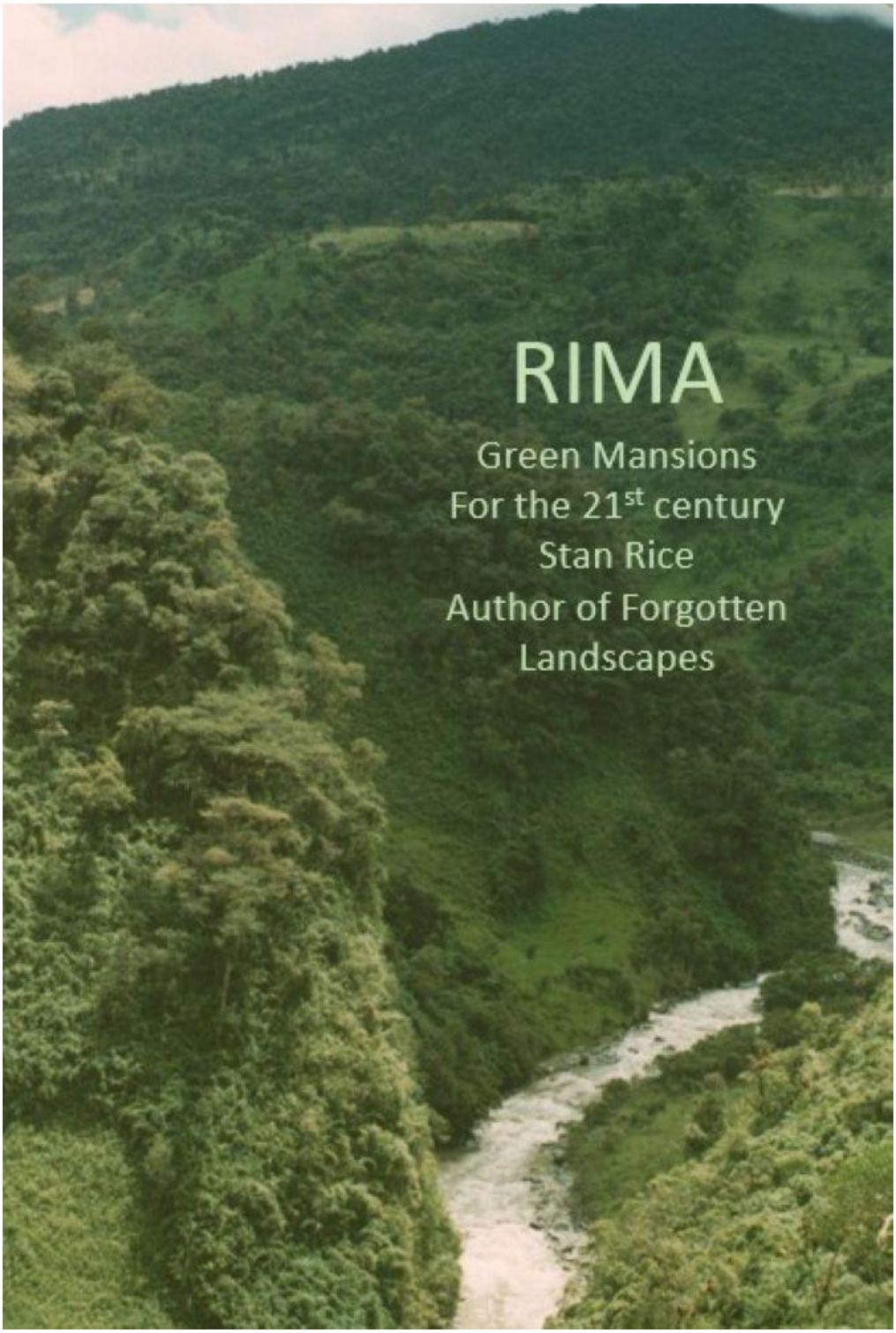

RIMA
Green Mansions
For the 21st century
Stan Rice
Author of Forgotten
Landscapes

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RIMA

Green Mansions for the Twenty-First Century

A novel by Stan Rice

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Cover image: Author photo of the Napo River in the Oriente (Amazon rainforest) of Ecuador, the location of this novel, as it appeared in 1989.

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Summary of *Rima*

Rima Perezchica seems beyond human. She is tiny, brilliant, shy, and able to climb trees like a squirrel and glide like an insect. Her fellow graduate student in agriculture, Abel Sigüenza, finds her irresistible. Both want to return to their native South America after they get their degrees. But as soon as Abel returns to highland Ecuador, his party is ousted in a coup, and he must flee down into the rainforest. There he finds that Rima has been following and protecting him. One thing stands in the way of their love: she is not human.

Rima communicates with all the animals, from ants to anacondas, and coordinates their attacks on industrial incursions into the rainforest. When human political leaders discover that some person or force is causing expensive attacks on economic activity in the rainforest, soldiers capture Abel. The only thing that can kill Rima is her love for Abel.

Chapter 1

The taxi fares were adding up, primarily because I could not provide the driver with an exact address. All I could say is that it was a small old house off by itself covered with vines on the north side of Cuenca, occupied by a man named Oswaldo Águilar. The total fare looked really frightening, until I remembered how many thousands of Ecuadorean sucres it took to make one euro. The driver took me past the cathedral, which he said everyone needed to see—the old sixteenth century cathedral, not the new one—near the banks of the Río Tomebamba, where women washed their laundry and left it on the large stones to dry. There were lots of old houses in Cuenca. I had nearly despaired of finding the Águilar house when I saw the dilapidated mailbox with his name. I told the cab driver, in my broken Spanish, that I would call him anytime between one and five hours later to take me back to the bus station. One hour, if no one was home and I just wanted to walk around. Five, if all the stories about Oswaldo Águilar were true.

The gate was unlocked, and I walked into Águilar's garden. It must have once been a very nice orchard of large-leaved cherimoya trees but was now overgrown with weeds, or with Andean crops which the pre-Inca peoples had bred from weeds, quinoa or some such thing. Annika would know. There was a good, clear view of Chimborazo volcano to the north. The house was of unpainted wood with old brick corners, and a roof of cracked tiles. I knocked on the wooden door. A voice from inside asked who I was.

"My name is Arne Jensen," I said. "I am a scholar from Denmark. I am looking for a gentleman named Oswaldo Águilar."

"Why?"

"Oswaldo Águilar is a famous linguist. We have heard of him even in Denmark." My Spanish was holding up well, so far. "Are you this same Dr. Águilar?"

"I might be," the voice answered as a man who looked old, but was not much older than I, opened the door partway. His clothes were worn but neat. His hair was mostly gray, but had deep black streaks. His face had just enough creases to give him a distinguished look.

"The Oswaldo Águilar who deciphered, and wrote dictionaries and grammars for three indigenous languages in El Oriente," I said, referring to the eastern slope of Ecuador that led from the Andes, the highest mountains in the western hemisphere, down into the Amazonian lowlands in the east.

Águilar opened the door the rest of the way. "I suppose you have come to ask me about my fantastic legends," he said. In Spanish, *leyendas* can also mean stories. "You are either a skeptic or a spiritualist."

"Neither," I said. "I teach linguistics at the University of Copenhagen. Although, I will listen to any *leyendas* that you might wish to tell me, without passing judgment on them one way or the other."

"Please, have a seat," he said, "if you can find one."

Some of the chairs were covered with dust, others with books and papers. As I was wearing old pants, I sat in the dust. I pulled a package of Toblerone chocolates out of my zipped bag. "I brought a gift," I said. "Not exactly Danish, but close enough."

"You think I like chocolate?" Águilar said.

"I will gladly eat them if you do not," I smiled. "They show what Europe can do with one of Latin America's finest gifts, *Theobroma cacao,* to the world."

He accepted my gift. "We can share them with some of my coffee," he said. "So, you know Latin names of plants?"

"A few. I am married to Annika Axelsen."

Águilar froze, then looked up at me. "The name sounds familiar," he said, though I could tell it was more than just familiar.

"She is the world expert on orchids," I said. "Not only on the orchids themselves, but on their nearly incomprehensible evolutionary patterns. Twenty thousand species, most of them very rare, and spaced widely apart on the rainforest landscape. Each is a little center of evolution."

"This is what she told me," said Águilar. "We spent some time together in the rainforest. So, you are the lucky man who got to marry her."

"Yes," I said. I was still astonished that this beautiful woman had chosen me. She had suitors from all over the world, and had slept with most of them, over the course of two decades, until settling down with me. I never asked her if she still had other lovers, but it hardly made any difference to me when I was clasping her like an orchid hanging to its rainforest branch. I assumed that Águilar had been one of her lovers, many years ago.

"So you were the handsome Dane that Annika kept saying might show up one day and she would drop me like a wet rag," Águilar said.

"It might have been me," I answered. "There were others." I was aware that my physical strength was not formidable—another reason I was amazed at Annika's interest in me—but I was just strong and handsome enough that Águilar did not seem puzzled that I was her husband.

Then I said what I had prepared to say. "Or, perhaps, I should call you Abel Sigüenza."

Águilar nearly dropped the cup for which he had reached. He forced himself to be calm and he said, "There is no one here who goes by that name."

"But you used to," I said. "Not to worry. The man Sigüenza, whom a previous Ecuadorean military dictatorship wished to assassinate, is no longer so much as a thought to the current military dictatorship. That is, unless he decides to make trouble again." I looked out the window at his peaceful garden and at Chimborazo. "You are exactly where they want you to be, that is, if they even have any record of you."

"Where did you hear that name?" he asked, then answered his own question. "Annika, of course."

"Who sends her warmest wishes for your health and happiness," I said.

"Then she probably also told you about my tall tales," said Águilar.

"She mentioned that there were some," I said. "But she doesn't believe them."

"Did she mention Rima?"

"Yes," I answered. "But she said Rima was not a person. Just some kind of phantom, a fluttering in the darkness of the eaves and rafters of don Ameche's cabin. Something that made you jumpy. Something that was not a someone."

Águilar slowly continued getting cups and pouring coffee. "Leche?" he asked.

"Yes," I answered. "Lots of it. So long as it is *leche de vaca* and not vicuña or something."

"Vaca," he said. "With all the fat. Sugar?"

"No," I said as he slowly unwrapped the candy and detached a couple of chocolate triangles.

"These are hard to get in Cuenca," he said. "Sometimes Analisa brings me European chocolates from Guayaquil, where they sell out almost as soon as they are unloaded from the ships."

"You want to talk about Rima," I said.

"How long do you have?" he responded.

"I told the taxi driver five hours. But I can always call his dispatcher and extend the time. Or," I said, "if I am pestering you, shorten the time."

"I will tell you everything," he said. His story begins in the next chapter. Then he added, "She was a real person." He motioned toward the dark side of the room with his head. "She is in that vase."

"I don't understand," I said.

"Her bones, in that vase." When I focused in the darkness, I saw just the slightest reflections from the decorations on a black urn. The urn, unlike anything else in the house, appeared to have been dusted recently, perhaps daily. "Something that is not a someone does not have bones."

"Annika did not mention any bones," I said.

"*Claro que no*," he said. "This all happened long after we last saw one another. Can you see the bones?"

I walked over and looked into the urn. I saw only darkness. "No," I answered.

"Let me get a candle," he said. "My propane is used only for the stove and hot water." He found matches and a little candle on a plain holder. He brought the candle to the lip of the urn. "Now, can you see?" he asked.

Chapter 2

It seemed incredible to Abel Sigüenza that everything should be going so well for him and his people. It was only a year previously that he had returned from the United States to his native Ecuador with a master's degree in Regenerative Agriculture from the University of Winnemac. He was one of only two students when the graduate program was started—the other student, Philomena, was from Mali—that admitted only international students who agreed, by contract, to return to their native countries and help to rebuild their food production systems. So that the taxpayers of Winnemac would not be displeased with spending state money on foreign students, the program was funded by the foreign governments themselves. To the university and the state taxpayers, the program cost nothing. Of course, the Ecuadorean money had come from a grant from the United States federal Agency for International Development (USAID), and Philomena's money had come from China, so the recipient countries paid nothing for it either. But it was widely advertised as a cheap way of helping poor countries to lift their people out of poverty and hunger. No one said it, but both America and China were glad to increase their influence in the potentially emerging political powers and markets of Africa and Latin America.

And the quality of the program itself was second to none. Scientists at Winnemac did some of the best research in the world on agriculture that produced the maximum amount of food with the minimum amount of fertilizers and pesticides, which were always the most expensive inputs. This meant that the poor farmers could afford to improve their houses, educate their children, and contribute to their local and national economies. Abel and Philomena did the research under the supervision of great scientists. The graduation ceremony included some of the most prestigious speakers in the world about ecological agriculture: Wes Jackson from the Land Institute in Kansas, and Wangari Maathai, the woman who saved the forests and small farms of Kenya and got the Nobel Peace Prize for it. Abel and Philomena were national heroes, featured in headline articles in newspapers in their home countries.

But, as so often happens, a cloud shadowed the sun of success. The new American president, Donald Trump, had abruptly terminated the program because he did not want American college space taken up by foreign students, all of whose visas were cancelled mid-semester. He also cut off the USAID funding. The old State Department officials tried to explain to Trump's administration that this was surrendering the influence war in the third world to China, but the new State Department ignored them. Abel was within months of finishing the research for his doctoral degree when he had to shut everything down and go home. He never got his Ph.D. But he had enough coursework for a master's degree and enough research for a master's thesis, and this was enough to make him a hero in Ecuador. And he took his unfinished data with him, to complete his work in Ecuador, which would get the credit for it in the scientific community.

At first, Abel liked Trump because of his fight against illegal immigration into America. Abel had worked very hard to get all the paperwork and permissions for his student visa. But when Trump turned against even the legal alien students, and since he snarled and frowned and had such obvious distaste for them, Abel felt betrayed by this new president.

For Abel, what had seemed like adversity was actually a blessing in disguise, because he could start his work in Ecuador a year sooner than he would have if all of his initial plans had worked out. Blessings out of adversity—Abel had read an article published in an obscure religion magazine that proclaimed this as the principal pattern of God's work throughout not just human history but Earth history as well, without saying whether it was miraculous or just the result of natural law. So even his bad luck made Abel feel good. Abel was riding as high as the jet that flew him directly south from New York City to Quito.

The Ecuadorean government immediately hired Abel to head up the field office in the newly-created Pichincha-Napo Regional Agricultural Research Station in Mulauco, a city that was on the eastern edge of the Andes and looked down, in the misty distance, into the Amazon rainforest. He was in charge of the scientific research and the outreach to teach new techniques to the local farmers. There were administrators who would handle the building and administrative operations. Abel's salary had already begun, along with moving expenses. An advance on his pay allowed him to purchase a new, eco-friendly adobe house in the upper middle class part of Mulauco.

