vary in shape from oblong to heart-shaped.



COMMON PLANTS

MANGROVES

Costa Rica's shorelines host several species of mangroves. These trees thrive in estuaries, where the sea and the land interface, and help stabilize the shore to fight erosion and reclaim water. They also serve as habitat for marinelife, waterbirds, and oysters.

Red mangrove - *Rhizophora mangle*

Black mangrove - *Avicennia germinans*



COMMON PLANTS

TROPICAL DRY FOREST TREES

Purple Jacaranda (Jacaranda caucana) is a tall dry forest tree with beautiful purple flowers. The trunk has yellowish bark with vertical fissures. Leaves are large, opposite, and compound. It flowers in March and April.



Yellow Corteza Amarilla (Tabebuia ochracea) is a large tree of the dry Pacific slope. It has yellow flowers that bloom in February and March, each flower lasting just one day. Leaves are palmate and opposite with 3-5 oblong leaflets that are densely hairy.



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COMMON PLANTS

Mandarin orchid (Phragmipedium caudatum) is a native orchid that has petals reaching more than 1.6 feet (0.5 m). The greatest diversity is found in the cloud forests at mid-elevation environments. They are abundant as tropical epiphytes.



Red Ginger (Alpinia purpurata) this is a clump forming ginger with red spikes for flowers. It is very showy against the shiny green leaves and the flowers get bigger with time. It grows best in shaded, sheltered areas.



COMMON PLANTS



Parrot's Beak (Heliconia psittacorum) is a small herbaceous upright plant that grows no more than four feet tall (1.2 meters). They are exotic bloomers all year long. The orange-red bracts rise from a central point of the stem. The long pointed leaves are shiny green with a red edge.



Guaria Morada (Cattleya skinneri) is one of the most common orchids found in Costa Rica. The flower is so popular that it was adopted as the national flower in 1939. The flowers are bright rose-lavender and the plant thrives in wet mountain forests from sea level to 4,000 ft (1219 m).

It produces from 5 - 12 flowers on a spike and usually has more than one lead and the flowers are about 4 inches (10 cm) across.

COMMON PLANTS

Pelican flower (*Aristolochia grandiflora*) is a deciduous, aggressive vine with enormous flowers that emit an unpleasant odor, which attracts insects. The solitary blooms have heart-shaped faces about a foot long (31 cm) and 8 inches (20 cm) wide. Rich purple blotches and veins cover the creamy white face of the flower.



COMMON MAMMALS

Only 200 mammal species, half of which are bats, are found here.



MONKEYS :

Brown Capuchin (*Cebus apella*)

This monkey is omnivorous, feeding mostly on fruits and invertebrates. Occasionally it will eat small vertebrates like lizards and bird chicks. It is a social animal that forms groups of 8 to 15 individuals led by an alpha male. Their fur is brownish gray with the belly lighter than the rest of the body. The hands and feet are black and the tail is strong.



Mantled howler (*Alouatta palliata*) is one of the largest Central American monkeys and can weigh up to 22 lb (9.8 kg). Its diet is mostly composed of leaves and has adaptations to this diet that is hard to digest – they spend most of the day resting and sleeping. It lives in groups that can have over 40 members with an alpha male. It acts as a seed disperser. The howler is primarily black except for a fringe of gold hair on each side.

COMMON MAMMALS

Squirrel monkey (Saimiri oerstedii) is a small monkey with an orange back and a distinctive white and black facial mask. Its diet is omnivorous eating fruits, plant materials, invertebrates and some small vertebrates. It lives in large groups of 20 to 75 monkeys. It is arboreal and diurnal and moves through trees on four legs. Adults reach a length of 10.5 – 11.5 inches (266 – 291 mm).



Spider monkeys (Ateles geoffroyi) are one of the largest New World monkeys, weighing up to 20 pounds (9 kg). Its arms are longer than its legs and its tail can support the entire weight of the monkey is used as an extra limb. Its diet consists mostly of ripe fruit. The body is a reddish, rust color and the hands and feet are dark or black. The face usually has a pale mask around the eyes and muzzle. The spider monkey is arboreal and diurnal and mostly inhabits the upper portion of the forest.



