

1: plants | Hawaiian Forest

Common Forest Plants in Hawaii - Fun Info for a Hawaiian Hike To help both travelers and locals learn about the flora of the Hawaiian Islands, I have compiled the most common forest species one will find in the Hawaiian Islands.

Contact Tropical Rainforest Plants List In the previous article we looked at plants in the tropical rainforest. On this page, we provide a tropical rainforest plants list, with pictures and information on individual plant species. This article is part of our Rainforest Series. You can download rainforest worksheets here: However, there is a lot of competition for sunlight and nutrients. Plants have to adapt to find their place in the ecosystem. Some plants grow faster, some have bigger leaves, and others evolve better defences against predators. Epiphytes are plants that live on other plants. Epiphytes even grow on other epiphytes! The most common epiphytes are bromeliads. Bromeliads are flowering plants whose long leaves are arranged in a rosette. They attach themselves to the host tree by wrapping their roots around its branches. The water is used not only by the plant, but also by many rainforest animals. Birds and mammals drink from the tank. Tadpoles grow there, and insects lay their eggs in the pond. Orchids Many rainforest orchids grow on other plants. Orchids in the rainforest are often epiphytes. Some have specially adapted roots that enable them to capture water and nutrients from the air. Other orchids have roots that spread out over the branch of the host tree, capturing water without needing to bury into the ground. Its fruit is edible. Its fruit are eaten, and its wood used in building. Carnuba wax is used in car polishes, lipstick, soap, and in many other products. It is even rubbed on surfboards to help them slip through the water faster! Rattan Palm Rattan palms are used to make furniture. There are over species of rattan palm. They grow in African, Asian and Australasian rainforests. Rattans are vines; long plants which are unable to support themselves. Instead, they wrap themselves around other trees. Hooked spines on their stems allow them to climb up the other trees towards the sunlight. Rattans are harvested and used in furniture construction. They have stilt roots that project out of the trunk above the ground see our Plants In The Tropical Rainforest article to find out more about stilt roots. Amazon water lily *Victoria amazonica* The leaves of the Amazon Water Lily can grow to over 2 metres in diameter! The Amazon water lily is an aquatic plant that grows in the lakes and rivers of South American rainforests. Its huge leaves can be up to 3 metres 9. There are rows of sharp spines on the undersides of the leaves. These deter rainforest animals such as manatees from eating them. The rubber tree, which was first found in the Amazon Rainforest, is now also grown in tropical areas in Asia and Africa. These vessels are opened and the latex which runs out is collected in buckets. Latex is used to make natural rubber. Natural rubber has many uses, including car tyres, hoses, pulley belts and clothing. There are over 1. Bougainvillea Bougainvillea is a rainforest plant. A colourful entry to the tropical rainforest plants list, Bougainvilleas are native to South America. They are grown as ornamental plants in other areas. These thorny plants grow as vines and shrubs. Some species of bamboo can grow 90 cm 3 ft. Indian Timber Bamboo is a particularly useful species of bamboo. As its name suggests, it is used to make furniture. It is also used to make paper and musical instruments. It grows in South Asian rainforests. Vanilla Orchid Vanilla Orchid. Many of the tropical rainforest plants in this list are grown commercially. The vanilla orchid was first used as a flavouring by the Aztecs. Vanilla orchids grow like vines, climbing up other trees. Wild vanilla orchids are pollinated by hummingbirds and melipona bees. They grow in Central and South America. The only way out for the bee is through a part of the flower that attaches pollen to its body. The bee makes its escape, and will now pollinate other bucket orchids that it visits. The Bucket Orchid and the Bucket Bee have coevolved, and each is dependent on the other to reproduce. Silky Oak *Grevillea robusta* The silky oak is a large tree that grows in Australian rainforests. It is not closely related to true oak trees. Its timber is resistant to rot, and is used in carpentry and joinery. They are some of the tallest rainforest trees. They can grow over 80 m ft. Tualangs have very smooth bark, making them difficult for animals to climb. Tualang trees have buttress roots, which make them more stable and also spread their roots out over the rainforest floor. Strangler Figs Strangler figs kill the trees that they grow on. Many epiphytes avoid harming the plant on which they grow. Strangler figs begin life in the branches of other trees. As strangler figs grow, their roots descend to the forest floor. Their stems wrap around the host tree, until they

form a lattice. The fig is now able to capture more sunlight and draw up more nutrients than the tree in which it grows. The host tree eventually dies. The strangler fig lattice, which is often formed by more than one fig, is by then strong enough to support its own weight. It remains standing even when the host tree has rotted away. The strangler fig is an extremely important plant in the rainforest ecosystem. The *Rafflesia arnoldii* has the biggest flower in the world. This rare plant grows on vines that cross the forest floor. It is found in the rainforests of Borneo and Sumatra. *Rafflesia arnoldii* flowers can reach 1 m 3 ft. This scent attracts the flies which will pollinate the flower. Pitcher Plants Pitcher plants capture and drown unwary insects. No tropical rainforest plants list would be complete without a carnivorous plant! Pitcher plants have evolved to prey on insects. They grow in areas where the soil is low in nutrients. There are many different types of pitcher plant, but all work in the same way. They lure insects with nectar or tempting scents. Hairs in the sides of the tube prevent the insect from escaping. The insect eventually drowns in a pool of liquid at the bottom of the tube. Can you see why? Heliconias are flowering plants that grown in the tropical rainforests of the Americas. They grow on the forest floor, and their brightly-coloured flowers attract hummingbirds, which pollinate the plant. Heliconias are popular all over the world as ornamental plants. Kapok *Ceiba pentandra* Kapok trees are tall trees with buttress roots. Kapok trees are tall rainforest trees whose highest branches form part of the emergent layer. Kapoks have buttress roots. Kapok trees are found in the tropical rainforests of South America, Asia and Africa. Durio Durians are famous for being foul-smelling, but surprisingly good to eat. Durian trees grow in Southeast Asia.

