MG Study Travel Program, Costa Rica 2017

Jan 10 – Chocolate & Crocodiles

Most of us managed to escape the chilly weather in the US to arrive in Costa Rica, but one person had to cancel due to injury and two others are still hoping to join the tour in two days after their airport was closed because of ice. A storm moving through the area here made it excessively windy, with some rain, so we weren't able to enjoy the beautiful gardens behind the hotel as much as if the weather had been pleasant.

Scenes in the garden at Hotel Bougainvillea.

Our first stop this morning was at Sibu Chocolates in the greater San Jose area where co-owner Julio greeted us as we got off the bus, and then co-owner George welcomed everyone into the main building. We sat at several tables where small wooden dishes with a careful arrangement of chocolates were placed at each seat. Then the two owners gave an excellent presentation on the history of chocolate, from its initial consumption as a bitter beverage by the indigenous cultures, exportation to the Spanish aristocracy, its spread through Europe and technological developments in commercial manufacturing, its importance during the two World Wars, and the eventual adoption by the general public as an affordable treat, to the present focus on artisanal chocolates – stopping periodically to sample their chocolates that demonstrated the different styles and tastes of chocolates through its evolution. Afterwards there was time to shop for bars or boxes of chocolates to try to take home (we'll see who can resist eating them before they leave the country!), enjoy some coffee and cookies, and look around the small gardens filled with bromeliads and flowers.

The group learning about chocolate (L); hot chocolate (LC) and cacao pods (RC) and George passing out samples (R).

It was hot and steamy when we got to the highway crossing over the Tarcoles River a little before noon, where we made a stop to use the bathrooms before walking across the bridge in the hot sun to see the crocodiles on the sand banks of the river below. These large, primitive reptiles congregate in this area partly because of the physical characteristics of the brackish river at this point and because people have been feeding them regularly, keeping their populations higher than they would be naturally. It was a convenient opportunity to easily observe

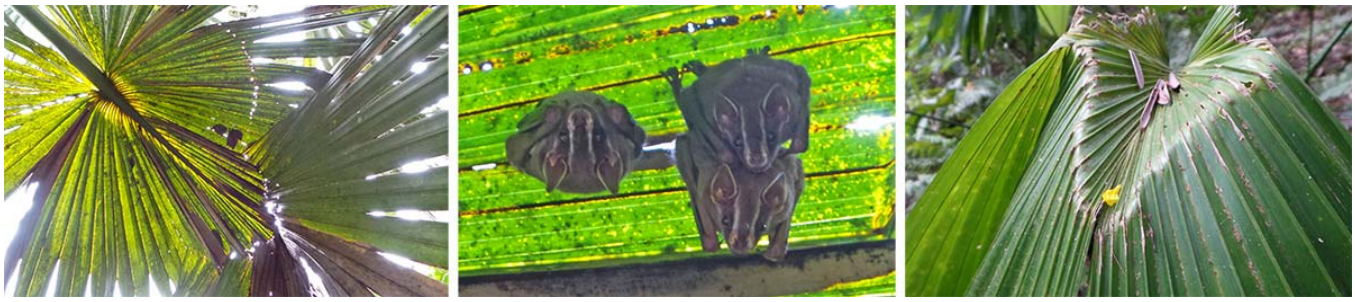
the animals from a safe distance. Our guide Margherita filled us in on a few facts about these carnivorous animals that can grow up to 18 feet long and how they differ from caimans (smaller and prefer fresh water).

Crocodiles in the Tarcoles River.

As we drove from the crowded urban areas of the Central Valley towards the Pacific coast we descended in elevation, going from the moister highlands toward the western part of the county whose dominant vegetation ecosystem is tropical dry forest. This ecosystem is characterized by distinct wet and dry seasons, and many of the plants have adapted to the six months or so without water by shedding their leaves. Many of these deciduous trees bloom before they produce a new set of leaves at the onset of the wet season, so their flowers are much more conspicuous than if they were mixed in with the foliage. There were golden shower (*Cassia fistula*) with a canopy covered with pendant, pale yellow-gold blossoms and pink acacia (*Gliricidia sepium*), then later pink poui or pink trumpet tree (*Tabebuia rosea*) and yellow poui (*T. ochracea*) with their large, trumpet-shaped flowers. After crossing the Tarcoles River, and especially at the Rainforest Adventures site along the edge of Carrara National Park near Jaco, we saw lots of yellow *Schizolobium parahyba* (called *gallinazo* in Spanish) with their erect terminal panicles of many small yellow flowers just starting to open, making those trees noticeable among the mainly green trees on the slopes.

Yellow-flowering trees in the forest (L and C); infloresences of *Schizolobium parahyba* (R).

After lunch and an aerial tram ride at Rainforest Adventures, where we boarded gondolas to quietly glide up from the forest floor to view the diversity of trees from within and above the forest canopy, our guide pointed out three tent-making bats roosting on the underside of a fan palm leaf. These bats, characterized by two prominent white stripes on the face and a leaf-nose, eat primarily fruit, but also some insects. They bite the top of the leaf so that it droops, creating a more protected spot where they can hang out during the day. As we walked a short loop trail through the forest we saw many palm leaves that had been cut by tent-making bats, but didn't see any more of the little animals using the shelters.



