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Palmyra Atoll: October 31 to November 4, 2000

*Suzanne Case**

Gentle wildness. That's the term my boat companion and I coined to describe this experience of Palmyra Atoll, as we drifted along a causeway where tens of thousands of sooty terns and red-footed boobies were settling to nest in every available tree and rock cranny, while many more thousands darkened the sky above. So wild. But in such a gentle way.

A Chorus of Terns

It was the terns that first drew my awareness into the sounds of gentle wildness at Palmyra. Steve Barclay, The Nature Conservancy's Island Manager, was taking us on a tour around the atoll to introduce us to some of its treasures. He boated us across Central Lagoon to the far shore where hundreds of masked boobies and red-footed boobies and brown boobies floated above us, swooshed past us, or watched from their resting places in branches of tall beach heliotrope. Steve had spent years as a biologist with the U.S. Fish and Wildlife Service throughout the full geographical Hawaiian chain, and most recently had managed the new eco-tourism operation at Midway, converted recently from a Coast Guard long-range radar tracking base to a national wildlife refuge. He pointed out boobies, frigate birds, plovers, curlews, and white-tailed tropic-birds to us, in all their stages of maturity, all looking quite different. But even Steve grew excited now to see the sooty terns circling over the causeway and dropping down in droves. When they actually start dropping down they are getting ready to lay eggs, he told us, happy to see the terns settling on the old causeway and not on the runway on which we fly in and out of the atoll. But now as we drifted close we gradually heard, almost sensed from the vibration of it, the growing din of thousands and thousands of sooty terns cackling in the air, in trees, on rocks, louder and louder as we approached the dark cloud of birds circling and swooping over the causeway, until the sound seemed to surround us completely and fill us. Every day at Palmyra began with gentle sounds—the lapping of seawater against the lagoon shore ten feet in front of my tent cabin; breezes rustling coconut leaves; the occasional bird chirping. The nighttime often held an enormous deluge hidden somewhere

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in the dark sky, the opening of which sent monsoons tumbling straight down to earth and sea, pounding comfortably on the vinyl tent cover, rocking me in the half-sleep of deepest night. But the sooty terns called the most compellingly to me every day, as slowly around naptime they began to return from their day's forage on the open ocean and gather for their dance in the afternoon and evening skies. The sight and sound of a breeding colony of 750,000 thousand birds swooping back and forth, calling to each other, searching for that synchronicity that tells them all it's time to descend and nest, simply overwhelmed the senses, reverberating through me. It is urgent, calling forth life from sheer energy.

To the Atoll

The Nature Conservancy first began to look at ways to conserve Palmyra Atoll in 1991. We met then with the landowners' representative in Honolulu at their request in connection with a proposed housing development at Palmyra. We studied the plans, but the proposal at the time didn't offer sufficient nature protection possibilities for the Nature Conservancy to want to join in. Now we'd been working intensely towards an outright purchase of the atoll for conservation for the past three years. But I'd never been to Palmyra to understand first-hand all the intricacies I had focused on and will focus on.

Every legal issue possible in a land transaction to create and manage a nature preserve has its own complex unique twist at Palmyra—ownership of submerged lands, extent of the territorial sea, fisheries laws, title registration, physical hazards, governmental regulation, the fishing license currently encumbering the atoll, our conservation operations, it goes on and on. Working on it reminded me constantly of my legal professional growth with The Nature Conservancy's emerging international Asia/Pacific conservation work in the 1990s. For years I felt like I had no clue what I was doing. I gradually figured out that, as with a lot of life, I indeed had no idea what I was doing—but I could still do my best, to accept the challenge, to learn and grow, to make a contribution to the world.