2: Common Forest Plants in Hawaii - Untamed Science

Hiking in the forests of Hawai'i offers many rewards. Walking along our mountain paths is an excellent form of healthy exercise. The scenic beauty of the Hawaiian landscape is spectacular and diverse, and there are many colorful, individual organisms that inhabit the forest environments.

Check new design of our homepage! Rainforest Biome - Tropical Rainforest Plants A tropical rainforest evokes images of thick, lush green vegetation. Learn more about the plant life that inhabit these forests. Gardenerdy Staff Last Updated: Feb 16, Tropical rainforests have the kind of climate that can be described as hot and wet - it rains throughout the year, and the temperature almost never drops below 15oC. The season never changes; well, almost never. This is conducive for plant growth. Rainforests usually have enormous biodiversity. Along with that, it is also claimed that many of the medicinal plants we know of were first discovered in rainforests. The collection of plant you get to see in a rainforest is quite unique. This is owing to the fact that the set of climatic conditions that persist in tropical rainforests are extremely unusual; known also as equatorial climate. Hence, it is the amount of annual rainfall that controls and affects the flora and fauna the most. Understanding the Climate of Tropical Rainforests The sunlight that hits rainforests is not angular but mostly perpendicular owing to the equatorial location of the forests. This means that the incident sunlight covers less surface area. This makes trees compete with each other for sunlight, making them grow unusually tall. Due to this trend, very little or almost no sunlight reaches the forest floor. This give rise to a huge variety in the vegetation of rainforests. The rainforest floor may be populated with shade loving shrubs, bushes, while evergreen trees dominate most of the forest area. However, this pattern of vegetation has another important consequence - a lot of heat gets trapped under the tall, thick, dense forest cover. The heat causes water to vaporize. Hence rainforests are high on moisture as well. All the trapped heat and moisture in turn causes dead plants and leaf litter to rapidly decay. Hence what happens at a slow rate in other ecological settings is accelerated in the rainforests. The decaying plant material is recycled as nutrient to the other plants. Finally, due to a high degree of moisture, the climate in rainforests is usually humid. There is a constant moisture cover over the forests. This ensures precipitation when the temperatures drop. Common Types of Tropical Rainforest Plants Looking at the climatic conditions persisting in a rainforest might have helped you to predict the kind of vegetation that occurs in a rainforest. The diversity of the rainforest biome is huge, so that almost all kinds of plants are represented in rainforests. Here is more information on the tropical rainforest plant types. General Vegetation Pattern The general vegetation types or vegetation trend in a rainforest is as follows - Emergent trees are to feet tall. They form umbrella-shaped canopies that grow above the canopy of the forest. They have small pointed leaves. A closed canopy of foot tall trees. Light is available at the top and greatly diminished below it. There is high humidity and restricted air movement. Very little light is available. There are litter and wet leaves at the bottom of the forest layer. Types of Plants 1. Broad-leaf trees - these are the most common form of vegetation in a tropical rainforest. The size of the leaves is a kind of adaptation shown by the trees. As very little sunlight reaches the forest, the trees have adapted to maximize the surface area of the leave to absorb as much of sunlight as possible. Vines and Lianas - Lianas are woody creepers. It is claimed that the rainforests are home to more than species of creepers. They use a strong and tall tree as the host plant and ascend up the tree. However, in the process, they strangle the host tree to death as they get stronger and bigger. Epiphytes - Epiphytes also grow on host trees. However, the major difference between a strangler and an epiphyte is that a strangler is still rooted to the forest floor and derives nutrition from the soil. An epiphyte, on the other hand, is a parasitic plant that sends its roots into the host plant to derive nutrients. Saprophytes - Saprophytes are those species that survive on dead decaying matter by deriving nutrition from it. Since the persistent heat and moisture in the rainforests accelerates the decay of dead plant matter, a number of saprophytic plants species are also seen in rainforests. Adaptations in Tropical Rainforest Plants There are certain attributes of tropical vegetation that are different from those of other kinds of vegetation. These are considered as adaptation. One of the most common adaptation is seen in the leaves of tropical plants. As mentioned before, the leaves are broad, with extensive surface area, to maximize photosynthesis. The other

significant adaptation is the waxy coating present on the leaves. It helps the leaves shed off excess of water from their surfaces. The leaves also have structures called drip tips; they also help in getting rid of excess water and improve transpiration. With respect to the roots, most tropical plants have buttress roots. These kind of roots spread wide like a network instead of penetrating deep into the surface. This adaptation is mainly seen because the forest floor is scarce in nutrients. Most of the plant nutrients are concentrated in the top-most soil layer, which is not very thick. The roots, hence, develop horizontally to form a dense network, rather than growing deep under the ground. Tropical rainforest plants usually have large, fleshy fruits that are sweet and quite juicy. Flowers of these plants usually grow directly from the bark. They may have very thin barks having thorns or spines. Common Examples of Tropical Rainforest Plants Some of the tropical rainforest plants are pineapple, pepper, palm tree, orchid, fern, peanut, orange, lemon, coffee, banana and avocado. Tropical rainforests are the lungs of the earth. They are a major source of oxygen. Most of the plant species grow there. Many plants and trees have medicinal uses. For example Quinine is used for the treatment of malaria. Vincristine, extracted from the rainforest plant periwinkle *Vinca rosea* is used for the treatment of Cancer. Trees prevent soil erosion. Tropical rainforests are a gift to mankind. It is important to conserve them for posterity.

