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# 1

## NOTHING COULD BE LESS INVITING

**C**HARLES DARWIN DID not like what he saw. It was September 17, 1835, and the HMS *Beagle* had carried Darwin, then twenty-six years old, from his secure home in rural England to a forbidding archipelago of remote, arid black volcanic islands in the equatorial Pacific Ocean, nearly 600 miles (about 1,000 km) west of the South American country of Ecuador. The journey had already been long and arduous, especially the repeated, depressing bouts of seasickness as well as stress imposed by the mercurial captain of the *Beagle*, Robert Fitzroy. Darwin's journey had begun in England almost four years earlier, on a cold December 27, 1831, and by the time he set foot on the Galápagos, Charles had seen almost enough natural history to last him a lifetime. Almost. Indeed, after finally returning from the *Beagle* journey on October 2, 1836, Darwin would never again leave his native England. He had, by then, gained sufficient experience to inspire thoughts that would culminate almost a quarter of a century later in a book that would change all biology, to say nothing of Western philosophy. Darwin's epiphany derived in no small measure from what he witnessed while on these remote and desolate volcanic islands. But he would not know that until he had returned to England. And on that hot day in mid-September of 1835, perhaps feeling homesick, Darwin was not favorably impressed. "Nothing could be less inviting than the first appearance," he wrote of Chatham Island (now called San Cristóbal), one of the larger islands of an archipelago named for the lumbering giant tortoises, the "Galápagos," that then abounded on the various islands.





Darwin could have scarcely imagined that in years to come hundreds of thousands of people would visit these same islands and react quite differently to “the first appearance.” Darwin began on San Cristóbal, so let’s do the same on this imaginary “typical” first visit to a Galápagos island.

Your ship or yacht will be moored off one of several landing sites. You look upon an island geologically rugged with steep precipices of black lava rock, some of which abruptly meet the shoreline, framed in a backdrop of eroded volcanic cones. Cool drizzle, a form of precipitation called *garúa*, provides moisture for the vegetation that covers the upper regions of the volcanic slopes, the soft greens oddly reminiscent of Scottish highlands, not bleak, barren, and almost leafless as when Darwin visited in the height of the dry season. The highlands are immersed in fog and clouds. A smooth,

A group motors back to their yacht after a panga excursion. Panga is a local term for any small watercraft, like a zodiac, used to transport participants to and from the yacht.





sandy beach extends for considerable distance along the shoreline with a dense forest of short leafless trees just beyond it.

Along with other ecotourist passengers from your boat, you board a panga. Panga, a word used extensively throughout the Galápagos, describes any small flat-bottomed boat commonly used in the islands, whether a Zodiac or a dory. Your initial objective perhaps will be to circumnavigate Cerro Brujo, an old tuff cone with deep fissures and small caves carved by the unceasing energy of an ever-restless sea.

Approaching the ragged ebony rocks, you soon notice many crabs, immature and adult Sally Lightfoots, the strikingly scarlet adults adding a unique splash of color where there otherwise would be none. A small group of stoic marine iguanas, the gargoyles of the Galápagos, are unconcerned with how close you are to them. Photo ops abound. The cliffside is inhabited by some blue-footed boobies, large marine birds related to northern gannets and streamlined for plunge-diving into the sea. With such brilliant blue webbed feet, it was easy to see how they got their

*THIS PAGE:*

*Top:* The beach at Cerro Brujo offer photogenic lava rock formations.

*Above:* Ghost crabs can be found on a number of soft sand beaches.

*This one* was photographed at Cerro Brujo.

*OPPOSITE PAGE:*

*Top left:* Very common along the rocky shoreline, adult Sally Lightfoot Crabs (*top*) are quite colorful while the immature crabs (*below*) are dark, the color of the rocks, with light speckling.

*Top right:* A semiterrestrial hermit crab hides under a patch of inkberry.

*Bottom left:* A blue-footed booby at Cerro Brujo, dives in front of Kicker Rock.

