



field guide to

PLAYA  VIVA

S U S T A I N A B L E B O U T I Q U E H O T E L

second edition



invest with purpose

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A User’s Manual to a Knowledgeable and Sustainable Vacation

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This guide is for you! Whether you’re at Playa Viva for just a day, have plans to stay for a week, or are simply interested in sustainable vacations, this field guide will lead you through the wonders of Playa Viva. The guide provides maps and information about key landmarks, trails, flora, fauna and design elements of Playa Viva. Please use it to explore and obtain a better understanding of your surroundings and innovations for sustainable tourism. This is our second edition and we encourage comments and feedback related to the edits, additional information and content for future editions. Enjoy!

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Playa Viva was designed to revitalize and nurture the land it's built on and the community it's surrounded by. At Playa Viva, "doing no harm" is simply a place to start. Playa Viva's regenerative development reflects the natural beauty of our surroundings, utilizing local resources to create natural luxury.

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Playa Viva is built on an over-arching principal of balance in "Eco-Luxe." Balance between private and public spaces, livability and sustainability, location and environmental protection, comfort and security. Our goal is to honor balance by creating a living legacy that provides a natural luxury that is constantly regenerating for future generations.



Natural Materials



When choosing materials, Playa Viva set the standard for “Made in Mexico” and “All Natural.” As a result, each corner of the hotel contains the handiwork of local artisans and a history, both natural and cultural, of the country. From fossilized sea stones to an ancient building technique gaining popularity worldwide, every surface and fixture tells a story.



Building Technique

Cob is an ancient method of building with clay, straw, sand and other natural fibers. Similar to adobe in the basic mixture of clay and sand, cob contains a higher percentage of long straw fibers making it more durable. Rather than being built in uniform blocks like adobe, cob is applied in layers over built walls. Historians and archeologists have found ancient cob buildings worldwide, from England to Africa to the Americas.

In the community house of Playa Viva you'll see three different cob wall mixtures. The color variation comes from the clay base used. When constructing the Playa Viva walls, the team collected clay from veins alongside local riverbanks and roads—a rainbow of clays from bright orange to red to purple. The team experimented with mixing in other organic material such as shells, manure and plant detritus to change the aesthetics and durability.

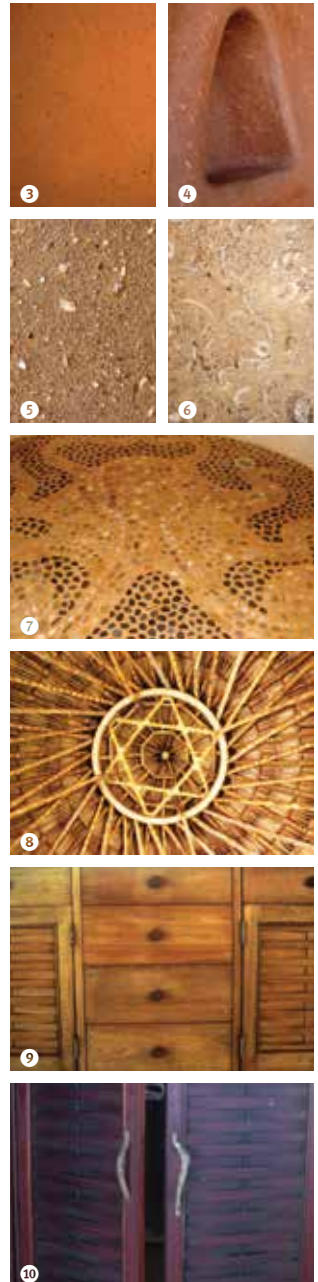
Wood

All wood used to construct Playa Viva can be found in abundance locally and is sustainably harvested. Some constructions are also made from “dead wood.” Upon arriving, the construction team connected with local ejidos (land owners) to harvest dead trees on their properties and utilize this wood first. The Playa Viva team was able to find Palo de Brazil, Roble and Cedar dead wood.

Thatched Palapa Roof

Fronds from the native palm, *Sabal mexicana*, create natural waterproof and resilient thatched roofs which you'll find on all of the casitas at Playa Viva. The magnificent palm fronds are dried and then placed in layers beginning at the base of roof beams. Playa Viva's architect specially designed the palapa roof frames for maximum earthquake resilience. As part of the native vegetation restoration project and for future use as a sustainable building material, the permaculture team continuously replants native palms throughout the property.

- (1) Copper lighting designed to create low light pollution (“El Gran Almacén” Santa Clara del Cobre, Michoacán)
- (2) Ceiling crossbeams and wood slats made from locally harvested palm wood
- (3) Cob wall containing an orange clay coloring and horse manure which makes the mixture resistant to erosion.
- (4) Cob wall colored by mixing purple and red clays and containing larger straw fibers
- (5) Cob wall containing a mixture of ground-up seashells and turtle-egg shells from an upturned nest found on the beach
- (6) The tile in community bathroom is made from an ocean stone called conchuela containing fossilized seashells (Yucantan)
- (7) Stone flooring designed by José Solís (construction foreman from Playa Viva)
- (8) Thatched palapa roof
- (9) Caoba blanco cabinet work in dinning room and kitchen.
- (10) Huapinol doors



Solar

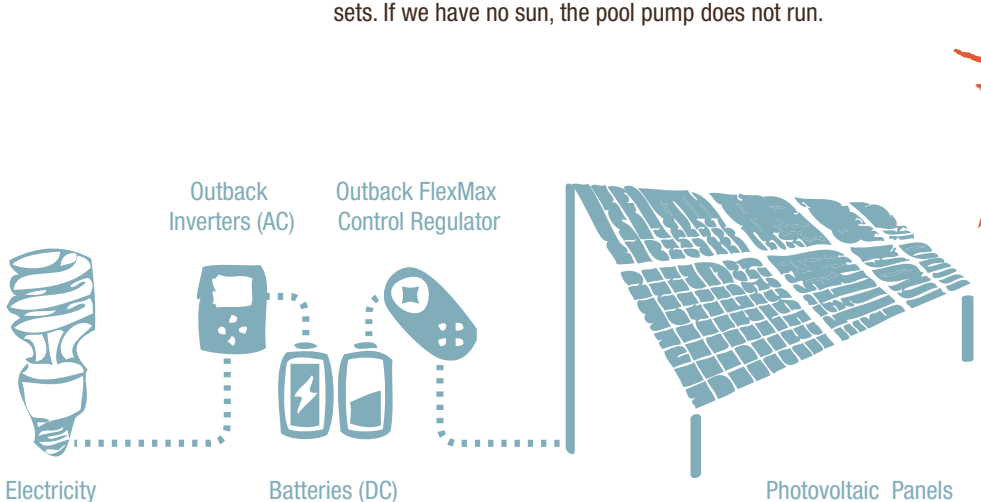
Photovoltaic/Solar Panels

The electricity at Playa Viva is provided entirely by solar panels, also called photovoltaic (PV) cells. Photo means “light” and voltaic means “electricity,” and, as the name implies, these PV cells convert sunlight directly into electricity.

PV cells are made of special materials called semiconductors. When light strikes the cell a certain portion of it is absorbed by the semiconductor. When this light or energy is absorbed, electrons are knocked loose, allowing them to flow freely. Metal contacts are placed at the top and bottom of each cell, drawing the electrons in a particular direction creating an electrical current for external use.

At Playa Viva, the electrical current generated by the 37 PV panels located above the car ports in the parking lot, flows through two Outback FlexMax Controller Regulators which dispense the energy into a bank of 24 batteries which are rated at 820 Ah at 2V each for a total of 48 Volts DC (direct current). DC current from the batteries flows into two Outback Inverters that “invert” the DC into AC (alternate current), similar to the current that flows through the power grid most guests plug into at home.

Two additional panels have been added to the Common Area roof. These are strictly for use with the DC pool pump. Thus, the pool pump turns on when the sun comes out and turns off when the sun sets. If we have no sun, the pool pump does not run.

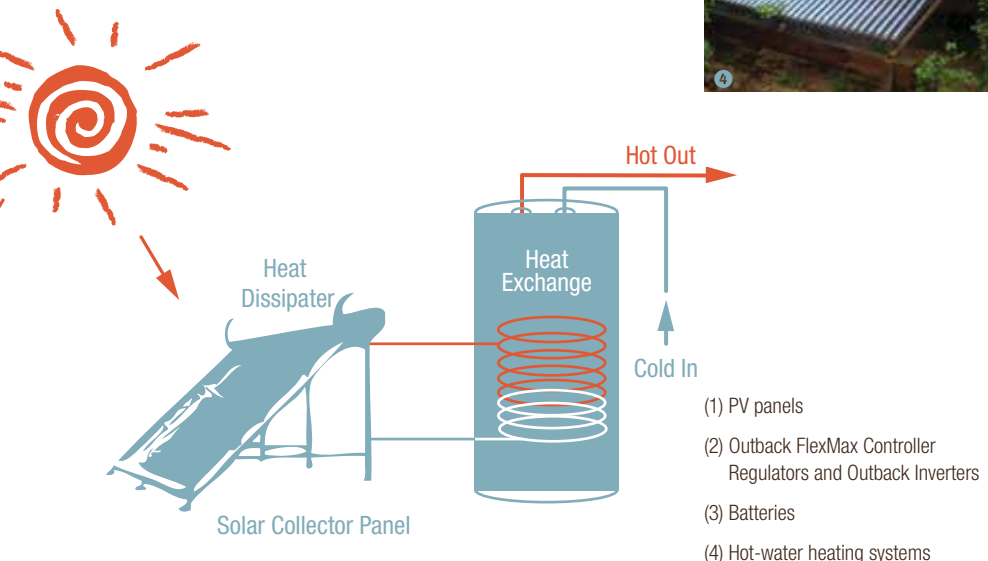


The solar panels have an estimated production capacity of 5.0 kW and can produce an average of 28 kW per day (on a sunny day). The energy produced is enough to power Playa Viva for 24 hours, including one refrigerator, kitchen appliances and all lights and electrical outlets used by guests. With full sun it generally takes three to four hours to charge the batteries after they are drawn down to their minimum safety level. The electrical energy stored in the batteries is monitored by the Outback Control Panel. We installed a natural gas back-up generator in October 2011 that provides 10kw of back-up energy in case we use too much energy. If you hear it go on, that means we need to do more to save energy throughout the day.

Solar Water Heaters

No need for gas to enjoy a hot shower at Playa Viva! Instead, we take full advantage of our abundant free energy source—the sun—and use solar water heaters. Behind the casitas you'll find an array of shiny tubes that create a hot-water heating system distributed by the Mexican company, Ecosystems.

These evacuated-tube solar collectors have parallel rows of transparent glass tubes, each containing a glass outer tube and copper absorber tube. The tube coating absorbs solar energy but inhibits radiative heat loss, in the same way a green house works. The heat is then transferred to a copper coil inside a solar heat exchanger tank and heats the water inside.





Water

Black Water Bio-Digesters

At Playa Viva water is treated naturally with a system of plants through a bio-filter that naturally cleans the waste water. We've set up a black-water filtration system that runs the organic waste from your toilet through an anaerobic septic tank and wetlands bio-swales, leaving water clean enough for the birds to drink.

The black water first goes into an anaerobic septic tank buried underground where the organic matter is decomposed into ammonia and particles. The ammonia and particles then flow into a constructed wetland full of grasses that break up ammonia (NH_3) into nitrogen and water (N and H_2O), and filter out the particles. The water then flows into a second wetland oasis with water lilies which consume the remaining particles, leaving clean water.

Gray-Water Filter

The plumbing from the showers and sinks at Playa Viva has been designed to flow through a “lint filter” (a colander) and then straight into the flower-beds surrounding the casitas. Please remember to use biodegradable soaps and shampoos to keep the plants healthy! When showering, you are watering the plants, but please help us conserve water by keeping showers short.

Reverse Osmosis Drinking Water

Drinking water at Playa Viva passes through a reverse osmosis filtration system. The system includes large- and small-pore filters to trap particles, including rust and calcium carbonate. An active carbon filter traps organic chemicals and chlorine, as does the reverse osmosis (RO) filter, a thin composite membrane. A second carbon filter captures those chemicals not removed by the RO membrane. This process makes the water clean and healthy for drinking, and reduces Playa Viva’s need to purchase bottled water (which is made using the same filtration system). You’ll find ceramic drinking-water containers in each room and in the common area, eliminating plastic bottle waste.

Local Well

All water at Playa Viva comes from a local well. We pump the water to a cistern at the highest point on the property where it is then fed to all showers, sinks and toilets via gravity; no additional energy is needed for the water pressure.

Saline-Chlorinated Swimming Pool

The AquaPure salt-water chlorine generator uses a process known as electrolysis to produce sodium hypochlorite (liquid chlorine) from a low concentration of salt added to the pool water at Playa Viva. Hypochlorite kills bacteria, oxidizes organic material, and kills algae then reverts back to salt. The AquaPure then reuses the salt and the process starts over again. This is a natural chlorine system generated from separating salt (Sodium Chloride) rather than using traditional chlorine acid which is a highly toxic substance. The water in the pool has less saline than your tears. We obtain the salt (Sal Viva) from the local salt flats. Note: The pool pump by SunRay is designed to run 100% on solar electricity and thus runs at a lower horsepower for a longer period of time.