3: Ten Amazing Rainforest Plants : Ecorazzi

This tropical rainforest plants list includes flowers with special adaptations, trees with unusual root structures, and many plants that are used by man either for food or to make other goods and products.

Home Aegle marmelos- Rutaceae. It does not thrive in our rain forest climate. Seems to prefer a hotter drier climate. My plants were put in the ground in and have never fruited. Relative of citrus native to India. Grows best in areas with hot summers. Drought tolerant once established. Shrub to small tree with fruit about the size of an orange. Protect young plants from slugs and snails. Care is similar to citrus. Benefits from applications of iron and magnesium. Used in drinks and medicinally. Drought and heat tolerant. Seeds germinate in 1 to 3 weeks at 85 F 30C. My plants are not setting fruit; likely due to our wet climate. I can NOT provide seeds or plants of this species. Easy to grow in Hawaii. We just plant the tops and do very little to work to grow them. Native to lowland tropics in Central America. Small to medium tree with glossy leaves. Well drained soil with organic matter. Large fruits weight 2 to 3 pounds each. Fragrant white flesh with some fibers. Used for juice in Central and South America. Native to Central America. Delicious fruit about 3. The hard thin shell turns almost black when the fruit is ripe. Flesh is sweet, soft and aromatic and delicious; equal to better cherimoyas. Small to medium tree with glossy 6 to 7 inch long leaves. Trees take 4 or 5 years to bear. In the Hilo area fruit typically ripens in the late spring through early summer. Nuts are chewed with the leaves of Piper betel. Has a narcotic effect and stains users teeth red. Popular throughout southeast Asia and the Pacific islands. Plant are fast growing and can reach a maximum height of ft. Dwarf and semi-dwarf forms are available. A dwarf form from Thailand begins to bear fruit when only 4 or 5 ft. Used as a substitute for A. Native to New Guinea. Dark green trunk ringed with white leaf base scars. Reported to grow at a higher elevation. Plants are smaller reaching only about 20 ft. Fertilize several times per year. Composted chicken manure followed by chelated iron and magnesium works well. I apply a thin layer of mulch 3 or 4 times per year. Plants begin to bloom at about 7 to 8 years old. Large seeds are cooked and eaten. Mature fruits are about 6 inches in diameter. Nice nutty flavor similar to fresh boiled peanuts. Young fruits can be cooked and eaten as well. Large attractively lobed leaves like breadfruit trees. Cultivated in warm lowland tropical rain forest throughout the pacific Basin. Growth is fast and trees can begin to bear in 4 to 6 years. Rare in the US. Large tree with fruit reported to be of high quality. Slow growing when young. However, after the plants become established they have a moderate to fast growth rate. At 9 years, the plants are over 30ft. Withstands wind and some drought. Delicious fruits range from 5 to 50 lbs. One of my favorite fruits but a bit messy. I have a dwarf selection that has no latex in the peel and is easy to clean. Fruiting occurs on trunk and main branches. Outdoors in Zones 10 to Native to SE Asia. Large tree with good quality fruit. Culture similar to jakfruit. Growth rate is moderate to fast. It seems to take 6 or 7 years to fruit. Leaves are simple and have a rough texture due to moderate number of hairs on the leaf surface. Young stems have stiff hairs on them. Fruit has a durian like smell. Remove the peel to get rid of the odor. No latex in the peel when ripe. Striking large lobed leaves up to 3 or more feet long. Develops a buttressed trunk. Fruits are about 6 inches long and ripen to bright yellow. Thin rind with soft projections on the surface. Easy to peel and no latex is exuded. The pulp is white, soft and sweet. Native to equatorial lowland rain forest in Indonesia. Growth is slow for the 1st year but once plants reach about 1 ft. Trees seem to grow well on rocky areas with little soil but fruiting may be delayed. Carambola or star fruit. Yellow to orange fruit. Trees can produce in containers. Medium tree with glossy pinnate leaves. Can be pruned and kept in a container easily. Moderate to fast growing in hot weather. Tolerates light frost for brief periods. Medium to large tree native to Sumatra and Java. Grows in lowland rain forest. Seedlings are a bit delicate. But once they are about a foot tall growth becomes faster and plants are more robust. Likes moist rich soil high in organic matter. Growth is much slower on poor rocky soil. Organic fertilizers work well. Supplement with iron and magnesium to maintain deep green foliage and rapid growth. I doubt that this species will tolerate prolonged temperatures below about 50F.

4: Tropical rainforest - Wikipedia

One of the amazing denizens in the Hawaiian forest is the carnivorous caterpillar Eupithecia. Eupithecia is a large genus of moths with over a thousand described species worldwide whose caterpillars feed on plant material.