On the Pichincha side, the Andes are a range of young, active volcanoes permanently covered in snow, breathtakingly beautiful (literally, as the air is very thin), and the land around them is almost barren as very little rain or snow comes from the Pacific Ocean. The soil, however, is very rich, renewed every couple of centuries by new volcanic dust. All that the land in the Andes needs to prosper is water, although warmer temperatures (there is frost every night on the Equator) would have been welcome. Something had to be done to conserve the water and to plant crops that did not need much of that water, to help the poor Andean farmers. And Abel was the man to do it.

On the Napo side, the Amazon rainforest appears to be extremely fertile, covered as it is with thick forests. Just cut down the trees and plant the seeds. However, the soil is very poor except near rivers that carry volcanic silt down from the Andes. The warm weather, with no winter, allows the trees and other plants to grow rapidly all year and fight one another for the few nutrients that are in the soil. As soon as dead trees, dead leaves, or dead monkeys fall down on the ground, and begin to decompose, the roots of the trees suck up the nutrients before they have a chance to get into the soil. The forest, therefore, is sitting on top of the soil, not growing in it. Once the living carpet of forest is destroyed, the nutrients will be gone. You can burn the forest, releasing a flush of nutrients in the ashes, which will promote vigorous crop growth for a few years, but the poor soil will not hold the nutrients, and after a few years a formerly thriving field of crops will be suitable only as pasture to raise skinny cattle. Something had to be done to help the Amazonian farmers, and Abel was the man to do it.

The research building was not quite complete, which was typical of Ecuador. The glass panes were up on the greenhouses, but the steam pipes for heat and the electrical wires were not installed. The offices, including Abel's, were unfinished. But a feast had been planned and catered, to which the local people had been invited: the dignitaries to a dinner, the local people to food carts. Before proceeding to the big tarp set up to shield the community leaders from the sun (not rain, which seldom fell), Abel circulated among the people at the food carts.

The streets, even the main street, were dirt and rock. Not mud. The buildings were made of concrete blocks, sometimes painted with peeling pastel colors, sometimes unpainted. Names of local businesses were painted crookedly directly on the concrete. People drove little, old, fuming cars or led burdened donkeys.

And what beautiful people they were! They seldom smiled, except directly and briefly at Abel. The men and older women were mostly handsome, and the young women mostly beautiful. Better looking than most of the people Abel had known back in America. Many of them wore locally-woven wool sweaters, from the alpacas that grazed in the pastures, some of them walled by the remnants of ancient Inca ruins. The women, whose straight black hair was usually woven into two braids, wore round hats, most of them white, and very colorful skirts. Their skin was rich and brown, like his. This was life! Abel was glad to be back, as he had grown up among people like the working class of Mulauco. They smiled at him and were then surprised that he greeted them in Quechua, the Native Andean language, rather than in Spanish. A few of the prettier young women pressed pieces of paper, with their names and addresses, into Abel's hand. Their eyes expressed something to Abel that he did not have time to think about as he smiled and slipped the papers into his suit pocket.

After the people had eaten greasy potatoes and greasy guinea-pig meat (called *cuy*), and after they had seen Abel eating them also, and after they had some cerveza and local hooch, they began to dance as large speakers blared loud music, some live, some recorded. Abel swirled among them. The principal instruments were large and small bamboo flutes, which produced an almost fainting breathless tone, and guitars. The music sounded sad, because it was mostly in the minor mode, but the rhythm was happy. The lead musician played a small set of bamboo pipes, Ecuador's national instrument, the *rondador*. Abel kissed many of the young women with whom he danced.

The songs sounded like folk songs but Abel recognized one of them as *Santa Maria de Iquique,* a popular song written by a Chilean composer in 1969 about a massacre during a popular uprising in 1907 in the town of that name. Abel looked around, happier than ever that these people, his people, were safe from oppression by the dominant Spanish-speaking whites.

Abel whirled around one last time and found himself face to face with his assistant, Manuel de Aranjuez, who was not smiling.

"We have to leave. Now," said Aranjuez.

Abel was so dumbfounded that he could think of nothing to say other than, "Before the banquet?"

"There will be no banquet," said Aranjuez. "The soldiers are coming."

"I don't understand," said Abel.

"There has been a coup in Quito," said Aranjuez. "The government offices are occupied by the Sendero." This was a terrorist organization more often associated with Peru than with Ecuador. "The administrative offices in Guayaquil as well."

"But, how could they…"

"They have a lot of money," said Aranjuez. He did not have to say that they had been able to buy a lot of weapons and ammunition. "The government policies favored local people, at the expense of corporations, who could not tolerate their loss of influence. And income. And one of the administrative branches that the corporations, and the Sendero, hate the most is yours, Señor Sigüenza. Agriculture that uses less fertilizer and pesticide? Those are the revenue sources that the corporations depend on the most."

"But," sputtered Abel, "the people are dying from the poisons! Their land is blowing away. Even the Monterey pines the government has planted to stop erosion are dying. Big signs advertise the pesticides by proclaiming, *Él mata todo!* It kills everything! And it does, including the people…"

"The corporations consider the deaths of a few *campesinos* to be an acceptable cost of doing business." Aranjuez came closer to address Abel more quietly. "I was going to talk with you about this once we got settled into our offices, but, no time for that now!" He handed Abel a set of keys. "These keys are for an old jeep. Parked right over there." His eyes rolled toward the vehicle. "Gassed up. You'd stand out like a swollen zit in one of our new vehicles." He handed Abel an envelope. "Here are enough *sucres* to buy what you need for now. Do it before prices go up from this coup. Get some campesino clothes rather than that suit, *madre de Díos!* You probably have time to get essentials from your house."

"Where can I go?" asked Abel. "I grew up in these mountains, but I don't know my way around Mulauco."

"There's an ecological research station on the Napo River," said Aranjuez.

"That's down in the rainforest!" said Abel.

"And still too close, but it will do for now. I called the director, name is don Ameche Guzmán, and he has a place for you. He will help you make up some fake papers as a botanist. Which isn't too far from the truth, except that it isn't you. You have to make it to Puerto Misahualli."

"That's where the research station is?" asked Abel, knowing the answer would be no.

"Jatún Sacha is downriver. You have to take a motorized canoe. All the porters know where it is. Tip your porter well, in case you need some favors from him later. You will be driving at night, and the road is steep, so be careful. You never know when…"

"I've heard about bandits putting chains or tree trunks across the road and demanding money to pass. I've got quick cash in separate pockets."

Aranjuez smiled. "Good thinking. The gas will get you to Misahualli, and you can sell the jeep there. Just don't let them know how badly you want to sell it, though I am sure they can guess."

"Maybe it would be safer if I stayed in a hotel on the road?" asked Abel.

"Not under your own name, and use cash. Not a bad idea. Safer to travel that way. Just don't let them get you drunk. They have some good rum at La Casa del Árbol. And margaritas. I'd almost envy you, except that your neck is on the line."

"What about you, Aranjuez?"

"I'm leaving too, and you don't know me."

As Abel drove toward his house in the shivering old jeep, he stopped at a turnout where he could look out over the last of the páramo grassland to the west and into the rainforest to the east. The sun was low in the sky and still seemed bright, but nightfall comes suddenly in the tropics, where the sun goes straight down, not at an angle as in the other latitudes. Abel had looked forward to exploring the Oriente, the eastern part of Ecuador, at his own pace and his own time. But he reminded himself that his previous adversities had led to blessings. Maybe this one would also.

Abel thought he could hear little birds. But birds are usually asleep before sunset, and awake before sunrise. Maybe they weren't birds. Abel smiled just a moment before starting the engine again. The sounds reminded him of Rima, a Peruvian woman he had known back in graduate school. Of course, he told himself he had to be wrong, as he continued driving toward his house.

Chapter 3

Rima Perezchica was a fellow graduate student at Winnemac. She was in several of Abel's classes, though she was in a different program altogether: he studied applied agriculture, she studied the "pure" science of entomology. She was alarmingly intelligent. She knew not only every insect but every other arthropod as well, especially spiders. She was the smallest person Abel had ever known or even heard about. Her body seemed as small as that of a child. Compared to her torso, her legs and arms were long. Her face was heartbreakingly beautiful. Her eyes were large. Her nose, though not large, resembled an insect proboscis just enough that some of the male grad students commented upon it, stopping short of actual ridicule. And she always wore loose white clothing, gauzy (though opaque) blouses and either shorts or skirts. Her blouses covered her arms, allowing only her hands to emerge. Beautiful hands that could make a pencil or a pen create astonishing beauty on each page of her writing. She looked like a delicate clear-winged moth.

She was never known to date anybody at the university, or anywhere else. Partly this was because she was painfully shy, but also because she was, no two ways about it, weird. She was rarely still. She was often rocking her body or flicking her fingers, except when she was writing or deep in concentration. She twirled her hair and blinked a lot. She would move her head in time with music only she could hear, both forward and backward, or left to right. Her chin almost seemed to be conducting an orchestra, sometimes in a march beat, sometimes a waltz. She was from the mountains of Peru, and Abel imagined that she must be thinking about Andean music. Abel himself drummed his fingers a lot to his favorite Andean tunes, such as *Linda Cambita* and *El Toro Rabón* and others from his favorite old Los Calchakis albums. Once Abel saw her lost in unfocused thought, as if she was listening to Mahler in her head. Her repetitive facial movements, which included scrunching up her eyes, flicking long dark hair out of her face, shaking her head like a horse trying to scare away flies, hardly ever stopped, even in those rare moments when she was speaking, usually to make a comment in a class. She often corrected instructors about insect taxonomic classification, corrections that they welcomed the first few dozen times. When walking, if she happened to come close to someone, she would quickly but quietly jump away. Abel assumed these must be stims on the autism spectrum.

She was beautiful, Abel had to admit. But before ever asking her out, before even talking with her, he had to consider the future. What if they fell in love, got married, had children? Would he want a nursery full of little jumping-beans? Latin Americans called them *frijoles saltarines.* Jumping beans are the seeds of a small spurge tree, and Rima would almost certainly have been able to tell you the jumping was because of a *Cydia saltitans* caterpillar that lives inside of the seeds. Kids bouncing off the walls: Not Abel's image of an ideal life, but maybe for

Rima he would do it. Kids—could Rima's small body produce them? There was no need, however, to think quite *that* far ahead.

The challenge was to think of a way to ask her on a date without her jumping away from him. He figured out how to do it. He approached her from behind, smelling the rich fragrance of her hair, and spoke to her in Quechua. She did, in fact, jump, but smiled when she looked at him. Only two blinks later, she returned his greeting in Quechua, the language of the rest of their conversation.

"I was wondering if you might have time…" Abel began.

"I should warn you that I am not very good at forming friendships," said Rima.

"Give me a try," said Abel.

"And when I finish my degree, I am returning to Peru."

"And I to Ecuador."

"I have an informal job offer at the university in Cuzco when I return," she said. "Not a faculty position, but a research assistantship, where I can just do research on arthropods all day, without having to bother with students and grading."

"Sounds like a good life," Abel said. "I expect employment in sustainable ag when I return to Ecuador."

Rima stopped and looked squarely into Abel's face. "I'm not comfortable with where this conversation is going," she said.

"I was just wondering…"

"I will actually be spending most of my time in Peru out in the jungle looking for new arthropods," she said. "Not just insects, but even spiders and ticks and things that nobody except me seems to like. It's a life I could not expect any man to share with me."

"Fine. I was just wondering if you might have time to meet and talk a little."

"I know almost all of the arthropod species out in the jungle. But there are more arthropod species that we *don't* know than that we do. And the jungle is a complex fabric of life, all the arthropods and fungi and trees interconnected…"

"That's what I want to talk to you about!" said Abel.

Rima seemed surprised.

Abel continued. "In my research, everything is cut and dried. Literally. I raise crop plants, cut them up, dry them, and weigh them, looking for ways to increase their yields. I mean, on the plants that are still alive. Even ecology—what you call the complex fabric of life—is just two species at a time, growing in the same pot. A crop plant with or without a beneficial fungus. Or a pathogenic one. A crop and a weed, in the same plot. Nothing like the huge fabric of life that you seem to be excited about. I want you to tell me about it."

Rima licked her lips before speaking. "Well, in that case, once I get started, you will have to shut me up."

They agreed to meet at a coffee place that was not a Starbuck's and where she did most of the talking. Abel was perfectly happy to let her do so. She talked on and on, the first date, about insects and microbes. There were some bacteria, she said, that formed thin films on the bodies of

leaf-cutter ants and that produced antibiotics that prevented diseases from breaking out in the anthills. Those were the good germs, she said.

"Ant-ibiotics," Abel said in English.

Rima was motionless until she understood the reference and exploded in a little machine-gun fire of laughter. Then she continued, saying that there were also bad fungi that would grow in the bodies of the ants, spreading their filaments, slurping up their juices from the inside, until at the last minute a little mushroom would poke out of the ant's body and release its spores. Her eyes got large as she slurped down coffee. "There's literally a million stories like these," she said. "Don't get me started on leaf-cutter ants."

"Oh, but I will," said Abel. "Over dinner, next time."

Rima started to pull away, but then looked into Abel's eyes. "All right," she said.

"What do you like to eat?"

"Grubs," she said. "The big juicy ones that live inside of decaying stumps. I like them raw, but with all the contamination these days even out in the jungle, I cook them."

"I prefer shrimp," said Abel. "Not too different."

The next weekend, Rima and Abel were at a catfish and crawdad all-you-can-eat buffet. For such a small person, Rima could eat a lot. She started telling Abel all about leaf-cutter ants, in which a colony of a million insects could climb all over a bunch of trees and clip away all of the leaves and carry them like yacht sails down into their nests.

"And that's not the weirdest part," she said. "The ants cannot eat the leaves. The leaves are too full of poisons. But the ants just chew up the leaves into a slurry and let fungi decompose them and produce little mushrooms. Then the ants eat the mushrooms. The fungi break down those poisons, see. So when you see a jungle, a lot of the soil is filled with ant galleries…"

*

It was late on a Friday afternoon when Abel and Rima finally had a chance to go for a walk in the woods. In Winnemac, the woods were generally a second-growth woodlot after a farmer abandoned a field or a pasture. This one was mostly black cherry and black locust trees, the kind that start growing right away after the pasture is abandoned. They were now over six meters tall, and young maple trees were starting to grow underneath them, as well as a few forest floor wildflowers. Golden light was spangling the tree trunks from a sun low in the sky.

"This late in the fall, there probably aren't many ticks," said Abel.

"They never bite me," said Rima.

"But there are still mosquitoes," Abel added.

"They never bite me either," said Rima, as Abel swatted. As they were walking, Abel noticed that Rima, who was usually moving her arms and hands, seemed totally calm. As always, Rima wore a nice white blouse.

"You might get your blouse dirty," Abel said.

"My blouses never get dirty," Rima replied.

"And you always wear long sleeves. Must be hot in the summer."

"The sleeves protect my arms, Abel. Besides, the fabric is so breezy, I never get hot."