*Bottom right:* The javeline-like dive of the blue-footed booby.





common name. They roost on the narrowest of the ledges, a common perching site as revealed by accumulated “whitewash,” the droppings from the birds. Slender frigatebirds with seven-foot wing spans, known for their piratical habit of pursuing other birds (especially boobies) and forcing them to drop their food, glide on stiff wings overhead, ever vigilant for an opportunity to highjack a few more calories. Several brown pelicans fly serenely past, almost at water level, vaguely resembling long extinct pterosaurs from the Cretaceous period, when dinosaurs were still in vogue. No wonder some folks describe the look of the Galápagos as “antediluvian.”

The panga soon approaches the shoreline. As you pass the volcanic rocks of Cerro Brujo you notice large acorn barnacles along the waterline and dozens of crabs scurrying about

*Right:* A juvenile great frigatebird pesters a red-footed booby in an effort to steal the booby’s recent meal.

*Below:* A lava gull flying over the beach on San Cristóbal.





just beyond the barnacles. You might well encounter a drab, grayish gull alone on a rock at the water's edge. It is a lava gull, one of the many Galápagos endemic species. Endemism refers to species that have evolved locally and are normally not found elsewhere. There are endemic species throughout the Earth, but endemism is very common throughout isolated islands and is particularly obvious on the Galápagos, as was well documented by Darwin. A shorebird, a wandering tattler, methodically searches among the algae for arthropods to help it refuel. This species is the very opposite of an endemic species, a well-named shorebird whose global perambulations take it to many out-of-the-way islands.

The panga next approaches a white sandy beach where you will make what is called a wet landing (it's as it sounds, you get your feet wet). Once on the beach you are likely to



Wandering tattlers are one of many shorebirds who migrate to or through the Galápagos.

encounter one or more small, sparrowlike brown birds with short rounded wings and a tail so stubby as to resemble a fledgling when the birds fly. These birds are certainly not exotic in appearance, far from it. Darwin, who upon first seeing these nondescript finches, paid little attention to them. The birds are *Geospiza fuliginosa*, otherwise known as a small ground finch, a species found widely throughout the islands. You have met your first Darwin's finch species. There will be others, and soon.

Darwin's finches compose a group often cited in evolutionary biology, the process

Darwin called "descent with modification." From a single common ancestor that long ago colonized the Galápagos, some seventeen finch species have evolved, some with large, powerful, seed-crushing bills, others with thinner bills, two with forcepslike bills so much like that of a wren that these birds were mistaken for a wren species, and by none other than Darwin himself. There is an eighteenth Darwin's finch species endemic to Cocos Island, off Costa Rica, but each of the other seventeen species is endemic to various of the Galápagos islands. As Darwin eventually wrote, "Seeing this gradation and diversity of structure in one small, intimately related group of birds, one might really fancy that from an original paucity of birds in this archipelago, one species had been taken and modified for different ends" (from *The Voyage of the Beagle*). Shortly after returning from the *Beagle* voyage, Darwin, in part because of the finches, began the construction of an argument about how life got to be what it is, an argument that would occupy his deepest thoughts for the remainder of his years.

With the benefit of Darwin's hindsight, a quick scan through a flock of small ground finches, some almost at your feet, might reveal one or two that are noticeably larger in

body size, with proportionally huskier bills. These are medium ground finches (*G. fortis*). Though they do not look that much different from the small ground finches, they are different, importantly different.

In the small trees and shrubs bordering the beach you are apt to notice a slender gray bird with a long tail and blackish face, almost as confiding as the finches. This is the Chatham mockingbird, which, like the finches, is endemic to the Galápagos. Before Darwin paid much attention to the finches, he noticed that the mockingbirds, or mocking-thrushes as he called them, differed a bit from island to island. Indeed, the Chatham mockingbird, now officially named the San Cristóbal mockingbird, occurs nowhere else on the planet but on the island of San Cristóbal. There are three other mockingbird species on the Galápagos, one of which, the Española mockingbird, is restricted to Española (formerly Hood), another of which,



**Above left:** With a disproportionately enormous bill, the large ground finch is easily distinguished.

**Above right:** The medium ground finch is quite common on a number of islands and absent on Española, Genovesa, and a few others.