Tent-making bats roosting under palm leaves (L), tent-making bats *Uroderma bilobatum* (C), and upper surface of palm leaf chewed by bats to create roost (R).

Jan 11 – Relaxation & Mangroves

The birds were singing before dawn, and the sun rose in clear skies, except for big fat clouds out over the water. Having arrived in the dark, the dramatic view over the dry forest filled with yellow-flowering trees stretching to the ocean was a surprise. It was 100 steps (plus some unpaved trails on more gentles slopes) from the lower rooms up to the open air bar/pool/dining area where we met for breakfast at 7:30. After enjoying fresh tropical fruit, pancakes, scrambled eggs, bacon, rice and beans and toast, people hung around the pool watching several black-mandibled toucans in the nearby cecropia trees.

View of the tropical dry forest and ocean from the pool area (L) and black-mandibled toucans in the nearby cecropia)trees (LC and RC) and flying away (R).

Today was a free day, so people could take optional tours, relax by the pool, read a book, or do nothing if they chose. Over half the group decided to take the optional mangrove tour in the afternoon. In the morning we did a leisurely walk along the dirt roads outside the hotel to look at the mostly native vegetation and any animals that might happen by. We saw lots of fan fern (*Sticherus bifidus*),

The group botanizing and birding along the road (L) and fan fern plants (LC), new foliage (RC) and tendril (R).

lots of different trees, with some in flower, the shrub *Psychotria* spp. commonly called hot lips for the shape of the bright red flower bracts, a heliconia with a wide, dark red pendant inflorescence, a spiral ginger (*Costus* spp.)

with an orange-red, cone-shaped inflorescence at the end of its twisted stem, and various other blooming herbaceous plants.

A fresh inflorescence of *Psychotria* sp. (L) and an older one with white flowers (LC), red inflorescence of *Heliconia* (RC) and spiral ginger (R).

Further up the road, with nice views of the ocean (L) and blooming trees in yellow (*Schizolobium parahyba*) and pink (LC). Flowers of *Emelia* sp. (RC) and leaf-footed bug on a flower bud (R).

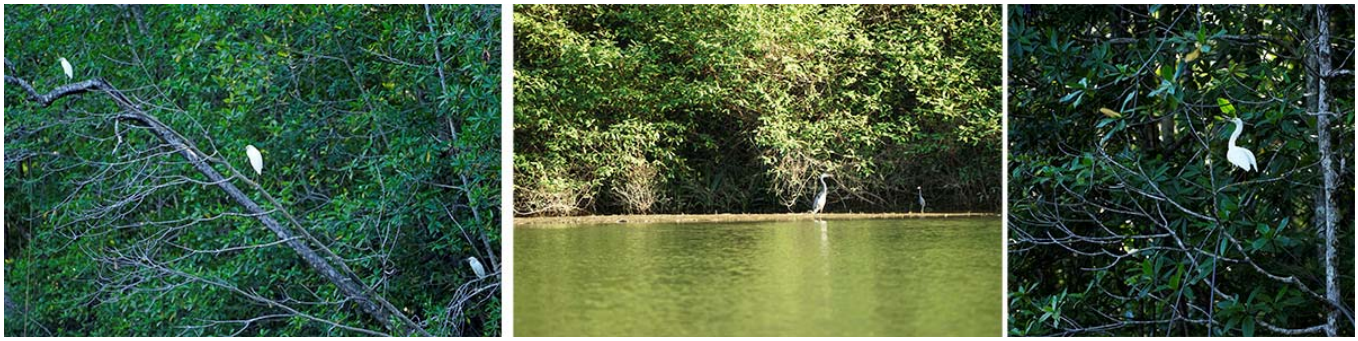
There were lots of different types of butterflies flitting about, but they weren't cooperative about posing for pictures. We also saw a few birds, including a yellow caracara that flew over, several tropical kingbirds (a type of flycatcher with a yellow belly) perched on the wires that would periodically dive off to chase insects, turkey vultures soared on the air currents up high, and a bright red male summer tanager. We could hear a violaceous trogon calling and several hummingbirds squeaking nearby, but they never came out where we could see them.

Don and Della stop on roadside (L) to look at the flower of *Passiflora vitifolia* (LC). Butterfly, *Adelphia* sp. (RC). Tropical kingbird (R).

I didn't go on the mangrove tour (having been on many before), but stayed behind to work, test out the pool, and photograph the sunset that the others missed since they didn't return until well after dark.

The pool at Vista Ballena (L) and sunset from there (R).

Those who went on the mangrove excursion reported they had a great time and learned a lot about this interesting habitat with mangrove plants that belong to several different plant families and have different adaptations for dealing with unstable soil and the high salt concentration of the brackish water they inhabit. Photos courtesy of Lisa Seidmann.



Egrets and herons in the mangrove habitat.

In addition to the vegetation, they were really impressed by the sheer number of about 30 different kinds of birds including several kinds of egrets, herons, anhinga, whimbrels, magnificent frigatebird, white-necked puffbird, yellow-headed and crested caracaras, ringed kingfisher, red-lored parrot, osprey, common black hawk, and orange-chinned parakeet and the big moon that rose while they were heading back to shore.

Whimbrels (L), immature yellow-crowned night heron (C), and magnificent frigate birds overhead (R).