Rima pulled back just a little when Abel reached for her blouse and felt the fabric. "Wow," he said. "It feels like cotton, but it isn't. It feels like it is as hard as a shell. And yet flexible. What is it?"

"It is a special fabric I brought with me from Peru. You can't get it here."

"It's like you are wearing classical robes. Some kind of Greek goddess."

"I'll take that as a compliment."

"So intended." Then Abel looked up into the branches. "That bird. I wonder what it is. Did you hear it?"

"Yes, but I don't know what it is either. I'll bet I would recognize it if I saw it."

"Well, it probably hides itself very well."

"Nothing hides from me, Abel." Then Rima jumped up into a cottonwood tree, as light as cottonwood fluff lifted by a breeze, and scrambled up the rough ridged bark. The lowest branch was fifteen feet above the ground. Rima grasped it and lifted herself up to sit on it.

"How did you do that?" asked Abel.

"You couldn't do it, even if I explained it," she said. Abel saw that her powerful legs were very thin, reminding him of grasshopper legs. "Oh, I see it. It's right over there. A woodpecker." She looked down at Abel. "He knows good food when he sees it. He gets grubs from the little holes that he pecks." Then she looked toward where the woodpecker must have been, and made an exact imitation of the woodpecker call.

Then she jumped from the branch on which she sat to another, similar branch on the next tree, landing on it precisely. Abel was going to say, *How did you do that,* before he thought he would say, *You will just scare the bird away,* and he ended up saying nothing. When he finally saw Rima, she was very high in a tree, where the branches were too thin to support any normal young adult human. Rima sat right beside the woodpecker.

Then she made a mysterious cooing sound that resembled a low flute but also the babbling of water. Like the murmurs of a dove. A gentle susurrus in the leaves effaced Rima's sound whenever the breeze blew. The woodpecker hopped into Rima's hand. She held it up, and it flew away. She then jumped from one branch to another, hardly swaying them. She did not brachiate like a monkey, but hopped. Returning to a tree trunk, she landed right in a clump of vines. Abel started to shout, *There's lots of poison ivy here,* but before he could speak she was back on the ground beside him. "It was a red-headed woodpecker, *Melanerpes erythrocephalus*."

Too amazed to say what he had planned, Abel exclaimed, "You know all the birds by their Latin names, I presume?"

Rima smiled. "That one wasn't too hard. *Erythrocephalus* is just Greek for red head."

"But that sound you made when you, I mean, when it…"

"That was my song," said Rima.

"And, there's lots of poison ivy here."

"I don't react to it. Not even all humans react to it."

Abel was puzzled. “What did you say? Not even all humans?”

“I said, I don’t react to it. And I never touch anything that I do not intend to touch.”

“But how do you do that?”

“For me, time slows down when I am moving. I had plenty of time to insert my fingers in the interstices between the leaves.”

“You are a totally awesome human being, Rima,” said Abel.

He reached for her hand, but she moved away.

“Please don’t do that,” she said.

“As you wish, Rima. It is enough for me to just be with you.”

“Do you mean that?” she asked. Abel could see what he thought were tears in her eyes.

“I could stay out here with you forever,” he said. “Which reminds me. It will be sunset soon. It might not be safe…”

“I am not afraid of the animals, Abel.”

“I was thinking more of the human animals, Rima.”

“I can always get away from them, as you can guess. But I can see why you would not want to be out in the dark. See that little hill over there? With the bare top? I would like to watch the stars come out. I do that a lot, but I’ve never had anyone to share the time with until now. I’ll keep you safe.”

“Thank you, Rima. I believe you can do that.”

They sat on the hill. The moon, just past new, was setting after the sun. Venus was almost bright enough in the west to cast a shadow by itself. Mars, as red as anger, was low in the south, and Jupiter, the liquid ammonia planet misnamed for Jove, in the east. Every time Abel looked, they seemed the same. The sunlight faded more gradually than Abel could detect. Rima, now totally without facial tics or worrisome fingers, watched motionlessly.

A meteor streaked across the western sky. It was gone before either of them could react.

“It moved so fast,” said Abel.

“It looked slow to me,” said Rima. “To me, it looked like a clear-winged moth. But even to me, its life was short. A moth, in all its beauty, might live for only a few days.”

“Rima,” said Abel. “May I?” He put his arm around her shoulder. He felt her shudder, but she did not resist him.

Abel was suddenly very confused. Underneath her layers of strong white fluffy fabric, Rima’s skin seemed very hard, as if nothing could penetrate it. And underneath the hardness, it felt to Abel as if Rima had no bones.

Chapter 4

Rima and Abel's conversations were friendly and affectionate, week after week, during the fall semester of what turned out to be their final year in America. They pretty much ignored politics, and thought about how much they loved science and nature and spending time together. Not being citizens, they could not vote, and paid no attention to the national elections that put Donald Trump back in office. They kept hearing the progressive Americans around them grumble about how the clear majority of voters could choose as president a man who was so obviously a liar and a criminal. He even stole funds to pay hush money to a porn star, and tried to lead a revolt against a government that he did not control. Rima and Abel shook their heads in boredom. These people should see politics in Ecuador and Peru!

But almost immediately after the inauguration of the new president, Abel and Rima were shocked to hear that they were being deported—despite their legal visas and funding. Abel made all of his arrangements to get his master's degree and the job in Ecuador. Rima said she was making arrangements for her return to Peru, but was evasive about the details.

Abel and Rima had one last meal together, at a barbecue restaurant near their apartments. The décor was very interesting: bare wooden beams, and a wall full of old license plates. The butcherblock tables looked and smelled as if they had been vomited upon, then cleaned thoroughly. The men and women washed down their fat meat with lots of alcohol. Both Abel and Rima, especially Rima, drank a little immoderately.

"Fruit flies like alcohol," said Rima, continuing their conversation in Quechua.

"I hope so," said Abel. "You grow them in banana paste with yeast, which almost right away produces alcohol."

"There was a paper in *Science*," said Rima, referring to the most prestigious science journal in the world, "that said that jilted male flies like alcohol the best."

"Explain," said Abel.

"The scientists raised male fruit flies, then let them mate with females. But the females had been decapitated. They were still females, and smelled like females. But they did not respond to the males, who became, it is safe to assume, very frustrated. Afterwards, these males chose tubes of food in which the banana paste had been spiked with extra alcohol." She sucked a white Russian through her straw.

They glanced up at the TV monitor, to see a face they hated: Donald Trump. But the Americans in the restaurant cheered him.

"I gotta hear this," said the bartender, who re-activated the muted sound.

"We can't have foreign nationals coming up into our colleges and universities and pushing out American students," said the president. "These undocumented aliens are criminals and rapists."

A man at the next table, with a red baseball cap, had been listening to Abel and Rima. He now looked at them, stood up, and walked over.

"That's not English you're speaking," he told them.

"No, it is not," said Abel in English.

"He's angry," said Rima in Quechua. "He's going to hurt us. I can feel it." Her twitching face went through several waves of nervousness.

"Where you from?" asked the man.

Abel said nothing.

Rima half stood, with her fingertips touching the table top.

"You gonna answer my question?" the man continued.

"No, I am not," said Abel.

Right then, Rima ran to the wall with the license plates. She jumped up and scrambled to the top of the wall. She did not touch a single one of the plates. She clung to the top beam. Everyone in the room gasped, including Abel, who should not have been surprised.

Another, very muscular man approached the wall underneath Rima. "I'm an off-duty police officer, ma'am. You need to come down off of that wall right now, and then leave. Nobody is going to hurt you. I'll see to that."

When Rima saw that all eyes were upon her and all faces motionless, she jumped down and landed, as light as a spider, on an empty table.

Abel asked the server for a doggie bag.

*

Abel did not see Rima, who merely told him she was taking care of everything for her own return to Peru. When Abel tried to contact her by phone, to arrange a farewell dinner and make plans to see her in South America, he found her phone service had been terminated. He contacted her department and found that, even without graduating, she had returned to Peru.

Chapter 5

Aranjuez had been right. The rum was pretty good at the Árbol. Abel sat on the balcony and looked at the trees of the cloud forest. This was not the rainforest, with its tall trees, but a cloud forest of short trees. Most of the water came in the form of clouds and mists, which condensed on the leaves and branches and dripped down into the soil, which was not wet enough for tall trees to grow in. From his studies, but not until now from actual observation, Abel saw that the trees were relatives of the Northern Hemisphere oaks, rather than members of tropical tree plant families. Lichens, mosses, and small plants covered nearly every surface of every branch. The little epiphyte plants, all of them colorful with yellow and red in addition to green, perched on the branches with their roots exposed to the air and drank only the water from the mists. From some, spikes of purple or pink flowers stuck straight up or hung down. Many were bromeliads, the kinds that American greenhouses pay lots of money to get, and others were orchids, for which Americans would pay even more. Somebody had left a liquor glass on the wooden railing. A golden frog had climbed into it and died. Many of these frogs had poisonous skins, and Abel hoped that the servant, cleaning up the other tables, would not throw out the frog and drink the liquor, into which the poison would have diffused.

Abel watched the light fade from wherever the sun was quickly going down. He wore an open Madras shirt and neat cargo pants, just nice enough to be considered not too poor to be in the bar, and not rich enough to be a government bureaucrat fleeing from the coup.

Abel heard a slight disturbance in the branches, and heard some water drops thump on the thick mat of leaf litter. But he could see nothing that might have caused it.

The next morning, Abel found that someone had jimmied open the door of his old jeep but had found nothing but books and papers and left it all alone. The jeep started with gasps and wheezes, and Abel continued south on the E-45 highway, newly paved but already buckling and cracking in the rain and heat of the rainforest. At the Napo River, Abel took highway 436 to Puerto Misahuallí. He parked his jeep and was almost immediately surrounded by people who wanted to buy it, offering ridiculously low prices that seemed reasonable to Abel.

But what Abel needed right away was a place to stay. There was plenty of daylight left, and the canoe ride to the biological research station, he assumed, would not be a long one. So he decided what he needed was a canoe. He saw several, but nobody seemed to be near them. He heard a little disturbance in the branches above him, but saw nothing. Right that moment, as if by magic, a man walked up to him and offered him a canoe ride.

“Your boxes will cost extra,” said the man in Spanish, glancing at the jeep. When he told Abel the total cost, which was quite a bit less than the other men were offering him for his jeep, he agreed. He tipped the little boys who carried his boxes—thankfully water resistant—to the canoe, accepted the money for the jeep and threw the keys to the new owner.

"You're going to Jatún Sacha, right?" asked the canoe driver.

"How did you know?" asked Abel. They conversed in Spanish, since Abel did not know even what the local native language was—probably Jívaro or Achuar—much less speak it.

"A little *pajarito* told me," said the man.

The river was calm and reflected the late afternoon sun. The mountains were steep and clustered with trees. This time Abel was sure he could see something white leaping through the branches, except, of course, when he was looking straight at them. His eyes and brain must be playing tricks on him, he thought; he should have had more electrolytes to compensate for the sweat and less rum the previous night. The rumble of the engine lulled him almost to sleep.

But rum was the first thing that don Ameche Garza offered Abel when he disembarked from the canoe and overpaid the driver. Don Ameche had a staff of two, who carried the boxes and Abel's suitcase to his room. Abel and Ameche sat in a little wooden building, open to the air except for a bamboo balustrade and flimsy roof, on stilts like all the other buildings.

"Can I offer you a cold beer?" asked don Ameche.

"Yes. Actually, I am a little hungry," answered Abel.

"We have just enough solar electricity for batteries for light, and for one refrigerator. Supper is fish stew cooked by a village woman over an open fire. You'll get to like it after a while."

"A while?" asked Abel. "How long am I going to be here, and where do I go afterwards?"

"Your new name is Oswaldo Águilar," said don Ameche. "And you might be here for quite a while. My lover Annika is studying orchids. Fortunately, you are a scientist, and can help her. She has way too much work to do by herself."

"Annika?"

The sun set suddenly, while don Ameche and don Oswaldo were eating their soup with tortillas and washing it down with beer that would not be cold for long.

"She's from Denmark, doing thesis research," said don Ameche. You'll meet her tomorrow."

*

But it was not that long before Oswaldo Águilar saw Annika Axelsen.

The night was almost totally dark. There was no light from the clouded sky. No cities with light pollution were nearby. When the sun sets in temperate or polar latitudes, it slides beneath the surface, but in the tropics it plunges straight down. No one in the little village by the riverside had lights after they put out their fires. Presumably only don Ameche and doña Annika had lights, besides Oswaldo.

The jungle night felt to Oswaldo like it was filled with power, or at least humidity. The leaves of the trees, in the utter darkness, had closed their pores and appeared outwardly inert, but their roots were busy absorbing nutrients from the thick litter layer, in which countless little animals crawled. Oswaldo carefully descended the rough wooden stairs from his patio—there was no door—to the mud walk. He could smell the mud. He heard a little rustle in a branch

overhead. He noticed that there was a light shining from another balcony and he walked toward it.

A small electric light illuminated a table with a washstand. Oswaldo watched it for a few minutes. He felt something tugging him to go back to his room, but he stayed. A blonde woman appeared before the washstand, wearing a tight tank-top which she quickly removed, revealing large breasts. He gasped, silently he hoped, and held onto one of the trees beside the trail, hoping there were no ants or spiders on it. But he would not have felt them anyway as he looked at the woman's perfect symmetry and her distinct, brick-colored aureoles. How could such large breasts support themselves, not dangling? She turned and hung her top from a peg. She was wearing loose jeans, which she slipped out of, not wearing any underwear. Though the hair of her head was blonde, her crotch hair was dark and abundant. She wetted a sponge in the basin and squirted a little bit of German body soap on it. She rubbed it everywhere, especially around her face, which gave her evident pleasure. She seemed offended by her own armpit odors. She soaped down her legs and feet at a little stool. The last thing she did was to use the same sponge, plunged repeatedly in the water, to rinse herself. She did not dry herself, something that might have been futile in the simmering humidity.

Then she disappeared through a door and Oswaldo heard her steps on her stairs. He slipped back under her balcony. He heard her open the lid of her latrine and heard her evacuation, but saw nothing. He trembled to think that maybe she could see him watching her.

When she ran back up the stairs, he heard two voices, hers and that of don Ameche. As he returned to his room, Oswaldo glanced up and saw a naked don Ameche, ready for her. Oswaldo had always been disgusted with the sight of naked males—it brought back memories of high school locker rooms—and he stepped quietly back to his room, to manage his frustration as well as he could.



Puerto Misahuallí, on the Napo River, Ecuador, 1989. Author photo.

Chapter 6

"I'm Annika," said Ms. Axelsen when don Ameche introduced her the next morning.

Oswaldo hesitated to say, *I know,* but got only as far as, "I…"

"I know who you are," said Annika. "You're safe with us."

Don Ameche smiled. He was, Oswaldo now saw, grimly handsome, but he was totally out of Annika's league.