(1) Under-sink reverse osmosis filtration system

(2) SunRay pool pump, Aqua Pure is located behind pump and filter

(3) Playa Viva saline pool



Nourishment

Having an appreciation of high quality nourishment and the source of our food is integral to Playa Viva including guests, employees, and the local community and broader ecosystem. An active interest in the entire life cycle of the food we provide is key to our culture and the surrounding environment.

Vegetable Gardens and Orchards

Growing your own food is one of the principal tenants of sustainability. In the upper portion of the land you'll find a plot bursting with organic cherry tomatoes, zucchinis, tomatillos, beets, carrots, sesame plants, corn and other vegetables all harvested to fill the pots and plates at Playa Viva. Mango trees abound on the Playa Viva land and the permaculture team cultivates fruit and nut orchards of pomegranates, almonds and more.

Buying Locally and Organically

When the food can't come from your backyard, the next best option is your neighbor's. Luckily, Playa Viva is surrounded by productive neighbors, from a local organic farmer in the town of Juluchuca, to local fishermen, ranchers, cheese makers and tortillerias. We've formed relationships with these local producers whose practices align with our principals, and are committed to their support via our food purchases. As often as we can, Playa Viva purchases organic, range-fed, chemical- and hormone-free food.

Slow Food

The "Slow Food" movement or philosophy counteracts global fast-food trends, the disappearance of local food traditions and people's dwindling interest in the food they eat. Slow food combines responsibility toward the land with pleasure for delicious and nutritious nourishment. At Playa Viva our chef will introduce the dishes to you before each meal, offer cooking lessons in the open-air kitchen and take guests on shopping excursions to the local markets. Meals are served at a large community table, making them about enjoying the people you're with as much as savoring the food we serve.

Composting

The food from the gardens, orchards, farmers and fishermen nourishes us, and composting is one of the best ways to keep the cycle going, nourishing the soil from which this life comes. At Playa Viva all organic matter from the kitchen gets composted and tilled back into the gardens and flower beds.



(1) Local fisherman

(2) Organic vegetable garden

(3) Cooking lessons

Playa Viva is located within the Costa Grande region of the state of Guerrero, which stretches from the northern border of Michoacán to Acapulco in the south. The state of Guerrero lies along the central Pacific Coast of México and is bordered by the states of Michoacán, México, and Morelos to the north, Puebla and Oaxaca to the east and by the Pacific Ocean to the south.

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Mountains: To the east of Playa Viva lie the Sierra Madre del Sur Mountains whose elevations range from 300 to 12,149 feet. The largest of these mountains is Cerro de Teotepac towering 12,149 feet (3,703 m) above sea level. The climate at these high elevations is temperate to sub humid with heavy summer rains. There are three vegetation areas in the mountains: oak forests growing at 6200–8200 feet; cloud forests growing at 7500 feet; and pine forests growing at 7800–8200 feet.

Coastal Plain: The coastal plains, a flat corridor between the Sierra Madre del Sur and the Pacific, contain low elevation oak and deciduous forests, but now the area is predominately occupied by agricultural and livestock land. Primary crops grown in this region include coconut, papaya, mango and noni. Cattle represent the dominant livestock. The major rivers feeding the plains from the sierras are the Coyaquilla, Petatlan and San Jeronimito Rivers.

Lagoon Estuary: An intricate network of lagoons can be found along the Costa Grande, integrating the fresh water from the sierras into the ocean. Mangrove forests occupy the areas along lagoons where salt water from the sea mixes with a river and creates a shallow body of water that is prevented from entering back into the ocean. These mangrove forests and lagoons offer a unique environment plentiful with shrimp, fish, birds and other animals. The mangroves also play a crucial role in filtering nutrient-rich river water before it enters the ocean, as well as protecting the coastline from erosion by trapping sediments that would otherwise be washed back out by the waves.

Oceanic Environment: Along the Central Pacific Coast you'll find warm ocean water, generally 70–85°F (20–30°C). The primary swell direction comes from the south, created by the southern ocean low-pressure systems and tropical storms, and blesses our beaches with warm water from the equator. Life abounds in these waters, with fish, sea turtles, bioluminescence, birds, whales, dolphins and more. The water here is saltier than colder water due to higher rates of surface evaporation, making it an ideal location for salt harvesting. The high salinity levels in the water also drive the dominant northwest current. Temperature and salinity affect water density, and water always flows from areas of high density to low, thus the water here flows to the northern, colder, less dense waters creating a current.

Points of Interest

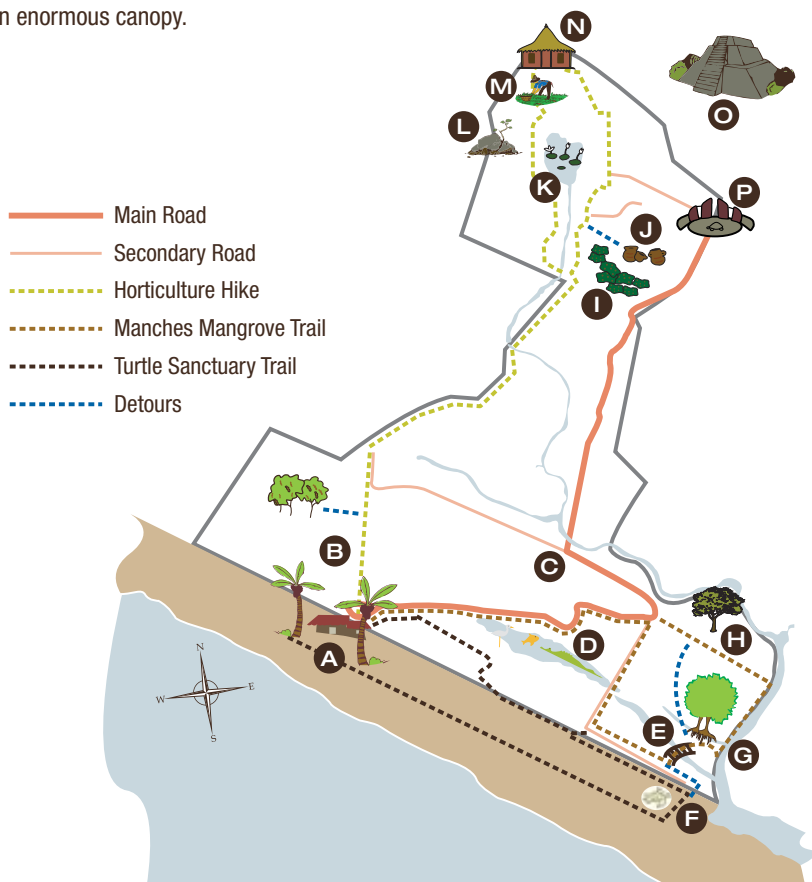
A Playa Viva Boutique Hotel: The eight rooms, community house and saline pool will be your home while staying at Playa Viva. All buildings are solar powered, gray water is filtered through bio-swales, native and edible plants abound and the bar is open for basil margaritas.

B Tamarindo: Here you'll find a Tamarindo grove, these trees produce a sweet seed used to make candy and juice, which you can get a taste of in the neighboring town of Juluchuca.

C Zapotillo: The Zapotillo is another one of Playa Viva's oldest endemic fruit trees, with an incredible spiraling trunk and branches below an enormous canopy.

D Yarumi Lagoon: The largest lagoon on the Playa Viva property holds water year round with lowest water levels from January to June and highest levels from July to December. The lagoon is full of life, frequented by snowy egrets and the occasional crocodile feeding on schools of shrimp. Yarumi is surrounded by lush vegetation of native palms to the south and coco plantations to the north.

E Puente de Coco: The "Coco Bridge" is set back from the trail and leads you into the mangroves of Playa Viva. To the north of the bridge before crossing you'll see mangrove seedlings along the water's edge. To the south of the bridge you'll see a large Higuera "figus" with an outstanding root system.



- F Tortuga Viva:** The “Living Turtle” local sanctuary is run by an all-volunteer staff comprised of members of the local community. These are fisherman and farmers who recognized the damage being done to the local turtle population and decided to make a difference. This group obtained training from the Mexican Department for the Protection of Endangered Species and set up camp at the edge of the estuary close to the seasonal breeding grounds of this ancient animal. The volunteers patrol the beach at night to collect eggs from turtle nests. The eggs are kept safe from predators within the sanctuary until they hatch and are then released into the ocean. Please join to participate with and support these volunteers.
- G Manglares:** This is one of the dominant manglar or mangrove areas of Playa Viva. This particular area was once an overgrowth of secondary invasive shrubs until the permaculture team cleared the space and planted mangrove seedlings to restore the once abundant mangrove forest. Here you can find examples of all four mangrove species, a rare occurrence in Mexico.
- H Guayacán:** In the middle of a coconut grove you’ll find the Guayacán, the oldest tree on Playa Viva’s property (300 years), which produces a beautiful purple flower. Walk under the canopy of this tree and look for the branch that bears the scars from the plantation workers who stuck their machetes in it while eating lunch in the great tree’s shade.
- I Metatépeli:** Metatpetl means “Stone Mortar Mountain” and was so named after finding a large amount of pre-Hispanic “Metates,” stone mortars to grind corn for tortillas. “Tepetl” means mountain. Here the permaculture team recreated pre-Hispanic terracing to retain soil and humidity, and have planted fruit trees along the terraces.
- J Huerto Frutal:** In this area you’ll find fruit orchards with mango, papaya, pomegranate, lime trees and more.
- K Venado Lagoon:** The smaller of the Playa Viva lagoons, Laguna Venado is inundated with water during the rainy season, however due to years of sediment build-up, the lagoon now dries up completely during the winter dry season. Playa Viva is working to restore the hydraulic flow through the lagoon.
- L Piedra de Medicina:** The “Medicine Stone” is a granite stone with multiple grinding holes used by ancient people to grind plants to make medicine and is evidence of the ancient cultures that thrived in this area.
- M Hortaliza:** Here you’ll find the organic vegetable gardens of Playa Viva where much of the produce in your meals is grown.
- N Casa de Permacultura:** This is a beautiful little adobe workhouse for the permaculture team made almost entirely from material found on the Playa Viva land. It is made of “bajareque,” a technique using a frame of local wood, insulated with coconut husks, coated with clay and a thatched roof made with native palm leaves.
- O Xolochiuiyan:** Xolochiuyan is an ancient temple containing pottery shards and distinct corners made of river rocks, an indicator of a man-built structure.
- P Portón:** This is the entrance to the Playa Viva property, you’ll see a heavy Bacote wood entrance gate and stone walls typical of the region.

Horticulture Hike

Time: 2.5 hours

- 1 Start from the parking lot, take an immediate left at the “Horticulture Hike” sign.**

You will pass through xerophyte vegetation, characterized by cacti and shrubs with spiny trunks and leaves. Some of these plants lose their leaves during the dry season and are a great habitat for birds and reptiles.

Yucca/Izote *Yucca periculosa* (pg. 56)

This cactus is characterized by a globe of long thin pointed leaves, its roots are used to make soap.

Nopal *Opuntia ficus-indica* (pg. 56)

A tear-drop shaped broad-leafed cactus, common in Mexican dishes.

- 2 Follow this path to the “Tamarindo” sign. Take a left for a short detour through the Tamarindo grove.**

The sweet seeds of the Tamarindo trees (pg. 55) are used throughout Mexico to make candy and juice. Take a pod and crack open the shell.

Turn around and come back to the main path.

- 3 Back out on the main path make a left at the fork in the road.**

Watch the transition from xerophyte to wetland vegetation as the plants change from short, spiny bushes to tall trees and grasses.

You will come upon a tree with an open forest floor underneath and vines hanging from the branches. This tree is called the Cuauilote. The vines Ojo de Venado (Deer Eye) produce seeds used for jewelry.

- 4 At the next fork in the trail, by a stream and surrounded by Palo Blanco, stay left.**

Palo Blanco *Acacia willardiana*

A tall wispy tree whose name means “white stick” describing the unique peeling bark.

Follow the path to the wooden cow fence, slide the rungs to the side to pass. Make sure to replace the rungs afterwards to keep the cows out of the wetlands. Take a left.

The path will lead you along a ridge with a view of our fruit orchards and the tallest hill on the Playa Viva land, upon which sits a water tower. Take a left again at the next fork in the path and walk down a road lined with mango trees to the medicine stone or “Piedra de Medicina.”

The Venado Lagoon on the right side of the trail is inundated with water during the rainy season, however due to years of sediment build-up the lagoon now dries up completely during the winter dry season.

- 5 On the left side of the trail, you will come upon a sign “Piedra de Medicina.”**

Walk to the top of the hill and look to the left for a flat rock with multiple holes ground into its thick crust. This rock was used by ancient indigenous tribes to grind and mix plants for medicinal uses.