The wrenlike warbler finch uses its forcepslike bill to easily glean small invertebrates.



the Floreana mockingbird, is restricted to tiny Champion Island off Floreana (formerly Charles), where it was once common. Darwin first thought these birds to be mere varieties, but when he learned they were separate species, he found it curious that the Creator would mold such slightly different creatures to occupy such similar islands. Another explanation suggested itself, the one Darwin eventually choose to believe. Once he came to that belief, that the mockingbirds and the finches evolved and diversified from ancestral species, he never looked back.

Your guide draws your attention to three lava lizards scurrying about in the dry leaf litter. As with other Galápagos creatures,

*Right:* One of four mockingbird species, the Chatham or San Cristóbal Mockingbird is found only on San Cristóbal Island.

*Below:* Well camouflaged, lava lizards are often missed by the untrained eye.





these reptiles allow close approach before moving. Seven species of lava lizards live on the archipelago, another case of evolutionary divergence. One of the three individuals you observe is a male, distinctly larger and somewhat more colorful than the other two. Each of the smaller lizards has a bright orange throat, a characteristic of females. The male is doing energetic push-ups, its reptilian brain directing it to “impress the females and maybe you’ll get lucky.”

Take a walk among the densely growing but still leafless gray-barked trees that occur beyond the beach and you may soon notice a distinct odor somewhat like that of turpentine. Naturalist guides explain that you are smelling the holy tree, a common name for palo santo tree. That name, palo santo, translates to “holy stick” and the species (*Bursera graveolens*) is genetically similar to myrrh and frankincense. Exudate from the tree is burned in churches as incense. Unlike the immense plant diversity of the South American mainland, the Galápagos flora,



Above: Lava lizards are found on most of the islands, many endemic to their specific island. This one was photographed on San Cristóbal.



The “ghost forest” as it is known, is actually dormant palo santo trees awaiting the rainy season.





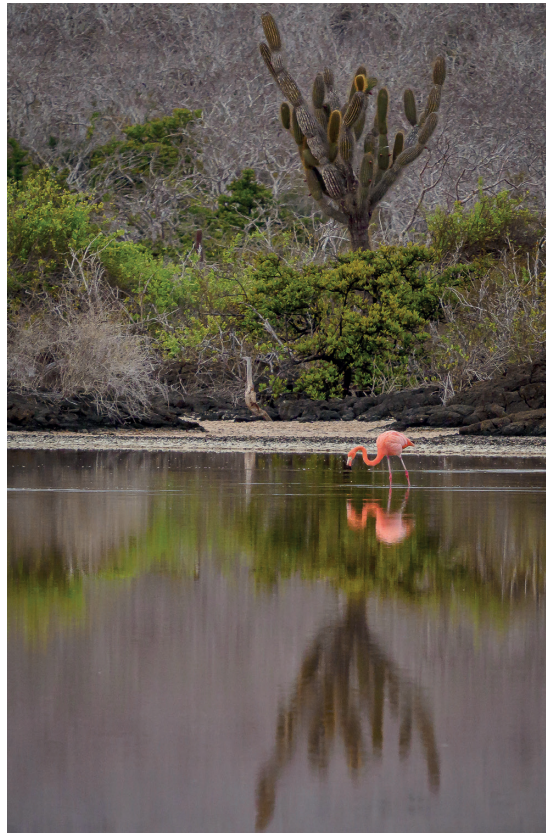
*Above left:* Thorn bush (aka thorn shrub) can be quite beautiful, just don't walk on it!