We met at the Air Service Hawai'i hangar in Honolulu for our flight down to Palmyra in a Gulfstream G-1, a still sleek 1965 workhorse 14-seater turboprop. With extra cargo to carry down to our atoll camp we had only 11 passengers and still a 40-pound baggage limit. Our pilots gave a casual but professional flight briefing so we seemed in good hands. The pilot Larry Neu had come with the chartered G-1 from Texas. The copilot, Guy Davis, hired by our operations contractor and apparently also a very experienced pilot and an old-timer from Honolulu, looked vaguely familiar. He had been helping our Palmyra project leaders, Chuck Cook and Nancy Mackinnon, since January to identify the right kind of plane for the flights to Palmyra, and had stepped in at their request as copilot when the pilot shortage in Honolulu had left us dry on the required second pilot. During the four-hour

flight, 960 miles to Palmyra, I had a chance to sit up front and chat with him. In an amazing coincidence, I figured out that my very first summer job three decades before, washing twelve-seater airplanes with my dear cousin Greg, had been for the copilot's Hawai'i air tour company, Panoramā Air Tours.

As we neared Palmyra the plane dipped down for several passes over Kingman Reef, a tiny strip of coral perhaps four feet above sea level, to greet a ham radio expedition which had gathered there to broadcast from one of the most elite sites in the ham radio world. Twenty minutes past Kingman Reef we circled the whole of Palmyra Atoll—a group of jungle-topped low coral islands consisting of a main island, Cooper Island, and 50 smaller islets totaling 560 emergent acres. The atoll runs 5-1/2 miles by 2-1/2 miles around a central lagoon and is surrounded by 15,000 acres of reef.

(Remember from school science class: an atoll is formed from the top of an old extinct volcano and its surrounding reef, where eroded coral has accumulated as sand on its former shore now a few feet in elevation above sea level, encircling a lagoon left by the now completely eroded volcano).

The Palmyra atoll is situated uniquely at the tropical convergence, where north and south Pacific Ocean winds and currents circling in opposite directions converge. This unique phenomenon brings heavy rains and rich species diversity to the atoll. Its humidity fogged up the plane's windows as we descended.

We landed on a packed coral runway topped recently by a thin adhesive to keep rocks from kicking up into the plane, and bobbed a good part of its 6,000-foot length before coming to a halt. There we were, on a coral atoll in the middle of nowhere in the Pacific Ocean.

Strange Pasts

Palmyra's history spins a fascinating tale. The atoll seems to have been uninhabited in pre-history. In 1864 a couple of copra and guano entrepreneurs persuaded the King of Hawai'i to annex the atoll to the Kingdom of Hawai'i. Over the next several decades there were half-hearted attempts to make a commercially viable industry with several island occupants, but the attempts gradually faded away. When the Kingdom of Hawai'i was annexed to the United States in 1898, Palmyra became part of the new Territory of Hawaii.

In 1912 Judge Henry Cooper from Honolulu purchased the outstanding interests at Palmyra from the descendents of the original entrepreneurs and quieted title to the atoll in the Land Court of Hawai'i. Palmyra passed to a Honolulu couple, the Fullard-Leo's, in 1922, in settlement of a \$15,000 debt. Their three sons, Leslie, Dudley, and Ainsley Fullard-Leo of Honolulu, still owned Palmyra. They had agreed to sell the now enormously appreciated islands at a charitable discount to The Nature Conservancy.

Over the past months we have been undertaking our due diligence and attempting to raise sufficient funds to complete the Palmyra acquisition and

establish a nature preserve. One major occupant changed the face of Palmyra markedly this century: the U.S. Navy occupied the atoll during World War II as a center for troop transport throughout the Pacific arena. The Navy fortified the atoll and built a cargo runway and a jet fighter runway, a deepwater dock, a sea plane channel and ramp, and facilities for up to 6,000 servicemen including barracks and a hospital. They constructed two rock causeways across the lagoon with single lane roads running along the rock, dividing the lagoon into what is now West, Central, and East lagoon.