The mangrove tour guide shows Lori and others a mangrove seed (L). Later in the tour as the sun disappeared the moon rose over the hillside (C) to glow in the early evening sky (R).

Jan 12 – Wilson Botanic Garden

We got up early to make the two hour drive south to spend the whole day at Wilson Botanical Garden, the most famous botanical garden in Central America. But before we ever arrived we had an excellent ornithological experience. Just as we were getting ready to move on from a quick bathroom stop where there were two impressive kapok trees (*Ceiba pentandra*), three scarlet macaws flew by, and then landed in a wild cashew tree across the road. We hopped back out of the bus to watch the large red, blue and yellow birds hanging in the treetop, one circling around to land in a different part or harass one of the other birds. The farm owner invited us to walk down his driveway for a better view of the colorful birds squawking at each other in the medium-sized tree. As we watched, a king vulture soared in the air behind us, obscured from view by one of the very nearby kapok trees, and an immature king vulture gave us a better view, while a large flock of orange-chinned parakeets flew over, chattering noisily.

Kapok tree, *Ceiba pentandra* (L), scarlet macaws (LC, C, RC) and king vulture (R).

We arrived at Las Cruces Biological Station, part of the Organization for Tropical Studies (OTS, a consortium of 60+ universities from around the world) where Wilson Botanical Gardens is located, about 9:35. The Station is located about 3,000 feet above sea level on a spur of the pacific coastal mountain range on about 800 acres of premontane wet forest. About 2/3 of the property is primary forest, with a range of elevations that allows for a high diversity of flora and fauna. Las Cruces started as the private nursery and experimental farm of Robert and Catherine Wilson in 1962. It was acquired by OTS in 1973, and continued their plantings and expanded the mission to include tropical research, especially in conservation biology and restoration. The 25 acres of landscaped gardens features a diversity of tropical and subtropical ornamentals from around the world, representatives of unusual plant families, and rare and endangered plants from Costa Rica and elsewhere. The garden has the second largest collection of palms in the world as well as large collections of ferns, aroids, bromeliads, gingers, heliconias, and marantas.

Entrance to Las Cruces Biological Station (L) and scenes from Wilson Botanic Garden.

We were fortunate to have the Station manager Rodolfo (Rodo) take us into the garden to learn about just a few of the many plants in the vast collections. He told us about the ornamental palm *Pinanga kuhlii* from Southeast Asia, pointing out its young inflorescences at the bottom, older ones up further, then green fruits and finally yellowing fruits at the top. Because these have the potential to be invasive, they try to remove the fruits before they turn purple or blue-black at maturity when they become attractive to birds that would inadvertently distribute the seeds. Next Rodo pointed out a tree fern from Polynesia that has the longest fronds of all ferns and a tall *Caryota* palm that is unusual because it blooms from the top down, only after 30-50 years, in comparison to most palms that bloom when they are much younger and start blooming from the bottom up.

The palm *Pinanga kuhlii* (L), a young inflorescence (LC), older inflorescence with fruits (C), new frond of tree fern (RC) and a *Caryota* palm (R).

Some other interesting plants included the wait-a-while palm (*Calamus* sp.) with its hooked spines all along the lax stems that aid in the plant ascending into the canopy as it grows; the primitive selaginellas, with their small, overlapping fern-like leaves, and the *Calathea* colony that stretched all along the walkway for about 50 feet. This mass of foliage was actually just three plants that had spread to fill the space, and those in the shade had their green-patterned leaves flat open, while adjacent sections in the sun had rolled up the edges.

Wait-a-while palm (L) with spiny stem (LC), a selaginella (C), and the *Calathea* colony in sun (RC) and shade (R).

Margherita set up her spotting scope so we could get a good look at one of the biggest moths in the world, *Thysania agrippina* (with up to a 12 inch wingspan and a number of common names including white witch and distributed from Mexico to South America), with its elongate wings spread out on a white tree trunk. This white and black patterned moth blended in perfectly with the lichens and other mottling on the tree trunk, making it fairly hard to spot despite its large size. Stopping to look at a native begonia growing on a tree trunk, we learned about these interesting plants that produce male flowers first that have lots of nectar to make them attractive to bees and other pollinators. Only after those flowers have faded are any female flowers are produced. The female flowers look similar to the male flowers, but don't produce any nectar, so pollinators that have been getting rewarded from visits to male flowers are tricked into visiting – expecting to get nectar – and pollinate the flowers without the plant having to provide anything.

Tall tree with white witch moth on trunk (L), closeup of moth (LC), begonia inflorescence on tree (RC) and unidentified gesneriad (R).

Rodo showed us the colorful inflorescence of *Musa coccinea*, then peeled back one of the bright red bracts to expose the pale yellow fruit. He noticed some fluff on the plant and picked off the bromeliad seeds to explain how many species are distributed on the wind, sticking to trees and other surfaces where they germinate and grow. We also looked at the inflorescences of hybrid cultivated bananas, *M. rosea*, and *M. violacea* to compare how the flowers and fruits are produced in the different species. We had made a loop around the area, and on the way back to the building stopped to look at a pair of tagua (*Phytelephas aequatorialis*), a monoecious palm native to Ecuador that produce very large, hard fruits. The taller male palm was in flower, with a long pendant inflorescence of a chain of large, fluffy-looking blobs swarming with tiny bees and wasps, while the female had large, old rounded inflorescences at the base of its fronds. These stay on the tree for several years to ripen the big “nuts”. Our last plant before lunch was a *Ceiba pentandra* planted in 2005, with a slightly bottle-shaped base and a number of stout thorns on the trunk (presumably to deter megafauna that are now extinct).

