A Plant Hunter's Paradise
Angel Falls • Churún Vena • Salto Angel
and
Auyántepui

Edition II

Karen Angel, Editor
Jimmie Angel Historical Project

***Dimorphandra macrostachya* Benth** **Angel Falls • Churún Vena • Salto Angel**
Photo: Patrick Edwards, 2 July 2012

INDEX

Page

2: Index
3: Introduction
4: Climate Zone - Venezuela
4: South of the Orinoco
5: Gondwanaland & South American Tepuis
6: Climate Zone - Humboldt County
6: Climate Zone Comparison
7: Expedition Members
8: Expedition Team
14: Map of Expedition Camps
14: Expedition Schedule
16: Auyántepui
17: Native Venezuela Botanicals, Canaima National Park
43: Pemón Personal Adornments, Baskets and Structures: Canaima National Park
51: Botanicals Consumed and a few Zoological Specimens
51: List of Plants Consumed
55: Arepas – A History by Venezuelan Jorge M. González
76: Native Venezuelan Plants seen in Venezuelan City Gardens
87: Non-Native (AKA Exotics) Plants Seen in Canaima National Park, Caracas & Ciudad Bolívar Gardens
99: Editor & Jimmie Angel Historical Project
99: Sources - Photographs
100: Sources – Plant & Insect Identification
100: References

MAPS

Page

3: Venezuela, State of Bolívar & Canaima National Park
5: Gondwanaland & South American Tepuis
6: Humboldt County, California & USA
14: Expedition Camps
16: Auyántepui
53: World Maize/Corn Production
87: Mediterranean Climate Regions of the World

INTRODUCTION

A Plant Hunter's Paradise - Angel Falls • Churún Vena • Salto Angel and Auyántepui focuses on the botanical aspects of the 28 June to 6 July 2012 "Tribute to Jimmie Angel Expedition" in Canaima National Park, State of Bolívar, Venezuela. The expedition was organized by Paul Graham Stanley of Angel-Eco Tours, Caracas, Venezuela and Karen Angel of the Jimmie Angel Historical Project, Eureka, California, USA.

Edition II is an expanded photographic survey of the plants seen in Canaima National Park, Caracas and Ciudad Bolívar. Like Edition I, it is not intended to be inclusive. Corrections to Edition I have been made in Edition II and more botanicals have been included. Comments and corrections are always welcomed by the Editor. The sections titled *Native Venezuela Botanicals, Canaima National Park* (Pages 17-42) and *Botanicals Consumed and a Few Zoological Specimens* (Pages 51-75) were identified by Venezuelans Jorge M. González, an entomologist, in consultation with his botanist colleagues Balentina Milano, Angel Fernandez and Francisco Delascio. In a few cases, the Photographs provided to the scientists were insufficient for a definitive identification; in these cases the identifications are "informed" based on insufficient information. Jorge M. González also assisted with a new section titled *Personal Adornments, Baskets & Structure: Canaima National Park* (Pages 43-50).

MAP OF VENEZUELA, STATE OF BOLÍVAR & CANAIMA NATIONAL PARK

Map Source: Canaima Parque Nacional

CLIMATE ZONE - VENEZUELA

Venezuela: There are many climate variations because of certain factors such as topography, altitude and the intensity and direction of prevailing winds. Thus Venezuela climate ranges from alpine to tropical humid, even though the country is located completely within the tropical temperate zone. The rainy season in Venezuela is from May to October, while the dry season extends from December to April. The climate is pleasant round the year, with the temperature remaining at an average of 86°F (30°C). There is not much fluctuation in the annual temperatures in Venezuela, but humidity makes some difference to it. The climate in Venezuela is separated into four temperate zones:

1. The climate of Venezuela falls under the tropical zone below 2,635 ft. (800 meters) where the average temperature remains between 79 - 86°F (26 - 28 °C).

2. The climatic zone in Venezuela between 656 - 2.625 ft. (200 - 800 meters) is known as the temperate zone in which, the average temperature remains between 54 - 77°F (12 - 25 °C). Most of the cities of Venezuela lie in this zone.

3. At altitudes 6,562 – 9,843 ft. (2000 - 3000 meters) the climate gets colder, with the average temperature ranging from 48 - 52°F (9 - 11 °C).

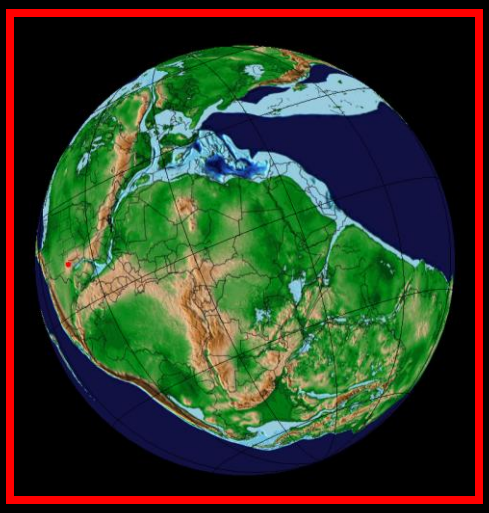
4. In the high mountainous region above 9,843 ft. (3000 meters), snow fields and grasslands are found. The average temperature here falls below 46°F (8°C).

Source: www.mapsofworld.com

South of the Orinoco River: *"This is a large region covered by the Guyana Shield, one of the oldest (1,500,000,000 years) geologic formations. Towards the (eastern) border with Guyana, the predominant vegetation is savanna, with deciduous forest which alternates with mesophyll forests in the lower areas as well as south in the area that borders with Brazil. Here is also found the Gran Savanna, or plains located above 1,000 metres. A characteristic geologic formation of the ecozone are the flat-topped table mountains known as "tepuys", which rise to heights of 1,300-3,000 metres and are frequently covered by a diversity of forest formations. Throughout the ecozone the vegetation tends to be exuberant despite the poverty of the soils, and plant biodiversity is very high. It is estimated that it includes over 9,000 species of trees, shrubs and herbs. Despite its size, the region is unimportant from an agricultural point of view, but mineral resources are important (e.g., bauxite), as is ecotourism."*

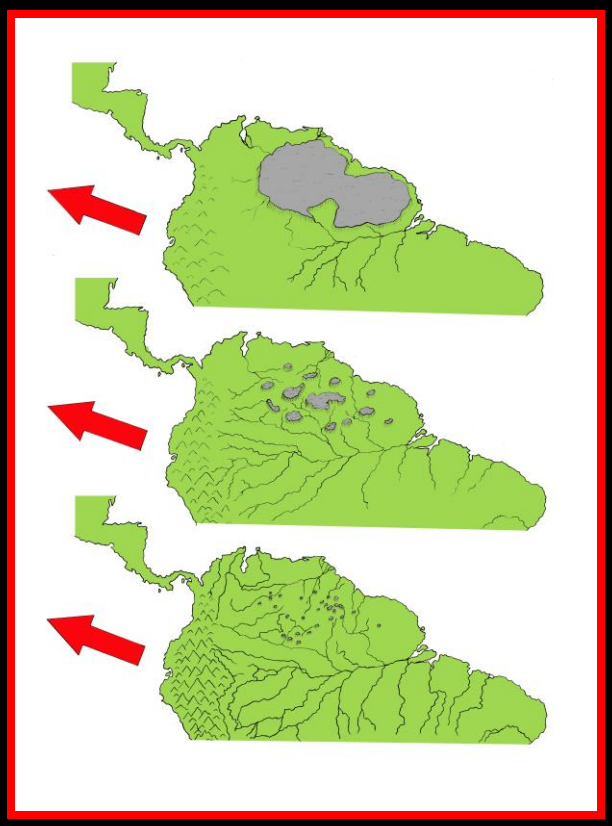
Dr. Raul R. Vera, former Senior Scientist and Leader of the Tropical Pastures Program, International Centre of Tropical Agriculture (CIAT) based in Cali, Colombia.

GONDWANALAND



Gondwanaland was composed of South America, Africa, Antarctica, Australia, Madagascar, India and New Zealand. It started breaking apart about 200,000 million years ago to form the land structures of today. **Gondwanaland World Map Source: C. R. Scotese, PALEOMAP Project, 2012**

SOUTH AMERICAN TEPUIS

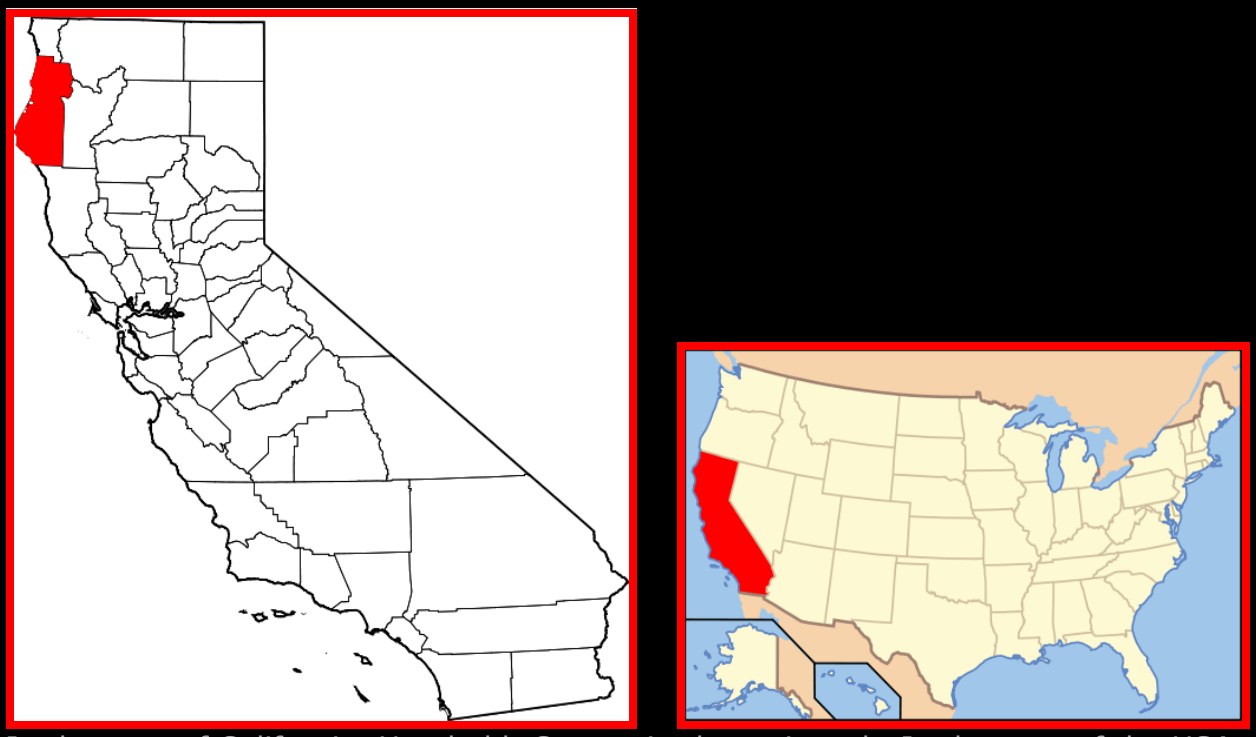


The uplifted Guiana Shield erosion begins to form the Tepuis of today.
South America & Tepuis Map Source:
Stewart McPherson, *Lost Worlds of the Guina Highlands,* 2008

CLIMATE ZONE – HUMBOLDT COUNTY

Humboldt County, California, USA: Editor Karen Angel lives in the small City of Eureka, Humboldt County, coastal Northern California. She uses her home region as a standard for comparison for the adaptability of the plants presented in Edition II to other climate zones. Humboldt County is in USDA Hardiness Zone 9b: 25°F (-3.9°C) to 30° F (-1.1°C). Because the USDA's zones, adopted internationally, only reflect minimum temperatures, many home gardeners prefer *Sunset's* Zones which reflect minimum and maximum temperatures. Many of the plants seen in Venezuela are found in Humboldt County's *Sunset's* Zone 15-17 (SZ15-17) coastal gardens. SZ15-17 refers to oceanside Northern and Central California and southernmost Oregon. The growing season is late February to early December. Coolness and fog are hallmarks; summer highs seldom top 75°F (24°C), while winter lows run from 23 to 36°F (-5 to 2°C). Heat-loving plants disappoint or dwindle here.

MAP OF HUMBOLDT COUNTY, CALIFORNIA & USA



In the map of California, Humboldt County is shown in red. In the map of the USA, California is shown in red. **Map Source: Wikimedia Commons**

CLIMATE ZONE COMPARISON

Venezuela's temperate zone 54-77°F (12-25C°) is similar to Humboldt County's *Sunset's* Zone 15-17 summer 75°F high (23C°). Most Venezuelan cities including Caracas, Ciudad Bolivar and Maracaibo are located in its temperate zone. The annual average Caracas precipitation is 29.5 inches (750 mm) while Humboldt County's annual average precipitation is 39 inches (990.6 mm).

EXPEDITION MEMBERS

The core group of fifthteen expedition members with Angel Falls in the background.
Photo: Paul Stanley's camera, 4 July 2012

Left to right
Paul Stanley, Caracas, Venezuela
Lawrence Eitzen, Freshwater CA, USA
Colleen Edwards, Auckland, New Zealand
Steven Allen, Eureka CA, USA
Patrick Edwards, Auckland New Zealand
Kitch Eitzen, Freshwater CA, USA
Bruce Amundson, Seattle WA, USA
Karen Angel, Eureka CA, USA
William Peden, Mill Valley CA, USA
Maia Nero, Brooklyn Heights NY, USA
Stephen Davidson, Bayside CA, USA
Kevin Rowland, Seattle WA, USA
John Holl, Silver Springs MD, USA
Robert Allen, New Orleans LA, USA
Alan Mason, Eureka CA, USA is not in the photo, see Page 13

EXPEDITION TEAM

Many people helped to make the 2012 "Tribute to Jimmie Angel Expedition" a success.