*Above right:* Manzanillo, or in English, poison apple, has a toxic, milky white sap throughout its bark, leaves and fruit that may cause blistering if touched. Tortoises, however, appear to be immune and enjoy the fruits.



though highly endemic, is not highly diverse, and palo santo is one of the most abundant plant species, dominating the dry zone vegetation that occurs at low elevations throughout the islands. Among the leafless palo santo forest are a few other notable trees, one with bright green shiny leaves more typical of the wet tropical forests. Guides will caution you not to touch it because it can cause skin eruptions similar to those from poison ivy. It is the manzanillo (*Hippomane mancinella*), or poison apple tree, its resin so toxic that no part of it is really safe to touch.

Perhaps the plant most likely to gain your attention is the tall, columnar candelabra cactus, a species in the genus *Jasminocereus* and as typical a desert plant as you might imagine. Various tree-sized cactus species



A candelabra cactus offers a fine backdrop to this flamingo in the hyper-saline pond on Floreana.

NOTHING COULD BE LESS PROFITABLE

The hypersaline ponds on several islands offer respite for American flamingos. This pond, located on Floreana Island at Punta Cormoran, is surrounded by red, white, and black mangroves as well as leafless palo santo trees that will turn green again in the rainy season.



grow throughout the islands and represent important food sources for various of the Galápagos giant tortoises.

Back on the beach you may notice peculiar markings in the sand leading from the upper beach to the water's edge. These are tracks made by a green sea turtle as she labored up the beach to lay her eggs and then returned to the sea. Green sea turtles are a common sight throughout the islands. Nearby the track line a young male sea lion is reclining, appearing



Sea lions recline on the beach, barely noticing tourists as they pass.

*OPPOSITE PAGE:*

A young sea lion feeds on the fat-rich milk of its mother.





to hardly notice you. Like most other Galápagos creatures, it appears unperturbed by your proximity or clicking camera. Walking back to the panga you may see blue-footed boobies diving headfirst, resembling avian javelins just offshore. Blue-foots feed closer to shore than either of the other two booby species that nest on the Galápagos.

You can be sure that as you take your various walks from island to island along the multiple landing sites you will visit, your guides will remind you that everything on the islands is strictly protected. You may not pick up chunks of lava rock, shells, feathers, or other items and take them with you as souvenirs. Look at them and leave them where they are.

Once you have made your first visit to a Galápagos island, you may muse over how astonished Darwin might be if he could have witnessed this afternoon of ebullient joy and discovery in a place where “Nothing could be less inviting than the first appearance.”

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The beach at Cerro Brujo, on San Cristóbal, offers visitors a chance to relax and soak in their surroundings as they explore.



OPPOSITE PAGE: Great blue herons range widely through the Americas, including the Galápagos Islands, far out in the Pacific Ocean.



## FROM JOHN KRICHER: NOTHING COULD BE MORE INVITING

The Galápagos Islands found their way into my psyche when, at age sixteen, my parents who, luckily for me, always encouraged my burgeoning interest in natural history, presented me with an oversized and lavishly illustrated book titled *The Wonders of Life on Earth* (1960), a splendid birthday gift. The volume, published by the editors of LIFE magazine, was devoted to Charles Darwin and how he came to write *The Origin of Species*. The cover bore an evocative painting of a dome shell Galápagos tortoise in a lush verdant landscape. The first chapter, titled “A Laboratory of Evolution,” was devoted to the Galápagos Islands and how Darwin was profoundly influenced by his experiences there. There were several stunning foldouts, paintings depicting the diversity of finches and other wildlife, including the imposing land iguanas. One foldout burned itself into my brain. It depicted a scene at Punta Espinosa on Fernandina Island, an island known to Darwin as Narborough. The huge marine iguana colony littered the rocks in the foreground while colorful Sally Lightfoot crabs scampered among the austere seemingly antediluvian reptiles. Volcán LaCumbra, still an active volcano, loomed in the background. Frigatebirds were in the air, sea lions on the beach, and a flightless cormorant was feeding its almost grown chick. Wow.

I just had to go there, be at that place, visit that spot, above all other spots on the planet. And I’ve been, and more than once. And being there was so much better than the painting.



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