As it turns out, my uncle, Bill Case, unfortunately recently deceased, managed the transport operation at Palmyra for Pan American Airways on contract to the U.S. military. Most of the buildings have been torn down or gobbled up by jungle since the war. A few remain, including bunkers and gun fortifications on the beaches, water reservoirs, the dock and seaplane ramp, some traces of roadways, the causeways that unfortunately significantly block seawater circulation through the lagoon (we plan to breach them in several places when we begin management), the cargo runway we were happy to land on, and the now overgrown jet fighter runway the terns and boobies now nest on.

When the Fullard-Leo family contested the Navy occupation during the war, the government researched title records, found no original land grant from the King of Hawai'i, and concluded that the U.S. government owned the atoll anyway. The indignant family fought the government all the way to the U.S. Supreme Court. The Court found in favor of the family under an obscure legal doctrine I've seen only in law school texts called "presumption of a lost grant"—the theory being since everyone had considered the atoll private for 80 years the King must have granted the original entrepreneurs a patent to the land, which was then lost.

Palmyra was specifically excluded from the new State of Hawai'i in 1959. In 1961 President Kennedy issued an executive order establishing governmental jurisdiction with the Department of Interior, Office of Insular Affairs. Palmyra remains the only wholly privately owned territory in the United States and is not part of any state.

Setting Up

The Fullard-Leo family allowed The Nature Conservancy to establish a tent camp during the contract period this year, to show the islands' unique natural resources to potential conservation partners and donors, to begin conservation planning and management, and to pilot an eco-tourism program. Palmyra boasts world-class birding, scuba diving, snorkeling, and bonefishing, that we hope eventually to open up to the general public on a minimal-impact basis.

We hopped off the plane at one end of the runway that goes from ocean to lagoon. The tropical heat and humidity immediately enveloped us. We walked down a coral path a few hundred yards to the tent camp.

Fourteen tent cabins equipped with two twin beds each, water cooler, dresser and electric lights nest unobtrusively among kamani trees (false almond), laua'e fern understory, and coconut trees along the lagoon shore. There are even electrical outlets for those who just can't bring themselves to leave their computers behind—but luckily, I suppose, the only external communication is by satellite phone at \$4 a minute from the Nature Conservancy office so I didn't even try. All the tents are made of strong tan vinyl and screen walls over a Quonset hut stainless steel frame on a wooden platform. Tent numbers are quaintly painted on coconuts. Behind the sleeping tents sit a similar but larger kitchen and outdoor dining tent, and a bathroom and shower tent with four heated fresh water showers, all hooked up to a septic system, and four incinerator toilets. Facing the lagoon to the west is a half-covered lanai where the guests can gather for cocktails at sunset.

The camp was established for The Nature Conservancy earlier this year by an experienced remote camp outfitter from Alaska, shipped down by barge. The outfitter's manager, Gary Kimball, flew down from Alaska for this particular trip to check out tropical wear and tear. Mostly things seem to be performing very well. I compared notes with him on the differences between frozen water lines in Alaska and sea spray corrosion at Palmyra. Stainless steel fittings are an absolute necessity; plastic fittings are even better. Kim Andersen, a dive operator from Christmas Island to the southeast visited to advise us on the mechanics of our setup, shared with us nonstop his enormous wealth of practical knowledge on surviving atoll life. Tara, our key camp staffer (who is a recent graduate in marine biology from the University of Hawai'i at Hilo) and studies seaweeds at Palmyra in her spare time), gave us a cheerful long lecture and demonstration on the use and etiquette of the incinolet toilets—proper use of the paper liners, how to sit carefully so as not to touch the very hot metal compartments with tender body parts, and the camp staffers' preferred use of the pit outhouse down the path:

Later we toured the main island in an old beat-up truck with one door handle broken, scanning the fishing licensee's operation, and checking out possible sites for the U.S. Fish & Wildlife Service to set up a refuge office for a potential national wildlife refuge. We inspected the condition of the airstrip and bird nesting sites. We looked at the Navy's 100,000-gallon concrete rainwater tank: it was in surprisingly sound condition, needing only a cleaning (Kim inspected the inside in his scuba gear and reported a foot of sludge but otherwise no problems), a new roof, and minimal brush clearing around the perimeter. We pondered where we might find some good slash and burn conservation volunteers to clear around the tank.