Marianela Camacho and Benjamin Rodriguez were with us from June 28th to July 1st. Marianela of Universidad del Zulia, Maracaibo-Venezuela, is a volunteer with Paul Stanley's Venezuela based Fundacion Etnika. Benjamin of Osprey Expeditions is Paul Stanley's tour business partner.

Left: Marianela Camacho, Kavac. Right: Benjamin Rodriguez, Yurwan Canyon.
Photo: (l) Paul Stanley, 30 June 2012, Photo: (r) Patrick Edwards, 29 June 2012

Vittorio Assandria, expert pilot and Auyántepui exploration historian, provided air transport in his beautiful airplane, (registration #YV1666) for Paul Stanley, Karen Angel and Maia Nero from Caracas to Uruyén and for Marianela Camacho and Benjamin Rodriguez from Kavac to Caracas. Vittorio has led two Auyántepui Expeditions and produced books about each: *El camino del Angel* (Jimmie Angel) and *El Camino del Laime* (Alejandro Laime). Vittorio hosted the expedition members in his beautiful churuata in Uruyén the evening of 29 June with fine French wines, cheeses and breads.

Vittorio Assandria's Uruyén churuatas.
Photo: Karen Angel 30 June 2012

Benjamin Rodriguez, Pilot Vittorio Assandria and Marianela Camacho departing Kavac. **Photo: Marianela Camacho's camera, 1 July 2012**

The excellent Pemón guides Clemente Lambos and Arturo Berti were with the expedition every minute of the land and water journey from arrival at Uruyén in Canaima National Park to departure from the Gustavo Heny Airport at Canaima Lagoon.

Left: Guide Clemente Lambos. Right: Guide Arturo Berti.
Photo: (l) Steve Allen, 29 June 2012, Photo: (r) Marianela Camacho, 29 June 2012

Eulalia Sandoval was the Head Camp Cook during the river journey to Angel Falls. She is a member of the Sandoval Family who own the *Campamento Pemón* lodge in Kavac where the expedition dined and some expedition members stayed.

Eulalia Sandoval on the Rio Churún.
Photo: Paul Stanley, 1 July 2012

Los Indios Kamarakotos

Paul Stanley gave Señora Sandoval (right) a copy of G. G. Simpson's 1939 ***Los Indios Kamarakotos,*** a cultural study of the Kamarata Valley Pemón. Simpson, affiliated with the American Museum of Natural History, NYC, was with Venezuela's 1939 Gran Sabana Expedition. Jimmie Angel was the expedition's pilot-guide.

In 2010, Angel Conservation, founded by Paul Stanley, republished the book in Spanish. The book is given to the Pemón and schools, and available other interested parties.

Photo: (r) Karen Angel, 1 July 2012

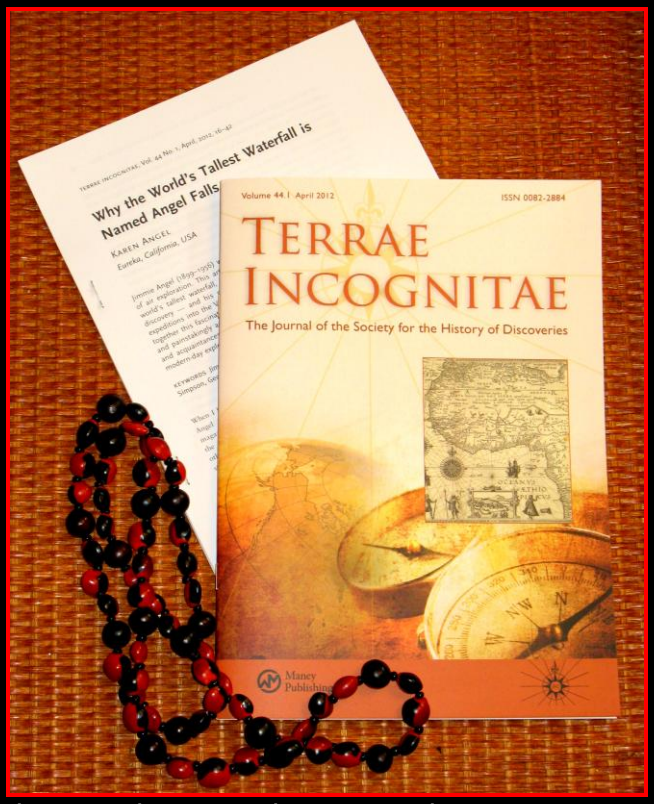
The *curiaras* (canoes) river crew Capitán was Lizardo Castro. He was assisted by Nixon Torres, Martin Abati, Leocadio Cardona, Jetulio Perez, and Tamkun.

Curiara crewmen, Rio Akanán rapids.
Photo: Karen Angel, 1 July 2012

Nixon Torres, Rio Akanán rapids.
Photo: Karen Angel, 1 July 2012

Expedition Co-leaders Paul Stanley of Angel-Eco Tours and Karen Angel of the Jimmie Angel Historical Project planned the expedition's schedule with Paul supervising the air and ground details and Karen recruiting expedition members, sharing the history of Jimmie Angel's explorations and producing post-expedition Photo: narratives.

Paul Stanley, Eulalia Sandoval, Karen Angel and Arturo Berti at Angel Falls.
Photo: Karen Angel's camera, 2 July 2012



Left: English cultural performer Paul Stanley. Right: Expedition members were given Karen Angel's article "Why the World's Tallest Waterfall is Named Angel Falls" published in *Terrae Incognitae, The Journal of the Society for the History of Discoveries,* April 2012.
Photo: (l) Steve Davidson, 30 June 2012, Photo: (r) Karen Angel, 15 July 2012

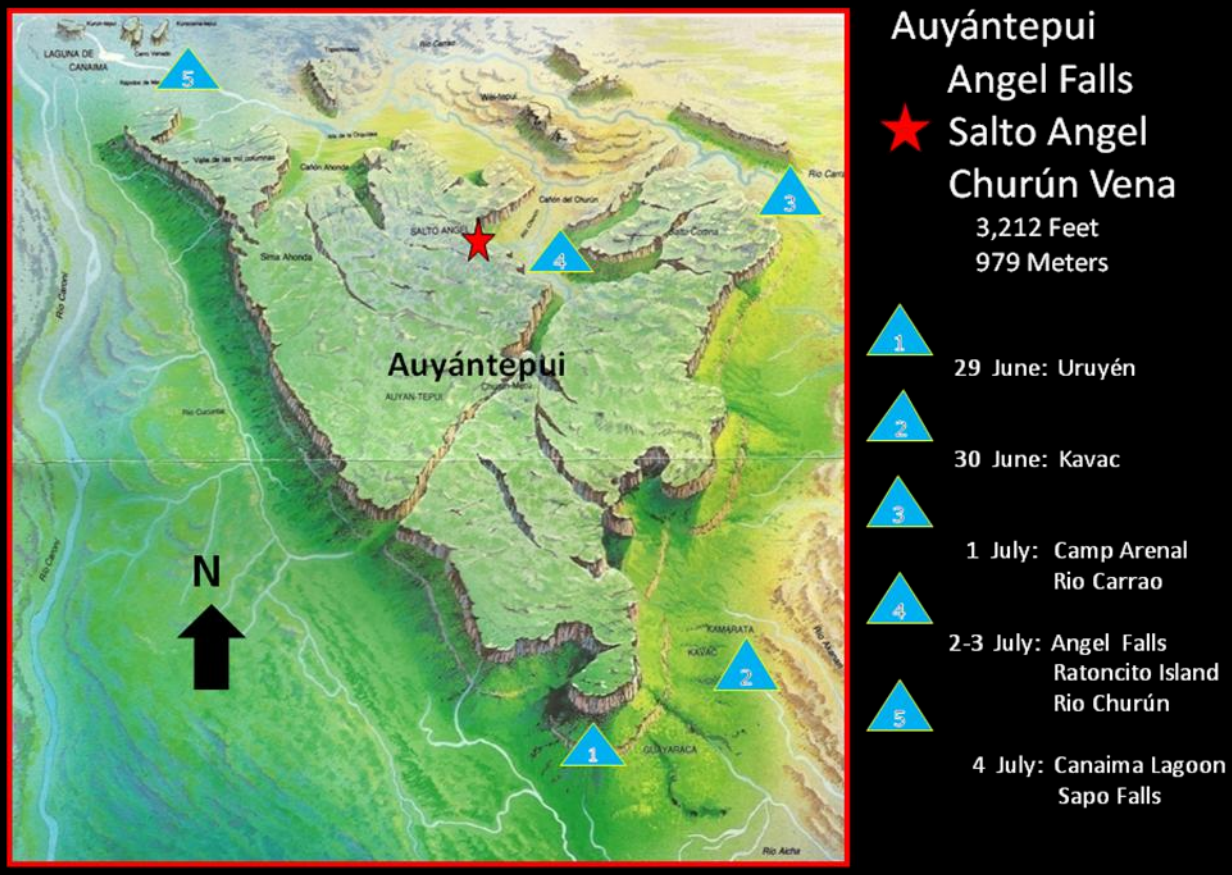
Zamir "Zam" Hernandez took seven expedition members on a tour of Caracas.

Steve Allen, (l to r) Steve Davidson, Alan Mason, Bill Peden, Bruce Amundson, Zam Hernandez, Kevin Rowland, not pictured Robert Allen. **Photo: Karen Angel, 28 June 2012**

Carmen Duran de Stanley graciously hosted Karen Angel and Maia Nero before the expedition and Alan Mason, Karen and Maia after the expedition in her and Paul's Caracas home.

Carmen Duran de Stanley at the Topotepuy Gardens, El Hatillo, Caracas, Venezuela. **Photo: Paul Stanley, 15 April 2012**

MAP OF EXPEDITION CAMPS



The rivers in Canaima National Park are its highways.

EXPEDITION SCHEDULE

Wednesday, June 27: Many expedition members arrived at Caracas Simón Bolívar International Airport from various points in the U.S.A. and are taken to the Hotel Avila. In the evening they met Paul Stanley and Karen Angel for a short welcome and orientation.

Thursday, June 28: Seven expedition members toured Caracas with Guide Zam Hernandez. Additional expedition members arrived in Caracas. Most members met Paul Stanley and Karen Angel at the Hotel Avila for dinner and orientation.

Friday, June 29: Early morning trip to Simón Bolívar International Airport for flight to Puerto Ordaz and transfer to smaller airplanes for flight to Uruyén Canaima National Park, home of Auyántepui and Angels Falls. Visited Yurwan Canyon's waterfall and swam.

Vittorio Assandria, pilot and Auyántepui exploration historian, hosted the expedition in the evening in his beautiful Uruyén churuata where he served fine French wines, cheeses and breads.

Saturday, June 30: Two groups walked from Uruyén to Kavac. The group on the long walk visited the village of Santa Marta. Following the walk, the cooling waters of Kavac Canyon's waterfall called. That evening the expedition members were treated to a special cultural presentation by Pemón children who danced and performed legends.

Sunday, July 1: The expedition members were transported from Kavac to Kamarata by pickup truck and a larger transport truck. Joining the ride were Karen Angel's Pemón cousin Nered Ugarte and his wife Mary and their three children Jose Manuel, Sandal, and Carlos and two Venezuelan physicians in residence at the Kamarata Clinic, Francisco and Ricardo and their faithful dog Broccoli.

Before entering the Pemón village of Kamarata, the expedition members were hosted by Santos Ugarte, Karen Angel's cousin, and his wife Dolores at their beautiful lodge for visitors. Delicious fruits and beverages were served with a pineapple presented to each guest.

The expedition members continued on to Kamarata where they transferred to two long wooden canoes (*curiaras*) 35 to 40 feet long with powerful outboard motors (48 hp and 75 hp). The first part of the river journey was on the Rio Akanán, then the Rio Carrao with an overnight at Camp Arenal.

Monday, July 2: The expedition left Camp Arenal in the morning and continued its journey by *curiaras* on Rio Carrao. When the *curiaras* reached Rio Churún, which drains the Churún Canyon (Devil's Canyon) watershed, they entered Churún Canyon. Rio Churún's waters rise and form a river on the top of Auyántepui before cascading down the massif into the Churún Canyon as Churún Falls. Churún Falls was not seen during the expedition.

Soon after entering Churún Canyon, Angel Falls was visible towering over the landscape. Heavy summer rains produced gigantic wings of cascading water which dropped down the massive pink sandstone amphitheater the waters carved in the wall of Auyántepui. From the Ratoncito Island/Angel Falls Camp on the banks of the Rio Churún, the many moods of Angel Falls were visible during night and day.

Some expedition members made a quickly paced hike to the *Alejandro Laime Salto Angel Mirador* (Angel Falls View) to see the waterfall up close. 2 July is the anniversary of the 1960 scattering of Jimmie Angel's ashes from an airplane over Angel Falls.

Churún Vena is the Pemón name for the entire waterfall with Churn Merú the name for the lower falls that cascades into the pool that was not swimmable due to the heavy nightly rains.

Tuesday, July 3: A second day at the Angel Falls Camp with another, more leisurely, hike to the *Alejandro Laime Salto Angel Mirador*.

Wednesday, July 4: Departed camp early in the morning taking the shorter route via Rios Churún and Carrao to Canaima Lagoon where many expedition members walked behind Sapo Falls on the Rio Carrao. Boarded an airplane at Canaima's Gustavo Heny Airport for a flight to Ciudad Bolívar, the capital city of the State of Bolívar where we checked into the *La Cumbre (Hilltop)* Hotel.