Amazon River rain forest in Peru Tropical rainforests can be characterized in two words: Tropical rainforests exhibit high levels of biodiversity. Tropical rainforests are among the most threatened ecosystems globally due to large-scale fragmentation as a result of human activity. Habitat fragmentation caused by geological processes such as volcanism and climate change occurred in the past, and have been identified as important drivers of speciation. Tropical rain forests have been subjected to heavy logging and agricultural clearance throughout the 20th century, and the area covered by rainforests around the world is rapidly shrinking. Most tropical rainforests today are on fragments of the Mesozoic era supercontinent of Gondwana. Other types of tropical forest Several biomes may appear similar-to, or merge via ecotones with, tropical rainforest: Moist seasonal tropical forest Daintree "rainforest" in Queensland is actually a seasonal tropical forest. Moist seasonal tropical forests receive high overall rainfall with a warm summer wet season and a cooler winter dry season. Some trees in these forests drop some or all of their leaves during the winter dry season, thus they are sometimes called "tropical mixed forest". They are found in parts of South America, in Central America and around the Caribbean , in coastal West Africa , parts of the Indian subcontinent , and across much of Indochina. Montane rainforests These are found in cooler-climate mountainous areas, becoming known as cloud forests at higher elevations. Forest structure Rainforests are divided into different strata, or layers, with vegetation organized into a vertical pattern from the top of the soil to the canopy. Only the emergent layer is unique to tropical rainforests, while the others are also found in temperate rainforests. Only plants adapted to low light can grow in this region. Away from riverbanks, swamps and clearings, where dense undergrowth is found, the forest floor is relatively clear of vegetation because of the low sunlight penetration. This more open quality permits the easy movement of larger animals such as: The forest floor also contains decaying plant and animal matter, which disappears quickly, because the warm, humid conditions promote rapid decay. Many forms of fungi growing here help decay the animal and plant waste. Understory layer Main article: Understory The understory layer lies between the canopy and the forest floor. The understory is home to a number of birds, small mammals, insects, reptiles, and predators. Examples include leopard *Panthera pardus* , poison dart frogs *Dendrobates* sp. As an adaptation to these low light levels, understory plants have often evolved much larger leaves. Many seedlings that will grow to the canopy level are in the understory. Canopy ecology The canopy is the primary layer of the forest forming a roof over the two remaining layers. It contains the majority of the largest trees, typically 30–45 m in height. Tall, broad-leaved evergreen trees are the dominant plants. The densest areas of biodiversity are found in the forest canopy, as it often supports a rich flora of epiphytes , including orchids, bromeliads, mosses and lichens. These epiphytic plants attach to trunks and branches and obtain water and minerals from rain and debris that collects on the supporting plants. The fauna is similar to that found in the emergent layer, but more diverse. It is suggested that the total arthropod species richness of the tropical canopy might be as high as 20 million. *Balizia elegans* , *Dipteryx panamensis* , *Hieronyma alchorneoides* , *Hymenolobium mesoamericanum* , *Lecythis ampla* and *Terminalia oblonga*. Several unique faunal species inhabit this layer such as the crowned eagle *Stephanoaetus coronatus* , the king colobus *Colobus polykomos* , and the large flying fox *Pteropus vampyrus*. Rainforests are dynamic and many changes affect the structure of the forest. Emergent or canopy trees collapse, for example, causing gaps to form. Openings in the forest canopy are widely recognized as important for the establishment and growth of rainforest trees. In general, climatic patterns consist of warm temperatures and high annual rainfall. However, the abundance of rainfall changes throughout the year creating distinct moist and dry seasons. Tropical forests are classified by the amount of rainfall received each year, which has allowed ecologists to define differences in these forests that look so similar in structure. However, most lowland tropical forests can be classified as tropical moist or wet forests, which differ in regards to rainfall. Tropical forest ecology- dynamics, composition, and function- are sensitive to changes in climate especially changes in rainfall. Soils throughout

the tropical rainforests fall into two classifications which include the ultisols and oxisols. Ultisols are known as well weathered, acidic red clay soils, deficient in major nutrients such as calcium and potassium. Similarly, oxisols are acidic, old, typically reddish, highly weathered and leached, however are well drained compared to ultisols. The clay content of ultisols is high, making it difficult for water to penetrate and flow through. The reddish color of both soils is the result of heavy heat and moisture forming oxides of iron and aluminium, which are insoluble in water and not taken up readily by plants. Soil chemical and physical characteristics are strongly related to above ground productivity and forest structure and dynamics. The physical properties of soil control the tree turnover rates whereas chemical properties such as available nitrogen and phosphorus control forest growth rates. Primary productivity or wood production is highest in western Amazon and lowest in eastern Amazon which contains heavily weathered soils classified as oxisols. However, not all tropical rainforests occur on nutrient poor soils, but on nutrient rich floodplains and volcanic soils located in the Andean foothills, and volcanic areas of Southeast Asia, Africa, and Central America. Rapid bacterial decay prevents the accumulation of humus. The concentration of iron and aluminium oxides by the laterization process gives the oxisols a bright red color and sometimes produces minable deposits e. On younger substrates, especially of volcanic origin, tropical soils may be quite fertile. Nutrient recycling This high rate of decomposition is the result of phosphorus levels in the soils, precipitation, high temperatures and the extensive microorganism communities. Nutrient recycling is important because below ground resource availability controls the above ground biomass and community structure of tropical rainforests. These soils are typically phosphorus limited, which inhibits net primary productivity or the uptake of carbon. During the decomposition process the microbial community is respiring, taking up oxygen and releasing carbon dioxide. The decomposition rate can be evaluated by measuring the uptake of oxygen. The seasonal patterns in respiration are controlled by leaf litter fall and precipitation, the driving force moving the decomposable carbon from the litter to the soil. Respiration rates are highest early in the wet season because the recent dry season results in a large percentage of leaf litter and thus a higher percentage of organic matter being leached into the soil. Instead of penetrating to deeper soil layers, buttress roots create a widespread root network at the surface for more efficient uptake of nutrients in a very nutrient poor and competitive environment. Most of the nutrients within the soil of a tropical rainforest occur near the surface because of the rapid turnover time and decomposition of organisms and leaves. These roots also aid in water uptake and storage, increase surface area for gas exchange, and collect leaf litter for added nutrition. Also, the large surface areas these roots create provide support and stability to rainforests trees, which commonly grow to significant heights. This added stability allows these trees to withstand the impacts of severe storms, thus reducing the occurrence of fallen trees. The initial disturbance is often a natural phenomenon or human caused event. Natural disturbances include hurricanes, volcanic eruptions, river movements or an event as small as a fallen tree that creates gaps in the forest. In tropical rainforests, these same natural disturbances have been well documented in the fossil record, and are credited with encouraging speciation and endemism. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. November Young orangutan at Bukit Lawang , Sumatra Tropical rainforests exhibit a vast diversity in plant and animal species. The root for this remarkable speciation has been a query of scientists and ecologists for years. A number of theories have been developed for why and how the tropics can be so diverse. Interspecific competition Interspecific competition results from a high density of species with similar niches in the tropics and limited resources available. Species which "lose" the competition may either become extinct or find a new niche. Direct competition will often lead to one species dominating another by some advantage, ultimately driving it to extinction. Niche partitioning is the other option for a species. This is the separation and rationing of necessary resources by utilizing different habitats, food sources, cover or general behavioral differences. A species with similar food items but different feeding times is an example of niche partitioning. Haffer proposed the explanation for speciation was the product of rainforest patches being separated by stretches of non forest vegetation during the last glacial period. He called these patches of rainforest areas refuges and within these patches allopatric speciation occurred. With the end of the glacial period and increase in atmospheric humidity, rainforest began to expand and the refuges reconnected. Scientists are still skeptical of whether or