Natural Rhythms

Daily rhythms at Palmyra are guided by natural cycles. Tides are key to water activities: snorkeling, diving, kayaking, and bonefishing are best

pursued in the window of time during the change of tides, when shifting currents lie still for an hour or so, and the water most clear. At low tide the bonefishing flats are high and dry—as our young fishing guide Jason discovered one day by accident, returning to the fishing skiff marooned on the sand. He had to radio for rescue, and our boat captain John had to go out in a squall at high tide in the dark that night to pull the boat back to the dock. Divers could only dive in the channel when the tides were running, the outer reefs being too rough in the currents then. Ask Larry, the pilot, who apparently can navigate rough airs but turned more than green in the rough waters. The heat and dense humidity often compromise naptime in the afternoon unless a nice breeze is blowing through the tent screens. Nancy, our diehard exerciser, ran back and forth on the runway, then around the paths encircling the main island, very early every morning before the sun heated up the air too much. Even the planes are governed on a daily basis by the foraging patterns of the seabirds: all flights must be timed to take off or land in the time between when the birds leave in the early morning to fly out to open ocean to feed, and when they return to the atoll in the afternoon.

Diving Adventures

Tuesday morning we were escorted on a dive trip by the boat captain John, who runs a deep sea fishing and dive operation on Kaua'i, and by our dive master Ed Robinson, who runs a dive operation on Maui. They calculated the dive time carefully to catch the slot between incoming and outgoing tides, and the location to minimize rough seas. Perfectly, I might add. We dove in crystal clear water to 53 feet for an hour, drifting along a current through beautiful corals and endless schools of colorful reef fish for what ended up being two miles. We passed small reef sharks, an octopus, giant clam, a group of three manta rays, and enormous humphead wrasse. Wednesday morning we dove another spot again in clear waters, this time literally with dozens of black-tipped reef sharks perhaps four or five feet long cruising by amid swarms of reef fish. I nearly bumped headlong into an enormous sea turtle resting near the bottom, and followed it closely down to 80 feet. On the way back in several million head porpoises played in our bow waves. Other people snorkeled in the magnificent coral garden at the east end of the atoll and in the beautiful turquoise turtle hole where dozens of turtles reside.

Crabs, Fairy Terns, Manta Rays

On a boat and foot tour around the atoll we stopped in to check out several bunkers left over by the Navy's World War II occupation. They are in amazingly sound condition, large single-room buildings of cinder block, Quonset hut shaped or rectangular, perfectly dry inside and usable, nearly

covered over with jungle growth on the outside. The bunkers are occupied now only by the fist-sized hermit crabs, one of seventeen species of land crabs found at Palmyra. They come out by the thousands at night all over the atoll—there was quite a collection of them on the tent camp paths every evening at dinnertime.

Further on the tour we pulled up to a distant islet on the west end and found enormous coconut crabs hiding in holes in trees and venturing forth. The piles of shredded coconut husks left by their huge claws easily identify the holes. Coconut crabs are delicious to eat, and between development and gathering have been nearly extirpated from atolls throughout the Pacific. Palmyra protects one of the last healthy populations of coconut crabs. They are brightly colored in blues and reds, and grow to a ripe old age. We saw one about the size of a football that was estimated to be perhaps thirty years old.

We moored at several other islets and walked through dense *Pisonia grandis* forest, with hundreds of tall banyan-like trees. This forest flourishes at Palmyra, while it has mostly been wiped out from atolls across the Pacific, also lost to development. Here little fairy terns, pure white and delicate, hovered close by over my shoulder as I walked, fluttering, keeping watch, like visiting angels.