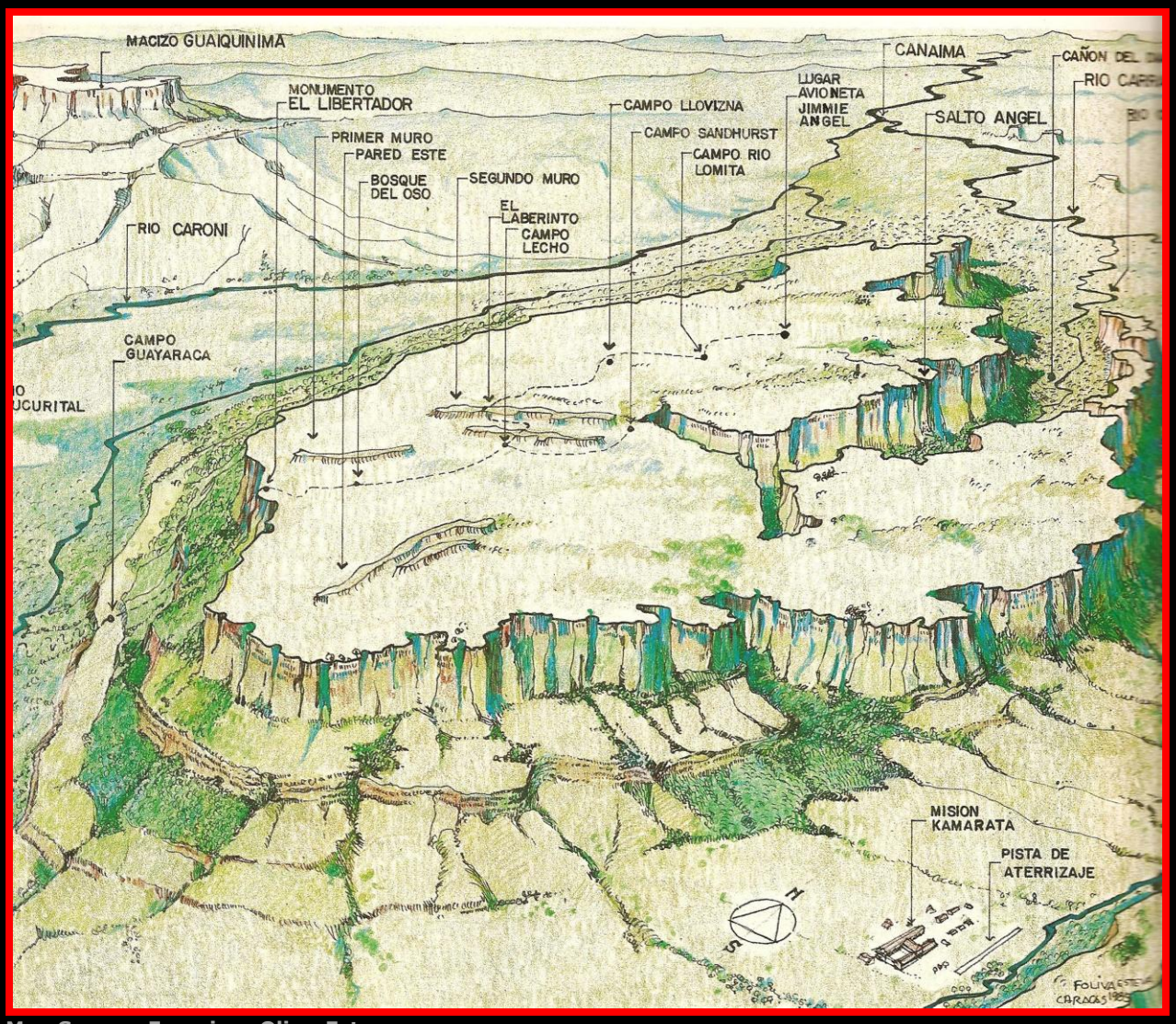
Thursday, July 5: A morning tour of historical section of Ciudad Bolívar included *Casa de San Isidro, Paseo Orinoco, Plaza Bolívar* and a Venezuela Independence Day celebration/Chavez rally. The tour was followed by a drive to Puerto Ordaz for the flight to Caracas for most of the expedition members. From Puerto Ordaz, Larry and Kitch Eitzen continued their Venezuela journeys to the Orinoco Delta and the Los Roques Islands. Steve Davidson, Steve Allen and Kevin Rowland flew to Panama for a week on the beach.

Friday, July 6: Departure from Caracas Simón Bolívar International Caracas Airport for various points in the USA.

AUYÁNTEPUI

The expedition to Angel Falls was centered on Auyántepui, a large tepui in southeastern Venezuela's *La Gran Sabana* (The Great Savannah). Auyántepui's summit and terraces cover an area of approximately 350 square miles. The summit surface area is approximately 270 square miles.

MAP OF AUYÁNTEPUI



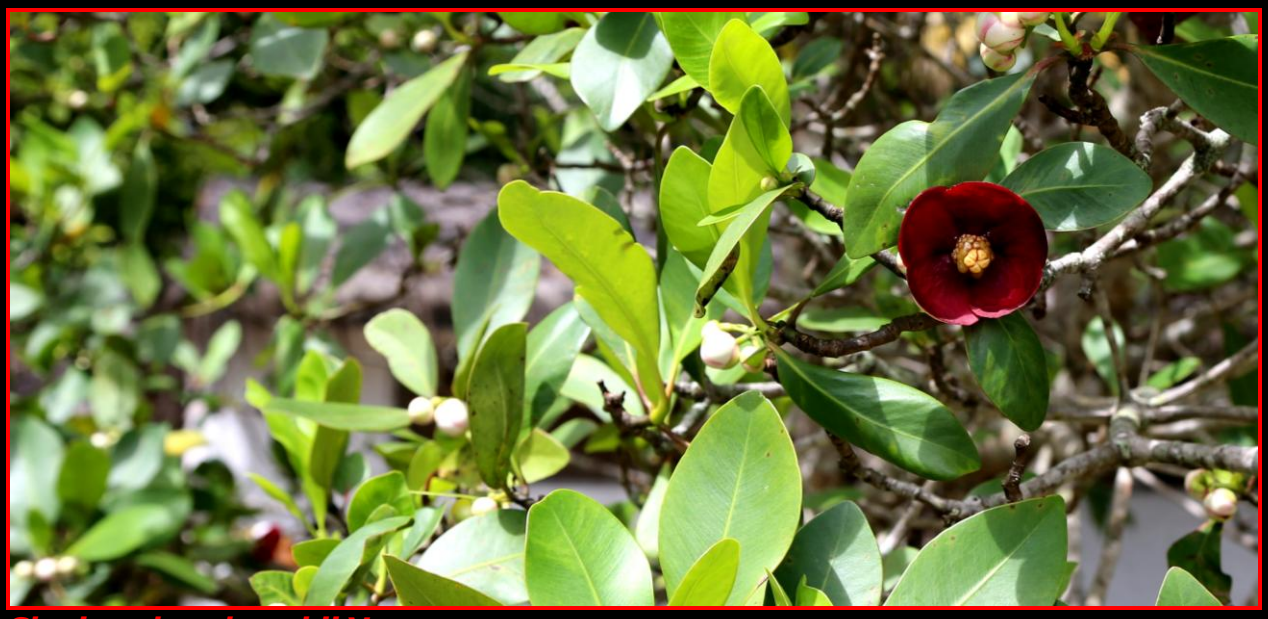
Map Source: Francisco Oliva-Esteva

Auyántepui: Venezuelan landscape architect and botanical author Francisco Oliva-Esteva's map of Auyántepui is an illustration in his book ***Bromeliaceaes of Venezuela: Native and Cultivated.*** It shows the location of Angel Falls • Salto Angel • Churun Vena, the landing place of Jimmie Angel's airplane *El Rio Caroni* on Auyántepui and the foot route taken by the landing party to reach Camp Angel at Guayaraca on the south side of Auyántepui and Uruyén in the Kamarata Valley.

NATIVE VENEZUELAN BOTANICALS
CANAIMA NATIONAL PARK

***Clusia schomburgkii* Vesque:** Family Clausiacea. An evergreen tree or shrub native to tropical South America. It is a greenhouse or house plant in Humboldt County's SZ15-17.

Colleen Edwards admiring ***Clusia schomburgkii* Vesque** trees at Camp Canaima.
Photo: Patrick Edwards, 29 June 2012



***Clusia schomburgkii* Vesque.**
Photo: Patrick Edwards, 29 June 2012

Allamanda cathartica L. Family Apocynaceae. The common name is Golden Trumpet. Native of to Central and South America, this vine may be pruned to grow as a shrub.

A woman in Camp Canaima cutting flowers from ***Allamanda cathartica L***, Golden Trumpet shrub. **Photo: Kevin Rowland, Camp Canaima, 29 June 2012**

Allamanda cathartica L.
Photo: Kevin Rowland, 29 June 2012

***Psychotria poeppigiana* Muell. Arg.** Family Rubiaceae. Common name is Sore-mouth Bush. Native to the Atlantic side of the tropical Americas. The large colorful bracts attract pollinators, primarily hummingbirds. The flowers are inconspicuous.

Karen Angel pointing to ***Psychotria poeppigiana*** on the trail between Uruyén and Kavac. **Photo: Steve Allen, Between Uruyén and Kavac, 30 June 2012**

The large colorful bracts of a ***Psychotria poeppigiana*** near Angel Falls.
Photo: Steve Allen, 3 July 2012

Lantana camara: Family Vebenaceae. Native to tropical regions of the Americas and Africa. Grows in the *Sabana* (Savannah) and along roadsides. Its Venezuelan name is *Cariaquito.* The French Creole name in Haiti is *Kayakeet.* It is also known as Spanish Flag. Thrives is SZ15-17.

Lantana camara seen between Uruyén and Santa Marta.
Photo: Marianela Camacho, 28 August 2011

Lantana camara (hybrid form), Karen Angel's Eureka CA SZ15-17 garden.
Photo: Karen Angel, 26 July 2012

Tibouchina urvilleana: Family Melastomataceae. The velvet leaf, magenta-purple blossom shrub is native to South America including Venezuela, Columbia and Brazil. It is abundant near Uruyén. The plant is a smaller form than the hybridized ornamental garden Princess Flower or Glory Bush that is used in USA horticulture and thrives in SZ15-17 gardens.

Tibouchina urvilleana on the walk from Uruyén to Kavac.
Photo: Patrick Edwards, 30 June 2012

Tibouchina urvilleana between Uruyén and Kavac.
Photo: Marianela Camacho, 29 August 2011

Tibouchina urvilleana on the walk from Uruyén to Kavac.
Photo: Patrick Edwards, 30 June 2012

Tibouchina urvilleana hybridized Princess Flower thrives in Karen Angel's Eureka CA SZ15-17 garden. **Photo: Karen Angel, 19 October 2012**

***Stachytarpheta sprucei* Moldenke:** Family Vebenaceae. Native to Venezuela, Guyana and Brazil.

***Stachytarpheta sprucei* Moldenke** seen on the walk between Uruyén and Kavac. **Photo: Karen Angel, 30 June 2012**

***Stachytarpheta sprucei* Moldenke** between Uruyén to Kavac.
Photo: Marianela Camacho, 28 August 2011

Heliconia psittacorum: Family **Heliconiaceae.** Native to Tropical Americas and Pacific Islands west to Indonesia. Common name is False Bird of Paradise. Bracts enclose true flowers which have three petals and three sepals. The long lasting flowers are used in the florist trade.

Heliconia psittacorum Canaima Lagoon.
Photo: Kevin Rowland, 28 June 2012

Heliconia psittacorum between Uruyén and Kavac.
Photos: Marianela Camacho, 28 August 2011

Costus scaber* Ruiz & Pav*: Family Costaceae. Native to Central and Northern South America. If the central nerve of the leaves is glabrous (without hairs) in the upper side of the leaf, the species is ***Costus spiralis* (Jacq.).**

Guide Clemente Lambos points out ***Costus scaber* Ruiz & Pav.** on the walk between Uruyén to Kavac. **Photo: Steve Allen, 30 June 2012**

***Costus scaber* Ruiz & Pav**. on the walk from Uruyén to Kavac.
Photos: Marianela Camacho, 28 August 2011

***Palicourea rigida Kunth*:** Family Rubieceae. Native to northern South America.

Palicourea rigida between Uruyén and Kavac.
Photo: Maia Nero, 30 June 2012

Common names for ***Palicourea rigida*** are *Chaparro de vidrio* (Glass *Chaparro*), *Chaparro bobo* (Fool Chaparro) I do not have a clue how *Chaparro* is translated in reference to this plant. *Chaparro* means "Short squat person"; it refers to the plants in this genus which sort of "look like" they are "shortened" in their development, *cacho de venado* (Deer Antler which is base on the shape of their inflorescences).

Jorge M. Gonzalez, Ph.D.

Palicourea rigida thriving in La Gran Sabana (The Great Savannah).
Photo: Patrick Edwards, 30 June 2012

Himatanthus attenuates: Family Apocynaceae. Native to the Caribbean, Mexico, Central America and South America as far south as Brazil.

Himatanthus attenuates seen on Rio Akanán shoreline after the rapids.
Photo: Kevin Rowland, 30 June 2012

Himatanthus attenuates.
Photo: Steve Allen, 30 June 2012

***Mandevilla scabra* (Hoffmanns. ex Roem. & Schult.) K. Schum.**
Family Apocynaceae. Native to South America.

***Mandevilla scabra* (Hoffmanns. ex Roem. & Schult.) K. Schum** seen on the Rio Akanán shoreline between Kamarata and Camp Arenal. **Photo: Paul Stanley, 1 July 2012**

***Mandevilla scabra* (Hoffmanns. ex Roem. & Schult.) K. Schum.**
Photo: Paul Stanley, 1 July 2012

***Meriania sclerophylla* (Naud.) Triana:** Family Melastomataceae.
Native to Venezuela.

***Meriania sclerophylla* (Naud.) Triana** Camp Arenal, Rio Carrao.
Photo: Karen Angel, 2 July 2012

***Meriania sclerophylla* (Naud.) Triana** Camp Arenal, Rio Carrao.
Photo: Karen Angel, 2 July 2012

Nautilocalyx porphyrotrichus: Family Gesneroaceae. Native to Northern South America.