Breakfast was oatmeal with canned milk, brown sugar, and caju fruits which were, don Ameche explained, somewhat like cashew apples, that is, the red fruits from which commercial cashew nuts are extracted. "If you use your imagination, you can taste pears, pineapples, even chocolate."

"So, what do we do today?" Oswaldo asked Annika.

"Same thing we do every day, except holidays."

"Holidays?" he prompted.

"February 12 is the feast of St. Charles. Darwin, that is," she answered. "January 18 is the feast of St. Daniel. Janzen, that is, the king of tropical biology. Then there is the feast of St. Alfred, Wallace that is, on January 8. He was the Darwin of the tropics. These holidays are all in late winter. The rest of the time is just work, work, work. We would celebrate the equinoxes and solstices, only we are on the equator, so there aren't any. If you have any ideas for holidays, let us know."

"Ecuadorean independence day?" I offered.

"Bad idea," said don Ameche. "Every day we listen for chainsaws cutting down trees. So far, all of them have been outside of the Research Station property, so we haven't had any nasty confrontations."

"The orchids grow up in the branches, where we can't get them unless we climb the trees," said Annika. I briefly thought of Rima, for whom getting orchids would have been no problem. Maybe, he could only hope, she was studying orchids, or their pollinators, in the trees of the Peruvian Amazon right now. "Or unless the trees get cut down. The cutters just want the trunks, and they don't care if we climb around in the fallen branches looking for orchids.

"Most of the orchids," Annika added, "are unknown to science. Even to the local natives, who never climb trees if they can help it." She had only the slightest Scandinavian accent. "I know all of the orchids in the Amazon basin."

"She's not kidding," said don Ameche.

"But I have to make sure that the orchids I think are unknown really are unknown to other scientists," continued Annika. Sweat was already forming under her arms in the fabric of her tight black sleeveless blouse. "Years ago, botanists would have to look through whole books to identify, or not identify, orchids. Of which there are twenty thousand species in the world, though not here. Now we use a phone app that identifies them correctly most of the time. Then we have to verify the artificial intelligence identification, just to make sure."

"Phone app?" asked Oswaldo.

"We have satellite internet," said don Ameche.

"So we just listen for chainsaws, then run along trails until we find the trees, and pluck off the orchids and put them back in bags. In the lab—the slightly larger building over there—we identify them. We also make herbarium specimens. Ideally, we would make line drawings also, since you can never see everything on a preserved specimen or in a photo. But the rainforest is being cut down at an alarming rate and we have no time for drawings."

"I think I can help a lot," said Oswaldo. "I even know how to recognize a column and pollinia in orchid flowers."

"Well," said Annika, "you could go teach botany to bored undergrads or else identify orchids out here in an emergency situation. Which one do you think is more urgent? There are even 118 species of *Dracula* orchids."

"Why are they called that?"

"Somebody thought they looked bloody. Most of them are found here in Ecuador. I'm looking for more."

*

"Well, are you ready?" Annika asked Oswaldo.

"Boots, long sleeves and sun hat to keep the leeches off, first aid kit, energy bars, and a gallon of water." He felt ready.

"Good," said Annika. "Lots of water out in the forest here, but I wouldn't recommend drinking it. Parasites. I don't even bathe in the streams."

I know, thought Oswaldo.

"Parasites will swim right up to the opening in your glans and go into your urethra. Almost impossible to get them out. The natives around here get water in buckets, check for parasites—that is, the ones large enough to see—and shower by tipping the buckets from cables. Or they will stand in the sand along the river and wipe themselves with the water. They never swim. I can't wait to get back to Denmark and go swimming nude in a cool stream. No worms *there* to crawl into my crotch."

Take me with you, thought Oswaldo.

"You have to keep up with me," said Annika. "The chainsaws wait for no one."

"I'll do my best," said Oswaldo.

"A lot of hiking, but none of it is very far. It is rare for me to have to go for more than a mile."

Oswaldo walked just behind Annika, watching her powerful thighs as they got further and further ahead of him. Soon he could not see her. The trail was plain enough, though. Right through that mud-hole and over that little reinforcement made of bamboo staves, he could see the trail come out the other side. He stopped for just a moment, but that was long enough for ants to start crawling up his leg. He danced them away, mostly. He saw several tarantulas, but never

more than one at a time. He started making good time, but still could not see Annika, until he heard a little disturbance behind a thicket of bamboo. She walked out, buttoning her jeans.

Soon they reached the first tree-fall. The tree had been cut only about a half hour before, but already the little mosses and filmy-ferns, exposed to full sunlight for the first time, had started to curl up and die. The orchids and bromeliads, however, looked healthy. Their leaves were thick and covered with wax, so they dried out slowly. Annika looked them over quickly. "Most of them are *Epidendrum*, which we have already recorded. Someday we hope to start a business, shipping orchids to greenhouses. At least in Ecuador. Lots of greenhouses in Ecuador. But we would need special permission to ship them to other countries. Meanwhile, all I can do is ignore them. Ah, here's one. It's a *Gongora*, I think I saw this species last week. I think this one is a *Sobralia*, but the flower is withered. Ah! This one is, I think, a *Maxillaria*, but I'm not sure which species." She plucked it and slipped it into a cloth bag hanging from her waist. "I try to get the roots as well, and some of the leaf litter the roots grow in, in case there are symbiotic fungi in there. Sometimes we grow the orchids until they flower again." But Annika took cell phone photos of even the orchids that she left alone.

"I've seen some of them hanging by strings from tree branches back at the station," Oswaldo said.

"That's not just me and Ameche decorating the place. It is part of our work. Well, my work, anyway."

After a couple of hours of work, they finished looking through the branches of the fallen tree. The next fallen tree was only a few meters further down the path. The lumbermen were still sawing off the smaller branches. They knew Annika and waved at her. One of them gave her an air kiss. She scowled back at him. When the other men started to leave, this man came back toward Annika and air-kissed her again. She walked up to him, raised her shirt for just a couple of seconds, until his eyes grew wide and he slipped her a fifty-sucre bill.

"Greasy bastard," she said to Oswaldo when she came back. "Fifty sucres isn't worth much, but the money adds up."

She saw Oswaldo staring at her chest. She turned, found an almost intact *Epidendrum* orchid that one of the boots had almost ground into the mud, and held it against her bosom and smiled.

Then Annika looked up into the canopy. "A liana!" she said. She ran back down the trail to a woody vine that hung down. She grabbed the bud end of it and gave it a couple of tugs. "It'll hold," she said. Then she jumped up, holding onto the vine, and came swinging toward Oswaldo. He watched her pendulum approach as if in slow motion. She swiveled her hips up and threw her legs over his shoulders. His face was right in her crotch. If he expected erotic scents, he was wrong; he smelled only dust and felt only thick denim. She pulled a knife from a scabbard hanging from her belt. "These vines are mostly in the Vitaceae, the grape family, and they have really big water vessels." She cut off the tip of the branch, and water dripped out of it. She drank from the cut end, then let it dribble water onto Oswaldo's face.

He carried her back to the camp for lunch. She bent from her perch and grabbed a couple more epiphytic plants on the way.

Back in the laboratory after a light lunch of imported tahini, tortillas, and honey, Annika and Oswaldo uploaded the photos of all the orchids at the satellite connection computer, and a website generated identifications. Most of the ones she said were *Epidendrum* were correctly identified. One time, the AI told her it was a *Dracula*, but she quickly recognized that this was a mistake resulting from unusual lighting.

"How does the computer learn to identify all those flowers?" asked Oswaldo.

"Machine learning," said Annika. "Botanists have to learn all the details to identify a species, but computers just analyze the pixelated information. Feed them enough images of known identity, and they can use that information, God knows how, to identify new images. They don't have to actually *learn* anything, or know what an orchid, or even a flower, is."

Annika was considerably less interested in the bromeliad epiphytes, even though in one case there was no match. She thought it was just a *Guzmania lingulata,* but the red bracts had stripes on them, unlike that species. "Probably a new species," she said. "I'll write a paper about it when I get back to Denmark."

Chapter 7

A couple of nights later, dinner was special. The canoe operator had brought a tapir which he had shot in the scrubland where the rainforest had been recently cut down. A tapir looks like a pig—depending on whom you ask—but is actually a relative of horses and rhinoceroses. But once it is on the grill, you cannot tell the difference; again, it depends on whom you ask. But it was certainly a welcome relief from fish stew. The villagers, about fifteen in number, invited Ameche, Oswaldo, and Annika to join them, in return for which Ameche gave them all the beer they wanted. He cooled the bottles a little bit in the river.

While the villagers chatted and whooped in Achuar, Annika talked with Ameche and Oswaldo in Spanish.

"I haven't eaten tapir before," said Oswaldo. "It is much leaner than pork."

"Of course," said Annika. "Tapirs run around in the rainforest, eating what they can find. Like monkeys, they never have a chance to get fat. If you want fat meat, you have to get it from animals raised in a pigsty."

"Cuy is pretty greasy," said Oswaldo.

"They are raised in captivity also," said Annika. "Rainforests are not as full of food as you might expect. That's why the native people are small and slender."

Annika wiped her hands on a washcloth, and smiled. "I wrote a book once about a tapir," she said. "I left it back in Denmark, but I remember most of it. It was a little kid book. I was named after Annika, the little girl in Astrid Lindgren's *Pippi Longstocking* books. I actually thought about being a writer, until I saw orchids in a greenhouse, and then I started noticing them in wet places out in the Scandinavian landscape. I was hooked on botany.

"This was also about the time I began reading about the destruction of the rainforests," she continued. "Whole forests cut down just to make farms that would last only a few years, then they become poor pastures with skinny cattle. But you could raise pigs there. You would have to build a pig-house and haul in all of their food, but it could be done. With enough government agricultural subsidies, as you know, Oswaldo, you can do almost anything anywhere.

"My story started in one of these massive pig-feeding operations in what had been rainforest. There was a little pig among the thousands, let's say his name was Oswaldo, and he was not happy. Pigs are naturally clean animals, unless you force them to sit in little cages in their own shit. The managers cut off the tails of the little piglets when they are born they will not bite each other's tails off.

"One day, little tail-less Oswaldo noticed a loose board in his part of the pigsty. He nuzzled it with his snout and it got looser, but he always pushed it back into place so nobody would notice it. Then one day he could open it enough that he could get out. He waited until night and

then ran to the gate, where the drunk watchman did not notice his escape. He hid in the undergrowth and slept until morning.

"Little Oswaldo found a stream of clear water. He almost didn't recognize it, for he knew only water into which other pigs had already evacuated. He jumped in and wiggled all around until he was as close to being clean as he had ever been. Then he heard a sound and hid. An animal that looked to him like another pig, about the same size as an adult pig, sauntered down to the stream and slipped in, wallowing around not in filth but in cleanness. The animal's hooves scraped against the clean stones at the bottom of the stream.

"The larger animal jumped when it heard Oswaldo squeal, 'It's another pig! Just like me!'

"The animal looked haughtily down on him and said, 'I'm not a pig. I am a ta-pir." Annika tried to make her voice sound like that of an upper-class Englishman, tay-*peer*.

"And then?" asked the real Oswaldo who was actually Abel.

"They ran off in the rainforest and had adventures, mostly sabotaging destructive activities such as road-building and logging."

"How does it end?" asked Ameche.

"I never actually finished it," said Annika. "Maybe Oswaldo got caught and put in a different pigsty, and the tay-*peer* got cooked at the Jatún Sacha Research Station."

"It might work," Oswaldo said. "Just don't try to publish it in Ecuador, where rainforest destruction is big business."

"Also," said Annika, "it gives false hope to young readers. I used to dream of being some kind of eco-terrorist. You know, destroying the machinery of rainforest destruction. Spiking trees and all that."

"What is that?" asked Oswaldo.

"You insert a metal object in a tree trunk in a way that does not hurt the tree and cannot be seen unless you look closely. But if someone takes a chainsaw to it, the metal object will wrench the saw from their hands and wreck the saw and maybe injure the sawyer.

"But the forces of destruction are just too great. No way can a movement of eco-terrorists ever get very far. A handful of idealists, like I used to be…" Annika looked down at her dirty pants. "Now, if you could get the forces of Nature to join you, you might have enough power to prevail. If someone could talk to the animals…"

After not having thought about her for a couple of weeks, Abel remembered Rima talking to and feeding the woodpecker in the forest back in Winnemac.

*

A couple of nights later, Annika and Oswaldo had a particularly sweaty and productive day of collecting orchids, then identifying them. Annika and Oswaldo ate fresh fish soup. Even in the refrigerator you couldn't trust leftover tapir meat.

"Where is don Ameche?" asked Oswaldo.

"He went to Tena to buy supplies. Gasoline, little batteries, things like that. He usually stays overnight with friends there," said Annika.

Annika told Oswaldo a particularly titillating story about orchid pollination. There was an orchid in Australia that released a scent that was exactly like the female mating hormone of a wasp and, wouldn't you know it, male wasps flew in from miles around.

"The wasps aren't too smart, and the males all tried to mate with the orchid. It doesn't look that much like a female wasp, but, hey, their vision isn't that great. If it smells like a girl, hump it. This is early in the season. Older, more experienced male wasps later in the season can tell the difference between an orchid and a female wasp.

"That's just like a male," said Annika. "They will mate with anything. Back in Denmark, some farmers screw their cows."

"Happens in Ecuador too," said Oswaldo. "And in America, I think."

"Well, you won't confuse me with an orchid, will you?"

"I don't see how that is possible."

"I have too many visual cues for you to think I am an orchid."

"You do indeed."

"Time for bed," said Annika, gathering her long blonde hair between her hands and shaking it. "I need to wash the spiders out of my hair."

"I suppose I should also," said Oswaldo.

After Oswaldo had sponge-bathed himself back in his room, he put on only his light underwear. He turned out his light. He could not resist looking down the path and seeing that Annika's light was still on. He could not, or did not, resist what he did next, especially knowing that Ameche was not around. He walked down the path and stood at Annika's balcony.

As soon as Oswaldo arrived, Annika got up from her chair and put the washtub on the little table. She poured water into it from a pitcher. Then she very, very slowly removed her shirt. She checked her breasts over, Oswaldo assumed, for parasites. She thrust out her torso as he used a backscratcher. Then she removed her pants, once again without underwear, standing away from the table but not from the light. Then she sighed with pleasure as she sponged herself all over with soap, then rinsed. She turned her back and bent over, cleansing her feet. Finally, she shampooed and rinsed her hair. Strands of hair clung to her chest as she dried away just the runnels of water that fell from it toward the floor. Oswaldo could hardly breathe, much less move.

Then Annika came to the balustrade and looked right at Oswaldo. "I know you are watching me," she said. "Why don't you come on up? The stairs are right over there." She flicked her head toward the back of the room. Oswaldo was in the room before he even thought about what to do next.

