

## TWELVE DAYS AMONG THE "VAMPIRE-FINCHES" OF WOLF ISLAND

by

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Some 80 nautical miles to the northwest of the main group of the Galapagos Islands, roughly 180 miles from Puerto Ayora on Santa Cruz, a huge volcanic rock emerges from the deep blue of the surrounding waters. Wenman, or Wolf, according to its official Ecuadorian name, is definitely one of the most inaccessible islands of the archipelago.

With its highest peak rising to 253 meters, protected by steep basaltic cliffs, battered at their base by enormous oceanic swells, the island has rarely been visited by men.

However, when members of the University of California International Expedition to the Galapagos Islands in 1964 were landed by helicopter on one of its lower plateaus, Raymond Fosberg, a botanist, Robert Bowman and Stephen Billeb, ornithologists, discovered a most unusual and, as far as is known, unique feeding behaviour among birds: the blood-drinking habit of the Sharp-beaked Ground Finch (*Geospiza difficilis septentrionalis*) (Fosberg, *The Elapio* Vol. 25:8, 1965; Bowman & Billeb, *The Living Bird* Vol. IV, 1965).

Since then, the few scientific parties that have set out to conquer Wolf Island have had to make do without a helicopter and have had to jump and climb ashore amidst the most dreadful breakers, clinging to cracks and holes in the slippery rocks, in constant danger of being washed out to sea. Most of those who succeeded and safely reached one of the two lower plateaus on the northern end of the island (Fig. 1) have been able to observe the "Vampire-Finches" pecking at the bases of growing feathers on the "elbows" of Masked Boobies (*Sula dactylatra granti*) or the tails of Red-footed Boobies (*Sula sula*), causing them to bleed and then sipping the blood. In addition to the pictures published by Bowman & Billeb (1965), several still photographs of the blood-sucking birds have been taken, but, so far as we know, only one or two attempts to film this fascinating behaviour have ever been made. As these attempts failed for various reasons such as inability to find a safe landing site, lack of time, or arrival at a time of year when the peculiar behaviour was not being exhibited, we felt that the challenge to try for a documentary film on the "Vampire-Finches" was too strong to be resisted.

When we heard of a reconnaissance trip by the Naval Oceanographic Institute of Ecuador and the National Institute of Galapagos, to the northernmost island, Darwin, which would pass close to Wolf, we jumped at the chance to visit this remote island. Thus, at 5 am on November 7, 1982, we left Puerto Ayora aboard the M/Y Ingala II in high spirits.

Just a few days before, a new battery for our Arriflex camera and the necessary film had arrived. Every piece of equipment had been double-checked and tested. Tents, sleeping bags and all those numerous items of camping equipment had been carefully packed and, most important for a stay on a waterless island, twelve *chimbuzos* (large water containers), were filled at the Darwin Station and hauled aboard.

The following is our diary of the 12 days we spent filming on Wolf Island, among Masked and Red-footed Boobies, Frigate Birds, agile centipedes, soft-spined cacti, slender *Croton* trees and — of course — the strange blood-sucking finches.

7 November 1982

Dawn marks the start of our journey. The first stop is the military base on Baltra Island. It takes four hours to fill the ship's tanks and many extra barrels with fuel for the long journey; then we are on our way to the two northernmost islands of the Galapagos archipelago, Wolf and Darwin, known in the old maps as Wenman and Culpepper. At dusk we cast anchor on the northwestern coast of Pinta Island, where a huge swell from the open sea rolls incessantly against the dark and jagged cliffs. A tiny fishing boat from San Cristobal rides alongside, enveloping us in a powerful odour of fresh and dried fish. Its deck is crammed with buckets, buoys, fishing lines and other equipment, between and on top of which, ten or twelve men can be seen huddling around a miserable lamp. The scene makes it easy to imagine the countless hazards and hardships that these men must endure while visiting the fishing grounds for stretches of a month or longer.

8 November

One o'clock at night, we leave Pinta Island and head for Wolf. As the sun rises, groups of Masked Boobies can be seen all around our ship, gliding just above the smooth water and from now on we are permanently accompanied by bands of juvenile Red-footed Boobies.