- 6 Return to the road, stay left, a sign will lead you to the Playa Viva Gardens.**

Continue left and observe the large field propagated by the permaculture team where they grow organic vegetables for your meals.

7 Follow the trail behind the gardens along the Playa Viva property line.

Here you'll find many beautiful Parota trees with giant canopies (pg. 53). Also notice the bamboo planted along the trail, used at Playa Viva as sustainable building material.

8 Next you'll come upon the Playa Viva plant nursery or "Viveros" surrounded by a green mesh fence and next to it the permaculture casita.

The nursery houses native as well as ornamental plants used throughout the property for restoration projects as well as landscaping. The permaculture casita is made almost entirely from material found on Playa Viva's surrounding land. It's framed with coconut trees, insulated with coconut husks, coated with adobe and thatched with native palm leaves.

9 Follow the road past the large Parota tree in front of the permaculture casita.

This road will take you along the far edge of the Venado Lagoon, past the fruit orchards and back to the cow gate where you can follow the trail back to Playa Viva. On the way back you will see Morgina and Neem trees, introduced for their great medicinal, insecticide and nutritional values.



Mancha's Manglar Trail

Time: 1.5 hours

1 Start in the parking lot and begin walking down the main road.

Notice the thick, low bushes with spiny trunks and leaves. Called “xerophyte” vegetation, this occurs on the dunes between the beach and wetlands zones and is characterized by spiny plants adapted to low-water conditions. The thick bushes make great habitat for birds and reptiles, and their wide root systems play an important part of soil stabilization along beach dunes.

2 Continue walking and notice the coconut trees on the right side of the road.

Just beyond the xerophyte vegetation begins the palmar vegetation zone. There are two types of palms here, the Coconut (*Cocos nucifera*) and the native Palma Real (*Sabal mexicana*). At the base of these coco trees you will see new coco, almond and fruit trees planted. This is part of Playa Viva's reforestation project and effort to increase biodiversity, as well as shade the road.

Coconut *Cocos nucifera* (pg. 47)

Tall thin trunk, separated leaves and coconuts.

Palma Real *Sabal mexicana* (pg. 47)

Short, thick trunk with a criss-cross pattern and round leaves. This is a native palm and is used to thatch palapa roofs.

3 Just past the coco trees you'll see a view of the Yarumi Lagoon.

The coconut plantations and roads built nearly 80 years ago to harvest the coconuts have disrupted the hydraulic flow through the lagoon and, along with invasive grass from cattle grazing, caused the lagoon to fill with sediment. Playa Viva is working to restore the hydraulic flow and resulting biodiversity throughout the Yarumi Lagoon (Yrumi is the guarani name for anteater).

4 Follow the road until you reach a wooden “Playa Viva” sign, take a right.

At the beginning of this road you'll see distinct rows of coconut palms, an example of how the plantations changed the palmar ecology of the region.

Further down the road you'll come upon lush native palmar vegetation where you'll find Palma Real and a relatively undisturbed lagoon habitat.

Sensitive Plant *Mimosa pudica* (pg. 57)

Take time to identify the *Mimosa pudica* growing along the road. This secondary invasive species is found in disturbed areas throughout the land. Touch the leaves and watch them close.

5 At the fork in the road, turn left.

Follow this road to the turtle sanctuary on the beach.

Palms and native fruit trees like *Annona glabra* have been planted under each mature coconut tree in this grove. Two turtle sanctuaries currently operate next to each other. We ONLY support the sanctuary further north, the other does NOT operate ethically and thus we can NOT support it.

- 6 After you visit the turtle sanctuary, return to the trail and turn left at the Puente de Coco sign (Coconut Bridge). Cross the water and follow the trail left to walk through mangroves along the estuary.**

At the water's edge to the left before crossing the bridge, you will see small mangroves taking root. Look for the many mangrove seedlings planted along the estuary as part of the mangrove restoration project (pg. 32).

- 7 Follow the trail through the Mangroves and Maquiline trees until you reach a clearing where you can look across the estuary to the other shore.**

This clearing was once an overgrowth of *Mimosa Pigra* (pg. 43) and Carriso, secondary invasive species. After clearing these, the permaculture team planted Black, Button, Red and White mangroves (pg. 40–41).

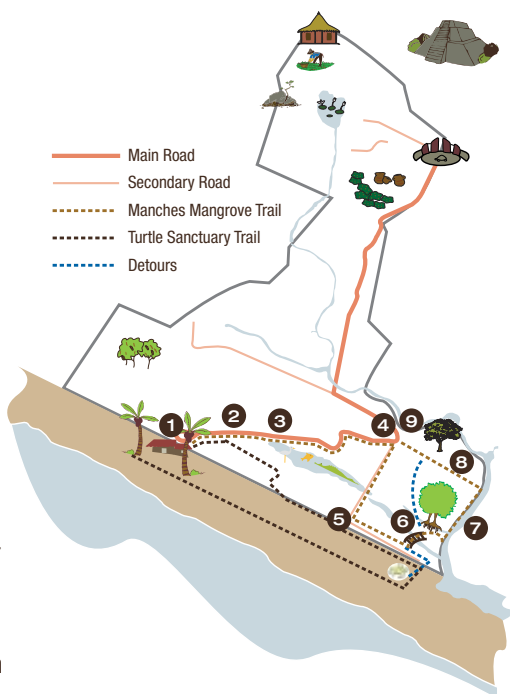
Glancing across the river, observe the tall stalks of the Carrizo and the shrubby white flowered *Mimosa Pigra*. These plants are evidence of a disturbed ecosystem, they only grow where the natural vegetation has been cleared. Once the coconut plantation cleared out the mangroves on the water's edge, the *Mimosa Pigra* and Carriso moved in. To reproduce, Mangrove seeds travel downstream during the wet season. The water recedes leaving them ashore and they take root; however, the mangrove seeds cannot penetrate the thick bramble of these bushes in order to sow their seeds.

- 8 Continue down the trail until it opens into a coconut plantation grove.**

Stay to the left of the grove and you'll come upon the oldest tree on the Playa Viva property, The Guayacán (300 years) (pg. 49).

Walk under the canopy of this tree and look for the branch that bears the scars from the plantation workers who stuck their machetes in it while eating lunch in the great tree's shade.

- 9 Continue through the coconut field to the Playa Viva sign, and return to Playa Viva on the main road.**

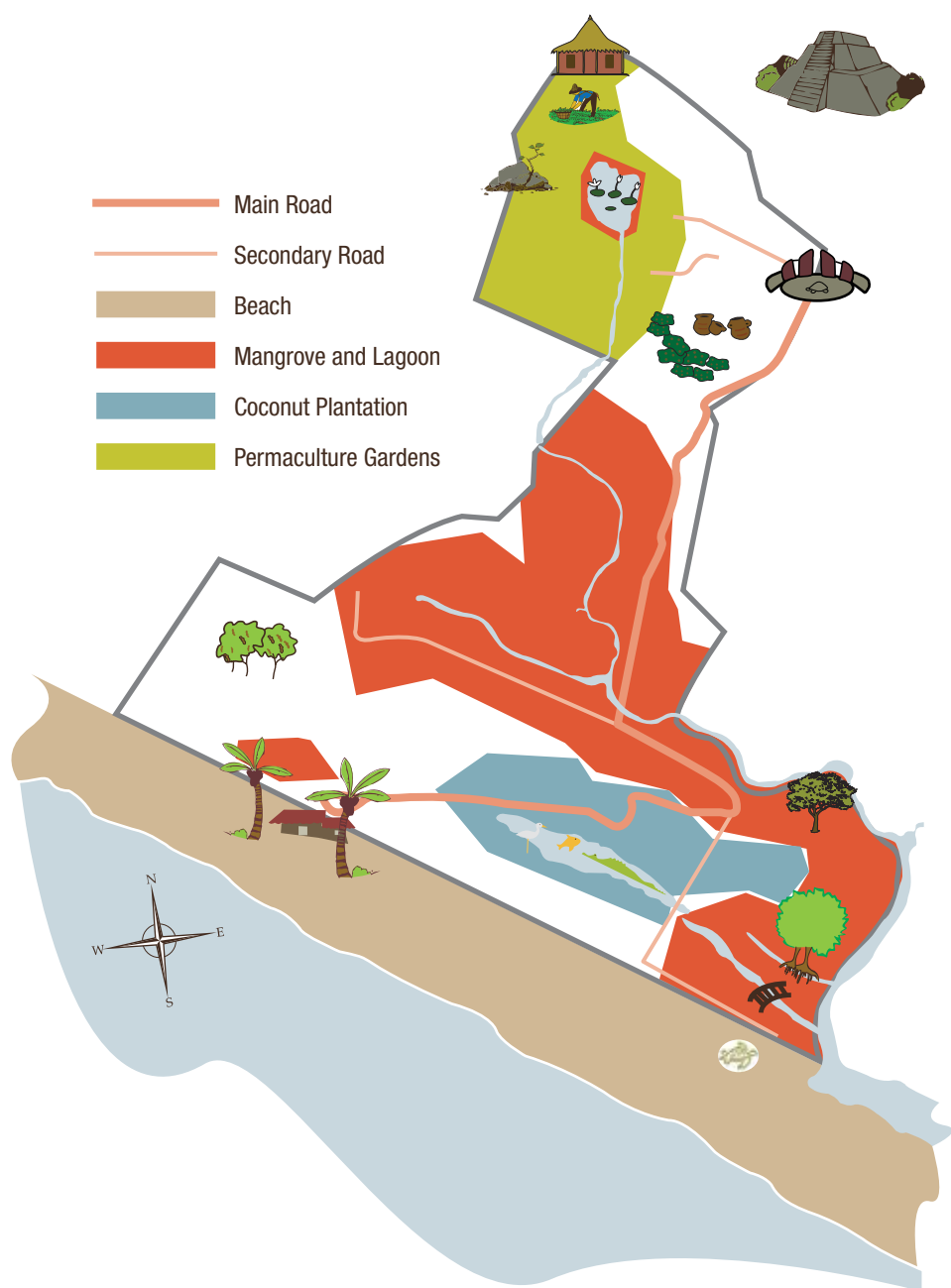


Playa Viva has created a private reserve out of 85% of the 200 acres (86 hectares) and 1.3 kilometers of beachfront. This land has been degraded over the last 100 years by mono-culture into coconut, tamarind and mango groves.

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As part of the regenerative process, our permaculture team is restoring the landscape back into a thriving coastal forest and mangrove. 10,000 trees (native, fruit trees and decorative trees) have been planted, key water flows restored and the resilience of the system is regenerating the biodiversity, bringing back the abundance of this area.

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BEACH



DESCRIPTION: The surface area of the Beach ecosystem fluctuates with the tides and wind. The area is a very specific dunes ecosystem that is limited to the boundary between the sea and the Estuary. It is also extremely fragile because of the erosion caused by the wind and the waves, which is the reason why it is constantly changing. One way to stabilize the dunes is to plant xerophytes vegetation which is one of the few types of plants that can live in dry areas with some concentration of salt. These include beach morning glory, Guayacán and coconut palm trees.

FAUNA: It is possible to see crabs, pelagic and wader birds but also marine mammals like whales and dolphins. At night, if you are lucky, you can observe turtles coming especially to lay eggs on the beach of Playa Viva. If you see them, you will probably see their predators too (Coatis, dogs and humans). Playa Viva's beach is the place where baby turtles are released to the ocean.

NOTES:

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LEATHERBACK TURTLE



SPANISH: TORTUGA LAÜD

SCIENTIFIC NAME: *Dermochelys coriacea*

FAMILY: DERMOCHELYIDAE

DESCRIPTION: Leatherback turtles are the largest marine turtle species. They can measure up to 2 m (6.5 ft) and weigh about 500 kg (1,100 lbs). The species established the record of the longest migration distance: 20,558 km (12,774 miles) from Indonesia to our beaches of Mexico. If you are lucky, you can see Leatherback turtles at Playa Viva between October and January when they come ashore to and lay eggs only once. Those eggs need 60 to 70 days to hatch and each nest contains between 100 to 200 eggs. This species is highly endangered, about 0.5% of all turtles released by local turtle volunteers are Laud.

NOTES:



OLIVE RIDLEY TURTLE



SPANISH: TORTUGA GOLFINA

SCIENTIFIC NAME: *Lepidochelys Olivacea*

FAMILY: CHELONIIDAE

DESCRIPTION: Olive Ridley turtles are one of the smallest turtles: its carapace (shell) can measure about 72 cm (2.3 ft) when it is an adult. It is the most prevalent turtle species found on the beaches of Playa Viva. Ideal conditions to observe them are when the wind is light and when there is no moon. You can observe them the whole year (from January to December) with the largest concentration around the rainy season (July to October) and they lay eggs three times a year. There are between 90 and 150 eggs per nest and the eggs need 45 days to hatch.