Nautilocalyx prophyrotrichus on the trail to Angel Falls.
Photo: Steve Allen, 2 July 2012

Nautilocalyx prophyrotrichus on the wet trail behind Sapo Falls.
Photo: Steve Allen, 4 July 2012

Albizia saman: Family Fabaceae. Native to Venezuela (Central and South America), the fluffy pink flowering tree is generally referred to as Mimosa (Rain Tree in South America, Silk Tree in Asia). Common Venezuelan name is *Samán.* It grows well in Humboldt County's SZ15-17 climate.

Albizia saman in bloom at Salto Angel Mirador (View).
Photo: Kevin Rowland, 2 July 2012

Albizia saman in bloom at Salto Angel Mirador (View).
Photo: Steve Allen, 2 July 2012

Fuchsia: Family Onagraceae. The majority of ***Fuchsia*** species are native to Central and South America. Fuchsias thrive in SZ15-17.

What were believed to be spent ***Fuchsia*** blossoms were seen on the trail to Angel Falls, but it was not possible to identify them. ***Fuchsia denticulata,*** native to Venezuela, is shown. **Photo: Eric Hunt, Strybing Arboretum, San Francisco, 11 March 2012**

***Dimorphandra macrostachya* Benth:** Family Fabaceae. Subfamily Caesalpiniaecea. Native to northern South America. Too tender for Humboldt County's SZ15-17 climate.

***Dimorphandra macrostachya* Benth** seen by Angel Falls, Rio Churun.
Photo: Patrick Edwards, 2 July 2012

***Dimorphandra macrostachya* Benth** seen by Angel Falls, Rio Churun.
Photo: Patrick Edwards, 2 July 2012

Family Orchidaceae. Auyántepui is an orchid lover's Paradise with many terrestrial and epiphytic species. Except for ***Cymbidium*** orchids which can tolerate low temperatures 7° C (45° F), orchids in Humboldt County's SZ15-17 are house or greenhouse plants.

Possibly ***Odontoglossum praestans,*** seen on the trail to Angel Falls.
Photo: Paul Stanley, 2 July 2012

Possibly ***Odontoglossum praestans.***
Photo: Paul Stanley, 2 July 2012

Many terrestrial and epiphytic species from Family Bromeliaceae are found in the Auyántepui/Angel Falls region. They are generally considered too tender for SZ15-17 except under greenhouse conditions. Bromeliaceae are primarily native to the tropical Americas.

Navia splendens: Family Bromeliaceae.

Navia splendens growing near Ratoncito Island/Angel Falls Camp.
Photo: Steve Allen, 2 July 2012

Navia splendens growing near Ratoncito Island/Angel Falls Camp.
Photo: Steve Allen, 2 July 2012

Navia (not identified). Family Bromeliaceae.

Navia (not identified) growing near Ratoncito Island/Angel Falls Camp.
Photo: Karen Angel, 2 July 2012

Navia (not identified) growing near Ratoncito Island/Angel Falls Camp.
Photo: Karen Angel, 2 July 2012

Navia arida: Family Bromeliaceae.

Navia arid on the trail to Angel Falls.
Photo: Karen Angel, 1 July 2002

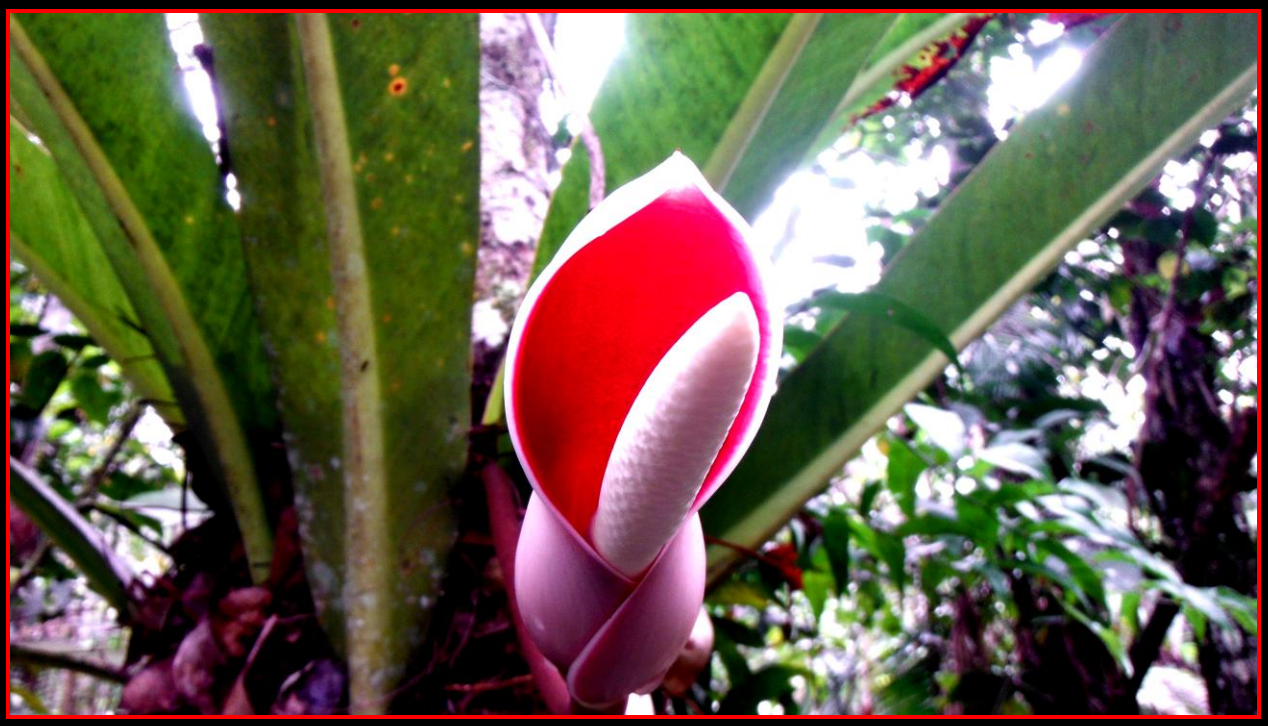
Navia arida on the trail to Angel Falls.
Photo: Karen Angel, 1 July 2002

Guzmania squarrosa (Mez & Sodiro) L. B. Sm. & Pittendr:
Family Bromeliaceae.

Guzmania squarrosa (Mez & Sodiro) L. B. Sm. & Pittendr growing near Ratoncito Island /Angel Falls Camp. **Photo: Patrick Edwards, 2 July 2012**

Guzmania squarrosa (Mez & Sodiro) L. B. Sm. & Pittendr.
Photo: Patrick Edwards, 2 July 2012

The elegant ***Philodendron insigne*** was seen along the trail to Angel Falls and close to Ratoncito Island/Angel Falls Camp. Family Araceae. The Ratoncito Island/Angel Falls Camp specimen below was first spotted by Steve Allen. The flower has a striking white exterior and a brilliant red interior.



Philodendron insigne Ratoncito Island/Angel Falls Camp.
Photo: Steve Allen, 2 July 2012

Philodendron insigne Ratoncito Island/Angel Falls Camp.
Photo: Karen Angel, 2 July 2012

***Tococa macrosperma* Mart:** Family Melastomataceae. Native to northern South America.

***Tococa macrosperma* Mart** near Ratoncito Island/Angel Falls Camp. This is a close up photograph of a very small flower. **Photo: Steve Allen, 3 July 2012**

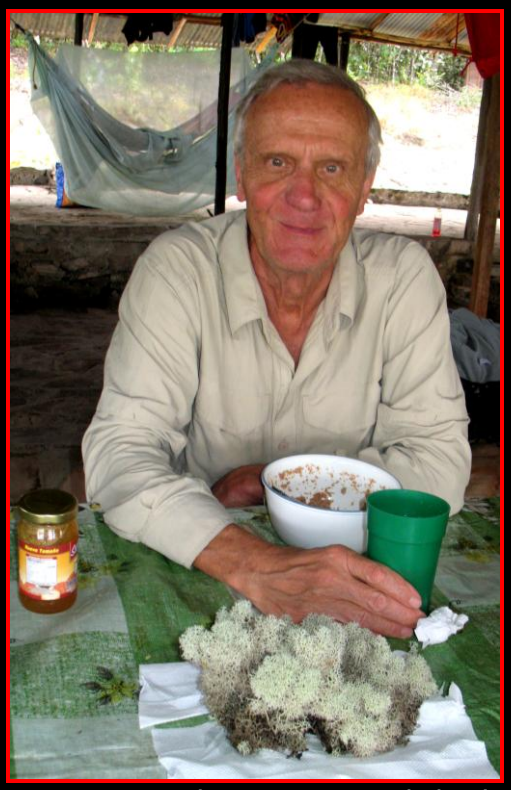
Anthurium crassinervum: Family Araceae. Common name is Bird Nest Anthurium. Native to Columbia and Venezuela.

Anthurium crassinervum fruiting berries seen near Ratoncito Island/Angel Falls Camp. **Photo: Steve Allen, 3 July 2012**

Anthurium crassinervum

Photo: Steve Allen, 3 July 2012

Specimens from the Fungi Kingdom were seen growing along the trails.



Bruce Amundsen presented the breakfast table with a handsome lichen ***Usnea* sp.** at Arenal Camp, Rio Carrao. Family Parmeliaceae.
Photos: Karen Angel, 2 July 2012

Phylum Basidiomycota on the trail to Sapo Falls.
Photo: Paul Stanley, 4 July 2012

PERSONAL ADORNMENTS, BASKETS & STRUCTURES

Body Paint and Dye: *Bixa orellan L.:* Family Bixaceae. Native to Tropical America. "The common name in Venezuela is '*Onoto*,' Annatto in English (or the Lipstick tree). The pods are harvested and let dry and seeds extracted for the coloring. It is commonly used in food coloring everywhere in Venezuela. The natives of the different ethnic groups use it in body coloring. They also use it for coloring clothes and utensils." Jorge M. González, Ph.D.

Pemón Guide Arturo Berti at Salto Angel Mirador wearing the red paint made from of the ***Bixa orellan L.*** **Photos: Patrick Edwards, 3 July 2012**

Bixa orellan L.: "The Indians came from their camp this morning with their faces painted with a deep red paste they get in the jungle. … They were grimly serious, and small wonder. They've never been in the canyon [Churún Canyon], and the tales we've heard about the *canaimas* (spirits) that inhabit the jungles as well as the *maramatóns* (devils) that live high on the top of the mountain [Auyántepui] have made good campfire tales for many a night … Last night, as a precaution, Laime [Alejandro Laime was Ruth Robertson's expedition guide for the 1949 measurement of Angel Fall] brought all the dugouts from the Indian camp to ours, for he had overhead some of the Indian men say they would rather go back than into that canyon! So the Indians have put on the red paste to make them invisible to the *canaimas*. They brought over from their camp a small pot of the stuff and motioned me to do the same. So I painted several lines on my cheeks and forehead."
Ruth Robertson*, Churún Merú – The Tallest Angel*

Seeds Used for Contemporary Jewelry: The jewelry shown below is popular with visitors to Canaima National Park.

Pemón seed jewelry from the collection of Karen Angel.
Photo: Karen Angel, 22 August 2012

Paeonia* spp.:** Family **Paeoniaceae**. "The red and black seed (some are completely red) are 'Peonias.' These seeds come from different species of ***Paeonia

"The round seed is called 'Para-para.' The species is ***Sapindus saponaria* L.** Family **Sapindaceae.** It is the seed of a tree called 'Paraparo' or 'Jaboncillo' meaning small soap in English. The pulp of the fruits contains a high percentage of Saponins (Vegetable oils and animal fats are the main materials that are saponified, Ed.) and in the old times poor people, small farmers, used it to wash clothes. It has a nice smell and I believe it is used in some perfumes. These seeds have some insecticidal properties and when ground they are used sometimes as 'Barbasco' meaning to fish in English." **Jorge M. González, Ph.D.**

Plants Used for Baskets: Many different kinds of plants are used to weave baskets.

Pemón Baskets from the collections of Sanderson Morgan and Karen Angel. The small light-colored round basked with lid is made with coils which is not a traditional Pemón basket making technique. Pemón men are the basket makers.
Photo: Karen Angel, 22 August 2012

"The Pemón and other indigenous groups use a variety of plants, but mostly Palms (Family Arecaceae) for the weaving of their baskets. Some of the palms they use are: *Moriche* (***Mauricia flexuosa***), *Pijiguao* (***Bactris spp***.), *Coroba* (***Sheeleas macrolepis***), *Manaca* or *Macanilla* (***Euterpe oleraceae***), *Mamure* (***Anthurium sp***.) ***Bromelia sp.*** *Kurawa* (Family Bromeliaceae) is also used.

The indigenous people in Amazonas also use something, perhaps also in the State of Bolivar (Canaima National Park), call *Tirita* or *Tirite* which can be a bunch of different plants, mostly palms, from which they can extract long threads (*tiritas*) which are excellent for making baskets. It is somewhat difficult to recognize from which plant each fiber came. The best way is to ask the basket maker which plants he used in each basket." **Jorge M. González, Ph.D**.

George Gaylord Simpson's ***Los Indios Kamarakotos*** is a cultural study of the Kamarata Valley Pemón. He presents many illustrations documenting the material culture of the people including the various types of baskets made by the Pemón and their dwelling and work structures.

Plants Used for Structures: ***Mauritia flexuosa*** is frequently used for thatching by the Pemón. Family Arecaceae (Palm). Native to South America, the Pemón name for this palm is *Kuai*. The fruit is consumed. Common English names for this tree include *Moriche* Palm, *Mauritia* Palm and *Aguaje* Palm. It grows near swamps and wet areas.

Mauritia flexuosa fruiting palm by Rio Aichá, Uruyén.
Photo: Steve Davidson, 29 June 2012

Mauritia flexuosa fruiting palm by Rio Aichá, Uruyén.
Photo: Kevin Rowland, 29 June 2012

Oenocarpus is one of several other palms used for thatching. Native to Trinidad, Central and South America. Family Arecaceae.