COMMON MAMMALS

Baird's tapir (Tapirus bairdii) is a solitary, ground-living, plant eating, forest dwelling mixture of elephant, rhinoceros, pig, and horse. It is the largest land mammal in Central America. It is commonly called the danta. It has distinctive cream-colored marking on its face and throat and a dark spot on each cheek, behind and below the eye.



Vampire bat (Desmodus rotundus) is a common bat in Costa Rica that are found wherever cattle are raised. They are not dangerous to humans, but prey on cattle and are the only bat that feeds on the blood of livestock. It is a small

to medium-sized bat with reddish brown to gray brown fur and pale underparts. It has a strong sense of smell and larger eyes with better eyesight than most other bats. Adults have a head and body length of 3 – 3.5 in (7.5 – 9 cm).

COMMON MAMMALS

Three-fingered sloth (*Bradypus variegatus*) is a tree-dwelling species with a body adapted to hang by its limbs. It lives high in the canopy and descends once per week to defecate on the forest floor. Its long, coarse, grayish-brown fur often appears greenish because of algae growing on it, providing it exceptional camouflage. It is 18 in (45 cm) in length and has a weight of 8 – 10 lb (3.5 – 4.5 kg). It has a short tail of 2 – 3 in (6 – 7 cm).



Hoffman's two-fingered sloth (*Choloepus hoffmanni*) is a solitary nocturnal and tree-dwelling species found in mature and secondary rainforests. It is heavily built and has shaggy fur with slow, deliberate movements. The forefeet have only two toes. Adults range from 21 – 28 in (54 – 72 cm) in head-body length and weight 4.6 – 20 lb (2.1 – 9 kg). Their tails are stubby at just 0.6 – 1.2 in (1.5 – 3 cm) long.



COMMON MAMMALS



Collared peccary (*Pecari tajacu*) is an animal somewhat related to pigs, but no longer classified in the pig family. It has a wide range and is well adapted to different habitats, even those shared with humans. It normally feeds on fruits, roots, tubers, grasses, invertebrates, and small vertebrates. It is diurnal and lives in groups of one to 20 individuals.



White-lipped peccary (*Tayassu pecari*) is a diurnal species that lives in larger herds of 50 – 300 individuals. It is omnivorous and is considered the most dangerous peccary. It weighs 55 – 88 lb (25 – 40 kg) and is 35 – 55 in (90 – 139 cm) long. It is dark brown in color with a bristly coat. Its head is dark brown and has white markings surrounding the mouth and lower jaw.

COMMON INSECTS

There are many thousands of species of ants, breeding butterflies, beetles, and grasshoppers.

Leaf-cutting ant (Atta cephalotes) is a mushroom-farming insect found in lowland forests. It carries leaf shards to its nest and then cultivates particular kinds of fungi, which it feeds to its larvae.



The Blue-Gray butterfly (Caligo memnon) is an owl eye butterfly with the underside of its wings mottled to look like feathers and two large yellow and black eyes.



COMMON INSECTS

The Hercules beetle, Dynastes hercules, is the largest of the rhinoveros beetles. It is native to the rainforests in Costa Rica. Some males can reach 6.7 inches (17 cm) in length due to their long horns.



COMMON BIRDS

There are over 850 recorded bird species, approximately 1/10th of the world's total known species of birds.

Anhingas and Cormorants
Sleek, long necked waterbirds that dive for fish in lagoons. They have kinked necks and can spear fish using a kink as a trigger for their bill.



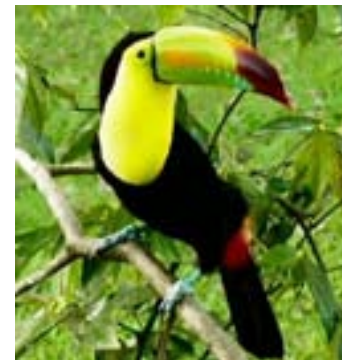
Speckled Tanager (Tangara guttata) is a medium-sized bird at 5.2 in long (13 cm) with green upperparts with black spotting. The face is yellow with a black line from the eye to the gape. Wings and tail are black edged with green found in humid montane and secondary forest.