NOTES:



BLACK TURTLE



SPANISH: TORTUGA PRIETA O NEGRA

SCIENTIFIC NAME: *Chelonia agassizii*

FAMILY: CHELONIIDAE

DESCRIPTION: The black turtle has a carapace of 90 cm (3 ft) which has a tapered posterior. This species of turtle weighs 120 kg (265 lbs), its color ranges from brown to black, and the belly is lightly colored. You can only find it in the eastern Pacific Ocean and in Playa Viva from October to January. This species is endemic to Mexico: where it is the only place where you can find it. The “tortuga prieta” lays from 70 to more than 100 eggs per clutch, which incubate from 50 to 55 days prior to hatching. Hatchlings have silver streaks usually on their flippers making it is easy to identify them.

NOTES:

TORTUGA VIVA NURSERY



“The Living Turtle” local turtle sanctuary is run by an all-volunteer staff comprised of members of the local community. These are fisherman and farmers who recognized the damage being done to the local turtle population and decided to make a difference. This group obtained training from the Mexican Department for the Protection of Endangered Species and set up camp between Playa Viva hotel buildings and the estuary.. The volunteers patrol the beach at night to collect turtle nests, the eggs are kept safe from predators within the sanctuary until they hatch and are then released into the ocean. Currently, two sanctuaries operate on this beach. Playa Viva **only** supports the sanctuary closest to Playa Viva due to the lack of transparency and unethical behavior of members of the other group.

NOTES:

GREEN JACK



SPANISH: COCINERO

SCIENTIFIC NAME: *Caranx caballus*

FAMILY: Carangidae

DESCRIPTION: The green jack (also known as horse jack) can reach up 38 cm (1.25 ft) long. It has bright colors between blue and green. It has small fins but it can swim really quickly and change its direction to escape predators. It can be found near the coast where it feeds on small mollusk, crustacean, and fish. Range is from Santa Cruz, CA to Peru and is one of the most abundant species within its range.

NOTES:

STRIPED MULLET



SPANISH: LISA

SCIENTIFIC NAME: *Mugil cephalus*

GENDER: Mugil sp. **FAMILY:** Mugilidae

DESCRIPTION: the name "Lisa," like "Ronco," is used by locals to describe a few species. Their narrow-shape and their little fins allow them to escape easily from fishing nets, which is why locals call this fish "Lisa," which means "smooth." The species is "euryhaline" meaning that the fish can acclimate to different levels of salinity and is a mainly diurnal coastal species that often enters estuaries and rivers.

NOTES:

THE PALOMETA



SPANISH: PALOMETA

SCIENTIFIC NAME: *Trachinotus goodei*

FAMILY: Carangidae

DESCRIPTION: Easily recognizable by its elongated and orange dorsal and anal fins. Silver-colored sides with four dark vertical bars. Local fisherman usually catch the small specimens but they can reach 50 cm (1.666 ft) long and 540 g (1.25 lbs). The Palometa is considered a game fish.

NOTES:

BLOW FISH



SPANISH: PEZ GLOBO O PESE PORCUSPINO

SCIENTIFIC NAME: *Diodon Hystrix* **FAMILY:** Diodontidae

DESCRIPTION: The Blow fish known locally as the “pez globo,” as its name describes, when it feels in danger, it fills with water to expand and appear more threatening. He also exudes a toxin which spreads throughout its whole body and can be lethal. This fish lives in salty water. It is nocturnal, and is inactive during the day. It is carnivorous; its main predators are tiger-shark and tuna (when juvenile). This fish gets caught in fisherman's nets who discard it on the beach so it doesn't limit their catch.

NOTES:

GRUNTS

SPANISH: RONCO

SCIENTIFIC NAME: *Haemulidae* family

GENDER: Haemulon **FAMILY:** Haemulidae

DESCRIPTION: “Ronco” is a name used for a group of fish species. You can recognize them by their spindle-shape and the stripes on their sides. Some species can reach 70 cm (2.333 ft) of length most of them are between 15 and 35 cm (6–14 in). They are bottom-feeding predators, and named for their ability to produce sound by grinding their teeth.

NOTES:

GHOST CRAB



SPANISH: CAGREJO DE PLAYA

SCIENTIFIC NAME: *Ocypode*

FAMILY: OCYPODIDAE

DESCRIPTION: Walking along the beach, you will inevitably notice all the small crabs under your feet. They are “Cangrejos de playa,” and you can find them on sandy beaches all over the world. Their body is completely translucent and one of their claws is bigger than the other. Their main asset is an excellent 360° view. At twilight, those crabs rush to the sea and store oxygen in their gills. At the beginning of the summer, females lay their eggs in the sea. This crab is very fast, it can cover more than 16 km per hour (10 mph). It hides very easily in holes it digs or by staying motionless as a protection. Indeed, its sandy-translucent color makes it almost invisible. Be careful not to squash it. They are fun to try and catch.

NOTES:

COMMON BOTTLENOSE DOLPHIN



SPANISH: DELFIN O TONINA

SCIENTIFIC NAME: *Tursiops truncatus*

FAMILY: DELPHINIDAE

DESCRIPTION: Dolphins live in warm and temperate waters. We can find them in every ocean on earth, except the Arctic and Antarctic. Dolphins live near coasts and estuaries. Males can reach 4 m (13 ft) long whereas females are smaller (3.5 m/11.5 ft). Its back is grey, with sometimes paler shades on its sides. Its underbelly can vary from white to pale pink. Males can live 30 years, whereas females can reach 40 years old. These sea mammals live in group of 10–12 animals. They swim an average speed of 5–11 km/h (3.5–7 mph), and their maximum speed is 35 km/h (22 mph). It has to surface every six minutes to breathe using its blowhole located at the top of its head. This species is known for its friendly and curious nature, this is the same species seen at marine parks and in movies and TV shows like *Flipper*. Its diet varies with availability of prey. Near coasts, it feeds on fish and invertebrates; in deep sea, it eats squids and big fish. A mating pair delivers one calf every two or three years. Gestation lasts 11–12 months.

NOTES:

COLIMA GIANT WHIPTAIL



SPANISH: LARAGRTIJA

SCIENTIFIC NAME: *Aspidocelis communis*

FAMILY: TEIIDAE

DESCRIPTION: The species is endemic to Pacific coast of Mexico. It lives in tropical deciduous forest and dry scrubland. You can find it almost everywhere in Playa Viva, mostly around the hotel.

NOTES:

BROWN PELICAN



SPANISH: PELICANO PARDO

SCIENTIFIC NAME: *Pelicanus occidentalis*

DESCRIPTION: This fishing bird, with a wingspan of about 2 m (6.5 ft) and a weight variable from 6 to 9 kg (13–20 lbs), can be found in both North and South America. The Pelican's neck and breast are white whereas the rest of the body is grey-brown streaked with white. His beak is fitted with a brown skin pouch which is able to distend to capture fish. He can also feed on shellfish, worms or seaweed. It is an inshore bird, and never moves away from the coasts. You can see him in mangrove trees or near lagoons. Pelican's mating period varies according to the different region where it lives. During this specific period, the beak becomes yellow and the pouch changes color too. They nest in isolated places such as red mangrove trees or desert islet, safe from predators.

NOTES:

MAGNIFICENT FRIGATEBIRD



SPANISH: RABIHORCADO MAGNIFICO

SCIENTIFIC NAME: *Fregata magnificens*

FAMILY: FREGATIDAE

DESCRIPTION: This bird, native of tropical sea sides, is 95–110 cm (3–3.5 ft) long with a 225 cm (7 ft) wingspan. It has an average weight of 800–1500 g (1.75–3.333 lbs). Males are completely black whereas females have a white neck and a white breast. It lives near rivers and wet mangroves. It usually eats fish, crabs, and jellyfish, but sometimes it steals other seabirds' meals by forcing them to disgorge. During the reproductive season, male Frigate birds inflate their red throat pouches to attract a mate. Females lay only one egg which incubates for seven weeks.

ALSO FOUND IN: Coconut Plantation

NOTES:

NEOTROPIC CORMORANT

SPANISH: CORMORÁN OLIVÁCEO

SCIENTIFIC NAME: *Phalacrocorax brasilianus*

FAMILY: Phalacrocoracidae

DESCRIPTION: Neo-tropic cormorant is a medium-sized cormorant. It lives in wetlands, near the coast in mangrove areas or in the water ways of Central and South America. It is 64 cm (2 ft) long and has a wingspan of 1 m (3.3 ft). Adult plumage is mainly black with a yellow beak, juveniles are brownish in color. Small fishes, frogs and insect make up its diet. This cormorant is a very good swimmer, propelling itself by its feet. Its dives are brief, between 5 and 15 seconds. It is also known to forage in groups, with several birds beating the water with their wings to drive fish forward into shallows.

NOTES:



BLACK VULTURE

SPANISH: ZOPILOTE

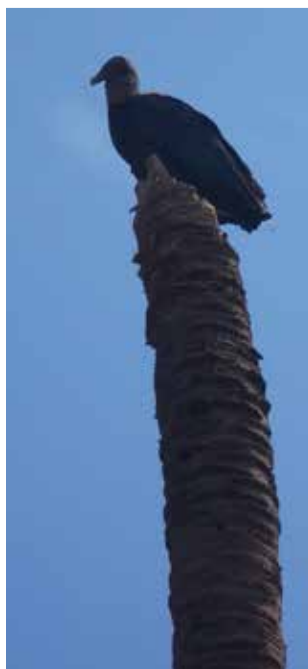
SCIENTIFIC NAME: *Coragyps atratus*

FAMILY: CATHARTIDAE

DESCRIPTION: The “Zopilote” lives in South America and Central America and its plumage is fully black. Its head and neck don’t have any feather and its skin is grey. It is 65 cm (2 ft) long, has a wingspan of 1.5 m (5 ft) and weighs 2–2.75 kg (4.5–6 lbs). It lives in open places and also in mangroves or dumps. It mostly feeds on carrion, eggs, and decaying plants. “Zopilotes” are monogamous. Females lay two eggs once a year and both of the parents incubate the eggs for 31 to 42 days.

ALSO FOUND IN: Mangrove and lagoon

NOTES:



WILLET



SPANISH: PLAYERO PIHUIHUI

SCIENTIFIC NAME: *Catoptrophorus semipalmatus*

FAMILY: SCOLOPACIDAE

DESCRIPTION: This is a large shorebird in the sandpiper family and is widespread along the coast, from Canada to North Brazil. It lives on sandy beaches, estuaries, near lagoons and salt marshes. It lives alone, but it can integrate with other beach birds. It measures around 35 cm (14 in) long, but it varies with age and gender. It has a long, strong, straight beak, which enables it to catch its prey even in the sand. Its plumage is mainly grey, with brown shades, whereas its belly is white. It feeds on aquatic invertebrates. Its nest is a simple scratched zone on the floor, where the female lays four yellow, speckled olive eggs between April and May. The incubation period lasts from 22 to 28 days. The female is in charge of brooding, but the male can also do it at night. Young can fly at 22 days old.

ALSO FOUND IN: Mangrove and lagoon

NOTES:

NORTHERN CRESTED CARACARA



SPANISH: CARACARA QUEBRAHUESOS

SCIENTIFIC NAME: *Caracara cheriway*

FAMILY: FALCONIDAE

DESCRIPTION: The Northern Caracara is a bird of prey: it has a length of 49–58 cm (19–23 in), and a wingspan of 120 cm (47 in). It also has long legs and frequently walks or runs on the ground. It is very cross-shaped in flight. Its body, wings, crest and crown are black. The facial skin is deep yellow to orange-red depending on age and mood. Its breast is white. The Northern Caracara is an omnivorous scavenger, favoring carrion, but will also eat small mammals, amphibians, reptiles, fish, crabs, insects, earthworms, and young birds, and can steal food from other birds. Northern Caracaras build large stick nests in trees such as mesquites palms, cacti, or on the ground as a last resort.

HISTORY: The Mexican ornithologist Rafael Martín del Campo proposed that the Northern Caracara was probably the sacred “eagle” depicted in several pre-Columbian Aztec codices as well as the Florentine Codex. This imagery was adopted as a national symbol of Mexico and is seen on the flag among other places. Since then, paintings were interpreted as showing the Golden Eagle (the *Aquila chrysaetos* or *Aguila real*) is the one in the flag, which subsequently became the national bird.

NOTES:

GUMBO-LIMBO



SPANISH: PAPELILLO o JIOTE

SCIENTIFIC NAME: *Bursera simaruba*

FAMILY: BURSERACEAE

DESCRIPTION: You can find this tree in America's tropical areas. As its Spanish name implies, "el gringo quemado" (the sunburned American tourists) *B. simaruba* is easy to recognize because of its red peeling bark. It can reach 25 meters (82 ft) tall. Its white flowers are really attractive, especially for bees, who gather pollen from them. The fruits are dark red sphere, as big as grapes. It blossoms all year and its large leaves are appreciated in gardens.

FACT AND FEATURES: It is traditionally use as fence post, because cut branches planted in the soil produce roots that stabilize it. The leaves can be drunk in tea, and the flowers are important for the honey making.