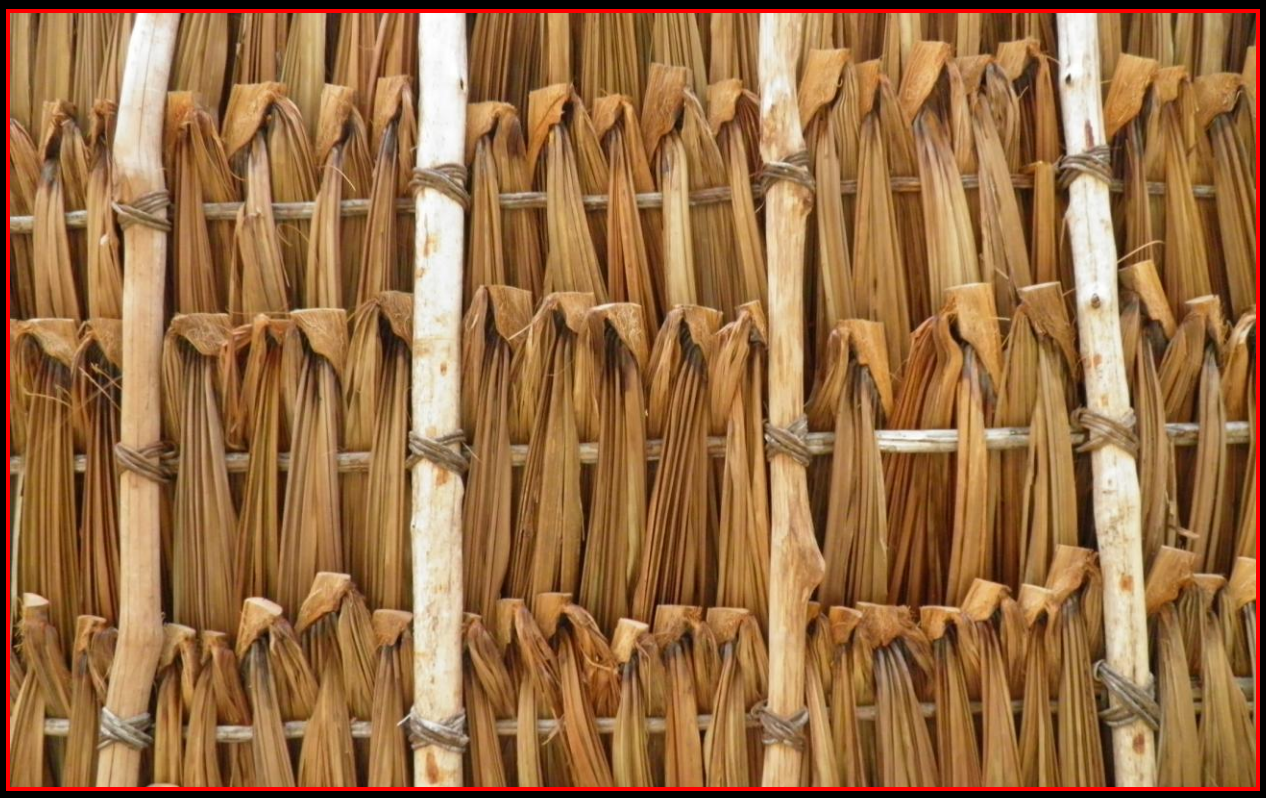
Appears to be ***Oenocarpus***, Uruyén.
Photo: Marianela Camacho, 30 June 2012

Cocos nucifera: Coconut palm, the term is derived from 16th century Portuguese and Spanish *cocos*, meaning "grinning face", from the three small holes on the coconut shell that resemble human facial features. The Pemón primarily drink the fruit's liquid, coconut milk, and use the fronds for thatching. Family Arecaceae.

Cocos nucifera fruiting coconut palm in Kavac growing near *malocas,* the Pemón word for dwellings. **Photo: Marianela Camacho, 1 July J 2012**

Kavac assembly hall under construction. Quality palm frond roof construction is good for about twenty years. **Photo: Marianela Camacho, 30 June 2012**

Palm fronds for thatching, Kavac.
Photo: Marianela Camacho, 30 June 2012



Interior ceiling, Kavac assembly hall construction.
Photo: Marianela Camacho, 30 June 2012

Interior ceiling, Gustavo Heny Airport, Camp Canaima.
Photo: Marianela Camacho, 29 June 2012

BOTANICALS CONSUMED AND A FEW ZOOLOGICAL SPECIMENS

Dining also provided an opportunity to learn more about the edible plants of Venezuela and Canaima National Park. The expedition's gracious Pemón hosts prepared and presented superb meals of grilled beef, fish, chicken, arepas, pasta, fruit, vegetables, and beverages. Almost all of the food served was transported to the various lodging sites.

Many of the plants that are consumed by indigenous people in tropical regions have been cultivated for hundreds, in some cases thousands of years, and have travelled thousands of miles from their native lands. Not all of the plants consumed by the Pemón in Canaima National Park are cultivated there. Many of the plants (or food products) consumed are related to (or hybridized from) the species listed below.

- **Banana *Musa acuminata*, M. *balbisiana*** or a cross of the two, native to South and Southeast Asia. One of the earliest plants cultivated by humans, probably in Papua New Guinea. Banana is the name used for the fruit eaten raw. **Plantain** is the name for the cooked fruit. Family Musaceae.

- **Cashew *Anacardium occidentale*** native to northern South America. Family Anacardiaceae.

- **Cassava *Manihot esculenta*** believed to be native to Brazil's Amazon region. Family Euphorbiaceae (spurge).

- **Chocolate *Theobroma cacao*** native to the tropics of Americas Today, the tree is found growing wild only in the low foothills of the Andes at elevations of around 660 – 1,300 ft. (200–400 m) and in the Amazon and Orinoco river basins. Family Malvaceae.

- **Coconut *Cocos nucifera*** native to northwestern South America or the area around the Indian Ocean. Portuguese and Spanish coco "grinning face, grin, grimace" from the three small holes on the coconut shell that resemble human facial features. One of the earliest plants cultivated by humans. Because the Coconut palm grows by rivers and oceans its floating fruits are world travellers. Family Arecaceae (palm)

- **Coffee Coffea *arabica*** native to Ethiopia. Family Rubiaceae.

- **Heart of palm** native to Brazil's Amazon region. A vegetable harvested from the inner core growing bud of certain palm trees, commonly the Coconut palm ***Cocos nucifera.*** Family Arecaceae (palm).

- **Hops *Humulus lupulus*** native to temperate Northern Hemisphere, the common hop is a climbing plant. Hops are a primary ingredient in most beers. Family Cannabaceae.

- **Maize *Zea mays L*** grain domesticated by Mesoamerica indigenous peoples. Known as **Corn** is North America. Family Poaceae.

- **Mango *Mangifera indica*** native to the Indian Subcontinent. Family Anacardiaceae.

- **Moriche *Mauritia flexuosa*** native to South America. Moriche palm fruit is edible, has high vitamin C content, and used to make juice, jam, ice cream, and a fermented "wine." An oil high in vitamin A is extracted from the pulp and is frequently used to treat burns because of its soothing qualities. The inflorescence buds are eaten as a vegetable, and the sap can be drunk fresh or fermented. Family Arecaceae (palm).

- **Papaya *Carica Papaya*** native to American tropics. The fruit is called Lechosa in Venezuela. Common name is Pawpaw. Family Caricaceae.

- **Peanut *Arachis hypogaea*** native to Peru and Paraguay. Family Fabaceae (bean).

- **Peppers *Capsicum chinense*** despite its name, *a*ll Capsicums originate in the New World. Family Solanales.

- **Pineapple *Ananas parguzensis*** native to American tropics. Family Bromeliaceae.

- **Plantains Musa** native to India. Belongs to the same genus as the banana, but is starchy and cooked. **Banana** is the name used for the sweet fruit eaten raw. Family Musaceae.

- **Sugarcane *Saccharum officinarum*** native to Papua New Guinea and Asia, sugarcane is a species of large, sturdy grass. Family Poaceae.

- **Sweet potato *Ipomoea batatas*** native to Yucatán Peninsula of Mexico and the mouth of Venezuela's Orinoco River. Family Convolvulaceae.

- **Watermelon *Citrullus lanatus* Thunb** native to southern Africa. Family Cucurbitaceae.

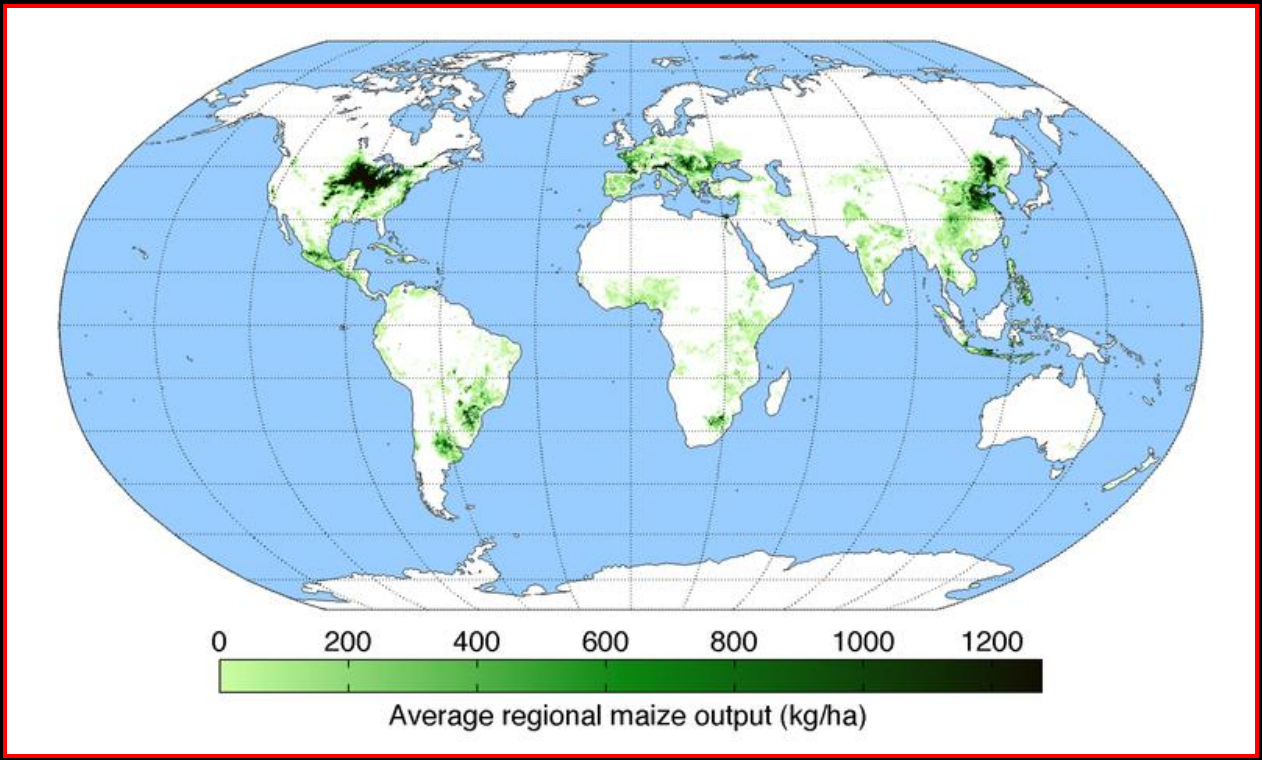
- **Yams *Dioscorea*** native to Africa and Asia. Family Dioscoreaceae.

Venezuela has the potential to produce most of its food, unfortunately it has not developed sustainable agriculture to feed its population and imports 70% to 80% of the food consumed annually by its people.

Food served to Canaima National Park visitors would be considered heart healthy by most U.S.A. standards. Still, because of the reliance on processed cheese, prepared ham, and fruit juice concentrates, especially at breakfast, meals are in sharp contrast to the traditional Pemón home garden which includes cassava, sweet potatoes, sweet and hot peppers, plantains, sweet and bitter palm, mangoes, oranges, pineapples and cashews. The plants in their diets are supplemented by fish and insects, especially grasshoppers, ants and termites. Grasshoppers are dried and crunchy. For those who are wondering, termites and ants have a peppery flavor and are typically added to a picante sauce which is used on most everything.

Zea mays L: Family Poaceae. Native to Mesoamerica. Common names are Maize and Corn.

MAP OF WORLD MAIZE/CORN PRODUCTION



Average percentage of land used for its production times average yield in each grid cell across the world. Compiled by the University of Minnesota Institute on the Environment with data from: Monfreda, C., N. Ramankutty, and J. A. Foley, 2008.
Map Source: Wikimedia commons

Zea mays L Oaxaca, Mexico field of Maize.
Photo: Abrahami, 12 July 2012

Maize/Corn Production: Venezuela is the nineteenth largest producer of maize/corn in the world. On average, Venezuela produces 1,125 TMT (Thousand Metric Ton) of corn per year. Based on this same average, Venezuela consumes 2,397 TMT of corn. **www.spectrumcommodities.com**.

Product of Empresas-Polar
Photo: Karen Angel, 26 July 2012

VENEZUELAN AREPAS

Arepas are ovals of fried or baked corn meal.

See ***Arepas – A History*** by Jorge M. González, page 55.

Arepas recipes are on pages 57 and 58.

"I am addicted to arepas and will attempt to replicate the baked version using the bag of fine precooked corn meal, "P.A.N. Harina," that I purchase in Venezuela."
Karen Angel

Venezuelan arepas.
Photo: Steven Depolo, 25 August 2010

AREPAS – A HISTORY

by Venezuelan Jorge M. González

Arepas are actually some sort of "tortillas" that originated in Venezuela. They were originally made of ground corn dough that is later cooked. They are similar to *Pupusas* (El Salvador) and *Gorditas* (Mexico).

The word and style of arepas are Timoto-Cuica in origin. Timoto-Cuicas were the natives of Northern Andes of Venezuela. From the Northern Andes of Venezuela, arepas spread everywhere in Venezuela and into Colombia.