At seven in the morning we eventually arrive at Wolf, its towering cliffs dwarfing our ship while we anxiously search up and down the northern coast to find a possible landing site amongst the green foaming surf that beats against the rocks. Although discouraged by both the size of the pounding waves and the premonition of our dinghy being toppled over by the backwash during an attempt to jump ashore, we nevertheless decide to try a landing on a large rock nose that overhangs the swirling waters. We succeed. Then, as if lifted by an elevator, the long swells heave our Zodiac with all the precious equipment within reaching distance for just a few decisive seconds, before it drops back again, out of reach and far below. It takes half a morning's hard work before everything is put ashore and safely stored in rocky caves, high up, where no waves could possibly reach. A few minutes later, we see M/Y Ingala II disappear into the blue distance towards Darwin Island, barely visible to the north.

The afternoon is spent carrying camping and camera equipment to the top of the eastern plateau, climbing over rocky terraces, though dense fields of soft-spined cacti (*Opuntia helleri*) and along clefts and cracks in the rock walls. At sunset our camp is set up at the edge of the bare cliff, overlooking the wide sea to the north. It is surrounded by courting and nesting pairs of Masked and Red-footed Boobies and protected to the south by a dense stand of low and slender trees (*Croton scouleri*), beyond which the highest peak of the island forms an impressive silhouette against the darkening sky.

9 November

Walking through the booby colony early this morning, we notice several birds with stains of dried blood on their wings and many Sharp-Beaked Ground Finches hopping and flying about. Several of them scratch the loose ground in what appears to be the "bill-bracing technique", reported for the Large Cactus Finch, (*Geospiza conirostris*) and the Small Ground Finch, (*Geospiza fuliginosa*) on Española Island (DeBenedictis, The Condor Vol. 68, No. 2, 1966). A little later we observe our first "Vampire-Finch" at work. Riding on the lower back of a booby and clinging to the large flight feathers of its folded wings, the finch repeatedly buries its beak deep into the formerly white feathers of the "elbow", now distinctly marked red by extruding blood. Watching from within a couple of yards, we can clearly see the blood being sipped into the closed beak of the finch as if through a drinking straw.

In the afternoon, M/Y Ingala II surprisingly returns from Darwin Island. Five of its men climb up to our camp site and, then move on to inspect the interior of the island. At night we can see their camp fire through a drizzling rain. Later, the rain increases in strength as does the wind and towards midnight a fullblown storm is clattering and beating on our tent.

10 November

Our visitors tell us that only one member of the Ingala party had succeeded in jumping ashore on Darwin Island the day before. In view of the difficulties and dangers of landing there, they had abandoned their plan to build a lighthouse on Darwin. Instead they had come to see whether they could establish it on Wolf.

Deep in our hearts we painfully feel that, without the slightest doubt, such a scheme would jeopardize all conservationists' hopes to preserve Wolf as it has been until today: a virtually untouched and completely unspoiled island where, since it emerged from the sea millions of years ago, only nature's laws have ruled the pace of evolution.

On the proposals of the Government of Ecuador, the Galapagos Archipelago was one of the very first natural areas to be given World Heritage status under the UNESCO convention of 17 December 1975, establishing a system for protecting those parts of humanity's natural and cultural heritage which are of outstanding value. By law, both Darwin and Wolf, though located well to the north of the main islands of the archipelago, are integral parts of the Galapagos National Park. Today there are no residents and no private or military installations anywhere within the National Park's boundaries; even the offices of the National Park Service and the Darwin Research Station are situated outside the limits of the Park. A

lighthouse with a resident crew on either Darwin or Wolf would alter this admirable tradition, would infallibly result in the introduction of alien organisms and would produce irreversible changes in a virtually pristine ecosystem, with nothing else quite like it in the world.

In the afternoon, shortly after M/Y Ingala II has finally departed, the heavy rains start again. Worried about adequate protection for the camera and other equipment, we climb down the cliffs in the pouring rain to bring up one of our large aluminium cases in which to store everything, safe from the deluge. The rains last all night and we find ourselves camping in the midst of a mud puddle.

#### 11 November

In the morning we find that the frequent crashes we heard during the night had been Croton trees, uprooted by the storm. A large bucketful of rainwater has collected in the folds of our tent roof, saving today's climb down to the rocky shore where our food and water provisions are stored. Our camp has now become the home and favourite foraging ground for two Cattle Egrets (*Bubulcus ibis*). Walking gracefully over our pots, tins, cases and backpacks with their long legs and slender toes, they move with incredible precision, catching flies and hunting the geckoes (*Phyllodactylus gilberti*) which are quite common among the rocks.