Annika saw him in just his shorts and could tell he was ready for her. "Well?"

Oswaldo stammered. "I thought you were Ameche's girl."

Annika smiled, sighed, and slung a glance at the sky. “He’s not here. You are. Just don’t get any ideas that I am going to leave him and make a thing with you. I don’t make a thing with anybody. I am my own woman.”

“Sorry I was watching you,” said Oswaldo.

“Liar,” she said. “Name me a man who wouldn’t want to watch me. Well, are you just going to stand there?”

Oswaldo removed his shorts and approached.

Annika said, “Not without a condom you don’t.”

“They’re back in my room,” said Oswaldo, although he was not sure if he had packed them during the rush to leave Mulauco.

“We can use one of Ameche’s,” she said. “They glow in the dark. He bought a whole bunch of them, and won’t miss one. He assumes I am going to be with him for a long time. Oh, well. You can see whom I have to choose from here. You and him. The canoe operator is a real hunk, but he won’t use a condom. Besides, he has this strange religious devotion to his wife, who keeps a close watch on him here. Not in Misahuallí, but here. And you all better watch out if my boyfriend comes from Denmark. Not that I expect him to take a trip like that.

“And one more thing,” said Annika. “Your feet are muddy.” She pointed him to the basin of water, now dirty from her bath.

*

“There’s a place I know down by the river,” Annika told Oswaldo a few days later. “Really secluded, and I’ve never seen anyone else go there. Ameche won’t find us there. Not that I care, but I want to avoid ugly scene. You males make ugly scenes when you fight over us. But first, we have to finish these orchids.” She had only found a couple of interesting orchids, which Oswaldo put into cloth bags with their roots and a little of their own mulch.

Oswaldo had begun to accept himself as a man good enough to satisfy Annika. At least, she acted satisfied, and there was no reason for her to act satisfied if she was not.

When Annika and Oswaldo got to the little shady spot by the Napo, she checked around for anything dangerous. “There is a sandbox tree—*Hura crepitans*—right over there, but you know to stay away from it because of all the spines on its trunk. I don’t see any of its ripe fruits hanging around. Watch out; the fruits explode and discharge the seeds at over two hundred kilometers an hour. You don’t want to be in the way of those.” She pulled a folded cloth sheet from her backpack, laid it smoothly on the ground and then began undressing. So did Oswaldo and soon they were clinging to one another. She was on top. Oswaldo could think only about the sensations of coitus, but was distracted by some rustling of the leaves above.

Just as Annika began kissing Oswaldo’s ear, she tensed up.

“What was that?”

“What was what?” responded Oswaldo.

"Something fell on my shoulder blade. There, it happened again. Oswaldo, what are you doing?"

"It wasn't me, Annika." Oswaldo looked up into the branches and imagined that he saw brief flashes of white. He assumed it was clusters of white fiber blowing in the wind, perhaps seed fibers from a kapok tree planted nearby. But that made no sense. There was hardly any wind.

Annika twitched again. "I think monkeys must be throwing something at me," she said. She pulled herself apart from Oswaldo, the sweat creating a slurping noise.

The same thing happened the next day in their little shady spot.

"Those damned monkeys," said Annika.

"I didn't see any monkeys," Oswaldo responded.

One night, Ameche was gone again. When they were in her room, she began twitching again and looked around in the darkness. "Whatever it is," she said, "it has followed us here."

When Annika turned on the little bedside lamp, which saved the stored electricity by using very little of it, she looked around and gasped. What appeared to be a big white moth was barely visible in the rafters. When Oswaldo turned to look, he knew it was Rima.

Whatever it was that Annika saw, she could make no sense of it. She told Oswaldo, "I see what looks like a face and a gauzy pair of wings. I must be imagining this. Please, Oswaldo, tell me that I am imagining this." She looked away, then into Oswaldo's eyes. "Perhaps I have been working too hard, or not getting enough water." Then she became utterly still and tense. "I heard a voice telling me to leave you alone, that she—the voice sounded female—loves you and wants to have you." She shook her head and groaned, "This is some crazy shit, Oswaldo. Maybe we'd better spend some time apart."

Oswaldo saw the face and heard the voice also. He answered Annika, "I think you're right. I don't know what has happened, and until I do, we should keep to ourselves. I think I have to make a decision, and soon." He took one last look at the little part of Annika's torso revealed by the light, slid away, grabbed his shorts, and went to his room.

Chapter 8

"Abel," Rima's voice said softly as she settled, lighter than fluff, by his side on the bed.

"Where did you go from Winnemac?" asked Abel. "I would have stayed with you, if I had known where you were."

"I had to figure out for myself what to do," whispered Rima. "I made all my preparations, regarding which I will tell you soon. Then I found out that you had returned to Ecuador. I searched for you and found you."

"In Mulauco?" asked Abel.

"Yes," said Rima. "Abel, you are such a good man. You want to save the world, or at least Ecuador. But you were going about it in entirely the wrong way. You would have figured it out, when your projects failed, but instead you got caught in political turmoil before you even had a chance to begin. I was there to guide you into the right way to save the world."

"Guide me?"

"Did you not sense my presence when you stood by the road in Mulauco and looked down over the cloud forest and into the rain forest? Did you not sense that this is where you were destined to go?"

"Those arrangements were made by Aranjuez."

"No. It was my idea, which I whispered to him. Aranjuez just thought it was his idea. And the welcome you received from don Ameche. I did that also. You have been beset by dangers every step of the way, dangers of which you remain unaware. I was watching out for you. But I need to have you join me now. We were destined for one another.

"You need to follow me into the forest. I will guide you and take care of you. I will protect you in ways that you cannot imagine. Can you be ready tomorrow morning before sunrise?" Rima whispered very plainly.

"Yes," said Abel. "What should I bring?"

"Just yourself," said Rima. "I, and my friends in the forest, will provide everything you could need. But you have to leave everything behind, including this woman. I cannot have you diverted into a love affair. I need to have your heart."

"Rima, this is unbelievable. Of course, it is also unbelievable that I should be talking with you now. And you are more beautiful than I remembered. Before you disappeared, I was already in love with you. I tried to forget about you. But here you are again. Rima. This is so wonderful."

Abel reached for Rima, but she drew back. "I cannot create love with you," she said.

"Why not?"

"Because, Abel," she said, "I am not human. I am a different species."

*

The note that Abel left on the breakfast table simply said, “I go of my own free will. I cannot tell you where I am going, for I do not know myself. Thank you for everything. Annika, you are not crazy. I saw what you saw, but the vision was for me. Oswaldo.”

*

Later that morning, military jeeps arrived, driving over forest trails from Misahuallí. They were looking for Abel Sigüenza. Annika and Ameche had hidden Abel’s belongings, and they could truthfully say that nobody by that name was with them, nor did they know where he was.

Chapter 9

"You know better than to do that," Rima told Abel. She was perched in a tree, sitting between two orchids. Abel stopped before drinking water from a stream. "That is, unless you are desperate, which you will never be as long as I am with you. There are parasites in the water. Instead, what you should do is drink from a vine. I saw you doing this with that woman."

Rima had stolen a machete for Abel from a construction site. He picked it up and looked around. When he saw a liana, he started to cut it.

"Not that one," Rima said. "That's *Paullinia pinnata*. It has mildly toxic sap. You want a wild grapevine, like the one over there." Rima jumped to another branch and dislodged a woody vine from the tree branch where she perched. She swung on it to the ground beside Abel, trailing her gauzy clothes in the air behind her. When Abel cut the stem, water almost gushed out of it all over his face, then into his mouth.

"Now I'm hungry," said Abel. "I left without breakfast."

"It's a good thing you did," said Rima. "They came for you. The military, that is. I held them off as long as I could. I rolled stones into the road ahead of them, and sent some *Eciton burchellii* army ants into a couple of their parked vehicles. By the time the ants left, they had stripped away any loose organic object, such as the papers that had your name on them. Anyway, I have some Brazil nuts for us to have for lunch."

Rima handed Abel a very hard brown capsule about the size of a softball. "I suppose the nuts are inside," Abel said. "How do you open it?"

"You don't," Rima answered. "Only agoutis can open Brazil nut capsules." Rima then made the strange murmuring sound Abel remembered from back in the forest in Winnemac. A stubby brown rodent leaped out through the undergrowth. Rima tossed him the capsule, and he started chiseling it with his sharp front teeth. Soon he had the capsule open and Abel, ravenous, started to grab it.

"Let him eat some of the nuts," said Rima. "That's his reward. But he cannot eat all of them. There will be plenty left for us."

There were, and they tasted pretty good with fresh açai fruits.

As they sat and relaxed, Abel said, "I've noticed something, Rima." She looked at him calmly. "You're doing it right now. Back in grad school, you were always twitching and things like that. But now…"

"I am calm, because I am home, with my friends," she said.

The fruits lubricated Abel's bowels, and he rushed to find a place to defecate. When he turned around to see the mess he had left, he saw dozens of iridescent beetles swarming over the droppings and rolling them into little balls, which vanished within minutes. There were so many

of them, Abel thought, that Rima must have called them the way she called the agouti. When he came back to Rima, he said, “All of the animals obey you, like you are the Queen of the Forest.”

“Only because they want to,” said Rima. “And now, for some new clothes for you.”

“Nothing wrong with this T-shirt,” said Abel. “If you don’t mind progressive alternative-ag shirts from America.” It was a Land Institute T-shirt. “Or these pants.”

“Oh, no, nothing wrong,” said Rima. “But the thorns will grab and tear them as you go through the undergrowth, and they won’t last long. Not that there is much undergrowth in the deep forest, where the light and the plants and the animals are mostly in the upper branches. Most of the saplings and vines, what you call the jungle, is on the edge of the forest. But what little bit of undergrowth there is has thorns. And we cannot avoid the jungle edges. You need clothes like mine.”

Abel touched Rima’s blouse. He had not done so since their time in the forest in Winnemac. He had forgotten how amazing it was to touch this material. “The fibers are very strong, and light. Airy, but protective. What is it? Kapok fibers? Snake skins?”

“Not too far from the truth,” said Rima. “I’ll show you.”

Rima made her little cooing noise, which seemed to fill the entire forest. Right away Abel began to notice tarantulas perched on nearby branches. After a few minutes, he saw several dozen.

“Rima, um, there are, like, lots of tarantulas around here?”

“I called them.”

“Why am I not surprised.”

“For every one you see, there are a dozen you cannot see. These are the spiders that produce the silk sheets from which I make my clothes. And, now, yours.”

“You are wearing tarantula silk?”

“They aren’t actually tarantulas, which are predators that hunt, rather than producing silk to ensnare moving prey. But you can call them tarantulas if you like.”

“But spider silk is sticky,” said Abel. “That’s the whole point, trapping insect prey.”

“Not just insects,” Rima corrected him. “Some of them catch hummingbirds. Spiders can only suck, not chew, but the blood of a hummingbird and the hæmolymph of an insect aren’t too different, in terms of how a spider can drink them. But, you already know the answer to your own question. How, after all, does a spider keep from getting entangled in its own web?”

“I hadn’t thought about it. But, I suppose, some of the spiderwebs are sticky and some aren’t. And the spider knows how to walk on just the threads that aren’t.”

“My comrades here produce just the non-sticky kind for me,” said Rima. “And they even weave it into fabric. All I have to do is sew it with long thorns.”

Thousands of little eyes watched Rima as she lifted a nearby branch and revealed a white sheet. “Take your clothes off,” she ordered Abel. She looked at Abel with eyes of love, but, he remembered, the eyes of a species not quite human. He disrobed. She draped the sheet over him, including his arms, and sewed it into place with a thorn. She found a smaller sheet, with which she girded up his loins. He touched the fabric. It was very strong, but allowed the few, welcome

breezes to touch his skin. “The only drawback to this fabric is that moisture condenses on it and makes it heavy. The way mine is right now. Very inconvenient for jumping around. But that is mostly in the afternoon, when it rains every day, or in the early morning dew. The sun is out above the canopy…” Rima indicated the treetops, where Abel had not yet lifted his eyes. “Now is the time for us to make our daily preparations.”

“Don’t expect me to clamber up into the branches the way you do,” he said.

“*Claro que no*,” said Rima. “But that is primarily because you are afraid. The slight breeze will lift your body, clad in this fabric, even when damp. But I will give you a rope that will support you in case you fall.” She handed him a very thick but very light rope.

“Made, also, from spider silk, I bet,” he said.

“Per unit cross sectional area, stronger than steel,” she said. “Stretchable and flexible. If you fall, just try to avoid brushing against branches, but you will not hit the ground.”

Rima tied the rope around Abel’s body, a shoulder and waist halter. It had just enough friction that the knot did not slip.

“I feel like Spiderman,” said Abel.

“Oh, that,” said Rima. “One of those stupid American movies. Imagine, a boy gains magical spider powers after a spider bites him!”

“A radioactive spider?” Abel added helpfully.

“As if that would blend the spider DNA with his, and as if blended DNA would do any good.” Rima jutted out her jaw and blew an exasperated breath into her hair. “You mix the DNA of two species together and all you get is a glob of DNA. The spider half of the DNA could not coordinate or communicate with the human half.” She became quiet and pressed herself next to Abel. “You must understand that is why you and I will never have children. Your sperm and my eggs would just make a sticky mess. The chromosomes would not line up.”

“Then, how do you reproduce? Your evolutionary future, you know?” Abel and Rima pulled away from one another.

“I can produce eggs by parthenogenesis.”

Abel understood what this meant: eggs that did not require fertilization, each one growing into a little offspring. “But, in that case, they would just all be little copies of you.”

“What’s so bad about that?” asked Rima.

Abel looked at her again, struck by her beauty. Even the folds of her garments were perfectly in place. As were his. “Nothing, nothing at all, until a disease comes along and kills all of them,” he said.

“We’ll worry about that later,” she said. “Meanwhile, we have work to do. Work which we will begin only after we dry out our wings.”

She jumped up a couple of branches, and tied Abel’s rope. She waited for him to climb after her. He was amazed at how light his body felt. Then she took his rope and tied it to a higher branch. Before long, he was climbing on branches that except in his imagination could not have supported him. He was now in the sunlight and looked out across a perfectly level canopy. She spread out her silk all the way, leaving only a little cloth that hid what might have been her

organs. She was as slight as a girl, with flawless brown skin. Abel did the same. He saw droplets of water shrink and evaporate quickly.

"It's like looking out over an ocean," said Abel. "The canopy is perfectly level."

"All the trees know exactly how tall to grow," said Rima.

"I studied that once, back in a plant physiology class," said Abel. "They grow only as tall as they can get water up to the uppermost leaves. And the buds at the top signal to one another. It has something to do with different shades of red light and a pigment called phytochrome. Any branch that grows too far will feel…did I just say feel?...awkward because of too much red light and not enough of the far-red light."