not this theory is legitimate. Genetic evidence suggests speciation had occurred in certain taxa 1â€”2 million years ago, preceding the Pleistocene. Some groups of hunter-gatherers have exploited rainforest on a seasonal basis but dwelt primarily in adjacent savanna and open forest environments where food is much more abundant. Other people described as rainforest dwellers are hunter-gatherers who subsist in large part by trading high value forest products such as hides, feathers, and honey with agricultural people living outside the forest. Indigenous peoples Members of an uncontacted tribe encountered in the Brazilian state of Acre in A variety of indigenous people live within the rainforest as hunter-gatherers, or subsist as part-time small scale farmers supplemented in large part by trading high-value forest products such as hides, feathers, and honey with agricultural people living outside the forest. With this addition, Brazil has now overtaken the island of New Guinea as the country having the largest number of uncontacted tribes. The traditional agricultural system practiced by tribes in the Amazon is based on swidden cultivation also known as slash-and-burn or shifting cultivation and is considered a relatively benign disturbance. For example, the use of shade trees and fallowing all help preserve soil organic matter, which is a critical factor in the maintenance of soil fertility in the deeply weathered and leached soils common in the Amazon. The Dayaks are a particularly interesting group as they are noted for their traditional headhunting culture. Fresh human heads were required to perform certain rituals such as the Iban "kenyalang" and the Kenyah "mamat". Resources Cultivated foods and spices Yam , coffee , chocolate , banana , mango , papaya , macadamia , avocado , and sugarcane all originally came from tropical rainforest and are still mostly grown on plantations in regions that were formerly primary forest. In the mid and s, 40 million tons of bananas were consumed worldwide each year, along with 13 million tons of mango. Much of the genetic variation used in evading the damage caused by new pests is still derived from resistant wild stock. Tropical forests have supplied cultivated kinds of fruit , compared to only 20 for temperate forests. Forests in New Guinea alone contain tree species with edible fruits, of which only 43 had been established as cultivated crops by

5: Plants and Creatures of Hawai'i - InstantHawaii

One of the amazing things to see in the Hawaiian biota are the spectacular flowers of Lobelia gaudichaudii. Lobelia gaudichaudii is endemic to the Koē»olau Mountains of OĒ»ahu and is known as the Koē»olau Range Lobelia or Gaudichaud's Lobelia.