Much to our surprise, with the exception of these recent colonizers of the Galapagos, no other day creatures, nor even the finches and mockingbirds, both numerous around the camp, show any interest in our kitchen. Not even the ants are attracted by this new source of food. Foot-long centipedes (*Scolopendra galapagoensis*) however, are a nuisance. Slowly crawling about at night, when frightened they swiftly dash for cover and are usually found in the morning curled up in our cooking utensils or food cans.

While drizzling rains and undiminished winds prevail during most of the morning, the sunny afternoon finds us at last filming "Vampire-Finches" and their victims on the western cliffs. From up here, with the green and white breakers crashing against the dark rocks far below, the island's impressive landscape and a large piece of the open sea can be seen. Hundreds of Masked Boobies that nest all along the cliff tops are floating through the air. Taking off in search of food or landing at their nesting sites, they are forced by the wind into spectacular flight manoeuvres. Light conditions are just perfect, so we make the most of our chances and shoot some film in slow motion.

#### 12 November

Again, it rains all night and during most of the day. By now, all the downy young and nestlings of the Masked Boobies have been seriously affected by the wet and cold. Shivering, with water incessantly dripping from the tips of their lowered bills and drenched to their skin, the tougher ones manage to keep themselves in an upright position, similar to that of penguins in a snow storm, while the weaker ones lie motionless on the soaking ground, waiting for the rain to stop or death to come. Many of the parents have not been back since the previous day to feed their young and we find several that have not survived the wet and chilly night. Patrolling Frigate Birds (*Fregata minor* and *F. magnificens*) take some of the smaller chicks but most corpses are left to the Sally Lightfoot crabs (*Grapsus grapsus*) that populate even the upper reaches of the cliffs and which turn out to be very efficient carrion feeders. Much to our surprise we find these crabs to be generally dark in colour, instead of the bright red that is so typical of the larger individuals of the other Galapagos populations.

#### 13 November

It is late in the afternoon before the sky clears again, allowing us to shoot a beautiful scene from the peak of the narrow ridge that separates the lower northern part of the island from its southern and higher plateau. Far below we see the larger, eastern plateau, with hundreds of Red-footed Boobies nesting in the Croton trees. The cliff edge is lined by thousands of white dots, which are in reality thousands of Masked Boobies. To the west, a smaller peninsula, shaped like a snake's head, protrudes into the sea. The sky, coloured by the sinking sun, provides a dramatic backdrop for the numerous Boobies, Frigate Birds and Audubon Shearwaters (*Puffinus inhemieri*) flying both above us and far below.

Climbing down the ridge again, we watch a Red-footed Booby on its nest in a *Croton* tree being bled by two finches perched on its tail. The booby is a white-phase individual of this normally chocolate-brown species, so the blood stains on its white tail feathers stand out strongly. Later, while on our way back to camp, we hear and see a group of five Sooty Terns (*Sterna fuscata*) flying high above. They must have come here from Darwin, their only nesting ground in the Galapagos.