NOTES:

BEACH MORNING GLORY



SPANISH: RINONINA

SCIENTIFIC NAME: *Ipomoea pes-caprae*

FAMILY: CONVULVACEAE

DESCRIPTION: Ground-crawling vine with heart-shaped leaves with a, spongy and highly toxic fruits. Flowers purple or pink, 6–7.5 cm (2.5–3 in) wide, funnel-shaped or bell, the inside flowering a more intense color. The flowers only last one day and open in the early morning closing before noon each day which the plant is in bloom.

RANGE: Vine grows on sand dunes and beaches above the high-tide line in tropical and subtropical regions throughout the world but is most commonly found in Southern North America, Central America and South America

FIND IN PV: In front of the Playa Viva pool and all around the hotel.

FEATURES: Used to treat pain and inflammation of the kidney. Make a pitcher of tea with a few of the fresh leaves to cleanse the kidneys.

NOTES:



MANGROVE AND LAGOON



The term “mangrove” refers to a habitat comprised of a number of halophytic (salt-tolerant) plant species growing in coastal lagoons and estuaries. There are four (4) types of mangrove in Mexico and all are represented at Playa Viva. Mangrove have specially adapted aerial and salt-filtering roots and salt-excreting leaves enabling them to occupy the saline wetlands where other plant life cannot survive.



Mangroves provide crucial ecosystem services such as soil stabilization, erosion protection, flood mitigation, nutrient retention and water filtration of sediments and pollutants. Close to 75% of all tropical commercial fish species pass part of their lives in mangroves, using them for nursery grounds, shelter and food.

Currently, one out of every six mangrove species may soon go extinct because of over-exploitation and invasive industries. Human impacts on mangroves have been severe in some places, and include dredging, filling, digging, oil spills, and runoff of human waste and herbicides. Some developments result in total loss of habitat.

Playa Viva supports an ongoing mangrove restoration project, cutting down invasive species which destroy mangrove habitat and planting mangrove seedlings.

AMERICAN WHITE IBIS



SPANISH: IBIS BLANCA AMERICANA

SCIENTIFIC NAME: *Eudocimus albus*

FAMILY: THRESKIORNITHIDAE

DESCRIPTION: This bird has a white plumage and is recognizable by its down-curved red bill. It has an average length of 65 cm (26 in) and weighs 800–1000 g (2 lbs). It can live 20 years, mostly in mangrove swamps, coastal marshes and wetlands. It feeds on insects, aquatic insects, small fish and crabs. It is a monogamous avian species and the breeding season is from spring to autumn. Females lay two to four eggs which will hatch after about three weeks.

NOTES:



ANHINGA or DARTER

SPANISH: PÁJARO SERPIENTE AMERICANO

SCIENTIFIC NAME: *Anhinga anhinga*

FAMILY: ANHINGADAE

DESCRIPTION: This cormorant-like bird is easily recognizable thanks to its long neck. When it is swimming, only its long neck stays just above the water and it looks like a snake ready to strike. Anhinga, like the cormorant, is not able to waterproof its feathers. This allows it to dive easily and search for underwater prey, such as fish and amphibians. But they have to dry their feathers with the sun, using a very particular posture.

NOTES:



GREAT EGRET



SPANISH: GARZA BLANCA

SCIENTIFIC NAME: *Ardea alba*

FAMILY: ARDEIDAE

DESCRIPTION: Distributed across most of the tropical and warmer temperate regions of the world, the Great Egret is a large bird with all-white plumage that can reach one meter in height and a wingspan of 165–215 cm (65–85 in). It can be distinguished from other white egrets by its yellow bill and black legs and feet. The Great Egret feeds in shallow water or drier habitats, feeding mainly on fish, frogs, small mammals, and occasionally small reptiles and insects.

NOTES:

GREEN HERON



SPANISH: GARCETA VERDE

SCIENTIFIC NAME: *Butorides virescens*

FAMILY: ARDEIDAE

DESCRIPTION: The green heron is a small bird; it can grow up to 44 cm long (17 in). It has dark feathers that make it hard to locate. Most of the time, it has already taken off before you see it. It has yellow legs, a black bill, blue wings, and crimson neck. It eats little fish, frogs, and insects. It can migrate, but near the coast, it's a permanent resident.

NOTES:

GREEN KINGFISHER



SPANISH: MARTIN PESCADOR VERDE

SCIENTIFIC NAME: *Chloroceryle americana*

FAMILY: ALCEDINIDAE

DESCRIPTION: The only place where you can find the species is in the Americas. In Mexico, it can live in high altitudes of up to 2800 m (9200 ft). It is 20 cm (8 in) long and has an average weight of 30–55 g (1–2 oz). Males are mostly black with a white chin and throat, ginger breast, and green glints. Females are almost the same, except they have a cream throat and a green breast. You can find it around water areas like mangroves, marshland, and lagoon. It feeds on small fish and shellfish. This bird is also solitary. In Mexico, the breeding season starts in January and ends in May. The female lays three to six eggs that hatch after 27 days.

NOTES:

BLACK-BELLIED WHISTLING-DUCK



SPANISH: PIJIJE ALA BLANCA

SCIENTIFIC NAME: *Dendrocygna autumnalis*

FAMILY: ANATIDAE

DESCRIPTION: The black-bellied whistling-duck is 48–53 cm (19–21 in) in length and is recognizable thanks to its red bill, pink legs, white flight feathers, and its grey head. It lives in wet areas like mangroves, lagoons, and marshlands. It mostly eats aquatic invertebrates, seeds, plant material, and insects. The reproductive season starts approximately in July. The female lays 12 to 16 eggs that will hatch after 31 days.

NOTES:

WOOD STORK



SPANISH: TUYUYU O CYGÜENA DE CABEZA PELADA

SCIENTIFIC NAME: *Mycteria americana*

FAMILY: CICONIIDAE

DESCRIPTION: The wood stork is 85–115 cm (33–45 in) high and has a wingspan of 140–180 cm (55–70 in). It weighs 2–3.5 kg (4.5–8 lbs). When it is not flying, it looks entirely white with pinkish-red feet and black legs, but when it flies, you see that its wings are black. The head is black and the bill is slightly curved and yellow. It inhabits marshland and meadows and lives in small groups. It principally eats small fish and completes its diet with reptiles, batrachians, and insects. Females lay three to four eggs and both of the parents incubate them for about thirty days.

NOTES:

BLACK VULTURE



SPANISH: ZOPILOTE

SCIENTIFIC NAME: *Coragyps atratus*

FAMILY: CATHARTIDAE

DESCRIPTION: The “Zopilote” lives in South America and Central America and its plumage is fully black. Its head and neck don’t have any feathers and its skin is grey. It is 65 cm (2 ft) long, has a wingspan of 1.5 m (5 ft) and weighs 2–2.75 kg (4.5–6 lbs). It lives in open places and also in mangroves or dumps. It mostly feeds on carrion, eggs, and decaying plants. “Zopilotes” are monogamous. Females lay two eggs once a year and both of the parents incubate the eggs for 31 to 42 days.

ALSO FOUND IN: Beach

NOTES:

SNOWY EGRET



SPANISH: GARCETA PIE DORADO, GARCETA NIVEA o GARCITA BLANCA

SCIENTIFIC NAME: *Egretta thula*

FAMILY: ARDEIDAE

DESCRIPTION: You can observe the Snowy Egret from Central America to Patagonia. The Snowy Egret has a white plumage and black beak and legs and yellow feet (thus the name “pie dorado” or golden feet). It is smaller than the Great Egret, it can reach 75 cm (2.5 ft) tall. It eats small fish and amphibians but it does not eat the same size or the same species as the Great Egret, that's why they can live in a same place without competition. The “garceta pie dorado” hunts like other wading birds: standing, ready to strike on a prey which will cross its way. The nesting season starts in April. The female lays between three and six eggs. The nest can be on the ground or in a tree. It's a social bird and its nest is usually not far from nests of other egrets. Eggs need 24 days to hatch. Young egrets are fed for ten days.

NOTES:



YELLOW-CROWNED NIGHT HERON



SPANISH: GARZA NOCTURNA SABACÚ

SCIENTIFIC NAME: *Nyctanassa violacea*

FAMILY: ARDEIDAE

DESCRIPTION: This heron is the unique local species of genus *Nyctanassa*. It's a nocturnal bird, but you can also find it during the day. It eats small aquatic animals such as amphibians or mollusks. Adults are about 61 cm (24 in) long, you can recognize it thanks to the color pattern on its head (black and white stripped), and juveniles are completely brown. They have red eyes and short yellow legs. You can find them all around the lagoon, the mangroves, and on the beach at night.

NOTES:

ROSEATE SPOONBILL



SPANISH: ESPÁTULA ROSADA

SCIENTIFIC NAME: *Platalea ajaja*

FAMILY: THRESKIORNITHIDAE

DESCRIPTION: The spoonbill is a migratory bird. It can be found in wetlands and on the coast where tides are substantial. It is easy to recognize this bird thanks to its pink plumage which you might initially confuse as a flamingo, until you see its spoon shaped beak.

This beak allows it to catch mollusks and crustaceans in the sludge. With this asset, the Spoonbill can access a supply of food that other birds cannot reach. The Roseate Spoonbill nests in shrubs or trees, often mangroves, laying two to five eggs. Young have white, feathered heads, and the pink of the plumage is paler.

NOTES:



AMERICAN CROCODILE



SPANISH: COCODRILO DE RIO

SCIENTIFIC NAME: *Crocodylus acutus*

FAMILY: CROCODYLIAE

DESCRIPTION: The American crocodile is probably one of the largest crocodiles. It can reach 7 m (23 ft) in length but its normal size is 3.5 m (11.5 ft). Its average weight is 220–450 kg (500–1000 lbs). Its color varies from tan grey to olive grey and the belly is white or light yellow. It lives in saltwater (swamps and marshes) but can be found in freshwater. It is active at night but you can see it during the day at Playa Viva near the lagoons. American crocodiles feed on small mammals, birds, fish and crabs. The breeding season is between January and May, and the 20–60 eggs that the female will lay need 90 days to hatch. **WARNING:** American crocodiles love to eat dogs, please keep your dogs under close watch while at Playa Viva.

NOTES:



TOAD



SPANISH: SAPO

SCIENTIFIC NAME: *Incilius marmoreus*,

FAMILY: BUFONIDAE

DESCRIPTION: This very common species of amphibian, endemic of Mexico, dwells in tropical deciduous forests, intermittent rivers, freshwater marshes, and ponds. Streams are the only place where it can breed. Its dominant prey items are ants, beetles, and termites.

NOTES:

HALLOWEEN CRAB



SPANISH: MOYO

SCIENTIFIC NAME: *Gecarcinus quadratus*

FAMILY: GECARCINIDAE

DESCRIPTION: It's easy to differentiate the Halloween crab from other crabs thanks to its very specific colors (orange and blue) and its size—the carapace may reach 5 cm (2 in) or even larger at Playa Viva. It lives in the mangroves or forests at least some of its adult life, but needs to return to the ocean to breed. The Halloween crab is very territorial and will defend itself if threatened. It is largely herbivorous, and consumes leaf litter and seedlings. They will, however, also consume animal matter if available. Many of the holes you see on the Mangrove path were created by Halloween crabs. Bottles around mangrove seedlings were placed there to protect them from the territorial behaviors of these crabs, we believe doing so in defense of their territory.

ALSO FOUND IN: Beach

NOTES:

BLACK MANGROOVE



SPANISH: MANGLE NEGRO

SCIENTIFIC NAME: *Avicennia germinans*

FAMILY: AVICENNIACEAE

DESCRIPTION: Characterized by long horizontal roots and root-like projections known as pneumatophores. It grows at elevations slightly higher than the white and red mangrove and below button wood mangrove, where tidal change exposes their pneumatophores roots to air. It reaches heights of over 20 m (65 ft), however generally they are smaller averaging 15 m (50 ft). Leaves occur opposite of each other along the branches, with upper sides that are shiny and undersides densely covered with hairs. The bark of this mangrove is dark and scaly. Black Mangroves blossom in spring and early summer, producing white flowers.

RANGE: Florida to Texas, Bermuda, Bahamas, West Indies, Mexico, Central America to Peru and Brazil

FIND IN PV: Along the estuary past the Puente de Coco.

FEATURES: Black and White Mangroves regulate ionic concentration by excreting salt through glands on the leaf surface. Xylem sap is 1:7 concentration of salt water.

NOTES:

WHITE MANGROVE



SPANISH: MANGLE BLANCO o PALO BOBO

SCIENTIFIC NAME: *Laguncularia racemosa*

FAMILY: COMBRETACEAE

DESCRIPTION: Light yellow-green leaves, rounded at the base and the tip. Each leaf has two glands, called nectarines that excrete sugar, located at the base of the leaf where the stem originates. It grows rapidly in rich soils to heights of 15 m (50 ft). They produce greenish-white flowers. Occupying higher land than the Red Mangrove, the White Mangrove has visible aerial roots, but less prominent (or less spectacular) than red Mangrove

RANGE: Florida, Bahamas, West Indies, Mexico through, Central America to South America, Tropical West Africa.