Map of Hawaii Although not specified on this map, tropical moist forests are located in lowland, mountainous areas of large islands and on mountaintops of some of the smaller islands Gon and Olson. Spacial system is regional. Ecosystem Description The tropical rainforests of Hawaii exist in the elevated, mountainous regions of Hawaii and are characterized by expansive tree canopies and extreme amounts of moisture. Although Hawaii is usually connoted with the picturesque image of tall, green forests, Hawaiian rainforests are also host to swamps and bogs Gon and Olson. Additionally, the Hawaiian tropical rainforest is home to an abundance of plant and animal species diversity, a majority of which are also endemic. The Hawaiian tropical moist forest possesses such a unique medley of species variety that can only be found in these areas. The high concentration of different plant and animal species in this single area make for a much more interesting ecosystem to study than say, the arctic biome, whose vast amounts of ice and little else lacks the excitement of a densely packed biodiversity hotspot. Because of this, species diversity and endemism flourished, especially in the case of forest birds. For many birds, eg. For example, the arrival of mosquitos to the rainforest spurred on a strain of avian malaria that Hawaiian honeycreepers were not adapted against, and so the virus became a significant contribution to the extinction of many honeycreeper species Benning, LaPointe, Atkinson, Vitousek. Today, while the Hawaiian tropical rainforest maintains its title as one of the most biodiverse places on Earth, it is under massive threat by human expansion and much of the wildlife is currently endangered. Yet since the onset of human arrival, 1, years ago, their history has largely been one of loss and destruction Timmons. The worst damage occurred during the 19th century, when cattle and other introduced livestock were allowed to multiply and range unchecked throughout the islands, laying waste to hundreds of thousands of acres of native forest Timmons. Today, the Hawaiian rainforests is threatened by invasive species and development, such as geothermal energy development. Because less light reaches lower forest levels, native understory plants are suppressed Asner. Introduced trees can also pave the way for more invaders by altering soil fertility. The Moluccan albizia Falcataria moluccana fixes atmospheric nitrogen, concentrating it in the soil, which speeds the growth of a smaller invasive tree, the Strawberry Guava Psidium cattleianum. For the rainforests on the Hawaiian Island, feral pigs are an invasive species because they eat massive amounts of vegetation, leading to native plant extinction. Through their tracks, they also accelerate soil erosion and soil compaction, spread weeds in their droppings, and pollute the water supply with eroded silt, feces, and foreign diseases Timmons. While only about one percent acres of the rain forest will be directly destroyed bulldozing, the rest will be fragmented by a network of roads, pipes, and power lines, making the forest more vulnerable to invasion of harmful non-native species Faulstich. How to improve human impacts The first step in improving Hawaiian rainforest is removing the invasive species. Feral pig removal is an important first step in a restoration of native rainforest because forest plant recovery depends on the favorable condition of soil, preventing native plants to thrive where pigs are grazing and rooting. Tep and Gaines Through it, forested areas will hopefully reserve the degradation of soil and allow the native species to return Vtorov. Fencing and snaring, the main control method used on the Hawaiian Islands, provides the most effective method of managing feral pig population because they limit its dispersal as well as remove a large number of pigs Tep and Gaines. In addition, invasive plant species can spread across protected areas without the help of land use changes or other human activities Asner. Thus, prevention, that is stopping invasive species before they get to the Hawaiian tropical rainforests or before they spread, is the most cost-effective means of invasive species control Timmons. Other ways to help reduce human impact include supporting watershed protection and reforestation of native species. Individuals can help protect the rainforest by volunteering, picking up your trash, avoid releasing animals or introducing non-native species, conserve water, and keep fires out of forests Timmons.

6: Rainforest Biome - Tropical Rainforest Plants

Images of plants in Hawaii, by Forest & Kim Starr. Free to use with attribution.

The current article you are reading does not reflect the views of the current editors and contributors of the new Ecorazzi. Our surroundings are sometimes taken for granted. Even something as unique as the rainforest is forgotten. It seems a little bit of knowledge and a shove in the right direction can get people to appreciate the environment. So, why not start with the wonder that is the rainforest? They are also found on every continent, except Antarctica. Out of 40, plant species, here are 10 amazing rainforest plants that will blow your mind and get you reacquainted with our planet. Even though they grow on trees, bananas are not trees, but giant herbs. After a year, they reach their full height of anywhere between 10 and 20 feet. The blossoms eventually bloom into a fruit, where they then ripen and are used for sustenance. Banana stems can weigh nearly pounds and are about 93 percent water. Orchid Known for their beauty, orchids are the largest family of plants in the world. The species varies greatly in weight and size with some petals getting as long as 30 inches, and flowers growing up to 14 feet long. They also come in every color, except black. They grow on rocks, in the soil, underground and on other plants and trees, all while relying on certain insects or birds for pollination. Extremely adaptable and grows in most climates with the majority being found in Central America, South America and in countries along the Andes Mountains. Ugh, that would be awful. Well you can thank the coffee plant of the rainforest for your jolt of caffeine every day. It can grow as tall as 30 feet, but is considered a bush or shrub. From the picture they look like grapes, but those are berries containing two coffee beans inside. It takes an amazing six to eight years for the plant to be in full production and coffee plants can live up to years old. Prefers high altitudes for shade with a wet and dry season. Originated in Ethiopia and Sudan and now more than two-thirds grow in Latin America. Brazil Nut Tree Towering above all the other trees in the Amazon Rainforest, the Brazil nut tree can reach over feet. Known for its production of the Brazil nut, these delectable delights are produced inside fruit the size of a baseball and can weigh up to five pounds. The exterior layer of the fruit is so hard only the agoutis, a large rodent with sharp teeth, can break it open. The tree relies on the agoutis, bees and other rainforest plants for survival. Imagine if these species disappeared!

Poinsettia The poinsettia is mostly seen around Christmastime in the United States. This beautiful plant actually grows in the rainforest in the form of a bush or tree. One would think the colorful part of the plant is the petals, but they are actually the leaves. The flowers are the small, yellow stalks in the middle of the leaves. The poinsettia comes in red, white, pink and bicolor. Also, to clear up rumors, they are not poisonous, even though some believe this is so. Native to the tropical forests in Mexico and Central America.

The cacao tree is an evergreen, which grows a pod containing 20 to 60 reddish-brown cocoa beans. When harvested, it takes anywhere from seven to 14 pods to produce one pound of dry cocoa beans, which is turned into delicious chocolate. Grows below altitudes of 1, feet in an area that receives about 4 inches of rain per month, originated in the lowland rainforests of Amazon River basins and can now be found in southern Mexico.

Rubber Tree Reaching as high as feet, the rubber tree is recognized for its milky white sap, or commonly called latex. Yes, the rubber tree is used to make rubber. Who would have thought? Sometimes called rubberwood, the tree is tapped for latex at six-years-old and reproduces by scattering its seeds as far as feet from itself.

Heliconia This colorful plant has 40 different species with paddle-shaped leaves that are part of the banana family. In addition to being called heliconia, it is also referred to as lobster claws or parrot flowers. Butterflies also enjoy the sweet nectar.