Rodolfo shows the group the fruit of *Musa coccinea* (L), the flowers of *M. rosea* (LC), the fruit and flowers of *M. violacea* (C), tagua nuts (RC) and thorns on *Ceiba pentandra* trunk (R).

After lunch we watched birds coming in to the bananas placed on a wooden platform. A single silver-throated tanager was the first visitor, but eventually a few more of that species, palm tanager, a clay-colored robin, a bright turquoise male green honeycreeper, and a couple of speckled tanagers came to stuff themselves full of banana. Most of us then went to see more plants, but the few who chose to stay behind also got to see golden-hooded tanager, buff-throated saltator, blue-grey tanager, and many more of the ones we’d seen once the area got quieter.

Birds at the platform feeder (L): silver-throated tanager (LC), speckled tanager (RC), and male green honeycreeper (R).

On the way down to see the greenhouse we stopped to look at a traveler palm from Guiana (*Phenakospermum guyannense*) that had its huge, bat-pollinated inflorescence sticking way up above the banana-like leaves. There is another plant from Madagascar with the same common name of traveler palm (*Ravenala madagascarens*) that superficially looks the same, but the flowers are borne near the base of the leaves, and the leaves spread out in a much wider fan.

Traveler palms: *Phenakospermum guyannense* (L) and inflorescence (C), and *Ravenala madagascarens* (R).

The greenhouse had a small collections of aquatic and insectivorous plants, including pitcher plants from the Americas (*Sarracenia*), sundews and other things, and hanging pots of pitcher plants (*Nepenthes*), some of which were in bloom with a long, skinny flower spike sticking up from the plants. Other interesting plants there included *Ruscus hypoglossum* with its little flowers coming out of what looked like a thorn in the middle of the leaf, a variety of succulent and pepperomias, some monstrous staghorn ferns, and *Columnea arguta* with waxy leaves on hanging stems and large, erect, bright orange hooded flowers.

Pitcher plants (L), sundews (LC), a flower of *Ruscus hypoglossum* (C), staghorn ferns (RC), and *Columnea arguta* flowers (R).

We also saw some impressive clumps of different species of giant bamboos from China and Japan, the 30 foot tall plants creaking in the wind as we walked underneath them; a bamboo from Columbia that has spines on the lower branches; and another species from Southeast Asia with stems covered with wide, ferocious spines. Rodo told us how he tried to use the roots of the red ginger plants, *Etlingera hemisferica,* like culinary ginger when he first came to the station, but it was a failed experiment as they are not edible. The inflorescences on short stalks are fairly attractive, with tiny yellow-tipped flowers in a cup of bright red bracts. The bromeliad garden has a number of epiphytic and terrestrial species, including *Pitcairnia corralina* from Columbia and Peru, whose red inflorescence grows down to the ground rather than upwards because it is pollinated by small hummingbirds who forage close to the ground. In another area there were a couple of large plants of purple-flowering Queen's wreath (*Petrea volubilis*) and Rodo had us feel the leaves to explain the origin of its other common name of sandpaper plant.

The group walks under giant bamboo (L), spines on Southeast Asian palm *Salacca edulis* (LC), inflorescence of *Etlingera hemisferica* (RC) and purple flowers of *Petrea volubilis* (R).

Our final exciting experience was in the cycad collection, when Rodo told us about a butterfly that uses one of the species as a host plant. The gregarious white-striped red caterpillars of the Atala butterfly (*Eumaeus atala*) feed only on the tender young foliage, and then pupate in groups on the undersides of the leaves. We first found a few pupae, then discovered a group of small larvae, and a batch of eggs. As the group headed back down the hill Susan discovered an adult sitting on a cycad stem with its wings folded up. The underside of the wings are mostly black with three rows of white dots along the outer edge of the hindwing and a red patch at

the bottom of the hindwing. Susan caught up with the group, then led a few others back to see the butterfly. After taking several pictures they discovered the butterfly had remained in place so long not because it was starting to get windy, but because it was laying eggs! We got to see all stages of this insect, not a very common occurrence.

Atala butterfly, *Eumaeus atala*, hatched eggs (L), group of young larvae (LC) and closeup (C), pupae on underside of cycad leaf (RC) and adult female laying eggs (R).

Jan 13 – Into the Clouds

It was warm and steamy for our option morning bird walk, where we saw a lot of different things including a double-toothed hawk that posed nicely in the dim light, a yellow-bellied elaenia perched on some wires, then a bright-rumped attila flitting in the foliage. There was a bit of a lull, then we started seeing a number of warblers and flycatchers, a yellow female summer tanager, and a brown hermit (a tiny dull-colored hummingbird). A flock of orange-chinned parakeets flew noisily overhead. A few scarlet-rumped caciques hung out for a bit, and we watched as one male offered nesting materials to a female. As we walked back the short distance to the hotel a couple of black-mandibled toucans flew into a tree above us.