The original arepas were labor intensive to make. First you have to take the corn grains out of the tusk. Those grains had to be soaked in water, with ashes (or Calcium oxide), then they have to be peeled and cleaned, and later ground in a *Pilón* (this is like a big mortar system made with wood). Later, a grinding system was invented and it became popular everywhere in Venezuela to do the grinding-peeling (After the boiling and cleaning). In certain areas of Venezuela you can still find this old-fashion method of making the dough for arepas and the arepas made this way are called Arepas *de Maiz Pilado* (or *Pelado*).

After the dough was ready, the arepas were prepared, with slight variations depending on the region of preparation.

Examples:

1- Los Andes (Trujillo state): The arepa "patty" is flat and large (it looks like a thick Mexican Tortilla; about 1 cm (<.5 inches) thick. Once the appropriate shape and size is reached, they were put in a Budare (a flat round iron piece on top of one of the kitchen stoves).

2- Zulia State (My family on my mother side): The arepa "patty" is around 12 cm (4.5 inches) in diameter, and about 2.5 cm (1 inch) thick. Once done, it is placed in boiling water for a few minutes. I cannot remember how many, but it is about 5 minutes. They are later taken out, dried and placed on a *Budare* (later and more recently, inside the oven) to make the "hard" peel of the Arepa.

3- Carabobo State (Puerto Cabello) (My family on my father side): The arepa "patty" is small (about 8-9 cm (>3 inches) diameter, thick (2.5- 3.5 cm; 1-1.5 inches) in the center, but not so thick at the borders (It looks like a little "Flying Saucer"). Once made, the arepa was placed on a *Budare*, and after the "hard peel" formed, it was placed inside the oven to cook the inside (in the old times It was placed on a *Budare* placed on a "grill" over firewood - this allowed the "hard peel" to form and to cook the inside of the arepa at the same time).

Arepas were made to accompany any meal (just like bread). You did not have to necessarily "fill" the Arepa. This is the traditional way to eat arepas. However, back in the 1940s a guy from Trujillo state established in Caracas *una venta de Tostadas* (A place to sell "Tostadas"). The Tostada was the way to eat arepas in most of Northern Andes (Trujillo and Merida), Venezuela. To make a Tostada you just split

open the arepa, which was toasted in the *Budare*, and put something inside. This place, established in Catia, Caracas, became very popular.

Later in the early 1950s another family (the Alvarez brothers) arrived from Trujillo state and opened their venta *de Tostadas* in La Gran Avenida (an avenue south and parallel to Sabana Grande) close to Plaza Venezuela, in Caracas. The place became highly popular, especially because the Alvarez gave names to their "Tostadas" such as *Dominó*, *Pelúa* (hairy: shredded beef), *Catira* (blond: shredded yellow cheese). These were names of "Tostadas" that were created in *venta de Tostadas.* The Alvarez brothers also created la *Reina Pepiada* (shredded chicken, mayonnaise, and avocado, with *petit pois* [small young green peas for garnishing] in 1955, in homage to Susana Duijm, the first Venezuelan to be crowned "Miss World." After the Alvarez's popularity, Areperas (not "Areperias") became popular.

However, the labor-intensive way of making the dough continued. Since it was complicated, many people did not make the dough in their home kitchens, especially in the large cities of Caracas, Maracaibo and Valencia, but bought the dough from women who specialized in making it.

In the early 1970s, Luis Caballero Mejias, a Venezuelan mechanical engineer, invented a system to produce pre-cooked corn flour (*Harina de Masa de Maiz* or Dehydrated Corn Dough) that eliminated the complicated way to make the corn dough. He asked the Alvarez brothers to test his pre-cooked corn flour and it was a big success. Later, the Polar Corporation bought his patent from Luis Caballero Mejias, and distributed it as "P.A.N. Harina." Today, most of Polar's "P.A.N. Harina" is produced at their plant in Columbia.

This invention increased the popularity of the areperas even more, and the way they serve arepas became the "modern way" to eat arepas, because you could have a complete lunch just by eating a filled arepa. The name "Tostada" switched to just "Arepa." Areperas appeared everywhere. During the late 1990s and early 2000s when Venezuelans started migrating to many countries, we brought "the Arepas" with us! Now you can find "Areperas" in almost any place of the world where a Venezuelan community is present.

AREPAS DULCES

A recipe from Jorge M. González that was taught to him by his mother.

The dough is mixed with *papelón* (raw sugar, brown sugar is a fine substitute) and a few seeds of Anise.

Ingredients

- ½ kg of Pre-cooked corn flour (Most Venezuelans use Harina P.A.N., but there are a few similar to it, if you can find them)
- About a pound of *papelón* (called *pilón* in Mexico; it is raw sugar) (About 5 or 6 tablespoons of brown sugar will work).
- 2 teaspoons of Anise seeds.
- ½ liter Water
- A pinch of salt.
- Oil (for frying)

Method

1. Boil the *papelón* and anise seeds in the water to make light syrup. Let it rest.

2. Once at ambience temperature add a pinch of salt and start mixing the corn flour to make soft but consistent dough.

3. Make little balls, and spread them to make the Arepas (the thinner and larger, the better) One way to do this is by "pushing" the ball on a flat surface with a large plate or a large flat object. To avoid the ball sticking to either the surface or the plate, put a layer of plastic with oil spread on it in between the surface/plate and the dough ball. Remember, the thinner the Arepa, the better it will be.

4. Heat the oil to a boil in a deep frying pan. The trick is that the Arepa should float on the oil while cooking. The oil has to be very hot. Flip the Arepa once you see it is changing color.

5. When thoroughly "brownish" (but not burned!), remove the Arepa from the pan.

6. Eat it with White Cheese! … And you can feel like a Venezuelan!

AREPAS RECIPE

Arepas were originally made by the indigenous inhabitants of Venezuela. These small corncakes are sold in Venezuelan restaurants called "Areperas" and are stuffed with all manner of fillings like a sandwich.

Ingredients *Makes 5-10 arepas*

- Pre-cooked cornmeal (see notes) -- 2 cups
- Salt - 1/2 teaspoon
- Boiling water - 3 cups
- Oil - 3 tablespoons

The cornmeal used to make arepas is a special, precooked type. The most common brand is "*P.A.N. Harina" made* by Empresas-Polar. Originally made in Venezuela, most of P.A.N. is now made at the company's plant in Colombia. See page 67 for more information. It is sometimes available in Latino markets. The more commonly found *masa harina* is not the correct cornmeal to use for this recipe.

Method

1. Preheat oven to 400º F. In a large bowl, mix together the cornmeal and salt. Pour in 2½ cups of the boiling water and mix with a wooden spoon to form a mass. Cover with a towel or plastic wrap and set aside to rest for 5 to 10 minutes.
2. Using damp hands, form balls of dough out of about ¼ cup of dough and press to form a cake about 3 inches wide and ¾ inch thick. If the dough cracks at the edges, mix in a little more water and then form the cakes.
3. Heat the oil in a sauté pan or skillet over medium-high heat. Sauté the patties, a few at a time, to form a light brown crust on one side, 5 to 6 minutes. Flip and brown on the other side.
4. When all the patties have been browned, transfer them to a baking sheet and bake in the oven for 15 to 20 minutes, or until they sound lightly hollow when tapped. Serve immediately.

Filled Arepas: Split the arepas in half when finished and scoop out a little of the soft dough filling. Stuff with your chosen filling.

Notes:

- The sautéing step is sometimes skipped and the arepas are simply baked. In the countryside arepas are often cooked on the grill.
- Small arepas can be made and served as appetizers with garnishes on top instead of inside. Or they can be eaten as small biscuits.
- Sometimes a little sugar is mixed in with the dough to form sweet arepas called ***Arepas Dulces*****,** Recipe Page 57.
- Like all recipes, there are variations on the theme.

"Termite is in the genus ***Syntermes,*** Family Termitidae**,** Subfamily Syntermitinae. It could be ***Syntermes molestus,*** but I need a good picture of the ventral view of insect to be sure. This termite feeds on grasses."
Jorge M. Gonzalez, Ph.D., Entomologist
Photo: Paul Stanley, 30 June 2012

This industrious leaf cutter ant "is either an ***Atta*** or ***Acromyrmex*** from the Family Formicidae. Without a detailed picture of the ant there is no way anyone can identify it."
Jorge M. Gonzalez, Ph.D., Entomologist
Photo: Steve Allen, 30 June 2012

Karen Angel smiles as Alan Mason tastes dried grasshoppers, an optional dinner selection, at the Sandoval Family's *Campamento Pemón* Lodge in Kavac.
Photo: Paul Stanley, 30 June 2012

Dried grasshoppers are a traditional Pemón food, but are not required eating (or tasting) for visitors. **Photo: Marianela Camacho, 30 June 2012**

"These immatures are probably in the Family Acrididae or a similar family, but I cannot be completely certain because this earlier the stage of development (instar), is more difficult it is to identify. These are probably 1st, 2nd or 3rd stage instars. These instars appear to be the same as in the serving bowl [Page 60]."
Jorge M. González, Ph.D., Entomologist
Photo: Marianela Camacho, on the walk from Uruyén to Kavac, 30 June 2012

Between Uruyén and Kavac. "The grasshopper is ***Tropidacris collaris*** (Order: Orthoptera; Family: Romaleidae). It is a nymph, not an adult. The adults have different colors; very common species south of the Orinoco. I have tasted this species roasted in Yutaje, Amazonas. It has an acrid flavor. This species has some strong chemicals and not even birds or lizards eat them."
Jorge M. Gonzalez, Ph.D., Entomologist
Photo: Paul Stanley, 30 June 2012

The pineapple is the most famous member of the Family Bromeliaceae. Native to the American tropics, the native ***Ananas parguzensis,*** a somewhat sweet pineapple smaller in size and similar in appearance to the commercially raised ***Ananas comosus*** was seen near the expedition's Arenal Camp on the Rio Carrao.

Left: ***Ananas parguzensis*** growing by Camp Arenal on Rio Carrao.
Right: Probably ***Ananas comosus*** presented by Santos and Dolores Ugarte to the expedition.
Photo: (l) Karen Angel, 1 July 2012, Photo: (r) Paul Stanley, 1 July 2012

The sweet pineapples seen growing in village gardens and that were served during meals were probably a hybridized variety such as ***Ananas comosus.***

Santos Ugarte presents Bruce Amundson a pineapple during the expedition's visit to Santos and Delores Ugarte's beautiful *maloca* near Kamarata.
Photo: Karen Angel, 1 July 2012

Anacardium occidentale: Family Anacardiaceae. Common name is Cashew. Cashews are native to northern South America.

Anacardium occidentale Robert Allen, Colleen Edwards and Kitch Eitzen under the shade of a Cashew tree. **Photo: Patrick Edwards, 1 July 2012**

Anacardium occidentale fruiting Cashews near Kamarata.
Photo: Maia Nero, 1 July 2012

Carica Papaya: Family Caricacea. Common name in Venezuela is Papaya or *Lechosa.* Native to American tropics.

Young Papaya tree (foreground) in Kavac.
Photo: Steve Davidson, 30 June 2012

Manihot esculenta: Family Euphorbiaceae. Two of the common names are Cassava and Yuca. It is believed to be native to Brazil's Amazon region. *Cachiri* is a fermented beverage made by the Pemón primarily from the roots of the ***Manihot esculenta.*** It is very pulpy and white, tastes slightly fermented (estimated 18 to 20% proof) and similar to a mildly bitter heart of palm beverage. If you are not familiar with the taste of yuca or palm or before you go looking for *cachiri*, it should be noted that it is not the favorite beverage of most visitors. Several members of the group had the opportunity to taste it on their walk from Uruyén to Kavac. Cassava is also used to make the Pemón's traditional flat bread *casaba*.

Guide Clemente Lambos presents a bowl of *cachiri* for tasting in the village of Santa Marta. **Photo: Kevin Rowland, 30 June 2012**

Cachiri Recipe

Cachiri is made with bitter yuca paste, which is grated and chewed and mixed with a red root, *cachiriyek,* which has also been grated. The mixture is then boiled for a whole day. This brew is mildly intoxicating or highly intoxicating depending on how much is consumed.

Paul Stanley, Bill Peden, Alan Mason and Steve Davidson tasting *cachiri.*
Photo: Karen Angel, 30 June 2012

Left: a Pemón girl serving *cachiri* during Canaima cultural event. Right: Santa Marta Cassava roots. **Photos: (l) Karen Angel, July 2002, Photo: (r) Paul Stanley, 30 June 2012**

Manihot esculenta growing in the garden of Mervin Camacho, Maracaibo, Venezuela. **Photo: Marianela Camacho, her brother's garden, 6 August 2012**

Cleaning Cassava roots in the village of Santa Marta.
Photo: Kevin Rowland, 30 June 2012

An Australian cattle dog (Blue heeler) guarding his people and cassava roots in the village of Santa Marta. **Photo: Karen Angel, 30 June 2012**

Guide Clemente Lambos explains how the liquid is squeezed from the grated Cassava roots (left) using a Cassava press (right) *tangöi* in the Pemón language.
Photo: (l) Steve Allen, 30 June 2012, Photo: (r) Paul Stanley, 30 June 2012

Humulus lupulus: Family Cannabaceae. The common hop is a climbing plant, native to temperate Northern Hemisphere. Hops are a primary ingredient in most beers.

Humulus lupulus hops growing on ropes, southern Germany.
Photo: Stefan Stegemann, 24 May 2009

Humulus lupulus the fruit of the hop.
Photo: Hagen Graebner, 15 February 2006

Polar pilsner beer made by Caracas based Empresas-Polar Corporation is a favorite drink of Venezuelans and visitors. The beer's logo is a Polar bear.