"Which is just another way of saying they talk to one another," said Rima. "Occasionally there are trees that burst through the canopy and grow much taller than the others. Like that mora tree over there. Or that cecropia, over the other direction. See the big fan-like leaves? That's *Cecropia peltata*. But aside from them, the trees all reach a joint decision about how tall to grow."

"Joint decision," repeated Abel. When Rima said nothing, Abel continued. "Our wings, so to speak, seem to have dried."

"There is still a little invisible moisture," said Rima. "Meanwhile, let's talk about what we will be doing for the next…for the rest of…for a while."

*

The next morning, Rima led Abel down to the ground, to a trail that only she would see. Abel could hear water nearby. They emerged into an opening and saw a gigantic waterfall. The water glinted in sunlight yellow and aquamarine blue. A little spray bounced from the rocks and refracted a shaft of sunlight into a rainbow.

"This is the most beautiful thing I have ever seen!" exclaimed Abel. Then when Rima looked into his eyes, he thought about adding, "Except for you." But he hesitated to rush into whatever relationship awaited them.

"You seem to be able to go anywhere you want in this rainforest," said Abel.

"Pretty much," said Rima. They walked downstream along the edge of the creek. "I grew up here."

Then Abel jumped up. He had brushed against an acacia tree with large thorns. Immediately, large ferocious-looking ants had come pouring out of the branches—actually, out of the thorns—onto Abel's body.

"Leave him alone," said Rima. The ants turned around and went back into their thorn houses.

"What is this?" asked Abel.

"These ants live on and in the acacia tree," she said. "They do not have burrows in the soil. When the thorns are young and green, the ants chew out the insides. When the thorns turn brown and hard, the ants live in them. The acacia provides food for them on its young,

unexpanded leaves, both nectar for calories and globs of protein for nutrition. In turn, the acacia tree has its own standing army of defenders. Any animal that starts to eat the acacia, or that the ants think will eat the acacia, gets attacked by the ants. Just one of countless examples of mutualism in the rainforest. Mutual benefit between two species."

"I should have known that," said Abel. "We studied this back in Winnemac."

"Lucky for you I knew these ants," said Rima. "Their stings are extremely painful."

A gust of wind blew a spray of water from another waterfall against them as they walked. Suddenly Rima jumped up into Abel's arms. She was nearly weightless.

"What's the matter?" he asked.

"Water," she said. "I can put up with humidity, so long as I get to dry my clothes out. And when it rains I can hide under my sheet. But a large quantity of liquid water on my body can really be a problem for me. Surface tension. Water is very sticky. It is like glue to a small person like me. I might get stuck in it. Let's not walk so close to the waterfalls."

*

Abel and Rima spent the whole rest of the day looking out over the canopy. When the afternoon sun became very hot, they retreated into a little patch of shade. Gnats and other insects danced around Rima, forming an enchanted sphere. When she and Abel got hungry, Rima leaped through some branches and found what appeared to Abel to be bromeliad fruits. When they were thirsty, Rima could always find water, which she gathered from the little pools at the bases of the bromeliad leaves.

"Up here is where almost everything in the rainforest is happening," said Rima. "You can walk around on the forest floor and see almost nothing. Most of the animals are up here. And most of the plants. All of the epiphytes that hang from the branches are up here, as are most of the leaves of the trees that are rooted to the soil. The photosynthesis is almost all up here. It took human ecologists a long time to figure this out. They walked on the forest floor, looked around, and thought they understood the forest. Then they started building towers to get up into the canopy. Some of them even made inflatable plastic balloon-like walkways. But these, as the scientists knew better than anyone, are imperfect solutions. Towers and bright plastic sheets scare away animals. You have to climb up, like me."

"Very true. But, I ask again. What are we doing?" asked Abel.

"Planning," said Rima. "Thinking ahead is the one thing that humans think they do and that nature does not do. They are right that the evolutionary process, natural selection and all that, cannot plan ahead and come up with adaptations to the future. But nature has a kind of intelligence—several kinds, in fact—that can, indeed, think ahead, even though they are not evolution. Our plan is actually very simple. We need to watch for signs of human-caused destruction, and then stop it."

"I see a plume of smoke over there," Abel said, pointing in a direction he could not know in the vertical sunlight. "Someone is cutting down trees. They are burning the ones they cut

down a few days ago, maybe after hauling off the trunks for lumber, maybe burning the trunks too. I'll bet Annika is there right now."

"You can quit thinking about her, you know," said Rima.

"I'm with you now," said Abel, dismissing one last memory of Annika's body, and of her mind, brilliant though nothing compared to Rima's.

"She can save a few of the orchids, or at least the memory of them, but she cannot stop the chainsaws and, behind them, the road builders. And when there are new roads, people pour in from the slums and favelas as from a pipeline, and they try to farm the poor soil. They end up as poor as they were back in their urban hovels. Or ranchers haul in cattle. Worst of all, gold miners not only cut down the trees but dig up the dirt, making really deep muddy holes in the hope of finding chunks of gold. Just enough of them find gold to keep the others mesmerized by the elusive hope of wealth."

"And you can stop them?"

"With help from my friends. You wouldn't believe how many friends I have."

"Let me get this straight," said Abel. "You are going to launch some eco-terrorist attacks on road-builders, lumbermen, and such like, in the hopes of saving the rainforest? There is no hope of eco-terrorism reversing the tide of human greed."

"Says who?"

"Every time an eco-group tries to stop the forces of destruction, they fail. It happens so often that it has become a standard plot in popular literature."

"Examples?"

"I mostly know examples written in English, from an ecological literature course I took at Winnemac. The artist formerly known as T. Coraghessan Boyle wrote a novel, *Friend of the Earth,* for one. Then there was *The Overstory,* by Richard Powers. Both of them are among the finest writers I have ever encountered. *The Overstory* might be the best novel ever written. There is a minor author named Stan Rice who wrote two of them: one was *Now You See Me,* the other was *Q's the Name.* In all these cases, the idealistic environmentalists totally failed."

"I took the same environmental literature course you did," said Rima. "Not at the same time, alas. In all these cases, the environmentalists used human techniques to oppose human activities. But suppose the forces of Nature Itself rose up against human destruction."

"Like, for example, having all the frogs chirping, which causes huge rainstorms, which causes a flood that washes away a dam that was intended to flood a rainforest? That plot's been used, in the movie *Emerald Forest.* You still haven't convinced me, Rima."

"You'll just have to stay with me and watch it happen, Abel. You got a better idea?"

"No, I don't," said Abel.

"Thirsty?" asked Rima.

Rima pulled a cup, made from half of a Brazil nut shell, from some hidden pocket. She gathered water from epiphytes and grapevines, and flavored it with little bits of orchid nectar. She held the cup to Abel's lips. When he drank it, he had never felt so good in his life. Her eyes shone as she looked into his face longer than necessary.

"And now," said Rima, "it is time for you to see me at work."

Chapter 10

Sweat stung the eyes of the men with chainsaws, which was why they did not see the thousands of tarantula eyes watching them from under the leaves. As if on cue, the tarantulas jumped out and started biting the men, who dropped their equipment and began scurrying for the vehicles in which they had come. But before they got there, most of the men had fallen to the tarantula venom. The tarantulas then wove thick layers of silk—this time, sticky—over the bodies. The white silk was almost invisible because there were so many black spider bodies sucking blood, or at least serum, from the paralyzed men.

Just before locking into a morbid tetanus, one of the men cried out, in Spanish, "We are just trying to earn money to feed our families!"

When the other men got to the vehicles, small poisonous snakes, which had entered through the grills under the hood, started pouring out of the ventilation grids. The bite of a small snake can be as deadly as that of a larger one. Abel and Rima watched it happen.

"Some of the snakes are bushmasters, related to rattlesnakes."

"They look like rattlesnakes."

"Some are coral snakes."

"The ones with red and, sometimes, yellow stripes."

"Right. There are lots of other pit vipers that are poisonous here. And that green one, too."

"I have some questions, Rima."

"Let me hear them, comrade."

"The poisonous snakes. The tarantulas, too. Toxins are expensive to make, and the body movements to deliver the poisons are expensive and dangerous. Spiders and snakes don't just go around biting things. In particular, things as large as humans, which are not their typical prey. So why do they do it?"

"When they get the signal, they will strike."

"I can see the tarantulas sucking the juices out of the men. But the snakes cannot eat their victims."

"The constrictors can swallow men," said Rima.

"But these aren't constrictors," said Abel.

"Just watch," said Rima.

Huge swarms of small ants emerged from the bushes and poured over the men the snake poison had killed.

"Watch closely," said Rima, leading Abel down to the ground.

"Rima, the ants and snakes will attack me!"

"No, they won't. Just watch."

The ants were large, for ants, and many of them appeared to have very sharp jaws. But just how sharp they were astonished Abel. The ants started carving up the flesh of the men into

chunks. Pieces of lip hung loose, and the ants sliced up the gums soon afterwards, leaving strange smiles behind them. The ants ate the eyes without having to slice them up. Then, even while the ants were still at work, the snakes ate the chunks of meat. Abel imagined that they relished the taste of the meat, marinated in formic acid.

Back up on a tree branch, Abel finally caught his breath. “There are so many of them. I had no idea there were so many spiders and snakes in such a small area of rainforest as where these men are working.”

“There aren’t.”

“So, why are they here?”

“Once again, when they get the signal, they will come.”

“Where does the signal come from?”

Rima looked into Abel’s eyes.

“Rima, you can’t mean that…that you called them?”

“I told you I had a lot of friends. A lot of them have been here for millions of years. Some of them are more recent arrivals, such as the African honey bees that will swarm and attack anything or anyone whom they feel is threatening them. They’ve been here only a hundred years or so. There is a hive of them over in that cave that you cannot see. But I don’t think I need to call them up right now.”

As Abel and Rima watched, a gigantic boa constrictor slipped out of a tree and clasped itself against the supervisor, who was the one person at the site who had not already been attacked by spiders and venomous snakes. Before the man could even breathe one last time, the constrictor had compressed the air out of him. Every slight shrug the man made, the constrictor twisted itself more closely. The man’s face turned red, as the blood cells desperately tried to find oxygen; his tongue started to swell, and he fell down.

“There are several constrictor species here,” said Rima. “Wait until you see what an anaconda can do.”

“Rima, there are at least a dozen men here whom you have killed.”

“I did not kill them, Abel.”

“But you called the animals that killed them. How did you do that?”

“I used the Interweb.”

Abel let the word simmer in his mind a few seconds. “What did you say?”

“The Interweb. It is like the Internet, only the connections are made of spiderwebs.”

“Wait,” said Abel. “Some spiderwebs are sticky, for trapping prey, while others are not, and their main value is their strength. But are you telling me there are spiderwebs that can carry impulses? Messages?”

“Yes, Abel, I am. There is a third kind of spiderweb, the kind that carries little photon messages, like optical cables. That is why spiderwebs are not just sticky and white, but also glisten. Not just with reflected light, but with their own light. Spiders send messages to one another over relatively long distances at the speed of light. Almost. Every spider that gets the message that tells it to converge on a certain location heads there as fast as it can. The message

goes only as far as the webs extend. The messages can move at the speed of light, but the spiders themselves cannot move that fast. So this is not a *world-wide* web. It is local, within a few kilometers. But there are a lot of spiders in a kilometer radius.

"And it is not just the web. The spiders themselves are nodes of intelligence. No single spider is very smart. But, then again, neither is any single neuron. Intelligence emerges from the interactions of billions of otherwise-ignorant nerve cells in the brain. The spiders, and their web, form a huge brain that can act with an intelligence that nobody understands, especially not I."

"And the snakes? What about them?" said Abel.

"I don't know, Abel. Somehow, the spiders told them, and they came. The animals do what I tell them to do, but they do not always tell me how they do it. The link between spiders and snakes is a mystery to me."

Abel looked down at the scene of destruction. He saw another human form approaching.

"It is Annika," he said. "Rima, don't let the spiders and snakes kill her."

"They won't," said Rima.

Then Abel saw a panther approaching silently in the branches, not far from them. It was watching Annika as it curled its tail.

"You called the panther as well," said Abel. "How did you do *that*?"

"Mammals have a good sense of hearing, and I used my woodland call. You have heard it."

"I have."

"Please, save Annika from the puma."

"Why? Of what use is she?"

"She is innocent of this destruction."

"This may be true, but I cannot tell the animals to not kill her."

"You can try."

Rima looked at Abel wearily. "I can see that the work that I have to do will proceed more slowly with you than it would have without you," she said. "But what can I do? I love you. Now, Abel, in a few moments the woman will be in the arena of our activity. She will be too distracted to notice you, unless you move, and then she will see you. We cannot take that risk."

"She will see you, also."

"No. She saw me that night in your room only because I permitted her to see me. I cannot hide you perfectly, though that spiderweb suit is pretty good camouflage."

"I'll go hide," said Abel. "But please, please keep the panther from attacking her."

"I'm not sure I can do that. The panther might as easily attack me as her. But I know something I can try."

Rima stepped quietly from one branch to another until she was very close to the panther. The panther snarled at her. Annika heard the sound and looked up. But when Rima reached out her hand to the panther, its face seemed to relax. Nothing that was obvious to Abel, but a change in the panther's expression that Abel sensed subconsciously. Rima touched the panther's paw, and glanced back into the forest. The panther returned in the direction in which it had come.

By the time Annika had come to the battlefield of dead and paralyzed men, the spiders and snakes had retreated. Annika had a nauseated expression on her face as she touched the clinging webs and saw the now sunken faces of the men beneath them. She saw the constrictor starting to engulf the head of the supervisor.

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Rima led Abel to another part of the forest, about a kilometer away. They sat together on a tree branch and watched a few spots of afternoon sun penetrate through the canopy onto the forest floor. Tree saplings were everywhere, none large, but all waiting for the chance to spurt upward and grow into any gap in the canopy that might result from the collapse of a tree.

"I've got a real treat for you this evening," said Rima.

"I'm not too receptive to your treats right now," said Abel. "Not after what I saw today."

"But we are doing what we have to do," said Rima.

"The families of those workers now have no income," said Abel.

"You will get used to it," said Rima.

"Not that I have much choice, Rima."

"You love me."

"Yes, Rima. I love you. I wish I didn't, but I do. Say, what is happening?"

The first thing that Abel noticed was the macaw, whose bright red plumage showed up even in the obscure forest shade. And then he saw a toucan with its huge colorful beak. When he heard Rima's gentle murmur, he realized that she was calling the birds.

"What are you going to get them to do?" asked Abel.

"Nothing, for now. Although I would advise you to not underestimate a macaw or a toucan, or even the little hummingbirds," said Rima. Hummingbirds were levitating in front of bromeliad flowers perched in the branches near them. "They have long, sharp bills that can hurt as much as nails. And there are predatory birds here, too." Abel saw a gray hawk with a little tuft of feathers on its head. "It's a harpy," Rima answered his thoughts. A young hoatzin bird was clambering through the leaves, holding onto them with claws on its wings. "The hoatzin is the only bird with claws on its wings," explained Rima. Soon Rima and Abel were enveloped in an ocean of birdsong, mostly from birds too small for Abel to see.