FIND IN PV: Past the Puente de Coco.

FEATURES: Many insects feed on the excreted sugar from the nectarines. Black and White Mangroves regulate ionic concentration by excreting salt through glands on the leaf surface.

NOTES:

RED MANGROVE



SPANISH: MANGLE ROJO

SCIENTIFIC NAME: *Rhizophora mangle*

FAMILY: RHIZOPHORACEAE

DESCRIPTION: Easily distinguished from other species by tangled, reddish prop roots. These prop roots originate from the trunk with roots growing downward from the branches. This mangrove can reach heights of over 25 m (80 ft). Smooth-edged, elliptical leaves have shiny, dark green upper sides and pale green undersides occurring opposite from each other along the branches. The common name originates from the gray bark over a dark red wood, with white to pale yellow flowers.

RANGE: Florida, Bahamas, West Indies, tropical America, West Africa and the Pacific Islands.

FIND IN PV: Along the estuary from the Puente de Coco to the beach dunes.

FEATURES: The Red Mangrove is a salt excluder separating freshwater at the root surface by creating a type of “reverse osmosis” caused by transpiration at the leaf surface creating negative pressure in the xylem. Salt concentration of xylem sap in it is ten times higher than in normal plants.

NOTES:



BUTTONWOOD



SPANISH: BOTONCILLO

SCIENTIFIC NAME: *Conocarpus erectus*

FAMILY: COMBRETACEAE

DESCRIPTION: While the three mangrove species have leaves that occur opposite of each other, the buttonwood leaves alternate. The leaves are leathery with pointed tips and smooth edges. There are two salt-excreting glands located at the base of each leaf. Flowers appear in cone-like heads and are greenish in color. The name Buttonwood comes from the button-like appearance of the dense flower heads that grow in branched clusters, forming cone-like fruit.

RANGE: Florida, Bahamas, West Indies, Mexico through Central America to South America, Tropical West Africa.

FIND IN PV: Along the estuary from the Puente de Coco to the coconut grove.

FEATURES: Found in the upland transitional zone, the Buttonwood is often associated with mangrove communities and is often called Button Mangrove, but it is not a true mangrove. It does not reproduce via “propagules,” but produces seed cases.

NOTES:



GIANT CANE or SPANISH CANE



SPANISH: CARRIZO

SCIENTIFIC NAME: *Arundo donax*

FAMILY: POACEAE

DESCRIPTION: Perennial grass that grows on the banks of rivers, lagoons and lakes. It has a green, hollow stem over 5 m (16 ft) long, with leaves in the presence of rings or nodules.

RANGE: Worldwide

FIND IN PV: Bordering the Yarumi lagoon, and the opposite side of the estuary (where there is no mangrove restoration program).

FEATURES: in many states of Mexico, artisans use the bamboo like reeds as raw material for making baskets, wallets, purses, key chains, and beautiful lamps, screens, candy boxes, curtains, tortilla and napkin holders and more. The grass is considered a secondary invasive species, found in this region along riverbanks where coconut plantations have disturbed the mangrove habitat.

NOTES:



ZAPOTILLO



SPANISH: ZAPOTILLO SAPODILLA o CHICOZAPOTE

SCIENTIFIC NAME: *Manilkara zapota*

FAMILY: SAPOTACEAE

DESCRIPTION: Height of 3–6 m (9–20 ft). Find leaves that alternate, are elliptic to ovate, 7–15 cm (2.7–5.8 in) long with an entire margin, green and glossy. Bark is rich in a white, gummy latex called “chicle.” Flowers are bell-like, with a six-lobed corolla. Fruit large ellipsoid berry, 4–8 cm (1.5–3 in) in diameter, containing two to five black seeds, flesh ranges from a pale yellow to an earthy brown color.

RANGE: From the south of Mexico through Central America to Venezuela and Columbia. Introduced to India, Pakistan and Philippines.

FIND IN PV: Along secondary trail before bridge.

FEATURES: The seeds are black and resemble beans, with a hook at one end that can catch in the throat if swallowed. The fruit has a high latex content and does not ripen until picked. The fruit has an exceptionally sweet malty flavor. Many believe the flavor bears a striking resemblance to caramel. The unripe fruit is hard to the touch.

NOTES:



PILGRIM PLANT



SPANISH: ZARZA

SCIENTIFIC NAME: *Mimosa pigra*

FAMILY: MIMOSACEAE

DESCRIPTION: A leguminous shrub, can reach up to 6 m (20 ft) in height. The stem is greenish in young plants but becomes woody as the plant matures, armed with broad-based thorns. The leaves are bright green and bipinnate 20–25 cm (7.8–9.7 in) long with up to 16 pairs of pinnae 5 cm long, each divided into pairs of leaflets 3–8 mm (.2 in) long. Leaves are sensitive and fold up when touched and at nightfall. Flowers are mauve or pink 1 cm (.39 in) in diameter, each containing approximately 100 flowers.

RANGE: Worldwide

FIND IN PV: Found along all the hydraulic flows

FEATURES: While this species is a valuable sand dune stabilizer, it is also listed on the world's 100 worst invasive species and encroaches on the lagoon mangrove habitat.

NOTES:



COCONUT PLANTATION

DESCRIPTION: It's an entropic ecosystem which is, in Playa Viva, starting to be recovered by nature. It's an open space area that allows you to see easily some mammals like coati and deer if you are not noisy. You can meet many different species of bird particularly around water.

FAUNA AND FLORA: There you can find many species

ACTIVITIES: Near Juluchuca, you can visit the "Dulce de Coco" (Coconut Candy) factories. Dulce de Coco is a local sweet you can buy in small shops. It's a local industry using the coconuts produced in Petatlan district.

NOTES:

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GREEN ANOLE

SPANISH: FALSO CAMALEON

SCIENTIFIC NAME: *Anolis carolinensis*

FAMILY: POLYCHROTIDAE

DESCRIPTION: This lizard can reach an average length of 15–20 cm (6–8 in) and is the only lizard able of changing color, like chameleons do. It is usually green but it can be brown, yellow, or grey. The change of colors depends on the weather and its mood. The male has a pink fan on its neck, a dewlap, that it usually extends to attract females or to display its territory. They are active during the day eating small insects like spiders, moths, and crickets.

ALSO FOUND IN: Permaculture gardens

NOTES:



GREEN IGUANA

SPANISH: IGUANA

SCIENTIFIC NAME: *Iguana iguana*

FAMILY: IGUANIDAE

DESCRIPTION: This lizard is entirely green and is 1.2–3 m (4–10 ft) long. It has claws that allow it to climb trees. It has a very good hearing, smell, and vision. Its skin is very resistant, and it permits it to hide from its predators. The green iguana lives in tropical forests and near fresh water-springs. It is diurnal, cold-blooded, and it lays on warm rocks to soak up the sun's heat. The green iguana is also omnivorous and eats mostly insects, fruits, and plants. The female lays about 50 eggs several times during the breeding season and parents leave the nest right after that, the young grow up without care from their parents.

ALSO FOUND IN: Permaculture gardens

NOTES:



WHITE-NOSED COATI



SPANISH: TEJON o COATI

SCIENTIFIC NAME: *Nasua narica*

FAMILY: PROCYONIDAE

DESCRIPTION: That small omnivorous mammal is a member of the raccoon family. Its fur is grey-brown with white spots on the nose and around the eyes. It weighs between 3.5 and 5.5 kg (7.75 –12 lbs). Large males can be as large as 12.2 kg (27 lbs), the size of a medium dog. It is found in Mexico, Central America and Ecuador, mostly on wooded areas. It easily climbs on trees to eat fruit but it is on the ground most of the time. It also eats insects, mice, frogs, and eggs (it likes especially turtle eggs). Males are mostly solitary, except when it is time to reproduce (between January and March). Females isolate themselves to give birth to three to five young, after 77 days of gestation.

NOTES:

MAGNIFICENT FRIGATEBIRD



SPANISH: RABIHORCADO MAGNIFICO

SCIENTIFIC NAME: *Fregata magnificens*

FAMILY: FREGATIDAE

DESCRIPTION: This bird, native of tropical sea sides, is 95–110 cm (3–3.5 ft) long with a 225 cm (7 ft) wingspan. It has an average weight of 800–1500 g (1.75–3.333 lbs). Males are completely black whereas females have a white neck and a white breast. It lives near rivers and wet mangroves. It usually eats fish, crabs, and jellyfish, but sometimes it steals other seabirds' meals by forcing them to disgorge. During the reproductive season, Male Frigate birds inflate their red throat pouches to attract a mate. Females lay only one egg which incubates for seven weeks.

ALSO FOUND IN: Beach

NOTES:

COCONUT TREE



SPANISH: COCO

SCIENTIFIC NAME: *Cocos nucifera*

FAMILY: ARECACEAE

DESCRIPTION: A large palm, growing up to 4–6 m (12–19 ft) high, and pinnate 60–90 cm (23–53 in) long; old leaves break away cleanly, leaving a smooth trunk. The term coconut can refer to the entire coconut palm, the seed, or the fruit, which is not a botanical nut.

RANGE: The coconut has spread across most of the tropics, probably aided in many cases by seafaring people. Coconut fruit is light, buoyant, highly water resistant and evolved to disperse significant distances via marine currents. Because much of the Playa Viva property used to be a Coconut plantation you'll find this species throughout the land.

FEATURES: You may notice a band of metal around the trunk of many Coconut Palms on Playa Viva, this is to prevent the Mexican white nosed Tejón or Coati, *Nasua narica*, a small raccoon sized rodent from eating the coconuts.

NOTES:

MEXICAN PALMETTO



SPANISH: PALMA REAL

SCIENTIFIC NAME: *Sabal mexicana*

FAMILY: ARECACEAE

DESCRIPTION: Mexican Palmetto reaches a height of 12–18 m (39–59 ft), with a canopy spread of 3–4 m (9.8–13 ft). The trunk reaches 12–15 m (39–49 ft) in length and 30 cm (12 in) in diameter. The fan-shaped fronds are 1.5–1.8 m (4.9–5.9 ft) wide and attach to 90–120 cm (35–47 in) spineless petioles. Drupes are black when ripe and 12 mm (0.47 in) in diameter.

RANGE: From the Lower Rio Grande Valley of Texas in south along both coasts to Nicaragua. It is one of the most widespread and common palm trees in Mexico.

FIND IN PV: Along Yarumi Lagoon and throughout wetlands areas.

FEATURES: The leaves of the Palma Real are used to thatch the common "palapa" roofing of the region. In Playa Viva about a third of the hotel's roofs were thatched using leaves harvested from the Playa Viva land.

NOTES:

POND-APPLE



SPANISH: ANONA

SCIENTIFIC NAME: *Annona glabra*

FAMILY: ANNONACEAE

DESCRIPTION: *Annona glabra* is a tropical fruit tree. The trees grow to a height of around 10–12 m (30–38 ft). They have thin, gray trunks and sometimes grow in clumps. The leaves are ovate to oblong with an acute tip, 8–15 cm (3–6 in) long and 4–6 cm (1.5–2.3 in) broad. The fruit is oblong to spherical and apple-sized or larger, 7–15 cm (3–6 in) long and up to 9 cm (3.5 in) in diameter, and falls when it is green or ripening yellow.

RANGE: native to Florida in the United States (common in the Everglades), the Caribbean, Central and South America, and West Africa

FIND IN PV: Around lagoons and estuary.

FEATURES: It disperses by floating to new locations, and it is food for many animal species. It is edible for humans, and can be made into jam, although the taste is usually not preferable to soursop/guanábana and other related fruits.

NOTES:

BIG LEAF MAHOGANY



SPANISH: CAOBA

SCIENTIFIC NAME: *Swietenia macrophylla* **FAMILY:** MELIACEAE

DESCRIPTION: Also known as Brazilian Mahogany or Tropical American Mahogany. This evergreen or deciduous tree grows to 35–50 m (112–160 ft) high and 18 cm (7.2 in) in diameter. Open cup, round umbrella-shaped. Leaves alternate, paripinnate of 1–4 cm (.5–1.5 inches) long (including petiole), with three to five pairs of leaflets. Thick branches ascending, twisted above the 25 m (80 ft) deep outer bark, very cracked, especially in the black mahogany, ribs scaly, elongated, grayish brown to grayish brown, inner bark pink to red, fibrous, bitter, astringent, 1–3 cm (.39–1.17 in) thick. Through the cracks in the bark may be reddish color of the wood, the darker the deeper the crack.

RANGE: Mexico, Central America, northern South America, Philippines, Martinique, Philippines, Saint Lucia, Saint Vincent and the Grenadines. Threatened by habitat loss (World Conservation Monitoring Center).

FIND IN PV: Saplings found along perimeter of coconut grove near the Guayacán.

NOTES:

JATOBA

(also BRAZILIAN CHERRY, SOUTH AMERICAN CHERRY, STINKY TOE)

SPANISH: GUAPINOL

SCIENTIFIC NAME: *Hymenaea courbaril* **FAMILY:** FABACEAE

DESCRIPTION: Guapinol grows to be a huge canopy tree, reaching 30 m in height (89 ft). It produces bright green leaves in matched pairs, with white, fragrant flowers and an oblong, brown, pod-like fruit with large seeds inside. The fruit is considered edible but hardly tasty; one of its common names, stinking toe, describes the smell and taste.