Bruce Amundson, John Holl and Robert Allen enjoying a cool Polar at the Hotel Ávila 5 July 2012, Venezuela's Independence Day. **Photo: Karen Angel, 5 July 2012**

Left: Polar's Solera at Tarzilandia with lunch.
Right: Polar Pilsen at De Candido Supermarket, Maracaibo, Venezuela.
Photo: (l) Steve Allen, 28 June 2012, Photo: (r) Marianela Camacho, 8 August 2012

Saccharum officinarum: Sugarcane is a tall perennial grass native to Papua New Guinea and Asia. Family Poaceae. Sugarcane thrives as a plantation crop in Venezuela and other tropical climates. Rums made by Venezuelan company Santa Teresa, with various levels of quality aging, are popular.

Saccharum officinarum sugarcane plantation ready for harvest, São Paul State, Brazil. **Photo: Mariodo, 30 June 2008**

Saccharum officinarum Venezuelan sugarcane harvested for processing.
Photo: Sandstein, 9 September 2006

Cubalibre is Venezuela's national cocktail. Key ingredients are Venezuelan rum made from ***Saccharum officinarum*** sugarcane, Coca-Cola, and lime. Sometimes angostura bitters are added, but not on the expedition to Angel Falls.

Left: Paul Stanley's *Cubalibre* Santa Teresa celebration in Colonial Tovar.
Right: "Santa Teresa 1796" purchased at the Airport Duty Free Shop.
Photo: (l) Karen Angel, 26 June 2012, Photo: (r) Karen Angel, 30 July 2012

Cubalibre Recipe

Squeeze a lime into a Collins glass, add 2 or 3 ice cubes, and pour in the rum. Drop in one of the spent lime shells and fill with cold Coca-Cola. Stir briefly.

The recipe has variations including the addition of angostura bitters.

Gran Reserva is the Santa Teresa Paul Stanley served on the expedition. The Photo: was taken at De Candido Supermarket, Maracaibo, Venezuela.
Photo: Marianela Camacho, 8 August 2012

Coffea arabica: Family Rubiaceae. Native to Ethiopia. Coffee was in plentiful supply in Venezuela. The first plants in northern South American were introduced by the Dutch in the Caribbean. Most of the coffee grown in Venezuela is consumed domestically.

Red Catucai Coffee, a variety of ***Coffea arabica,*** Matipó City, Brazil.
Photo: FC Rebelo, 8 May 2005

Coffea arabica once harvested the fruits are sorted and separated according to their characteristics and uses. Hacienda Gualberto, Teresén, Caripe del Guácharo, northeast of Venezuela. **Photo: Barloventomagico, 3 January 2012**

Theobroma cacao: Family Malvaceae. Prior to the discovery of petroleum in the early 20th century, *cacao* beans, especially the rare *Criollo cacao* beans, were the primary natural resource and export from Venezuela. The highly perfumed *Criollo cacao* beans still makes their way into the world's candy and pastry kitchens – primarily France, Germany and Switzerland. Regrettably, today *cacao* plays an almost invisible role in the Venezuelan economy.

Theobroma cacao
Photo: Luisorvalles, 12 February 2010

CACAO

Three different types of *cacao* beans are used in chocolate production. They are the ***Criollo*** (native to Venezuela), the common ***Forastero*** (native to Brazil) and a hybrid between the two, the ***Trinitario.*** Criollo and Trinitario are considered the best *cacao* beans, while Forastero is considered the ordinary or bulk bean for mass production. Over 90% percent of the world's *cacao* is bulk. The remainder is fine/flavour *cacao* from most of the Trinitario and all of the Criollo varieties.
Source: *The Chocolate Revolution*

"The Venezuelan chocolates that I took home with me were made primarily from Trinitario beans with Criollo beans used in La Praline's ganaches."
Karen Angel

Photo: (l) Karen Angel, 15 July 3012

Cacao plant seedlings in containers, Oriente, Venezuela.
Photo: Benjamin Rodriguez, 29 January 2012

Paul Stanley observing the sorting of ***Cacao*** beans in Oriente, Venezuela.
Photo: Benjamin Rodriguez, 29 January 2012

NATIVE VENEZUELAN PLANTS SEEN IN VENEZUELAN CITY GARDENS

Many of the plants seen in Venezuela are found in Humboldt County's coastal gardens: *Sunset's* Zone 15-17 (SZ15-17): Oceanside Northern and Central California and Southernmost Oregon. Growing season: late February to early December. Coolness and fog are hallmarks; summer highs seldom top 75°F (24°C), while winter lows run from 23 to 36°F (-5 to 2°C). Heat-loving plants disappoint or dwindle here.

Brugmansia: Family Solanaceae. Common name is 'Angel's Trumpet'. Native to tropical regions of South America, along the Andes Mountains from Venezuela to northern Chile, and also in south-eastern Brazil. Thrives in SZ15-17 if protected from frost and salt air.

Brugmansia Karen Angel's Arcata CA SZ15-17 garden.
Photo: Karen Angel, July 2004

Jacaranda: Family Bignoniaceae. Native to subtropical and tropical regions of Central America and South America, especially Brazil. It is a favorite ornamental tropical tree with trumpet-shaped purple-blue flowers. It also thrives in Asia, Australia, New Zealand and Southern California. Considered too tender to survive in SZ15-17, but it is occasionally for sale in nurseries.

Jacaranda tree in bloom, Buenos Aires, Argentina.
Photo: Beatrice Murch, 14 November 2007

Jacaranda mimosifolia in bloom Turvey Park, New South Wales, Australia.
Photo: Bidgee, 28 November 2008

Cattleya mossiae: Family ***Orchidaceae***. Widely distributed in Venezuela. The populations near the Andes bloom February to May with the coastal populations blooming between May and July. A specimen in bloom was not seen during the expedition. The corsage orchid of the 1950s. Greenhouse grown in SZ15-17.

Cattleya mossiae on display XVII Exposición Nacional de Orquídeas del Caroní, in Ecomuseo del Caroní, Central Hidroeléctrica Antonio José de Sucre, in Puerto Ordaz, State of Bolívar. **Photo: Marianela Camacho, Puerto Ordaz, 26 July 2011**

Cattleya mossiae was declared the national flower of Venezuela 23 May 1951. It is known as *Flor de Mayo* (Flower of May) in Venezuela.

Cattleya mossiae blooming in the El Hatillo garden of Enrique Lucca. El Hatillo is one of the five municipalities of Caracas in the State of Miranda.
Photo: Enrique Lucca, his garden, April 2009

Abutilons striatum: Family Malvaceae. In Venezuela the bushes are called Malva Real. Common English name is Flowering Maple. Thrives in SZ15-17.

Abutilons insigne Eureka CA SZ15-17 garden.
Photo: Karen Angel, 17 August 2012

Mandevilla splendens: Family Apocynaceae. Native to Central and South America. It may survive in a SZ15-17 garden if protected from frost. Usually grown as SZ15-17 houseplant or greenhouse plant.

Mandevilla splendens in Marianela Camacho's Maracaibo, Venezuela garden.
Photo: Marianela Camacho, 2 October 2011

Mandevilla splendens hybrids growing outside during the summer in Eureka CA, SZ15-17 gardens.
Photo: (l) Sanderson Morgan, 19 August 2012, Photo: (r) Karen Angel, 13 September 2012

Canna: Family Cannaceae. Native to subtropical and tropical Americas. Thrives in SZ15-17.

Canna Marianela Camacho's Maracaibo, Venezuela garden.
Photo: Marianela Camacho, 15 October 2011

Canna Arcata CA, SZ15-17 garden.
Photo: Karen Angel, 5 September 2012

Passiflora: Family Passifloraceae. The passion vine is a widely distribute plant with species native to South America, USA, China, Southern Asia, New Zealand and Papua New Guinea. Flower parts symbolize the passion of Christ with the crown representing a halo or crown of thorns. ***Passiflora manicata*** is native to Brazil and Venezuela. Thrives in SZ15-17.

Passiflora jamesonii or ***Passiflora mixta*** was seen growing in Caracas. Thrives in SZ15-17 gardens. **Photo: Karen Angel, Arcata CA, 24 July 2012**

Left: ***Passiflora jamesonii*** Coral Glow or Coral Seas with three-lobed leaves.
Right: ***Passiflora caerulea*** Blue Crown with five-lobed leaves.
Photos: Karen Angel, 24 July 2012

Bougainvillea*:** Family Nyctaginaceae. Named for French admiral and explorer Louis-Antoine Comte de Bougainville (1729-1811). ***Bougainvillea, native to tropical and subtropical South America, is sometimes referred to as the tropical rose because of its thorns. It does well in SZ15-17 when protected from frost.

Bougainvillea flowering in San Miguel de Allende, Mexico.
Photo: Kevin Rowland, 24 October 2011

Bougainvillea flowering in Pierson's Garden center, Eureka CA., SZ15-17. The lowers are small, usually white, with each cluster of three flowers surrounded by three or six bracts which are the colors associated with the plant, including pink, magenta, purple, red, orange, white, or yellow. **Photo: Karen Angel, 24 July 2012**

Alpinia purpurata: Family Zingiberaceae, a family of flowering plants distributed throughout tropical Africa, Asia, and the Americas. Red Ginger, also called Ostrich Plume and Pink Cone Ginger, is native to Malaysia. The actual flower is small and white and at the top of the red plume.

Alpinia purpurata Panama City, Panama.
Photo: Kevin Rowland, 6 July 2012

Alpinia purpurata was seen in Caracas and Ciudad Bolívar gardens and Hotel Avila's floral arrangements.

Left: ***Alpinia purpurata*** Marianela Camacho's Maracaibo, Venezuela garden.
Right: ***Alpinia purpurata*** Hotel Avila's lobby, Caracas, Venezuela.
Photo: (l) Marianela Camacho, 15 Oct 2011, Photo: (r) Steve Allen, 28 June 2012

Tropaeolum majus: Family Tropaeolaceae. Common name is Nasturtium. Native to South America. The hardiest species is ***Tropaeolum polyphyllum*** from Chile. A fast growing, climbing vine, the eaves, flowers and seeds are edible with the flowers a colorful, peppery addition to salads. Nasturtiums were seen in Caracas and Ciudad Bolívar gardens. Thrives in SZ15-17.

Tropaeolum in summer bloom Arcata CA SZ15-17 garden.
Photo: Karen Angel, 24 July 2012

Tropaeolum in summer bloom Arcata CA SZ15-17 garden.
Photo: Karen Angel, 24 July 2012

Heliconia rostrata*:** Family Heliconiaceae. Common names are Lobster Claw and False Bird of Paradise. Its downward facing flowers are attractive to nectar feeding birds. An herbaceous perennial native to Colombia Venezuela, Ecuador, Peru, and Bolivia. ***Heliconia rostrata is the national flower of Bolivia where it is called Patujú. ***Heliconia canibaea*** has upward facing flowers.

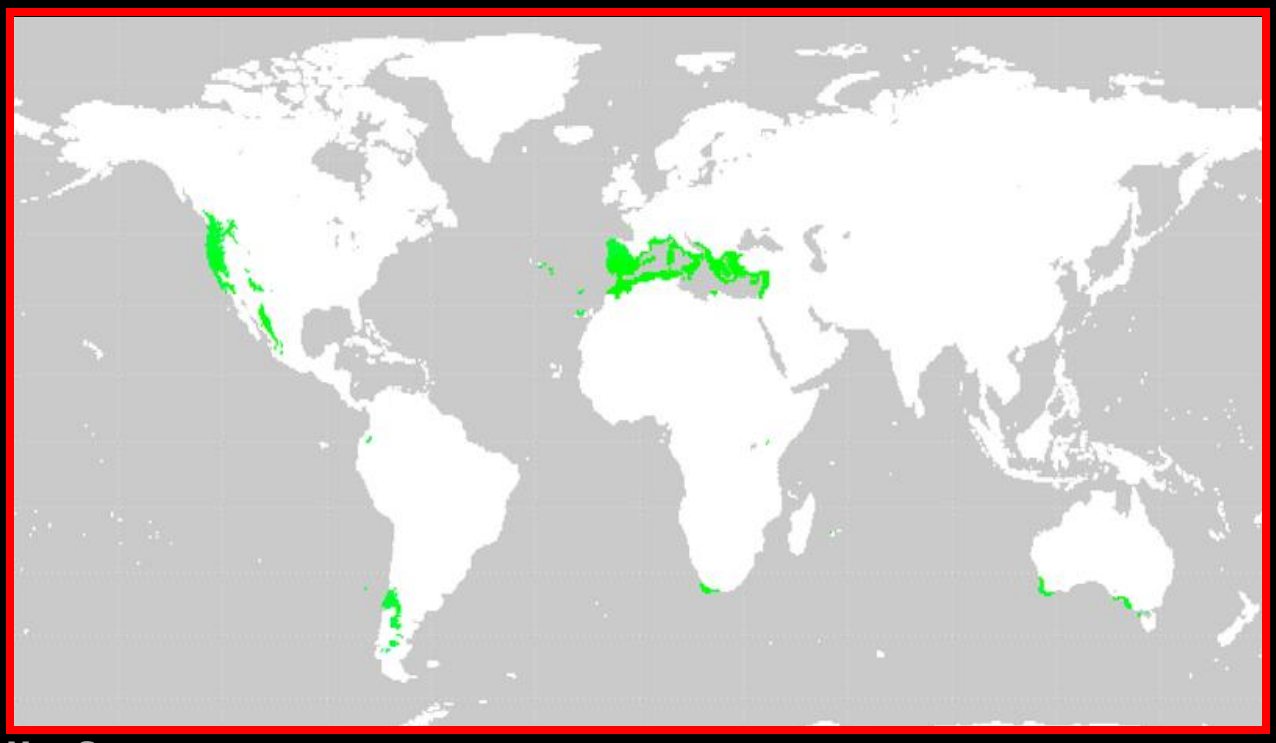
Heliconia canibaea with upward facing flowers, Marianela Camacho's Maracaibo, Venezuela garden. **Photo: Marianela Camacho, 7 March 2012**

NON-NATIVE (AKA EXOTICS) PLANTS SEEN IN CANAIMA NATIONAL PARK, CARACAS AND CIUDAD BOLÍVAR GARDENS

Many of the plants seen in Venezuela are found in Humboldt County's *Sunset's* Zone 15-17 (SZ15-17) coastal gardens. SZ15-17 refers to oceanside Northern and Central California and southernmost Oregon. The growing season is late February to early December. Coolness and fog are hallmarks; summer highs seldom top 75°F (24°C), while winter lows run from 23 to 36°F (-5 to 2°C). Heat-loving plants disappoint or dwindle here.