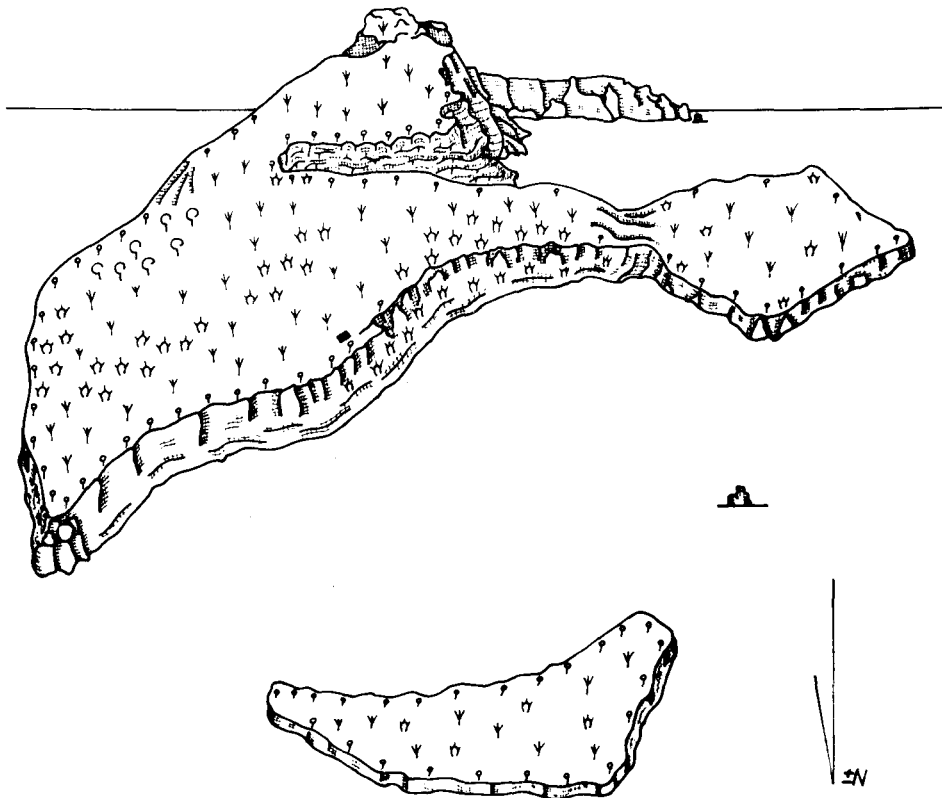


Fig. 1. By combining a map by Daniel Weber (D. Weber — Galapagos — 12.3.1970) with some of our photographs, experience and imagination, we have produced an aerial view of Wolf, such as a bird approaching the island from the north would probably see.

The symbols stand for:

- Y *Croton* sp., main breeding area of Red-footed Boobies and Frigatebirds;
- ⊖ *Opuntia helleri*, breeding area of finches and mockingbirds;
- ♂ *Erythrina velutina*, migrating Summer Tanager and two Vireos were seen here;
- ♀ *Alternanthera helleri*, breeding areas of Masked Boobies and feeding sites of the "Vampire Finches";
- Camp

The distance between the eastern tip of "our" plateau and the outermost end of the lower platform to the west measures approx. 980m.

14 November

While tape-recording the voices of the awakening colony of Masked Boobies at dawn, we come across a dozen Sharp-beaked Ground Finches hopping about and fighting over a broken booby's egg whose contents they drink. A little later, near the same place and with our camera all set, we observe a most fascinating behaviour: several finches manage to steal a booby egg from an unguarded nest by pushing and rolling it away. Two of the finches are especially clever at this. While the brown-feathered individual uses its bill purely as a lever, shoving it under the egg and lifting, the black individual anchors its bill in the soft

ground or against a nearby stone and kicks the egg forcefully with both its feet at the same time. With this fine demonstration of the "bill-bracing technique" mentioned earlier, the finch succeeds in pushing the egg away from the nest. Other birds of the group now and then join in the enterprise and in less than an hour the egg has travelled some three meters. It eventually comes to a final halt between two rocks but the birds continue pushing, kicking and levering so that the egg is turned and rolled around on the spot. We hear the sharp noises of the shell being repeatedly knocked against the rocks. Now and then the finches stop to inspect it, presumably looking for holes or cracks resulting from their activity. Finally a tiny opening in the shell, just enough for the tip of a bill to be inserted, marks the start of frantic fighting. All the finches of the group try to get possession of the egg. Within seconds ten or twelve beaks have chipped a large hole into the shell and all the birds crowd round drinking the liquid. When eventually the egg rolls over, spilling the rest of its contents on the ground, we see two or three finches in what could well be called a feeding frenzy, viciously fighting over the tiny embryo which they drag out of the egg, ripping it to pieces on the spot.

We now understand the reason for the many "lost" booby eggs that we have seen and the fact that many of them had large holes or were broken. The Sharp-beaked Ground Finches on Wolf Island are not only blood-sucking "Vampire-Finches", but they are very skillful egg-robbers as well.