RANGE: The Caribbean, Central and South America.

FIND IN PV: Young trees planted in orchard near Guayacán.

FEATURES: Used for the floors of the Private Casita at Playa Viva as well as doors and bar furniture; this tree was planted throughout the land as part of the reforestation project. Guapinol produces an orange, resinous, sticky gum that converts to amber through a chemical process that requires millions of years. In the Amazon, Guapinol's aromatic resin is burned as incense, used in the manufacture of varnishes, as a glaze for pottery, and medicinally.

NOTES:



SOAP BUSH

SPANISH: GUAYACÁN

SCIENTIFIC NAME: *Guaiacum coulteri*

FAMILY: ZYGOPHYLLACEAE

DESCRIPTION: The "Guayacán" is an evergreen tree reaching a height of up to 5 m (16 ft) and a canopy diameter of up to 8 m (26 ft). The bark is ashy gray with deep longitudinal fissures. Leaves opposite, compound 1.5–3.5 cm (.5–1 in) long formed by six to ten leaflets. Dark purple flowers 5–8 mm (.25 in) long. The fruit is a small, dark violet, lobed capsule.

RANGE: Western edge of Mexico from southern Sonora to northern Oaxaca Mexico.

FIND IN PV: The oldest tree in Playa Viva is a Guayacán and can be found just past Yarumi Lagoon in a coconut orchard.

FEATURES: This endemic Mexican tree fell victim to extensive logging. Excessive felling of canopy trees for exporting quality lumber since 1914 has altered the population structure to under-story shrubs, and has also left the population with a patchy distribution. The tree is currently being evaluated for endangered species status on the IUCN Red List.

NOTES:





PERMACULTURE GARDENS



Permaculture is a way of life that supports itself, the way natural ecosystems do. It relies on sustainable agriculture, and living each day without relying on the industrial systems of production and distribution. Our techniques build an increasingly self-sufficient human settlement. Playa Viva, from Nature Preserve to Edible Landscaping, is built on these principles under the direction of a team of trained permaculture experts.

DESCRIPTION: The permaculture gardens are the checkpoint of useful plants—where you can find the vegetable garden. Everything grown in the garden is organic and exclusively meant for the nourishment of the guests. You can find mango trees, papaya trees, zucchinis, tomatoes, sesame plants, corn, etc. There is also the permaculture (under the big “Parota”) where endangered species and ornamental plants such as Americana Varigata Agave are grown—they are endangered because of human activity. It’s a good place to take time to observe plants, speak with the permaculture team or to collect those funny “elephant ears” seeds.

FAUNA: This is the perfect place to observe many birds like American White Ibis, Anhinga Americana, Garza Blanca, Green Heron, or the Green Kingfisher, and of course various insects and lizards!

NOTES:

WHITE-THROATED MAGPIE-JAY



SPANISH: URRACA HERMOSA CARIBLANCA

SCIENTIFIC NAME: *Calocitta Formosa* **FAMILY:** CORVIDAE

DESCRIPTION: This bird has a black bill and its feathers are blue on the back and on the head, and white on the belly. It lives on the trees close to houses or near rivers. It feeds on bananas, corn, leaves, and insects. These birds live in groups of five to ten individuals. Females live in the same group their whole life whereas males leave the group when they turn about ten months. The breeding season is from February to July, a period during which the female lays three to four eggs per month. The eggs need 16–22 days to hatch.

NOTES:



GREEN ANOLE

SPANISH: FALSO CAMALEON

SCIENTIFIC NAME: *Anolis carolinensis* **FAMILY:** POLYCHROTIDAE

DESCRIPTION: This lizard can reach an average length of 15–20 cm (6–8 in) and is the only lizard capable of changing color, like chameleons do. It is usually green but it can be brown, yellow, or grey. The change of colors depends on the weather and its mood. The male has a pink fan on its neck, a dewlap, that it usually extends to attract females or to display its territory. They are active during the day eating small insects like spiders, moths, and crickets.

ALSO FOUND IN: Coconut Plantation

NOTES:

GREEN IGUANA



SPANISH: IGUANA

SCIENTIFIC NAME: *Iguana iguana* **FAMILY:** IGUANIDAE

DESCRIPTION: This lizard is entirely green and is 1.2–3 m (4–10 ft) long. It has claws that allow it to climb trees. It also has very good hearing, smell, and vision. Its skin is very resistant, and it permits it to hide from its predators. The green iguana lives in tropical forests and near fresh water-springs. It is diurnal, cold-blooded, and it lays on warm rocks to soak up the sun's heat. The green iguana is also omnivorous and eats mostly insects, fruits, and plants. The female lays about 50 eggs several times during the breeding season and parents leave the nest right after that, the young grow up without care from their parents.

ALSO FOUND IN: Coconut Plantation

BUTTERFLIES AND INSECTS

On these pages, you can see a small sample of the specimens you can observe during your walk in the property. These wonderful butterflies and multicolored insects are present in every part of Playa Viva, but the permaculture area and the gardens are privileged places to observe them, as they are attracted by flowers and fruit's sugar.

NOTES:



EAR OF THE ELEPHANT

SPANISH: PAROTA , OREJA DE ELEFANTE o

GUANACASTE (conacaste, a Nahuatl derivation signifying ear tree)

SCIENTIFIC NAME: *Enterolobium cyclocarpum* **FAMILY:** MIMOSACEAE

DESCRIPTION: One of the largest trees in the region, with a thick, tall trunk and spreading, symmetrical canopy. Trunk can reach diameter of 3 m (9.6 ft) and height of 16–30 m (30–96 ft). Leaves composed of tiny leaflets that continually rejuvenate and close during the night. The flowers are small and white. Pods resemble an ear in form. Most of the common names for *Enterolobium* refer to this resemblance.

RANGE: Occurs from latitude 23°N in central Mexico, south through Central America, to 7°N in northern South America.

FIND IN PV: Near the plant nursery and vegetable gardens you'll find beautiful examples of this species.

FEATURES: *Enterolobium* is the national tree of Costa Rica. The wide spreading canopy of a mature *Enterolobium* makes it an ideal shade tree for livestock in pasture lands, for perennial crops such as coffee, or in roadside plantings.

NOTES:



PASSION FLOWERS or PASSION VINES

SPANISH: PASSIFLORA

SCIENTIFIC NAME: *Passiflora*

FAMILY: PASSIFLORACEAE

DESCRIPTION: Native from Mexico and South America, the “passiflora” is a vine that can be found in both the wild or in acclimatized way. There are more than 430 species for genus “passiflora.” This one is a wild one, and you will notice it very easily because of its wonderful white and purple flowers, and yellow fruits (5 cm/2 in. in diameter). In the same family, you may have tried the well-known “passion fruit,” most of the time in our fruit-juice!

FIND IN PV: Near the permaculture garden, along the road to view point.

NOTES:





PLAYA VIVA

Species you can find everywhere in Playa Viva.

KAPOK

(also JAVA COTTON, JAVA KAPOK, SILK COTTON)

SPANISH: CEIBA

SCIENTIFIC NAME: *Ceiba pentandra* **FAMILY:** BOMBACACEAE

DESCRIPTION: A tropical tree grows to 60–70 m (200–230 ft) tall and large trunk up to 3 m (10 ft) in diameter with buttresses. The trunk and many of the larger branches often (but not always) have large, robust simple thorns. The leaves are compound of 5–9 leaflets, each up to 20 cm (8 in) and palm like. Adult trees produce several hundred 15 cm (6 in) seed pods. The pods contain seeds surrounded by a fluffy, yellowish fiber.

RANGE: Mexico, Central America and the Caribbean, northern South America

FIND IN PV: Just south of the bridge on the main road.

FEATURES: The ancient Maya of Central America believed that a great Ceiba tree stood at the center of the earth, connecting the terrestrial world to the spirit-world above. *Ceiba pentandra* bark decoctions have been used as a diuretic, aphrodisiac, and to treat headache, as well as type II diabetes.



TAMARIND



SPANISH: TAMARINDO

SCIENTIFIC NAME: *Tamarindus indica*

FAMILY: FABACEAE

DESCRIPTION: A medium-growth bushy tree with a maximum height of 12.1–18.3 m (40–60 ft). Leaves are evergreen, bright green in color, elliptical ovular (alternate pinnate compound leaflets) and less than 5 cm (2 in) in length. The branches droop from a single, central trunk as the tree matures and are often pruned in human agriculture to optimize tree density and ease of fruit harvest. At night the leaflets close. The tamarind does flower, though inconspicuously, with red and yellow elongated flowers. The fruit is an elongated rod, 12–15 cm (3–6 in) in length, and covered in a hard, brown exterior. The fleshy, juicy, acid pulp of the fruit is mature when brown or reddish-brown. The fruit is considered ripe when the pods are easily pried open by hand. The fruit pod contains anywhere between one and 12 flat, glossy brown seeds.

RANGE: Distributed throughout the Tropical belt, from Africa to India, South East Asia, Taiwan and as far as China. In the 16th century it was heavily introduced to Mexico and South America by Spanish and Portuguese colonists.

FIND IN PV: Just a few meters down the Horticulture Hike you'll find a tamarind grove.

FEATURES: Tamarind is harvested by pulling the pod from its stalk. A mature tree may be capable of producing up to 175 kg (350 lbs) of fruit per year. The tamarind is best described as sweet and sour in taste, and high in acid, sugar, vitamin B and, interestingly for a fruit, calcium. It is also consumed as a natural laxative. In Mexico it is most commonly used to make candies and sweetened tamarind drinks. In Western cuisine it is found in Worcestershire sauce.

NOTES:



YUCCA



SPANISH: YUCCA O IZOTE

SCIENTIFIC NAME: *Yucca periculosa*

FAMILY: AGAVACEAE

DESCRIPTION: The solitary tree-like branches and growing height reach 4–8 m (12–25 ft). The floating rosettes are 30–80 cm (11–30 in) wide. The flexible, smooth, green leaves 30–70 cm (11.7–27 in) long form on the leaf margins variable fibers. The fragrant, bell-shaped flowers have length of 3–4.5 cm (1.2–1.8 in) and a diameter of 2–3 cm (.7–1.2 in). Yucca flowers from April to July.

RANGE: Mexico in the states of Puebla, Oaxaca, Veracruz, Tlaxcala and Guerrero.

FIND IN PV: Along the main road between the parking lot and Yarumi Lagoon in the Xerophyte vegetation zone.

FEATURES: The Yucca contains saponins in the root that are used in soaps. Dried yucca leaves and trunk fibers have a low ignition temperature, making the plant desirable for use in starting fires via friction.

NOTES:

NOPAL

(also **RABBIT EAR CACTUS, PRICKLY PEAR, TUNA**)

SCIENTIFIC NAME: *Opuntia ficus-indica*

FAMILY: CACTACEAE

DESCRIPTION: Succulent, flattened stems or shrub-like with cylindrical stems; leaves are flat with large spines, flowers variously colored, with many petals, fruit egg-shaped 3–5 cm (1–2 in) long, 2 cm (.8 in) diameter.

RANGE: Southern North America, South America, Central America. Introduced into Australia and southern Europe.

FIND IN PV: In Xerophyte vegetation zones along main road near the Playa Viva hotel.

FEATURES: Most use for the large, sweet fruits, called Tunas or Prickly Pears. “Nopales” are very rich in insoluble and soluble dietary fiber. They are rich in vitamins (A, C, K, riboflavin and vitamin B6) and minerals (magnesium, potassium, iron, copper and manganese). They are low carbohydrate and may help in the treatment of diabetes.

NOTES:



SENSITIVE PLANT



SPANISH: DORMILONA

SCIENTIFIC NAME: *Mimosa pudica*

FAMILY: MIMOSACEAE

DESCRIPTION: Erect stem in young plants but becomes creeping with age. The stem is slender, branching, and prickly, growing to a length of 1.5 m (5 ft). The leaves of the mimosa pudica are compound leaves, with one or two pinnae pairs, and 10–26 leaflets per pinna. Pink or purple flowers and fruit consists of clusters of two to eight pods from 1–2 cm (.4–.8 in) long each. The pods break into two to five segments and contain pale brown seeds some 2.5 mm long.

RANGE: Native to South America and Central America but has been introduced and invaded other regions around the world.

FIND IN PV: You can find a large growth of *M. pudica* along the trail to the turtle sanctuary.

FEATURES: Leaves close when touched and at night.

NOTES:

COPAL



SPANISH: COPAL

SCIENTIFIC NAME: *Bursera copallifera*

FAMILY: BURCERACEAE

DESCRIPTION: A bushy small tree 3 m (10 ft) to 9 m (30 ft) in height. Grey bark with a thick, transparent and pleasant smelling resin. The leaves divided into 9–11 leaflets, hairless and dark green on one side and bright yellow-green on the back. Small flowers grouped in clusters. Red, clusters of fruit.