"For our feast," said Rima, "we are going to build a fire." She lifted her arms; her blouse seemed like wings. She stood up and leaped from the branch she shared with Abel. Soon she had glided down to the ground. "Come, Abel. You can do it also."

"I'm too heavy to fly," he said.

"You're not too heavy to glide," Rima answered.

Abel lifted his arms and, realizing that his thinking had been totally bent by his experiences with Rima, stepped off of the branch. He fell like a rock until he oriented himself to be as horizontal as possible. He landed almost slowly, with the thin layer of leaf litter underneath him cushioning his fall.

"Good for a first time," said Rima.

"I guess I expected the leaf litter that I landed on to be thicker," said Abel.

"The dead leaves accumulate a few at a time. Since there are no seasons here in the rainforest, there is no autumn where all the trees lose their leaves. No leaf lives more than a year, but they never all die at the same time. The warmth, the soil insects, the fungi, decompose the leaf litter so rapidly that it never accumulates more than a few centimeters."

"Why are we going to build a fire? And how?" asked Abel.

Then Abel looked up. He saw that suddenly, or suddenly saw that, the branches were full of monkeys. The little bit of jungle lore that he knew was that if the monkeys gather in a circle over your head, watch out; they save up their piss and shit to rain down on ground-level intruders. And there they were.

Rima noticed them also. "Hey guys, knock it off," she said, in effect, or that is what Abel thought she said. The monkeys broke up their circle but climbed to lower branches. They sat and watched Abel and Rima. Abel could have sworn they were laughing. Lots of other kinds of monkeys started showing up. Rima pointed out squirrel monkeys, with wise faces and golden bodies; capuchin monkeys, with white fronts; titi monkeys making their distinctive calls and wearing thick coats that seemed unsuited to the climate; and golden-handed tamarins, which needed no explanation.

"All of these monkeys eat a wide variety of foods," said Rima, "which means that they never run out or have to fight over food. If one kind gets the insects and slugs, another kind will eat leaves. Why fight? It's too damn hot to fight.

"These mammals, and all the other animals, are quite intelligent, Abel. But not the kind of intelligence humans have. Above all, it is not selfish intelligence. They do not always use their intelligence to further their own selfish interests." Abel started to speak, but Rima said, "I know, this goes against everything we learned about evolution at the university. It is true that, *on the average,* animals behave selfishly. But the animals have no sense of past or future. So if one animal decides to sacrifice itself for the good of the rest of the animals, there is no instinct to stop it. They do not know what death is.

"And you are about to see an example of this, right now."

Rima produced her gentle murmur, which sounded to Abel like all her other gentle murmurs, but it had a different effect. Abel saw a tapir approaching, as if walking in a trance. It stood before Rima and Abel, then laid down on the ground and closed its eyes. Then a bunch of capuchin monkeys jumped onto the ground around it.

"Capuchin monkeys are known even by humans to be very intelligent," said Rima. "They usually hide their intelligence when they know people are watching, like those lugubrious captives in zoos. But, wait until you see what they can do."

The capuchin monkeys had strong sticks. Abel could see that the sticks had been sharpened. The monkeys jumped on the tapir and eviscerated it with a few bold strokes of their sticks. The tapir was dead less than a second after it had a look of fear on its face. The monkeys pulled off the fur and cast it, with the guts, into a pile which ants immediately started eating.

They cut the carcass up into pieces, each of which was the right size to feed a primate. Other capuchin monkeys rubbed sticks into bark and produced flames. They gathered rocks around the fire and started cooking tapir steaks.

The vegetable was roasted palm hearts. “A palm heart,” explained Rima, “is the apical bud of a palm tree. Palm trees have no branches, so the tree dies after something or someone cuts away its apical bud. But for every palm tree that loses its heart there are a dozen little saplings waiting to grow in its place.” Abel had to admit that the roasted Brazil nuts tasted better than the raw ones he’d eaten for lunch.

“And now for the entertainment,” said Rima. A bunch of howler monkeys jumped down from the branches and arranged themselves in rows and began singing. The only syllable was *woo*, since their lips did not have the fine musculature that humans have. But they sang in tune and in chords.

“I expected them to sing in discordant howls and hoots. But they are singing in tune. How do they do that?” asked Abel.

“It’s entirely natural,” said Rima. “Sound consists of waves in the air. If one wavelength is twice as narrow as another, it is exactly an octave higher, and blends perfectly with it. The musical interval called the fifth blends pretty well also, but leaves an empty sound. The musical interval of the third fits into this gap and creates a major chord. Or a minor chord, depending on the note. It is the laws of physics, not the laws of chance, that create harmony.

“And when howler monkeys create chords that sound good, they enjoy them, so they keep doing it. Just like humans.”

“Mozart this isn’t,” said Abel, “but it sounds as good as Gregorian chants.”

“And they won’t stop until I tell them we’ve had enough,” said Rima. She gave a little whistle, which sounded like two notes at once, and the howler monkeys stopped. They started pounding the ground. The capuchin monkeys joined in with their sticks. The other monkeys shrieked and jumped around.

“Do you have this kind of feast every night?” asked Abel.

“No. They just all wanted to meet you.”

“Thank them for me.”

“I already did. Well,” said Rima, “sunset has started, and it will be night almost immediately. The monkeys are going back to their nests. We should also.”

“Our nest?”

“Up in the canopy. That’s the only safe place to be. We have to climb up. Bear but a touch of my hand…”

“Rima, that’s a quote from Peter Pan.”

“I’ve studied literature, Abel. I can quote more Márquez and Vargas Llosa than Shakespeare, but my repertoire is pretty big. Anyway, up we go.” And Rima led Abel to the treetops, this time without even bothering with spider cables.

All the clouds had cleared away. The sky had millions of times more stars than the millions that Rima and Abel could see. A meteor flashed in the sky and fell to the ground somewhere in the unknown distance. Abel could barely feel Rima's weight as she lay upon him in a bed of leaves she had woven together with plant fibers.

Chapter 11

"Busy day today," Rima said to Abel as he awoke. She was already drying her wings in the sunrise.

"Like yesterday?" Abel asked, spreading out his spider sheet.

"We aren't going to kill anyone today," Rima said. "Unless they get in the way. But they won't. I think word is starting to get around among the Destroyers. As we speak, they are examining the bodies of the men we processed yesterday."

"Processed? You mean killed," said Abel.

"No existential discussions," said Rima. "No time for that. One of the corporations is constructing a new building at the end of a road. We have to stop them."

"What kind of corporation?"

"Does it matter? We have to stop all of them. Today, we will bring their building construction to a halt. When we do, the builders will all run away."

"This I gotta see," said Abel. "How far away is it?"

"About twenty kilometers."

"That would take us a long time to walk there…oh, I bet you have some other means of travel."

"I do indeed. See those white sheets over there?" The tarantulas had been busy.

"I suppose we are going to use sails, or use them as balloons," said Abel.

"There is hardly ever any wind in the tropics," said Rima. "Except during storms. No, we are going to use the Ecuadorean version of a flying carpet."

And that is exactly what happened. Rima and Abel both had their own spider silk carpets. Macaws held onto the edges with their claws and flapped their wings. At first nothing seemed to happen. Then the carpets rose and flew through the air toward a destination that Rima knew and had told the others about through the interweb, but Abel did not.

The first thing that the construction workers knew of the trouble that awaited them was when one of them drank a cup of coffee and fell over dead. Then another. Then another. Finally someone thought to look inside the coffeepots. A salamander, with enough poison in its skin to kill a hundred men, had crawled into each pot.

"I thought you said we weren't killing anybody today," said Abel.

"Not my fault they drank coffee without looking in the percolator," said Rima.

Once the workmen realized that every coffee pot had a salamander in it, they were frozen in fear and did not move. They dropped their trowels and hods when they heard the monkeys howling and drumming. When they saw the flying carpets coming, the workers scrambled down to the ground, to their vehicles, and sped away, churning up red mud.

"Sit back and watch the fun," said Rima, handing Abel a Brazil-nut cup of palm heart wine.

The monkeys were highly intelligent and very versatile. They were ambidextrous, since they did not have language and their brains had not been lateralized into left-right specialization. They quickly figured out how to unscrew the vertical adjustments on the rods that held up the concrete patios before the columns were put in. The patios collapsed. The workers had mixed up wet concrete, and left the concrete mixer running. The monkeys grabbed handfuls of wet concrete and stuffed it into metal pipes that were sticking up from the unfinished floor. They figured out how to disconnect the concrete tub from the cable that held it to the gigantic crane. The tub fell on the concrete floor of the unfinished upper story and broke it into fragments. Then the monkeys figured out how to disconnect the counterweights of the crane, which fell noisily onto the building, crushing the top two stories. Unstable without its counterweights, the crane fell over also. Monkeys hurled pipes from a pile into the air. The bulldozers and other construction equipment would never be used again, because the monkeys opened the fuel lines and stuffed in mud and feces. They figured out how to start the dozers, and the fuel pump circulated the impurities throughout the doomed engines. The monkeys seemed to be really enjoying themselves.

Still, the walls of the building did not fall, until a bunch of tapirs arrived and started pawing away at the foundations. When the rain started, the water undermined the walls and they all fell down while the howler monkeys made a creditable imitation of Joshua's trumpet.

All the while, Abel watched a sloth slowly descend from the branches and onto the ground. It was a three-toed sloth, each toe with a big claw. The claws allowed it to hang from branches, not to fight. The sloth could barely move over the mud, right up to the building. Then it slowly climbed up one of the pipes and positioned itself on the second floor. Then it took a really big dump. As it climbed back down, Abel saw patches of green algae and moss that grew in the fur which the sloth was too lazy to scrape away.

"That's life for a sloth," Rima said to Abel. "Eat leaves all day every day, and, about once a week, slide down to take a dump."

The animals had another big feast, after lighting the pile of wood into a bonfire.

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The next day, Rima and her army decided to destroy a cattle ranch. To do this, it would be necessary to kill all the cattle.

"But the cattle didn't do anything wrong," said Abel.

"They were going to get made into hamburgers anyway," said Rima. "The only way to save the other cattle, on other ranches—of which there are hundreds—is for this ranch to become unprofitable."

When they got to the cattle ranch, Rima and Abel saw that all of the trees had been cut down, and the rainforest had been replaced with tall coarse grass. Despite the ground cover, the

red soil was bleeding away. Abel then noticed that Rima seemed to be in a sort of trance. He then noticed that the cattle all seemed to be looking at her. Then they began to walk toward the water and wade into the river. Suddenly, as if on cue, the water began to roil around each cow. The cows fell on their knees and went under. Red waves of blood spread all around them, churned into a froth of serum proteins. Abel recognized that it was an attack of piranhas. Despite their reputation, piranhas do not normally attack wading animals, since the piranhas do not usually form schools large enough to do so. Unless Rima calls them together and gives them the signal. The cowboys came running down and saw the end of the story. The absentee owner found out about it later when the bank called him and told him he was in foreclosure.

Rima and associates did the same things day after day, more roads, more buildings, more cattle ranches. Finally there was a chance to do something new. Thousands of poor men clambered in the mud of a gold mine, open to the sun, wind, and rain. The only way they could get in or out of the open pit was by wooden stairs. Rima's termites removed every means of exit for the poor men, who were entombed in the mud after being drowned by a huge rainstorm. Had they been working for a mining company, the company might have tried to rescue them, but they were all on their own, and nobody even knew how many men were down in the mud.

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"This is totally amazing, Rima. I want to understand what you are doing and how you do it."

"I don't completely understand it myself, Abel. I just do these things. There are lots of things we do, without understanding how. Even you, Abel. You eat food, and somehow its molecules provide both energy for your body to operate and atoms from which your body builds itself. Science now explains these things, but you are not aware of them when they happen in your body. Your mitochondria form an ecstatic network of activity, hundreds of them in each of your seventy trillion cells, but are you aware of it? Your nerve cells all communicate, science has explained how they work, but you are not aware of how they do this while it is happening. In the days before science, people ate, pooped, walked, grew, thought, spoke, all without knowing what was happening inside their bodies. They thought it was a spirit inside their bodies, which survived past death in the form of ghosts.

"So it is that the animals communicate with me, and with one another, through vast networks, which none of us understand. We are each aware of only our local networks. I know that something similar must be happening in Suriname, for instance, but I cannot feel it. Whether Brazil or Paraguay have persons like myself to coordinate the fight against human destructiveness, I do not know. I can only hope that, if they exist, my counterparts in other parts of the rainforest will hear about what I am doing and take up their own battle positions. Am I part of a species of rainforest information hubs? I do not know. And not just the rainforest. There are interconnections among life forms everywhere. There are networks in temperate oak forests,

woodlands along temperate creeks, in prairies and steppes, even in deserts. We will rise up against humans, I hope. But I cannot make it happen.

"And it is not just animals, Abel. All the trees of a forest are interconnected. Their roots connect via fungi that share information, nutrients, even water. Their leaves communicate with one another through chemical compounds that diffuse through the air. I know of examples from coniferous forests in the Pacific Northwest. The trees, even of different species, help each other to grow. Their activities are coordinated through what some scientists have called "mother trees," the big old trees that have lived and loved for centuries. If you cut down the little trees, others might grow back in their place. But if you cut down the mother trees, the connections can be lost for centuries or millennia. The connections will eventually re-form, if a natural disaster severs them, but this does not happen on the time scale of just a few years, such as the disasters caused by human activities. Humans, by accelerating disasters, are breaking connections that have persisted on this planet for billions of years, and that have even persisted through periods of mass extinction, such as the one caused by the asteroid that killed the world of the dinosaurs. Even worse, the extinction at the end of the Permian Era, an extinction that was so severe that one scientist described it as 'When life nearly died.' If life had died, it would have been because the interconnections among living things died. Otherwise, something would have evolved back to replace what was lost. But today even the interconnections are dying."

"And so, Rima, we just keep doing the same things we have been doing, for the rest of our lives?"

"Yes, Abel. But no two examples are exactly alike. When animals tear down buildings, they do so in a little different way each time. I suspected that the monkeys would do something like what they did, but those salamanders! I had no idea they were going to do what they did. Crawling into coffee percolators—I was astonished at their cleverness.

"And I can only hope that the word gets out to the other networks, and that we see an uprising of Nature against Man very soon."

"Have humans always been this evil?"

"Yes and no, Abel. Humans have always destroyed Nature. But around the world, tribal peoples have had much less of an impact on the world around them than civilized people. Partly this is because they have primitive technology. But also they feel a spiritual connectedness to that world. The Native peoples of America, of Southeast Asia, of Siberia, of Africa, even a long time ago in Europe, felt a reverence for what we call the natural world, but which for them was just *the* world. To their way of thinking, *of course* the animals talked to each other. Not necessarily in words. The animals might have, if I may so describe it, *beamed* their messages to one another.