Double-toothed hawk (L), bright-rumped attila (LC), scarlet-rumped cacique (RC) and orange-chinned parakeets in flight (R).

On our day-long drive to our next accommodations, we stopped briefly in San Isidro (population about 60,000) to get out and wander around the central plaza with its twin-towered modern church and a monument to the farmers (clay-red statue of a man driving oxen and a woman following behind with a plow).




Driving through San Isidro (L), the monument to farmers (LC), the Catholic church (RC), and shave ice vendor (R).

There were many different ornamental plants around the square where locals sat on the low concrete benches. There were a couple of tropical mockingbirds hopping around on the grass, a woman with a portable stand selling shave ice, people selling lottery tickets, and lots of pedestrians in this non-tourist town – so we got to see a slice of the real Costa Rica.




The central square (L), a white powderpuff flower (LC), three *Ixora* plants planted very close together to create the appearance of a multicolored shrub (RC), and tropical mockingbird (R).

Today we travelled from the ocean into the highest mountain range in the country. As we gradually ascended the vegetation changed, so we were seeing a whole new palette of plants that we drove past. We were leaving many of the coastal plants behind and started seeing a few *Bocconia* shrubs with their large, oak-like leaves and airy pendant inflorescences, and the orange flowers of the small native terrestrial orchid *Epidendrum radicans* on the roadcuts, lots of tall yellow daisies, and patches of low purple *Ageratum*. Escaped red dracaenas poked up here and there, and heavy blue hydrangea flowers bloomed in the landscapes around many houses. Lichens and bromeliads festooned branches of many of the tall trees. We passed some alder trees (*Alnus acuminata*) with their smooth, greyish bark.





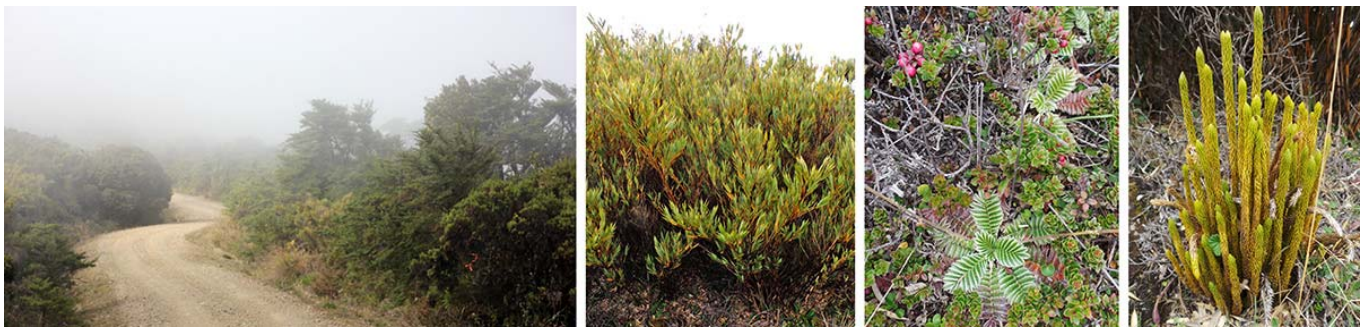
Driving past the ocean (L), into the mountains (LC), tall yellow daisies along roadside (C) and closeup (RC), and purple ageratum (R).

After lunch we started seeing some of the first huge-leaved *Gunnera talamancensis* – an indicator of cloud forest, the purple flowered *Dahlia imperialis*, and the pendant clusters of bright red tubular flowers of a vining *Bomarea* hanging down here and there. Soon we were driving though misty patches of clouds. *Bocconia* became

more abundant, and there was more of the small pink-flowered shrub *Monocahetum amabile*, still lots of dahlias in both purple and white, and the tall herbaceous *Wigandia urens* with its large, paddle-shaped leaves and light purple flowers and some native *Fuchsia paniculata*. All of a sudden we started seeing some of the endemic wild bamboo (*Chusquea longifolia*) that would become one of the dominant parts of the flora higher up. Driving through a cloud, our views were obscured by the white mist, but we could still appreciate the colorful blooming plants all along the roadsides. Tree ferns started to become more numerous. When we stopped for a bathroom break at a local restaurant, we got to see seven different species of hummingbirds coming to the feeders there.

Wigandia urens on roadside (L), flowers of *Monocahetum amabile* (LC), hummingbird feeding at *Fuchsia paniculata* (RC), and L-R magnificent hummingbird, scintillant hummingbird, and volcano hummingbird at feeder (R).

We continued on, going higher into the paramo ecosystem dominated by dwarf bamboo (*Chusquea subtessellata*) and the endemic *Escallonia* shrubs whose branches grow in layers. We pulled off the main road to wind up a dirt road toward the communication towers on this highest point of the Cerro de la Muerte. It was misty and windy, but bright, when we climbed out to look at the unique low and stunted vegetation there. It was chilly and harder to breathe at close to 10,000 feet. We took lots of photos and picked a few specimens of things we found interesting to try to identify using guide Margherita's ID book later that evening at Trogon Lodge.



Paramo habitat in the clouds (L), dwarf bamboo, *Chusquea subtessellata* (LC), mixture of small, low paramo plants including the silvery *Acaena cylindrostachya* (RC), and *Lycopodium* (R).