RANGE: Mexico, Central and Western India, thrives in warm, semi-arid climates.

FIND IN PV: Along main road between parking lot and Yarumi Lagoon in Xerophyte vegetation zone.

FEATURES: Ancient Mexicans considered the copal as a guardian god, they called it Iztacteteo, meaning “white god” because of the white smoke it produces when burned. Copal, considered to be the “blood” of trees, was designated as a worthy offering to the gods. In ancient Mayan and Aztec ceremonial uses there was a distinct symbolic connection between maize and Copal. Also used against influenza, fever and rheumatism.

NOTES:

GOURD TREE



SPANISH: CIRIAN

SCIENTIFIC NAME: *Crescentia cujete*

FAMILY: BIGNONIACEAE

DESCRIPTION: This tropical tree is native to North America and West Indies. It can reach 10 m tall (32 ft), and bear a grey bark. It bears simple fibrous green leaves. This tree is pollinated by bats. You can find it on your way to Playa Viva hostel, on the right side. Flowers are lovely dark red (variable to dark purple) corollas turned toward the roots. They are easy to see, because they are located on the trunk and branches. They sometimes smell like cheese. If you missed the flowering (between March and July), you may see the green spherical fruits, that can be as big as a soccer ball. Their woody shell (about 5 mm) is protecting a white slightly bluish flesh with flat black seeds.

FACTS AND FEATURES: Fruits are often used as containers or musical instruments by the population. Uncooked, seeds and flesh are toxic! But it is also a cure for sunburns, chapped skin and wound.

NOTES:



AIR-PLANTS or EPIPHYTES



SPANISH: BROMELIA

SCIENTIFIC NAME: *Tillandsia xerographica*

FAMILY: BROMELIACEAE

DESCRIPTION: This epiphyte (also called air plants) in the Bromeliad family can be found in mountains and forests of North and Central America. It can live without soil, growing on other plants dead or alive and gathering moisture and nutrients from the air. But epiphytes are not parasitic, depending on the host only for support. You can find the flower at the top of a brown stalk. During flowering, the long leaves become red. The air-plants you can see are growing on dead trees, this way they seem to be alive!

FOUND IN PV: On the main road to the hotel, on your left, before the bridge.

NOTES:



HIBISCUS



SPANISH: JAMAICA

SCIENTIFIC NAME: *Hibiscus rosa-sinensis*

FAMILY: MALVACEAE

DESCRIPTION: The species of Hibiscus is native of Southeast Asia. This shrub flowers from May to September in tropical areas. Hibiscus blooms are also ephemeral and hermaphrodite. They have a diameter of 10–13 cm (4–5 in) and always have five petals. The flower is edible and is visited by butterflies and hummingbirds. It is mostly red and bright and the stamens are golden yellow.

RANGE: South Asia

FACTS AND FEATURES: Hibiscus has many medicinal uses. In Asia, it is used against abscess, furuncles, mosquito bites and burns. It also has digestives, anti-inflammatory and soothing properties. In Playa Viva, we use the juice to make hibiscus tea; you can drink it at any time!

FIND IN PLAYA VIVA: around the hostel

NOTES:

ALMOND



SPANISH: ALMENDRA

SCIENTIFIC NAME: *Prunus dulcis*

FAMILY: ROSACEAE

DESCRIPTION: Deciduous tree, (small trees are 3–5 m, medium are 5–10 m, and big 10–30 m) growing to 4–10 m (13–30 ft) in height, a trunk diameter of up to 30 cm (12 in). The bark of the young twigs is green at first, becoming purplish where exposed to sunlight, then grey in the second year. The leaves are 7–12 cm (3–5 in) long. The flowers are white or pale pink, 3–5 cm (1–2 in) diameter with five petals. The fruit of the almond is not a true nut, but a drupe, which consists of an outer hull and a hard shell with the seed ('nut') inside.

RANGE: Worldwide, originally Middle East

FIND IN PV: Along main road across from Yarumi Lagoon.

FEATURES: Almond trees begin bearing fruit after five years. The fruit is mature in the autumn, seven or eight months after flowering. Most almond trees found in Playa Viva were planted in 2008.

NOTES:

BALSAM PEAR or BITTER GOURD



SPANISH: MELON AMARGO

SCIENTIFIC NAME: *Momordica charantia*

FAMILY: CUCURBITACEAE

DESCRIPTION: This climbing or creeping plant can be found in every tropical region. We don't know exactly where it comes from, but it might have been introduced in the tropics by colonists. Its stalk can reach 5 m long, with green dentate leaves. You can easily recognize the yellow unisexual flowers: Female flowers are smaller than male and if you look carefully, you will notice a warty ovary with limp thorn on female flowers. The fruit is also really striking by its orange color. It is as big as a pickle, with very variable shape. But it is always warty, and when it is open, you may see red seeds in it. Leaves and shoots are used in cooking in a lot of tropical countries such as West Indies. The fruit is edible too but very bitter. It is also used as a treatment against diabetes.

FIND IN PV: Near the bridge or around the garden.

NOTES:

TARANTULA



SPANISH: TARANTULA

SCIENTIFIC NAME: *Brachypelma smithi*

FAMILY: THERAPHOSIDAE

DESCRIPTION: It is probably the biggest spider you can see in Playa Viva. It is black and orange and measures approximately 15 cm (6 in). Females are solitary and spend their time in their burrows. They stay in it all day long and hunt at night. They eat young birds, insects, and small spiders. If you do not disturb them, they are not dangerous: their bite is not deadly to humans but the urticating hairs* (i.e. stinging hairs) are irritating.

**Urtica* is Latin for nettle. This term also refers to certain types of barbed hairs of a tarantula or caterpillar which they will “kick off,” directing them toward potential attackers, embedding themselves in the other animal’s skin or eyes, thus inducing physical irritation (source: Wikipedia)

NOTES:



HOUSE GECKO

SPANISH: CUIJA

SCIENTIFIC NAME: *Hemidactylus frenatus*

FAMILY: GEKKONIDAE

DESCRIPTION: This small lizard is native of Southeast Asia but has colonized on all of the continents. It lives in tropical deciduous forests and also in houses for an average of ten years. It only eats insects like beetles or mosquitoes. It is able to change color in order to protect itself. It produces several types of clicking sounds that you can hear only at night because it is a nocturnal lizard. During breeding period, the male bites the female on the belly and on the neck before coupling. The female lays two to four eggs, and these eggs hatch in 45–70 days.

NOTES:



BOA CONSTRICTOR

SPANISH: BOA O MASACOATA

SCIENTIFIC NAME: *Boa constrictor*

FAMILY: BOIDAE

DESCRIPTION: The boa constrictor is a non-venomous snake. It can reach up to 4 m (13 ft) long and have a weight of 27 kg (60 lbs). Its colors are generally brown, grey, and cream but can vary greatly depending on the locality. The coloring works as very effective camouflage in the jungles and forests of its natural range. Its diet is made up of little mammals, birds, amphibians, or other reptiles. It kills its prey by first striking at it, grabbing it with its teeth, and then it proceeds to constrict the prey until death. After that, it consumes the prey as a whole. It's usually nocturnal and not dangerous for humans. But don't try to catch them even as small specimens, their bites can be really painful.

NOTES:



SOUTH AMERICAN RATTLESNAKE

SPANISH: VIBORA DE CASCABEL

SCIENTIFIC NAME: *Crotalus durissus*

FAMILY: VIPERIDAE

DESCRIPTION: We find this snake in Mexico to Uruguay. It is the most common rattle snake. It lives in littoral xerophilous scrub, grassland, and tropophilous deciduous scrub. This rattlesnake can reach 1.5 m long. Its skin is brown with paler shades and has white rhombs. You can see at the end of its tail, a characteristic appendix like a rattle. When the snake wags it, it produces a specific sound, in the aim of disturbing its prey. It only feeds on small mammals, especially rodents. It is a quite aggressive species, and its venom is very dangerous! It sloughs its skin four or five times a year, and each time, a ring is added to its tail. The rattle snake doesn't lay eggs. Eggs stay in the animal's body for three months, and the young are born well formed. There are 20 to 30 young per litter.

NOTES:



NINE-BANDED ARMADILLO



SPANISH: ARMADILLO

SCIENTIFIC NAME: *Dasypus novemcinctus*

FAMILY: DASYPODIDAE

DESCRIPTION: The armadillo is a solitary and nocturnal mammal, living mostly in grassland and rainforests. It lives in burrows approximately the size of 20 cm (8 in), up to 2 m (7 ft) deep, and up to a length of 8 m (25 ft). It is insectivorous and eats mostly ants, beetles, and small invertebrates. It weighs about 5–10 kg (12–22 lbs) and reaches a length of 38–58 cm (15–23 in). The outer shell is composed of ossified dermal scutes* covered by non-overlapping, keratinized epidermal scales, which are connected by flexible bands of skin. Breeding season lasts two or three months between July and August. Females lay one egg per year. (**bony external plate or scale, as on the shell of a turtle, the skin of crocodile. Source Wikipedia*)

MARBLED TOAD



SPANISH: SAPITO

SCIENTIFIC NAME: *Incilius marmoratus*

FAMILY: BUFONIDAE

DESCRIPTION: This very common species of amphibian, endemic to Mexico, dwells in tropical deciduous forests, intermittent rivers, freshwater marshes, and ponds. Streams are the only place where it can breed. Its dominant prey items are ants, beetles, and termites.

NOTES:

ARBOREAL TERMITE NEST



During your walk on the property you can observe some structures in the trees made of mud, saliva and wood cellulose. These are arboreal termite nests. They can be one meter or more off the ground and have a diameter bigger than 50 cm. They are usually installed on a branch junction halfway up the tree. More than one million termites can live in these nests. This species maintains fungal gardens that are fed on collected plant matter, providing a nutritious mycelium on which the colony then feeds.

NOTES:

GREY MEXICAN SQUIRREL



SPANISH: ARDILLA GRIS MEXICANA

SCIENTIFIC NAME: *Sciurus aureogaster*

FAMILY: SCIURIDAE

DESCRIPTION: This squirrel lives in South Mexico and Guatemala. It is colored grey and white, its tail is bigger than its body and has long hair. Thanks to its numerous fingers, it is an excellent climber and handles objects very well. This diurnal animal lives in trees, feeding on fruits and nuts. It lives a lonely life, except during the mating period. At this moment, every couple builds a cylindrical nest with leaves and branches. A female has an average of five young per litter, every eight weeks.

NOTES:



RACCOON



SPANISH: MAPACHE

SCIENTIFIC NAME: *Procyon lotor*

FAMILY: PROCYONIDAE

DESCRIPTION: You can meet this small animal, which looks like one of the raccoons we can meet in our forests. It is adapted to different habitats, but is always lives near not flowing water, such as a lake or a lagoon. It likes mangroves or the seaside, but we can meet them in high mountains (up to 3000 m). Its hairs are grey to black, with white marks spread on his back. Its tail is striped, and you will notice that he wears a black mask, hooped with white. It is mainly nocturnal, but you can find him during twilight. The mating period starts in January, and ends in March. Females have only one litter per year, and can have up to seven young at the same time. They spend almost a year with their mother.

NOTES:



WHITETAIL DEER



SPANISH: VENADO COLA BLANCA

SCIENTIFIC NAME: *Odocoileus virginianus*

FAMILY: CERVIDAE

DESCRIPTION: The “venado” is one of the biggest mammals that you can meet in Playa Viva. It has things in common with does. It lives in many ecosystems, but likes forests and bushes. Easily recognizable, it's the only species of Cervidae in the area. It has a line of white hairs at the base of its neck which rise when it's excited. It has long and delicate legs but strong ones. Young need around one year to be independent and the gestation lasts seven months. Females give birth to one to three fawns in May or June. Fawns lose their spots during the first summer. Whitetail deer eat large varieties of food, commonly eating legumes and foraging on other plants, including shoots, leaves, cacti, and grasses. Their special stomach allows them to eat some things that humans cannot, such as mushrooms and Red Sumac that are poisonous to humans. Their diet varies by season according to availability of food sources. They are threatened by the destruction of bushes which form their habitat.

FIND IN PV: around road and bushes

NOTES:

BROWN HUMMINGBIRD



SPANISH: CHUPARROSA

SCIENTIFIC NAME: *Amazilia rutila*

FAMILY: TROCHILIDAE

DESCRIPTION: This species of hummingbird is endemic to the Mexican pacific coast and Yucatan. But because they are native to Central and South America, you will observe hummingbirds everywhere in Mexico and Costa Rica. This hummingbird lives in land planted with trees or in plantations, often in quite arid areas. It is one of the smallest birds in the world, it measures between ten and eleven and a half centimeters. You can distinguish male from female by their beak: a red one for male and black one for female and young. Its tail is cinnamon brown whereas its head and neck are shiny green. It feeds on small insects and nectar. The female lays two eggs in a nest built with bulk, for example awn, hairs, and other fine materials. The male doesn't take part in nesting.

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