Late the first night I lay in my very comfortable tent cabin on the edge of the lagoon at Palmyra, breathing wet air heavy from a downpour, a refreshing breeze blowing through the screens, my whole being filled with the overwhelming sound of thousands of screeching sooty terns circling overhead in the dark. Their white bodies were outlined against the clouds in the dark by a floodlight from the lanai platform overlooking the lagoon two tents down. As I was drifting off I heard a deep voice at my tent screen window calling a low urgent "Suzanne! Suzanne!" It was that copilot telling me to get up and come to the lanai deck. Obediently I crawled out of bed and walked over. Swimming slowly back and forth in the water below were four large manta rays with a wingspan of perhaps four feet across each. They glided slowly back and forth, back and forth. Their enormous mouth cavities were scooping up plankton attracted by the floodlight. The copilot and I watched the graceful dance for many minutes.

Then I heard a loud laugh. The copilot looked at my night shirt, which was a Honolulu Fire Department t-shirt given to me by my cousin who is the only woman firefighter in Honolulu. Amazingly, the copilot's daughter apparently is also the only woman firefighter in Honolulu. Some coincidences in life are just too strange to repeat twice.

Shark-Hunting Dogs??

I had heard tales of the shark-hunting dogs at Palmyra. Right, I thought, shark-hunting dogs, sure. But there are three dogs living on the atoll, mongrels all—Floppy, Tutu, and Chalupa, though their tropical days

are numbered now. They were left by the family's caretaker and have in the meantime adopted our tent camp staff. Floppy rode with us on our boat tour around the atoll. Sure enough, when we navigated the shallow shoals he carefully eyed the numerous eighteen-inch black-tipped sharks, whose dorsal fins sliced the surface and tan bodies blended in with the bottom sand. When he couldn't resist any longer, he would jump out and bounce across the ten-inch deep water in hot pursuit. Missing, mostly. But eventually he chased a shark into shallower water, back and forth until it tired, then pounced at it and picked it up in his teeth and dropped it proudly onto dry sand to display his prowess to Steve. At which point we all screamed at him to leave it, but he didn't actually seem inclined to eat the poor thing anyway. Steve held him while my boat companion picked the shark up by the head and tail, held it aloft to check it out, then slipped the tired and frightened but unhurt little nipper back into the water.

That Bonefishing Thing

One morning I decided I'd better learn first-hand the magic of bonefishing. Which I personally thought was about the stupidest activity in the world—a self-righteous opinion I held about all catch and release fishing in fact.

Though the truth is many of the most passionate and generous conservation supporters find religion in barbless catch and release fishing, so more power to them. Bonefishing is the only salt-water fly fishing sport, and that bonefishing thing is an experience coveted by world class fly fishers. Palmyra ranks among the top bonefishing in the world. Jason took me out to the Grand Canyon flat—each of the half-dozen flats of several acres in size each has its own funky fishing name—and gave me a long patient lesson first on the art of the cast. Fly casting is indeed an art to learn, and beautifully graceful when the line is properly arced through the air with just the right line and fly. And quiet. And exquisite against the blue and white and green atoll background. So I got the aesthetic of it. Next he taught me to watch for the shadows of the sand-colored bonefish nearly invisible against the bottom of the shallow shoals, to follow it, to cast in front of the fish. There, great, nope. There, cast now, oop, too short. There's another cast, oh, almost, he's coming for it, pull slowly, oop, he's scared away. Well, that went on for another hour. Nancy in the meantime had already pulled in and let go at least a dozen in the adjacent shoal. But I must say the hunt and the lure became addictive. Some ancient instinct kicked in and took over. I became obsessed on spotting the elusive fish and casting perfectly to draw it in. Once I actually got a bite but I pulled too hard and too fast and the bugger got away. I felt bad about hooking it until I entangled myself in a line on a cast and hooked my own leg. I got nothing more than a pinprick though I drew blood. But I felt then I'd received my due retribution for hooking the fish, decided I'd had enough, and dropped my pole into the boat and picked

my camera back up. I do get it now—the art and the hunt. I understand the attraction at least. Maybe my opinion has not changed but okay, you fly fishers out there, I get it.