The descent into Trogon Lodge is as memorable as the place itself, following a steep, narrow dirt road through the forest on the edge of the mountain, with lots of hairpin turns and sharp drop-offs below the road. As we left the Pan American Highway to head down into the Savegre area, we learned about the history of this area that developed into a destination for tourists interested in seeing resplendent quetzals and other birds of the

highlands and the cloud forest. We passed pastures filled with native oaks, escallonias, and many trees in the Laureaceae family, the distant slopes completely covered with native vegetation. As we descended we saw more of the wild bamboo and Bocconia again on the edges of the forest of oak, alder and many other types of trees covered with moss, lichens and bromeliads. Finally, with 1km to go, we could see the red and green roofs of the Lodge and its trout pond way down below us, and soon turned off the road to enter the property's long driveway that follows along the small river tumbling down over the rocks. The grounds are beautifully landscaped with all sorts of ornamental plants from around the world, and just a few native species, but nearly all of them provide nectar for the numerous species of hummingbirds that reside here.

The small river near Trogon Lodge (L) and scenes of the landscaped area at Trogon Lodge (LC-R).

Exotic landscape plants at Trogon Lodge: red hot poker (*Kniphofia*) and calla lily (*Zantedeschia*) from South Africa (L), *Echeveria*, in bloom, from Mexico (LC), Mexican sage, *Salvia leucantha*, from Mexico (C), *Brugmansia sanguinea*, native to the Andes from Columbia to northern Chile (RC), and Ethiopian Banana, *Ensete ventricosum* (R).

Jan 14 – Quetzal Quest

This morning we headed further down the valley to Savegre Lodge where we loaded into two small 4WD vehicles for the tour into the forest on a steep, rutted dirt road full of rocks. Each vehicle had two bench seats in back along each edge, facing each other, that could accommodate up to 6 people. We bounced our way up the rugged road high into the primary forest, and after about a 10 minute ride got to a turnaround point where there were several trailheads.

Getting into the 4WD vehicles at Savegre Lodge (L), Mary, Barb and Marilyn inside one vehicle (LC), looking back while driving up (RC), and on the road into the forest (R).

We piled out into the pristine forest with tall trees towering overhead in the cool fresh air and walked first along the road and then along a narrow footpath that was a jumble of rocks and roots covered by fallen leaves (and having to crawl over a fallen tree at one point). We spent a lot of time with our necks craned upwards, looking high into the canopy for whatever birds we could see, always hoping one would be a quetzal. Most of them were too high up or moved too quickly to be able to take photos, but we saw a nice assortment including spangle-cheeked tanager, golden-bellied flycatcher, sooty-capped chlorospingus, yellow-thighed finch, black-cheeked warbler, collared redstart, and ruddy treerunner in the mixture of oak (*Quercus costaricensis*), trees in the Lauraceae, and many others creating a very high canopy. There were also a number of birds that we only heard and never spotted, including the black-faced solitaire with its distinctive melodic rusty door call, western wood peewee, mountain elaenia, and chestnut capped brush finch. A few bromeliads, orchids, and other epiphytes perched high on the limbs of some of the trees.

The trail covered with leaves (L), the primary forest (LC), looking up into the canopy (RC), and bromeliads high in a tree (R).

A lot of what we learned came from things that had fallen from the canopy – leaves and branches, whole bromeliads or orchid plants, flowers. Margherita picked up many of these to tell us about the ethnobotanical uses of some, which birds or animals fed on others, the ecology of still others.

Guide Margherita tells the group about a plant (L), fallen bromeliads (LC), Margherita talks about *Clusia* and *Bocconi*a (RC) based on their fallen leaves (R).

The trail took us down to cross over a creek on a small metal bridge, then tromped along the slick rock and deep mud that served as the trail in many places with small pale pink-flowered begonias, tiny ferns, mosses, fungi and many other interesting plants covering the slope or rocks next to the trail.

The group on the trail (L), Deb photographs the creek (C), and hiking on the road (R).

Percy photographs a patch of sphagnum moss, *Sphagnum magellanicum* (L), closeup of the moss (LC), maidenhair fern (RC), and a weird parasitic plant, *Helosis mexicana* (R).

Small begonia (L), mushrooms (LC), flower of *Centropogon* sp. (RC), and a terrestrial orchid (R).

Eventually we headed up the trail to rejoin the road where we spotted many of the *Bomarea* vines clambering through the other vegetation, with their clusters of bright red tubular flowers conspicuous against the green. We spotted a couple of emerald toucanets, saw wild avocado trees covered in young fruit – *aguacatillo* – that is the main food of the resplendent quetzal and is also eaten by many trogons. Soon it was time to head down the mountain, so called to have the vehicles return to take us the rest of the way down.

Hairpin turn in the road (L), *Bomarea* flowers (LC), emerald toucanet (C), wild avocado tree (RC) and its fruits (R).