15 November

For the third time during our stay on Wolf, we observe a large group of 80 to 100 juvenile Red-footed Boobies engaged in what appears to be a curious communal game. Flying high in a rather dense formation and calling our attention with their harsh voices, they are seen to pass a "toy" from one to the other. Even with the use of our fieldglasses we cannot detect the precise nature of the "toy". It might be a feather, a leaf or a stick. It is held in the beak by one bird and carried a little upwards in the circling cloud of birds; then it is dropped. After a few seconds of free fall it is caught by a second bird and carried upwards, only to be dropped again and subsequently picked up by yet another bird; and thus the process continues. The game, if we may call it so, always started near the summit of the island. The wind then carried the cloud of birds and their "toy" out to sea, where they eventually settled on the surface near the spot where, after numerous passes, the "toy" had finally fallen on to the water. A few days before, while climbing the peak, we had seen a juvenile Red-foot holding a long feather in its beak. Descending an hour later, we found it still holding the feather. Will it fly, we speculated, join others and then drop the feather, initiating a new game? Looking under nesting and roosting places of Red-footed Boobies on Wolf, we found the following objects: 3 short plastic thongs, 1 toy soldier and 1 toy bassoon, all made of bright, blue plastic and between 6 and 10cm long. Are these the boobies' "toys"? How else can these strange objects make their way to the top of Wolf Island?

16 November

Today, torrential rains and thick clouds hanging low over the sea force us to leave our camera in its case. No boobies are seen flying anywhere. Crowding along the cliff edge, their numbers seem to have doubled. As they stand motionless next to their unprotected young, the adults seem totally unaffected by the pouring rain. The downy chicks, however, become soaked and again we find that many have died. The only creatures that seem to enjoy the rain are the Frigate birds. Gliding up and down high above the island they appear literally to bathe in the air. Diving vertically and vigorously shaking their wing and tail feathers, at times they completely disappear into the clouds.

Taking the opportunity offered by a few moments without rain, we catch a Masked Booby with a prominent blood stain to see whether the blood-drinking habit of the finches has any harmful effect on the growing feathers. No deeper probe than a simple visual inspection is possible but from this we conclude that there is no direct harm to the young feather, although the blood filled quills are punctured by the finches and partially drained of their blood. A more detailed study however may well prove worth doing.

We were surprised to see that most boobies do not react more vigorously against the finches. Courting pairs seem virtually unaware of the "vampires" riding on their backs, pecking and drawing blood from their feather quills. With single boobies however, a reaction of discomfort can frequently be observed. After several minutes of restlessly walking around on the cliff, now and then shaking its wings to throw off the persecutors, but nevertheless relentlessly followed by up to five or six finches taking turns in riding

and sipping blood, the booby eventually takes off and heads directly out to sea. Stiff-winged and on a straight course, it flies off the cliff and glides down to the water. There, after a shallow dive, a long wake of white foam marks the end of its ordeal. An extended bath with much wing-shaking, preening and rolling over follows, before the booby returns to its place on the cliff. As the bright red marks on its wings have now been washed away, marks that apparently guide the finches in choosing their victims, the returning booby may now enjoy a period of peace before being pestered again by the finches.

On more than one occasion we have come across a group of finches parasitizing Masked Booby nestlings of various ages. While adult Boobies may escape from their persecutors, downy young and flightless juveniles cannot. Crouching on their heels, the neck being prominently arched and the beak tucked away under the body, thus adopting their characteristic submissive position, the downy chicks are totally defenseless. Many of these young show bloody cuts and scratches along the bare sides of their necks, presumably the result of rather rough handling by their parents or other adults. Quite frequently we observe an adult clasp the neck of a chick with its beak and shaking it for a few seconds. The sharp cutting edges of the adult's bill produce at least some of the cuts and scratches that we have seen and these rapidly become an attraction for the finches. Downy young at an early age do not have blood-filled feather quills to offer and thus seem to suffer mostly from attacks on their bare necks. Larger chicks, with feathers already protruding on their wings and tails, are primarily parasitized at their tails. It is saddening to see how these comparatively large birds try to get rid of their tormentors by desperately walking backwards and forwards across the nesting area, but relentlessly followed by a group of sharp-billed finches pecking at their bloody tails.

17 November

It rains all day long. Our tent, built on arid ground with scanty vegetation less than two weeks ago, is now surrounded by fresh green *Alternanthera helleri* bushes; the bare *Croton* trees are now covered with green leaves; *Opuntias* and the beautiful *Portulaca howelli* are all in flower. Behind our camp, low in the scrub of *Alternanthera* bushes and flowering cacti, we find many dome-shaped nests built by our "Vampires" and lined with white booby feathers. The birds are feeding on the filaments of *Opuntia* flowers and hunting for insects under the loose bark of dried and fallen trees. It is in this area, which gradually changes from an open cactus field into a dense *Croton* stand, that we eventually manage to film some of the far less numerous Large Ground Finches (*Geospiza magnirostris*) and Warbler Finches (*Certhidea olivacea*) which we have seen only rarely near our camp on the cliff.