Sapodilla This strong, wind-resistant tree has an extensive root system and a famous bark that contains a white, gummy sap called chicle. The egg-shaped fruit contains a grainy yellow fruit inside that when eaten tastes like a pear. Considered the best fruit in Central America, even rainforest mammals, like howler monkeys, find the fruit delicious. The first chewing gum was even created from the sapodilla by the Mayans and Aztecs! Native to southern Mexico, Belize and northeastern Guatemala.

Bromeliads contain more than 2, species that grow on the ground, on rocks and on other plants and rocks. These beautiful plants have bright colored flowers ranging from reds to oranges to purples and to blues. One of the most common bromeliad is a sweet, wondrous fruit. One species is also found in western Africa. Imagine living without

bananas, chocolate and beautiful orchids and poinsettias. Now, that would be disappointing. Want some more amazing rainforest galleries?

7: Tropical House Plants - Pictures

Plant Overview. Hawai'i is the most isolated land mass on the planet. At 2,000 miles from any other land, it has developed a unique and fragile ecosystem with over 3,000 native species of plants and animals, many of which are endangered or near extinction.

September 28 to October 3, Abstract Hawaii has lost much of one of the few tropical forests in the United States to conversion for agriculture and has become the "endangered species capital" of the country. Remaining native forests face an onslaught of invasive alien weeds. Recently, galvanized by the knowledge of what stands to be lost and a new environmental ethic, private landowners as well as government agencies have been working to restore native Hawaiian forests. Restoration efforts have ranged from small gardens located in urban areas to hundreds of acres of former ranch lands. Some are aimed at restoration of as close to natural plant communities as possible, while others, particularly on private lands, consider possibilities of harvesting timber or non-timber forest products. Other projects include use of herbicides to control alien weeds in forests and natural areas, use of mycorrhizal inoculation for native plants, and the propagation of native Hawaiian species. In addition to conferences workshops, and field days, Cooperative Extension makes as much material as possible web-based to reach a wide audience spread out on different islands and across the Pacific. Traditional land grant colleges have a unique strengths in combining research and outreach. Research and programs which have focused on traditional production agriculture for generations are now taking up new challenges in the much broader field of ecosystem management. Dry alpine forests and snow on Mauna Loa Akaka Falls Hawaii is the most geographically isolated set of islands on the globe. Originating from a few pioneer species which drifted to Hawaii on the ocean currents, the wind, or the backs of migrating sea birds, the Hawaiian flora has evolved hundreds of unique native species. Diverse native forests exist in wet areas that receive over mm of annual rainfall, in dry areas that get only mm, and in cool alpine areas of over m elevation. Some forests in leeward and coastal areas were cleared for agriculture by the original Polynesian settlers who arrived from the South Pacific around CE Juvik and Juvik Much more damaging to native ecosystems was the arrival of Western settlement and agriculture in the 19th and 20th centuries. Vast areas of lowland forest were cleared for sugar cane and pineapple plantations, while upland areas were grazed by imported cattle, sheep, and goats. Native forests cleared for development Along with the loss of natural areas has come a wave of extinctions. Dryland forest above Kona Fountain grass, an alien weed The threat to Hawaiian forests today is less from outright clearing than from depredations of feral domestic animals and invasions of aggressive alien weeds. Wild cattle, sheep, and goats graze native vegetation in the mountains and feral pigs uproot and destroy rare native plants in wet forests and spread the seeds of weedy species. Hawaiian plants are particularly vulnerable to damage from feral animals because they evolved in the absence of large herbivores and in doing so lost most of their natural defenses. Hawaii forests include mints without mint, nettles without stings, greenbriar without thorns, and raspberry without prickles. The native plant ecosystems, composed of accidental introductions and locally evolved species, also are not resistant to invasions of aggressive alien weeds which are often faster growing, more shade tolerant, or dispersed more readily than native species. Many of the trees and plants introduced in the past for ornamental, agricultural, or forestry use have escaped and become serious pests of native ecosystems. Plantation of tropical ash Native forest invaded by alien kahili ginger Pig damage on a native tree fern Cow grazing in native forest What is being done? Largely beginning in the s, private landowners have undertaken protecting indigenous plants and restoration of native forests, on scales ranging from small urban gardens to tens of thousands of acres. In a recent needs assessment of clients of the University of Hawaii forestry extension program, information on native forest restoration came out at the top of the list. Kamehameha Schools is a private foundation dedicated to funding education for Hawaiian students. Their lands are used both for income generation and as outdoor classrooms for their students. Acacia koa is the largest tree in the Hawaiian forest and one of the most valuable timbers in the world. The koa forest is the habitat for a number of endangered birds and plants. Koa wood has historically been undervalued, however, and large areas that were once koa forest were cleared for ranching in the past two centuries. At