After lunch we headed out for *Parque Nacional Los Quetzales*, Costa Rica's newest national park (dedicated July 2005). Of course it is home to its namesake, the resplendent quetzal, and it was this beautiful iridescent green, red and turquoise bird that we were hoping to spot on this excursion. We'd barely gone a kilometer when the bus make a horrible shrieking noise and stopped – a belt was broken, so we weren't going anywhere. Slightly disappointed, we walked along the road where quetzals had been seen recently, then returned to Trogon Lodge to relax for a bit and hope that maybe we'd spot the birds there. Some of us sat out on the back porch of the bar hoping that one of the birds would visit the small wild avocado tree adjacent to the porch, but soon moved inside as the wind picked up. A few people braved the chill to watch another tall wild avocado tree a little further away and were rewarded with a good sighting (but no

Suzanne looks in dismay as fluid runs from under the bus that is now blocking traffic.

photos) of the female, and a brief glimpse of the male. The female flew off and returned a couple of times to eat a few of the tiny green fruits, then dove off the tall tree in a flash of red and turquoise to disappear into the foliage. We waited a little longer, hoping the male would come in for a snack, but finally gave up as the light was beginning to fade.

Jan 15 – Two Beautiful Gardens

Our first stop of the day was at *Jardín Botánico Lankester*. This garden, maintained by the University of Costa Rica, is internationally known for its collections of epiphytes, including many orchids. The orchid collection includes over 15,000 accessions from nearly 1,000 species, most of which are native to Mesoamerica. We looked at a few of these, but didn't spend nearly as much time in the shadehouse of miniature orchids as in some past tours (see blogpost from last year's trip for more about those). After taking pictures of the national orchid of Costa Rica, the *guaria morada* (*Guarianthe skinneri*), forced into bloom with their purple cattleya-type flowers with a white throat (normally they bloom in April), and briefly looking in the shadehouse we headed off to spend more time in the rest of this garden.

John and Sharon walking into Lankester Botanical Garden (L), the orchid showhouse (LC), blooming *guaria morada* (*Guarianthe skinneri*) (RC), and inside the miniature orchid shadehouse (R).

One of their other collections is of *Heliconias*, one of the most showy, distinctively tropical flowers with beautiful, brilliant colorful flowering bracts. There are 200-250 species that are mostly native to the neotropics (tropical America), but some are from the Pacific Islands west to Indonesia. Formerly classified in the banana family (Musaceae) but now in their own Heliconiaceae family, the leaves and their general shape do resemble banana and bird of paradise (Strelitziaceae), but the flowers are very different.

A variety of colorful heliconia inflorescences.

Each shoot on a mature plant can produce a single inflorescence which may be either erect (bracts pointing up) or pendent (hanging down with bracts pointed toward the ground). The fairly inconspicuous green, yellow, or orange flowers are enclosed by the spectacular, long-lasting waxy bracts that are usually bright red, yellow or both, but sometimes are green, orange, purple or pink, and may be smooth or fuzzy. Each bract has up to 50 flowers, the number depending on the species. The flashy colors of the bracts attract the hummingbirds that pollinate the flowers. The flowers come in a variety of lengths and shapes, which correspond to the length and shape of the bill of their pollinator. Curved flowers are pollinated by hummingbirds such as hermits and white-tailed sicklebill which have long, curved bills, while straighter flowers are pollinated by different hummingbirds with straighter beaks. Different hummingbird species pollinate different *Heliconia* species, which deposit pollen on different parts of the bird making transfer of the pollen to the next individual of that species likely to occur.

Erect pink-bracted heliconia inflorescence (L) and its small whitish flower inside one bract (LC). Pendant *Heliconia longa* (RC) and its small, very curved yellow flower (R).

In the afternoon we drove to the area of Tres Rios, Curridabat to visit the private home of Ms. Ileana Terán. The Terán family has owned and farmed the land for 160 years, and is now the single remaining coffee farm in the San Jose area. There are still 200 hectares of land in coffee, but the family is gradually developing the land because the land is more valuable than the coffee. She has been interested in gardening and plants since she was young, and has long been an advocate for the protection of Costa Rica's natural areas in general, and orchids in particular. She is a founder of the SACRO Foundation, an organization to protect these plants in their natural habitats. She hosts groups such as ours to discuss her conservation efforts (and social improvement projects) and to help raise funds for their projects. We visit Ileana every year on this tour, but usually for dinner. This time we enjoyed lunch with her and her husband Fernando before touring the lovely garden



Banana leaf-wrapped tamales and sangria for appetizers (L); Don and Lori talk with Fernando (C); demitasse of coffee from the Terán's plantation (R).



The group enjoying lunch with Fernando (L), another table with Ileana (C), and the third table (R).

The Terán home overlooks the city and is beautifully landscaped, with a magnificent orchid collection throughout the grounds as well as in special shade houses and greenhouses. Ileana led us through the grounds, pointing out various plants to discuss and answering questions from the group, while Fernando brought up the rear, chatting with others about the plants and other things.




Scenes in the Terán garden and Ileana leading the group through the garden (R).

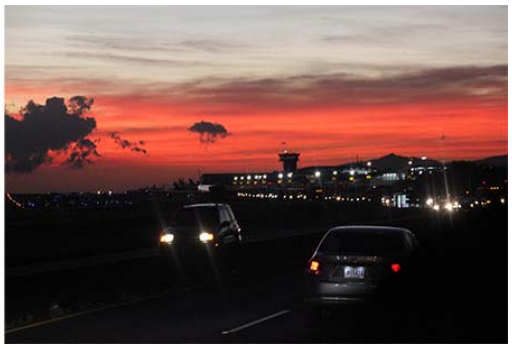
The miniature orchid house (L), Ileana tells the group about some of the plants (LC and RC), and the group looks at the miniature orchids (R).