18 November

It is afternoon before the heavy rain changes into a steady drizzle. Most of the sea birds have left by now in search of food for themselves and their young, many of which endure these difficult conditions standing in shallow mud puddles, stoically awaiting their parents. Finches and Mockingbirds, (*Nesomimus parvulus*), on the other hand, seem to be having a great time. Busy with singing, territorial fighting, nest-building and courting, they all prepare to make good use of the, for them, optimal conditions resulting from the rains.

In the evening, the wind changes direction and the rain becomes heavier again. Within seconds we are soaked while on our last trip on the western cliffs. Coming back to the camp, we find our shelter toppled over by the wind. Even our cold lunch has not escaped and tastes too watery to be any good.

19 November

Presumably our last day on Wolf Island. It is one of the few days of fine weather. As some introductory shots are needed for our film, we climb down the cliffs to the rocky shore where several pairs of the Great Frigatebird (*Fregata minor*) have their nests and young. Halfway down, in little caves along the foot of the steep rockwalls, we find what appear to be old nests of the Galapagos Dove (*Zenaida galapagoensis*) which is quite common around our camp. Well hidden behind a large stone in a hole in the cliff, we discover a Red-billed Tropicbird (*Phaeton aethereus*) with its yellow-billed young.

In the afternoon we walk over leaf-littered ground in a small grove of *Erythrina velutina* trees near the eastern cliff. This group of comparatively large trees seems to be rather out of place here as it contrasts strongly with the low stands of *Croton* forest. In its shade we find large stones and rocks, uprooted trees and rotting logs which had doubtless been carried to this place over many years by huge floods of

rainwater that had come down from the peak, cutting an impressive creek bed through the grove. On a twig in the grove a Large-billed Flycatcher (*Myiarchus magnirostris*) perches and not far from it the greenish female of the Summer Tanager (*Piranga rubra*), a migrant from North America, is resting in the shade. At the edge of the grove two other birds attract our attention; our best identification leads to the conclusion that they must be Red-eyed Vireos (*Vireo olivaceus*), migrants from the north as well. As far as we know, this species has not previously been reported in the Galapagos.

Summing up the migrant birds that we have noted: 5 Cattle Egrets (*Bubulcus ibis*) were recorded near our camp throughout our stay; on 14 November a cuckoo flew over our camp (*Coccyzuz melacoryphus* most likely); two White-cheeked Pintails (*Anas bahamensis*) crossed the northern bay on 15 November and on 17 November numerous Bank Swallows (*Riparia riparia*) were seen flying along the edge of the cliffs. The only migrant marine species we saw was a Cape Pigeon (*Daption capense*) on 18 November, an antarctic breeder that migrates north.

20 November

At 7am we hear the Darwin Station's M/Y Beagle IV cruising into the bay below. It takes us three hours to carry all our equipment down the steep cliff and over the slippery ledges to where the dinghy waits and another hour before all the precious gear and our invaluable film footage of the "Vampire-Finches" is put safely on board.

We have documented on film the most unusual blood-drinking and egg-robbing habits of the Sharp-beaked Ground Finches, on Wolf Island. We have had a lot of rain and poor light, with only a few sunny days, but we have certainly experienced our best time in the Galapagos so far.

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Now (March 1983), several months later, it has become clear that the most unusual rains we endured on Wolf were the precursors of an "El Niño" year. Every 7 to 10 years, warm currents of the eastern Pacific, which normally stay north of the Galapagos, press southwards and prevent the cold Humbolt current from flowing north to the islands, thus changing the normal climatic pattern of the archipelago. The reasons for these changes are only poorly understood, though their drastic consequences are well known. Air and water temperatures are raised considerably and frequent rainfalls quickly change the barren and arid islands into lush green paradises. This is true not only of the Galapagos but also of the Peruvian coast. Peru suffers the widely known dramatic declines of fisheries and sudden reductions in Guano-bird populations.