The Hospital Expedition

Larry the pilot announced one afternoon he was going off to check out the old Navy hospital again. Kim and I dropped everything to join him. It's a sizeable building still relatively intact in the jungle on one of the islets on the far side of the lagoon, and as it had been described in the various cleanup reports I'd read I wanted to inspect it first-hand. We took our reef shoes and our flashlights and headed off in one of the skiffs. We followed the causeway between West Lagoon and Central Lagoon under the cloud of sooty terns, past coral heads and manta rays, to the sand flats, until the water got too shallow to go further and Jason's skiff high and dry in the distance reminded us to moor where the boat would still float at low tide. Then we waded through the shallows a quarter mile to the islet, turned left, and tromped through the brush for maybe 15 minutes. After not finding the building Larry decided we'd turned the wrong direction, so we retraced our steps and tromped the other way. Half hour, no hospital. The islet was narrow at that point so we emerged on the outer reef side and walked the thin strip of beach facing the open ocean for a bit, peeking into the jungle to watch for the building. We passed dozens of red-footed boobies sitting in the naupaka branches, and said hi to them up close. Another twenty minutes and still no hospital. The islet got wider again so we entered the brush again and swished through the middle for yet a while longer. No hospital. Mind you, these are small islets, and Larry had been there before. He was chagrined.

We gave up and emerged again, this time on the lagoon side, at least a half mile from our boat and now on the far side of Jason's stranded boat. The tide was coming in so we marched across a muddy shoal in knee-deep water and soon found each step sucked into deep quicksand. Every step was like pulling our whole bodies out of a great primordial suction. Each move took at least fifteen seconds. It might have been scary if we weren't dying of laughter at each stuck step, nearly falling over holding our aching laughing stomachs but too stuck to even tip. It took us another half an hour to make our way back to the boat. All that and no hospital. And poor Larry was the object of endless grief thereafter—somehow he could find a tiny dot of an atoll in the middle of the Pacific from 21,000 feet in the air a thousand miles south of Hawai'i, but he couldn't find a big old hospital on a little baby islet?

The Refrain

I've always considered myself a kind of "closet open-spacer" at The Nature Conservancy. Biodiversity and ecosystems can be such inaccessible terms. I just like being in nature. Pretty nature—and often what The Nature Conservancy protects may not even be pretty. But when you can see first-hand, or if not see, then envision, just what is meant by "teeming wildlife," you understand instantly that nature is not just about pretty outdoor places to look at. The song of nature resounds in your being, and echoes in your work. It's a totally different experience from the peace I get from being in nature.

We try to temper our science-driven mission technical language at The Nature Conservancy through metaphors for biodiversity. Nature is a beautiful tapestry, and if one string is pulled, the whole fabric begins to unravel.

Aldo Leopold's famous saying, that the first rule of tinkering is to save all the pieces. The chorus of sooty terns at Palmyra brought home to me finally the music metaphor. All of Palmyra, or a Hawaiian rain forest, or a pine forest, or a coastal wetland, or a desert, is a symphony, made up of many individual instruments of creation, each playing the part it was meant to play, fitting perfectly with the others to create beauty and harmony. When one creature goes, the music sags a little, sometimes noticeably, sometimes not. When whole species go, it is like all the strings, or the percussion, or the horns, stop playing in the middle of the piece. The harmony misses essential notes and timbre; the music is incomplete; we are all incomplete. Our work is to play our own parts, and to help save the instruments so they can all continue to play their parts, to maintain this incredibly beautiful harmony of creation.