Many of the ornamental plants observed, especially in Caracas and Ciudad Bolívar, have travelled around the world to find a home in Venezuela. Plants native to tropical, subtropical, and the five mediterranean climate regions of the world are grown in Venezuela.

MEDITERRANEAN CLIMATE REGIONS OF THE WORLD



Map Source: Wikimedia Commons

Most of California is a mediterranean climate with coastal Humboldt County combining mediterranean climate with marine west coast climate (moderate temperatures with rain throughout the year). The four other mediterranean climate regions are the Mediterranean Basin, the northern coast of Chile, the Cape of South Africa, and portions of western and southern Australia. In total, these areas comprise about 2% of the earth's landmass. Except for the Mediterranean Basin, the five regions lie within 30-45 degrees latitude and are on the western coastal side of continents. The distinctive feature of the mediterranean climate is the low level of rain in the summer.

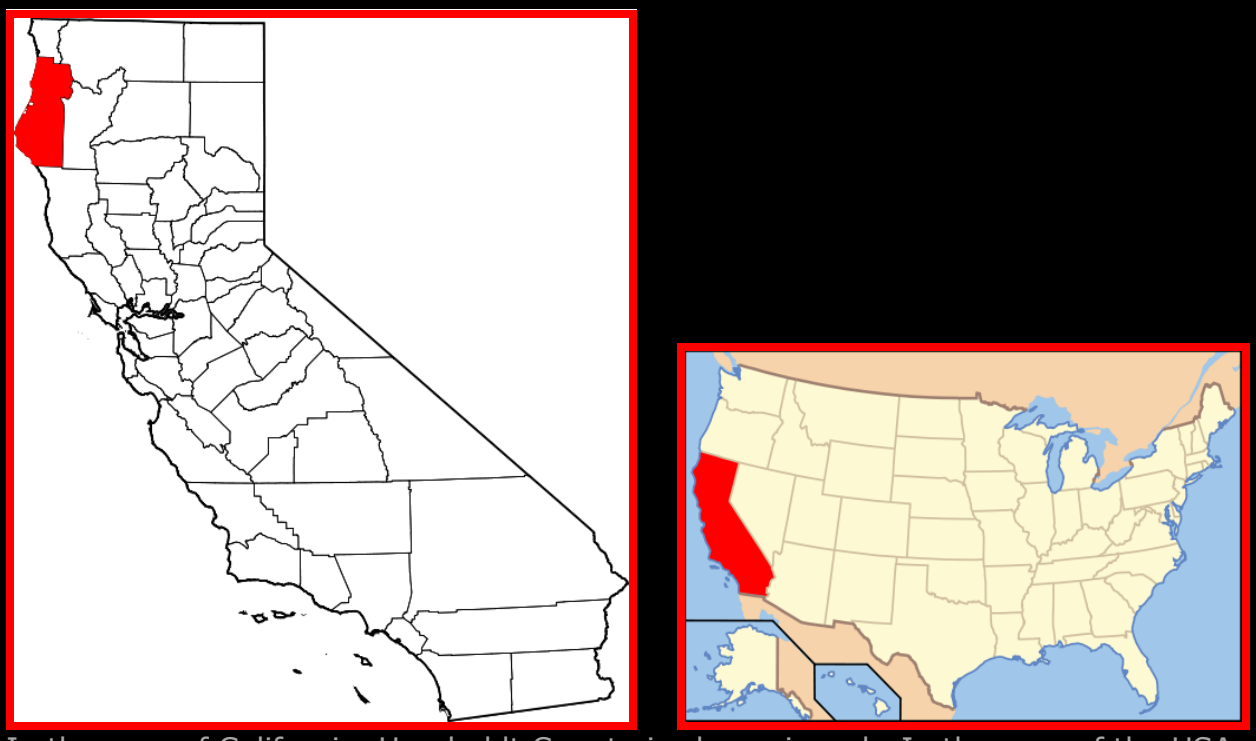
Source: Peter R. Dallman, *Plant Life in the World's Mediterranean Climates*

Annual precipitation in Humboldt County averages about 39 inches (990.6 mm), and can vary significantly depending upon local conditions. Under the modified Köppen classification system, Eureka climate is categorized as a marine west coast climate with moderate temperatures and relatively small seasonal fluctuations in temperatures due to its proximity to the Pacific Ocean. The annual temperature range is one of the smallest in the lower 48 states. Summers have little or no rainfall and low fog is common. The marine layer is typically 800 to 1,500 ft. (244-457 m) thick. There are periods of time when the entire day and night is shrouded in fog for consecutive days. Winters are wet, with storms coming off the Pacific Ocean. The region experiences high levels of humidity throughout the year. Humidity averages 87 percent at night and early mornings and 78 percent in early evenings.
Source: California Energy Commission

CLIMATE ZONE COMPARISON

Venezuela's temperate zone 54-77°F (12-25C°) is similar to Humboldt County's *Sunset's* Zone 15-17 summer 75°F high (23C°). Most Venezuelan cities including Caracas, Ciudad Bolivar and Maracaibo are located in its temperate zone. The annual average Caracas precipitation is 29.5 inches (750 mm) while Humboldt County's annual average precipitation is 39 inches (990.6 mm).

MAP OF HUMBOLDT COUNTY, CALIFORNIA & USA



In the map of California, Humboldt County is shown in red. In the map of the USA, California is shown in red. **Map Source: Wikimedia Commons**

Bauhinia purpurea: Family Fabaceae. Native to south China and Southeast Asia, common name is Hong Kong Orchid Tree. Generally considered too tender to survive in SZ15-17.

Bauhinia purpurea mature Hong Kong Orchid Tree in Hotel Avila's outdoor dining area. **Photo: Steve Davidson, 27 June 2012**

Bauhinia purpurea Hotel Avila's outdoor dining area.
Photo: Karen Angel, 5 July 2012

Delonix regia: Family Fabaceae. Common names are Royal Poinciana and Flamboyant. Native to Madagascar, it thrives in Venezuela. Several were seen in Pemón villages. A beautiful specimen was growing near the entry to the expedition's Ciudad Bolívar hotel. Too tender to survive in SZ15-17.

Right: ***Delonix regia*** Kamarata's Capuchin Mission School.
Left: ***Delonix regia*** Ciudad Bolívar's La *Cumbre* (mountain top) Hotel.
Photo: (l) Paul Stanley, 1 July 2012, Photo: (r) Patrick Edwards, 5 July 2012

Delonix regia Ciudad Bolívar's *La Cumbre* Hotel.
Photo: Patrick Edwards, 5 July 2012

Dietes grandiflora: Family Iridaceae. Native to South Africa. Seen in Caracas gardens. Thrives in SZ15-17.

Dietes grandiflora summer bloomer Eureka CA, SZ15-17 garden. The blue flower is ***Lobelia erinus,*** native to southern Africa. Family Campanulacea.
Photo: Karen Angel, 19 August 2012

Dietes grandiflora summer bloomer Eureka CA, SZ15-17 garden.
Photo: Karen Angel, 19 August 2012

Zinnia: Family Asteraceae. Native to Central America with Mexico the center of diversity. Thrives in SZ15-17.

Zinnia Marianela Camacho's Maracaibo, Venezuela garden.
Photos: Marianela Camacho, 15 October 2011

Zinnia summer blooms in Sequoia Park Garden, Eureka CA, SZ15-17.
Photo: Karen Angel, 10 September 2012

Hibiscus: Family Malvaceae. Native to Asia and Pacific Islands. Seen in Caracas gardens. Too tender for SZ15-17 gardens, but does well as a house plant.

Hibiscus a houseplant in Karen Angel's Eureka CA home.
Photo: Karen Angel, March 2010

Strelitzia reginae: Family Strelitziaceae. A flowering plant indigenous to South Africa. Common names include Strelitzia, Crane flower and Bird of Paradise. Seen in Caracas gardens.

Strelitzia reginae blooming in Buffalo and Erie County Botanical Gardens, USA. Grows well in at least one SZ15-17 Arcata CA garden. **Photo: Dave Pape, 1 January 2008**

Alstroemeria: Family Alstroemeriaceae. Native to Chile, Peru and Brazil. Seen in Caracas gardens. Common names are Peruvian Lily and Inca Lily. Thrives in SZ15-17.

Alstroemeria Peruvian Lily, hybridized form, in Karen Angel's Eureka CA, SZ15-17 garden. **Photo: Karen Angel, 15 July 2007**

Alstroemeria Peruvian Lily, hybridized form, in Karen Angel's Eureka CA, SZ15-17 garden. **Photo: Karen Angel, 15 July 2007**

Gunnera manicata: Family Gunneraceae. Also known as ***Gunnera brasiliensis*** because Brazil is its native habitat. Seen in Caracas gardens. Its common names include Gunnera, Giant Rhubarb' and Dinosaur Food. Given ample water, it thrives in SZ15-17.

Gunnera manicata thriving in Pierson's Garden Center, Eureka CA, SZ15-17.
Photo: Karen Angel, 24 July 2012

Gunnera manicata Pierson's Garden Center, Eureka CA.
Photo: Karen Angel, 24 July 2012

Hydrangea: A genus of 70 to 75 flowering plants in Asian and Americas. Family Hydrangeaceae. ***Hydrangia macrophylla*** is native to Japan. Common name in USA is Mophead Hydrangea; common name in Venezuela is Hortensia. Thrives in SZ15-17.

Hydrangia macrophylla blooming in a Caracas garden.
Photo: Steve Davidson, 27 June 2012

Hydrangia macrophylla *blossoms* can be either pink, blue, or purple shades, depending on a pH-dependent mobilization and uptake of soil aluminum into the plants. Karen Angel's Eureka CA, SZ15-17 garden. **Photos: Karen Angel, 17 August 2012**

New Guinea impatiens: Family Impatiens. Discovered by USDA botanists in Papua New Guinea in the 1970s, New Guinea Impatiens have travelled the world since. Thrives in Caracas gardens and SZ15-17 when planted in the shade with morning sunlight.

New Guinea impatiens Pierson's Garden Center, Eureka CA, SZ15-17.
Photo: Karen Angel, 24 July 2012

New Guinea impatiens Pierson's Garden Center, Eureka CA.
Photo: Karen Angel, 24 July 2012

Agapanthus: Family Amaryllidaceae. Common name is Lily of the Nile. It is not a lily and all of the species are native to South Africa from the Cape of Good Hope to the Limpopo River. Seen in Caracas gardens. Thrives in SZ15-17 sunny locations.

Agapanthus Eureka CA SZ15-17 garden.
Photo: Karen Angel, 24 July 2012

Agapanthus Eureka CA SZ15-17 garden.
Photo: Karen Angel, 24 July 2012

EDITOR

The Editor, Karen Angel is the founding President (1996 - current) of the Jimmie Angel Historical Project (JAHP), University of California (Davis) Master Gardener (Class of 2002), and former Executive Director of the Humboldt Botanical Gardens Foundation (1998-2007). Her father Clyde Marshall Angel (1917-1997) was the youngest brother of American aviator-explorer James "Jimmie" Crawford Angel (1899-1956) for whom Angel Falls, the world's tallest waterfall is named. Jimmie Angel first saw the waterfall 18 November 1933. Please send comments and corrections to the Editor, Archive@jimmieangel.org.

JIMMIE ANGEL HISTORICAL PROJECT

With the assistance of people interested in the history of exploration and aviation, Karen Angel co-founded the JIMMIE ANGEL HISTORICAL PROJECT (JAHP) in 1996, Federal Tax Number 68-0372407. The JAHP is incorporated in the State of California as a 501(c) (3) nonprofit, public benefit corporation to foster research and to provide accurate information about aviator-explorer James "Jimmie" Crawford Angel (1899-1956), his friends and associates, and their era of exploration with an emphasis on exploration in Venezuela during the 1920s through the 1940s. The JAHP is also interested in properly conserving Jimmie Angel's airplane *El Rio Caroni* which is on display at Ciudad Bolívar's *Aeropuerto "General Tomas de Heres,"* State of Bolívar, Venezuela.

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SOURCES

Photographs: The following individuals contributed their Photographs from the 2012 "Tribute to Jimmie Angel Expedition" for this report: Robert Allen, Steve Allen, Karen Angel, Vittorio Assandria, Marianela Camacho, Steve Davidson, Patrick Edwards, John Holl, Alan Mason, Maia Nero, Kevin Rowland and Paul Stanley. Special thanks to Marianela Camacho for her assistance locating Photographs. When Photographs from the 2012 expedition, or a previous expedition, were not available, Photographs from Wikimedia Commons were used and credited. Sanderson Morgan and Karen Angel took post expedition Photographs in the California north coast cities of Eureka and Arcata *Sunset's* Zone 15-17 (SZ15-17) and Marianela Camacho took Photographs in Venezuela to illustrate the report. Photographs are the property of the person credited.

Plant and Insect Identification: JAHP Board Member and Vice President Jorge M. González, Ph.D., Texas A&M University, Department of Entomology, College Station, Texas, provided insect identifications and assisted with plant identifications. He consulted with his good friends Balentina Milano, Angel Fernandez and Francisco Delascio, all botanists from Venezuela, to corroborate plant identifications for *Native Venezuela Botanicals, Canaima National Park* (Pages 17-42) and *Botanicals Consumed and a few Zoological Specimens* (Pages 51-75) sections. Jorge M. González, Ph.D. assisted with *Personal Adornments, Baskets and Structures: Canaima National Park* (Pages 43-50). Jorge M. González, Ph.D., also provided an *Arepas History* and recipe (Please see Pages 55-57).

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