COMMON BIRDS



Yellow-eared Toucanet (Selenidera spectabilis) is found in humid forests in Costa Rica. It is 15 in (38 cm) long and males have a yellow auricular streak.



Keel-billed Toucan (Ramphastos sulfuratus) is a colorful bird that ranges in length from 17-22 in (43 - 56 cm). It's large and multicolor bill averages 5 - 6 in (12.7 - 15.3 cm). Mainly black plumage with a yellow neck and chest.

COMMON BIRDS

Emerald Toucanet
(*Aulacorhynchus prasinus*) occurs in mountainous regions in humid forests and is 12-14 in (30.5 – 36 cm) long. It is a mainly green bird with a black bill and yellow upper mandible.



Collared Aracari
(*Pteroglossus torquatus*) is brightly marked and has a large bill. Adults are 15 - 16 in (38 – 41 cm) long and have a black head and chest and dark olive green upperparts, apart from a red rump and upper tail.

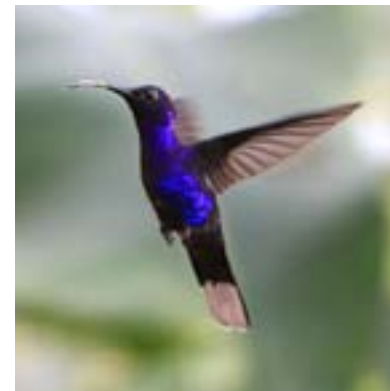


COMMON BIRDS

Hummingbirds : Costa Rica has 51 species of hummingbirds in the family Trochilidae that are stunningly pretty and small. Their wings beat up to 100 beats per second.



Rufous-tailed Hummingbird
(*Amazilia tzacatl*) is a medium-sized hummingbird that is common in woodland, forest edge, coffee plantations and gardens up to 6000 ft (1829 m). Adults are 4 -5 in (10 – 15 cm) long with a green throat and back and flanks are green tinged golden.



Violet Sabrewing (*Campylopterus hemileucurus*) is a very large hummingbird of the understory and edges of mountain forests. It is 6 in (15.2 cm) long and the adult male is deep violet with a dark green back and wing. Females are dark green above and grey below with a violet throat.

COMMON BIRDS

Scarlet Macaw (*Ara macao*) is a large, colorful macaw. It is native to humid evergreen lowland forests. It is about 32 in (81 cm) long, half of which is the pointed tail. The plumage is mostly scarlet with rump and tail feathers that are light blue and yellow upper wing coverts.



Trogons: Costa Rica has 10 of the 40 species of trogons. The most common of which is the Quetzal, or Resplendent Trogon (*Pharomachrus mocinno*). It has vivid shimmering green plumage and is endangered due to loss of cloud-forest habitat. It is 14 – 16 in (36 – 40 cm) long and has a tail that is 26 in (65 cm) long. It lives in the montane cloud forests. It is considered a specialized fruit eater, but also eats insects.



COMMON BIRDS



Orange-collared Manakin (*Manacus aurantiacus*) is an endemic resident breeder in Costa Rica. It is found in the lowlands and foothills of the Pacific slope. It is a small bird at 4 in (10 cm) with orange legs and brightly yellow/orange male plumage. It feeds low in the trees on fruit and some insects that are plucked from foliage in flight.



THIS FIELD GUIDE WAS CREATED TO HELP TRAVELERS,
MISSIONARIES, HUMANITARIANS, AND OTHERS TO LEARN MORE
ABOUT THE NATURAL WORLD IN THE COUNTRIES THEY VISIT,
AND TO BETTER CONNECT WITH THE PEOPLE, PLANTS AND
ANIMALS THEY ENCOUNTER.



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