Keauhou Ranch, Kamehameha Schools began setting aside portions of the land for reforestation in the late s. Koa regenerates prolifically from buried seed in old pastures after soil scarification, but little is known about how to manage the resulting dense stands Grace , Pearson and Vitousek Thinning dense stands of koa In a cooperative effort of the University of Hawaii, the USDA Forest Service Institute of Pacific Islands Forestry , and the Hawaii Agriculture Research Center, we are investigating whether middle-aged 25 year old koa trees respond to thinning, fertilization, and release from weed competition. A similar project is being carried out by The Nature Conservancy and the Forest Service on the other side of the island. Our research plots have also served as demonstration sites for field days for other landowners around the state. Because the profitability of ranching, never great, has declined in recent years, private landowners around the state are looking into reforestation as a possible alternative land use. While most would like to grow native trees, they also require some promise of income from the land. If our thinning and fertilization trials are successful, the techniques developed could be applied to help reforest tens of thousands of acres of marginal ranch lands. Koa seedling Koa field day at Keauhou Another area where the University is aiding in forest restoration is in the working out of techniques for mycorrhizal inoculation of native tree seedlings. Research has established that some major Hawaiian forest species such as the legumes koa and mamane *Sophora chrysophylla* are strongly mycorrhizal Miyasaka et al. Growers from both public and private nurseries have attended extension workshops on the use of mycorrhizal inoculants for growing native trees. Techniques for mycorrhizal inoculation of seedlings developed at the University Habte and Osorio ; Miyasaka et al. Land grant colleges have traditionally worked on weed control for pastures and agricultural areas. In Hawaii, restoration of native ecosystems always entails combating alien weeds. Weed control techniques developed for range lands also serve well in restoring and maintaining natural areas Motooka et al. Low-volume, high concentration applications of woody plant-specific herbicides have proven effective in controlling weedy tree species in wet forests. Timely application of grass-specific herbicides coupled with mechanical control has been effective in controlling alien grasses in dryland forests and thus reducing the risk of wildfires. Workers from state and federal land management agencies, along with those from private landowners such as The Nature Conservancy, have been eager participants in workshops on weed control. In the past year Cooperative Extension has published two books on methods of herbicidal weed control for natural areas and on weeds of natural areas and how to identify them Motooka et al. Almost all ornamental plants used in the landscape trade are exotic, and one sees the same street trees in Honolulu as in Puerto Rico or Manila. A series of very popular workshops held by the Cooperative Extension Service and horticulturists from the University has focused on Native Plants in Public Places. The aim of the workshops was to introduce arborists and landscape designers to native Hawaiian plants and promote their use so that both local people and visitors begin to recognize and appreciate them. Horticulturists with the UH Cooperative Extension Service and 4H programs have also been educating the public through creation of native plant gardens in urban areas. While a dozens of native species have been brought into cultivation, many of these require specialized techniques to germinate and culture. Extension leaflets on growing native plants have been written and are available to the public for purchase and on our website Hollyer ; Bornhorst and Rauch Nationwide, Cooperative Extension has seen its role expand from promoting production of timber and agricultural commodities to encompass stewardship of the environment. In Hawaii, the most important challenge in natural resources is protecting and restoring native ecosystems. Much of the knowledge and many of the methods traditionally used in agricultural and forestry science are also useful in practicing biological conservation. Most of the biologists who are responsible for managing conservation programs, however, come from pure research backgrounds rather than agriculture or forestry. Although their work often requires interacting with the public, they may not understand or value the role of research-based extension as exists in the land-grant system. Extension programs at land grant colleges have a lot to share. Native Hawaiian plants for landscaping, conservation, and reforestation. *Ornamentals and Flowers* series no. Habte, M, and NW Osorio. *Producing and Applying Arbuscular Mycorrhizal Inoculum*. *Growing Plants for Hawaiian Lei: Atlas of Hawaii*, Third Ed. *Manual on arbuscular mycorrhizal fungus production and inoculation techniques*. *Soil and Crop Management* series no. *Mycorrhizal dependency of two Hawaiian endemic tree species*. *Plant Nutrition* 16 7: *An Identification and Management Guide*. *Herbicidal*

weed control methods for pastures and natural areas of Hawaii. Weed Control series no. Stand dynamics, nitrogen accumulation, and symbiotic nitrogen fixation in regenerating stands of *Acacia koa*. Ecological Applications 11 5: Manual of the Flowering Plants of Hawaii, revised edition.

8: List of Tropical Forest Animals

Hawaiian moist forest is the main habitat for other forest birds including the Hawaiian hawk, Hawaiian crow, Hawaiian honeyeaters (now extinct), and Hawaiian thrushes. This ecoregion was the center for adaptive radiation in honeycreepers, many plant species, Hawaiian Drosophila, and other invertebrates.

9: Hawaiian Forest | Photography by Nathan Yuen

The Hawaiian tropical rainforests are a tropical moist broadleaf forest ecoregion in the Hawaiian www.enganchecubano.com cover an area of 6, km² (2, sq mi) in the windward lowlands and montane regions of the islands.

Prison reform ethos and changing labor and job queues for women COs Mammography audit. State of Montana, Montana Historical Society Fascinating animals Midscale analysis of streamside characteristics in the upper Grande Ronde subbasin, northeastern Oregon Life and extraordinary adventures of Private Ivan Chonkin Self confidence and trust Agricultural finance in India The art of focused conversation Large Sitting Armadillo Character International Law on the Left Two treatises: the first of fear . The second, The righteous mans refuge in the evil day . Closing the Gender Gap Charm Club Bind-up (Charm Club) Patented American sawsets My basket of fruit (My basket of-) The Knickerbockers address to the Stuyvesant pear tree Investment : the context matters Healing Through Deliverance 1 (Healing Through Deliverance) Story of the Grand Bazaar Netties Spaghetti All in the nights work. The silent art Lucy R. Lippard Margarets influence Programming the finite element method 5th edition Fluke 434 series ii energy analyzer Celt and Saxon, The The Professional Solo Pianist Acls provider manual professional Faces of two worlds Evidence of geometry in Indus Valley civilization, 2500-1500 B.C. Surgical Pathology of the Breast No chariot let down Abnormal psychology the science and treatment of psychological disorders Remoter rural areas of Britain West Points Scientific 200 Dangerous Providence Celebrate Your Creative Self A clear demonstration of a righteous and ungodly man, in their frame, way and end. From the middlegame into the endgame