Colorful orchids including *Epidendrum radicans* (L).

More orchids, including a miniature (RC) and *Miltoniopsis* (R).

After our tour we gathered in their livingroom to view a video produced by the SACRO Foundation (watch it yourself on YouTube – https://www.youtube.com/watch?v=-tGhhxIW6Y0) before we had to say goodbye in order to fight heavy traffic (on a Sunday!) crossing the Central Valley to get to our next hotel in the Naranjo area after dark just about the time the Packers were finishing off the Cowboys.





Ileana and Fernando (L), group photo on the front steps of their house (C), and driving past the airport after sunset (R).

Jan 16 – Coffee Time

We were staying in an area of extensive coffee plantations, so this morning we took the *Espírito Santo* Coffee Tour to learn about this important crop. Our guide Ronnie first told us about the coffee fruits, which normally have two seeds, but the premium peaberry has only one (a genetic mutation that causes one seed to abort, so all resources go into a single seed so it gets bigger).



The entrance to the coffee tour (L), a display of old-time coffee bags and typical wooden oxcart (LC), Ronnie tells the group about coffee fruits (RC) and shows the seeds ("beans" inside the red pulpy fruit (R).

From there we walked to a replica of an old Costa Rican house that was outfitted with typical items of a household of the era before electricity. This was also the place where Ronnie showed how to make drip coffee from the ground beans.



The front of the typical two-room Costa Rican house (L), inside the bedroom (C) and inside the kitchen (R).

We sat on benches around the porch or stood out on the grass under a blooming poró tree (where a variety of small birds, many of them blue-grey tanagers, foraged for nectar in the bright orange flowers) as he told us about the process, demonstrated the steeping and filtering stages, then poured the dark brown liquid into small

cups so we could sample the beverage. Instead of just drinking it, Ronnie had us slurp a very small amount, bringing a lot of air in with the liquid to clean the mouth. The first sample produced a very bitter aftertaste that was greatly reduced in subsequent slurpings. After doing that three times, then we could drink the coffee and enjoy the deep, rich flavor.

Learning about making coffee from roasted, ground beans (L), the foamy liquid produced after adding hot water to the grounds (LC), pouring the liquid through a filter (C and RC) and dispensing the finished product for tasting (R).

Next we went on to see the coffee shrubs and learn how the ripe red fruits are picked by hand and put into a basket strapped around the waist of the workers.

Coffee shrubs (L), a single flower, out of season (LC), fruits on the bushes (RC) and closeup of cluster of fruits or berries (R).

From there we saw the receiving station where the fruits are delivered (and the “coffee abacus” to keep track of the number of loads delivered) and a demonstration of how the beans are dried in the sun. We got to handle some of those drying and then a small batch of already dried beans, their papery outer covering slipping off very readily.

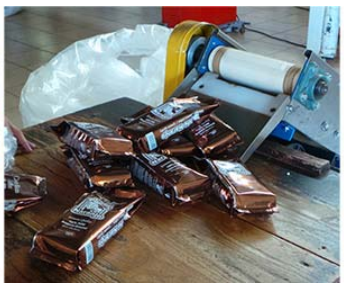
Receiving station where harvested berries are dumped from a small truck (L), the device for keeping track of the number of loads (LC), berries drying on the ground (RC) and closeup of drying berries (R).



Ronnie tells Lori, Della and Barb about the drying process (L), coffee beans (C), and closeup of one bean with papery seed coat removed (R).

Now it was time to go into the noisy roasting and packaging facility, where loud machinery was running and a few workers were putting the finished product into packages for shipping. Finally we ended in the souvenir shop where there was a small selection of arts and crafts, as well as their coffee, chocolate-covered coffee beans and locally made liqueurs.






Ronnie discusses how the beans are roasted (L), workers packaging special coffee (LC), packages of coffee coming of conveyor belt from packaging machine (RC) and pallet of coffee ready for shipment (R).

Our lunch stop was at the cafeteria restaurant upstairs at *Fabrica de Carrretas Eloy Alfaro* one of the oldest traditional oxcart factories in the area of Sarchi. After the tasty meal of typical Costa Rican food we had time to take a short tour to learn how the wooden carts are manufactured and then intricately painted by hand.




Oxcart and decorated walls (L), historic oxcart wheels on display (LC), woodshop (C), a painter at work (R).

Our final scheduled activity of the tour was a visit to Else Kientzler Botanical Garden in Sarchi. Here we walked through the collections of tropical plants from around the world with a local garden guide to learn about the history of the garden and some of the more interesting plants grown there.

Reception building at Else Kientzler Botanical Garden (L), looking from porch of reception (LC), the group walks under royal palms, the national “tree” of Cuba (C), other palms in the gardens (RC), Mary admires the fat trunk of a kapok tree (R).

Guide Randal tells the group about red ginger (L), young inflorescence of red ginger (C), and torch ginger, *Etlingera elatior* (R).

Flower of *Passiflora vitifolia* (L), bees visiting banana flowers (C), and inflorescence of *Sanchezia* sp. (R).