"Nature is now rising against the frenzied pace of human technology," Rima continued. "Will we succeed in stopping humans? Maybe setting them back to a more primitive state? I don't know. We have never faced a threat like this. Whether we will respond or not, or even can, I haven't a clue.

"But something big is about to happen here in the Oriente. I can feel it."

Chapter 12

The messages came to Rima through the interweb. She was ready to take action, but it turns out the animals and plants had already started to organize themselves before Rima began communicating with them.

The soil grubs and earthworms noticed it first. Several large corporations had been pumping oil from small wells along the rivers in the Oriente. They cut down whole forests and set up wastelands of oil derricks and pipes. They bought the land at low prices, but the native Achuar tribes could not insist on higher values for their land.

One of the major cities in the oil region of eastern Ecuador was Puerto Francisco de Orellana, named after the first European explorer in the western Amazon. He had seen and described large cities the Natives had built, but which later explorers could not find. They assumed Orellana had just made up fanciful stories about them. But later historians concluded that the large cities really had existed, and their inhabitants had fled into the surrounding forest when European diseases such as smallpox broke out. The diseases may have come to the cities not by direct European contact but by trade routes connecting them to the Native cities that had contact with Europeans. Thus the wave of pestilence preceded the actual European colonization. What anthropologists had assumed was a timeless state of naked innocence among the rainforest tribes might have been a recent invention on the part of city Natives who fled smallpox. Rima explained this to Abel.

"The way I heard it," said Abel, "is that the tribes in the rainforest ran around naked because they were innocent, just like Adam and Eve in the Garden of Eden."

"That's a real crock," said Rima. "Innocent people? There have never been any. When they lived in cities, the Natives wore clothes, I presume, to keep men from raping women as often as they would have had the women been naked. But once the people were out in the rainforest, clothes were a hindrance. Just a place for parasites to hide. One garment at a time, the clothes started falling off into the litter layer. They developed social behaviors that kept the women relatively safe, even when naked. Sometimes all it took was just a single plant fiber around a woman's waist to announce, keep your dirty hands off of me."

"I remember reading in *National Geographic*," said Abel. "In English. I was practicing my English. One of the articles showed a naked Amazonian woman in a hammock."

"Right. Practicing English. That's why you were reading *National Geographic*."

"The caption read, *innocent of clothes*. And then there was the South Seas travelogue that Herman Melville wrote, *Typee*. A young woman was going around the island forest with Melville. They were on a raft on a lake that needed a sail for its mast. So she took off her only garment and used it as a sail. Innocent."

"I read that, too. There was a village man with them. If Melville had done something other than glance at her, the man would have intervened. Remember these were cannibals. And the girl was only about twelve years old. Any girl older than that would have been married and not running around with a white sailor."

Rima continued. "There were whole cities in the Amazon, long before Orellana, long before Columbus, out in the rainforest. They grew crops in the poor rainforest soil. But to do so, they had to build up the soil. They threw compost on the soil, then worked the decaying matter into the soil with their clamshell hoes. They even threw broken pottery into the soil to help aerate it. The result is a type of soil, *terra preta de Indio,* that puzzled scientists who first found it. They gradually realized that it was not a natural soil but was artificially created by pre-Columbian natives. Which is why they ended up calling it dark earth of the Indians.

"The cities were all over the place. There's one right here." Rima swept her arm in the general direction of what looked to Abel like a little depression with a little hill on the other side, both swathed in trees and vines.

"Are you going to tell me what to look for?" asked Abel.

"This flat area is actually a road leading from this little hill, which was a pyramid, to another little hill, which was also a pyramid. There was a city of pyramids and wide avenues right here, until about eight hundred years ago. Then it collapsed and the jungle took over."

"Smallpox?"

"No, this was centuries before the first Europeans brought diseases. Nobody is sure what happened. But there were cities all over North and South America. Cahokia in what is now Winnemac; the Hohokams lived in what is now Arizona; the Mayas; and whole cities in what is now the Amazon rainforest. Most of them collapsed, for reasons we cannot know. A few survived on mounds of terra preta de Indio, and long enough for Orellana to see them.

"Against such humans as those, we have no war," Rima told Abel. "Nor against the scattered villages that still exist, few though they be."

The popular name for Puerto Francisco de Orellana was El Coca, named for one of the rivers in whose confluence it grew, but which might also refer to the wild orgy of cocaine, alcohol, and sex that could be found wherever the oil workers went.

Not far from El Coca was the largest deposit of oil to be found anywhere in El Oriente. Incredibly, none of the oil explorers had yet found it. It was, however, just a matter of time before they would. But the grubs and worms already knew about it. Rima knew that the Natural Network should not waste a single moment in keeping the oil corporations away from it.

"That is where we are going," Rima told Abel.

"What if there is another person like you who is already working on this problem?" asked Abel.

"Then I will join her," said Rima.

"Her?"

"I think that if there are others like me, we all came from unfertilized diploid eggs, and are identical twins, which means we are all female. Of course, I do not know about any of them, if they exist."

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By the time Rima and Abel had flown their magic carpets to the outskirts of El Coca, the spiders were already at work. There was no second Rima, and there was no mass mobilization of spiders (and the snakes had not even noticed yet), but there were lots of oil workers in the hospital, some of them recovering from spider bites and some not. It took Rima to call together the forces of nature against the oil drilling sites: spider attacks; snake attacks; tapirs digging; monkeys dismantling equipment and buildings; even—a surprise to Rima—hummingbirds attacking people like little darts. And one morning, draped over everything like a shroud, a sheet of sticky spiderweb brought all activity to a halt.

Rima and Abel sat in a tree canopy. Abel felt satisfied at a job well done, though he had not done any of it. But Rima was obviously nervous. Some of her facial tics had returned and her legs trembled a little whenever she perched on branches to which she had leaped.

"Something is bothering you," said Abel.

"You finally noticed," Rima answered. "Look down there."

"I see people, gathered around oil trucks and walking around restlessly."

"They're watching us, Abel."

"Of course, they are, Rima."

"I mean, see that man down there? He's looking right at us with binoculars."

"But, you said, he can't see us. We look like a couple of white moths."

"*Big* white moths."

"But you told me you were invisible even to motion detectors, because you created a background of chaotic leaf movements."

"He's been looking at us too directly for too long, Abel. He must see us, even if he does not know who we are. We have to find out what they know."

"How can we do that?"

Abel soon got his answer. It was not difficult. A bunch of oil workers were sitting on an open veranda watching a television monitor that night. It was the Ecuadorean national television channel, controlled by the junta that still had power in Quito and Guayaquil. A reporter, Waltero Cronkite (that couldn't have been his real name) interviewed a man—the same one Rima and Abel had seen with the binoculars.

"And so, Mr. Perkins, you claim that all of these Natural Attacks, throughout the Oriente, are coordinated."

"Yes," said Perkins. "I think nearly everyone has, by this point, admitted this is the case, ever since I wrote an article about it…"

Cronkite cut him off. “We all know that Nature is a dangerous place. Give Nature the tiniest little crevice in which to invade our lives, and it will come swarming in. But that doesn’t mean these things are coordinated. You also claim, do you not, that there is a sinister intelligence that is controlling these Natural Attacks?”

“I would say coordinating, rather than controlling. But yes, a superior intelligence.”

“And an intelligence that embodies itself within a Being that you claim to have seen.”

“Yes. I just saw her today.”

“That is quite a claim, Mr. Perkins. Do you have any confirmation?”

“I have video footage, Mr. Cronkite.”

The news show cut to the Perkins video. It was grainy and unclear, as you would expect from amateur video through a telephoto lens. But Abel and Rima recognized that it was the two of them leaping around in the branches of a tree during a moment that they had neglected to hide themselves.

“This is hardly convincing, Mr. Perkins.”

“By itself, it is not convincing, Mr. Cronkite.”

“Maybe just an undiscovered species of white monkey?”

“A white monkey that just always happens to be nearby when a Natural Attack occurs?”

“I think even the most hardened skeptics among us, Mr. Perkins, would be willing to admit a kind of Higher Intelligence in Nature. But, if that is what this is, what can we do about it? We cannot conquer the natural world unless we destroy it.”

“But, Mr. Cronkite, if the Natural Attacks are coordinated by these fluttering white Beings, then perhaps we can stop the Natural Attacks by eliminating them.”

Cronkite looked up and said, “This just in. A representative of the National Authority would like to address our audience.”

A man in a military uniform of green and red spoke from a printed script. “The National Authority has concluded that we should use all the resources at our disposal to eliminate the White Beings that may or may not be causing economic devastation to our country, which depends on revenues from lumber, gold, and especially oil. Whatever it takes. It will cost less, and be quicker, than anything else we could reasonably do. If we are wrong, we have not lost much. But if we are right, we have gained everything. We must act, even though we are very uncertain whether to believe that such Beings do or could possibly exist. The oil workers are hereby enlisted as paid members of a national militia.” A whoop of excitement arose from the workers on the veranda.

Perkins had a little smile when the camera came back to him.

*

Rima was depressed enough to be sluggish. Abel told her, “Rima, this doesn’t change anything. You just have to remain hidden. We can’t go jumping around like Alexander the Great

or Xerxes at the head of an army. Just quietly communicate with the animals. Trust them. You told me that you could trust them."

"He saw me," said Rima.

"He won't see you again," said Abel. "If he does, you will only look like a little bit of kapok fluff up in the branches."

"He knows what to look for," said Rima.

"But what can they do?" asked Abel. "As Cronkite said, they cannot conquer the natural world unless they destroy it."

Rima looked at Abel. He knew what she would have said to him.

Chapter 13

The next night, when Rima and Abel watched the television (they risked exposing themselves only under the absolute tropical darkness), there was a news report from the United States of America. It was President Donald Trump, speaking English with Spanish dubbed over it (since most Ecuadoreans could not read Spanish subtitles).

"Something is happening down there in Ecuador," Trump said. "Something really, really big. We don't know what it is, but it's huge. Really huge. All the forces of Nature—which, as we all know, are menacing—have gotten together to obliterate all economic activity in Ecuador.

"What this means to America is simply this. We need their oil. Simple as that. And the only way we can get it is by helping the fine people of Ecuador to destroy their natural world. The oil is hiding down underneath the natural world down there. I'm talking a scorched-earth policy here. We need oil. The way to get it is to eradicate the forest and stamp an oil field down on the surface after the threats of nature have been neutralized by poisons. They have a saying down there about poisons. Él mata todo. It kills everything. It does its job.

"The fine people of Ecuador also want to raise cattle. The only way to do that is to destroy the forests and to stamp down pastures in their place. The fine government of Ecuador wants to solve its urban poverty problem by sending the poor out into the rainforest to harvest timber and grow their food. Again, this can be done only by destroying the forests and stamping down farms in their place. Huge fields of soybeans. We know how to grow big soybean fields here in America. We can enable the fine people of Ecuador to do it just like we do.

"But mainly, this is about oil. Drill, baby, drill. But first, chop baby chop and spray baby spray.

"And in this we fully expect and welcome the cooperation of other nations. In particular, China has big investments down in the rainforest. They will do whatever is necessary to protect their investments. Even the Europeans should want to protect their rainforest investments. They have a big outer space launching pad in French Guyana.

"The bad things that the forces of Nature are unleashing down in Ecuador are threatening our American way of life. We will unleash all resources to combat this threat, as we have against other threats to Freedom and Dignity in the past. This means any kind of military support the fine government of Ecuador might request. We have no plans at this time to send troops, but all other resources will be made available to them.

"Also, by executive order, I am hereby terminating all scientific research into ecology—not just rainforest ecology, but American-funded ecological research anywhere in the world, including within America itself. All those scientists who want to save wetlands from development by claiming that wetlands purify our water, for example. This is a disaster for our economy. America has been a world leader in ecological research for many decades, but this has

been a national embarrassment to us. The ecological scientists claim that Nature is an interconnected web of life that needs to be understood. But we all know that Nature is nothing but resources for our economy, and other economies of the world, to use. It says so, right in Genesis, chapter one. God told Adam and Eve to conquer Nature, subdue it. God put Nature there to be conquered. The verb that is used there is the same as the verb for rape. It's time that we got serious about doing the Lord's business in the natural world of creation.

"No action from Congress will be necessary for carrying out these executive orders, since I am merely re-allocating, or temporarily suspending, funds that Congress has already voted to spend. This is also my message to activist judges.

"There are reports that the ecological destructiveness in Ecuador is under the control of a single maniacal mind, who takes the form of a fluttering, flittering white moth or something. We are investigating this possibility. What I expect is that this Moth Person, if she exists, will finally be trapped in a tree and neutralized. If this happens, however, we will not consider our work to be at an end. The sightings of this mysterious Being have all been in Ecuador, but there is no reason to suppose that this Being could not also travel to other tropical countries, or even to countries outside the tropics, or that there is only one such Being. We are gonna be watching for her in America, as well.

"Under my inspired leadership, the nation and the world will emerge victorious, you can rest assured."

*

"Rima, I have something important to ask you."

"What is it?"

"Everything you are doing with the animals is amazing. But, please tell me: What is my role in all of this? I can't talk to spiders or monkeys. I can barely keep up with you. Why have you brought me into this operation?"

"There is nothing you have to do, Abel. But I need you. I love you and have to have you with me. I need your love. That's it."

*

Reports came from all over the Ecuadorean Oriente, but also from Peru and Brazil, about alleged sightings of the Moth Woman in tall trees emerging from the rainforest canopy. In each case, the sightings turned out to be birds or monkeys. But in each case, in order to confirm the absence of a Moth Woman, the rainforest trees all around the emergent tree—usually a cecropia—had to be cut down. The branches dried quickly, even in the daily rains, and when they burned, the emergent tree was destroyed also.

There were also alleged sightings in the United States. On two occasions, motorists thought they had sighted a Moth Woman in giant sequoia trees in the mountains of California. In

one case, in Sequoia National Park, a mob of people gathered at the base of the tree. They cut brush and laid it all around the base of the tree. The park personnel who would have stopped them had all been fired by the nearly nonexistent National Park Service. When the burned sequoia tree toppled, the people discovered that the white object they saw in the upper branches was a big piece of Styrofoam that had been lodged there by strong winds. The other case was in Sequoia National Forest, in which logging was permitted, and the supervisor of the forest gave permission for a lumber company to cut down a tree they claimed had a Moth Woman in it. In Los Angeles, a man went around on a bicycle and used a chainsaw to cut down a few dozen urban trees. He claimed to have seen a Moth Woman in them, jumping from tree to tree.

There actually was a Moth Woman in Strasbourg, France. A woman dressed in filmy white clothes camped in a plane tree along the Ill River near the Rouget-de-Lisle school and would not come down, even when city officials sent fire trucks with ladders. The firemen tried to reason with her, and finally gave up. She had friends who sent food and water up to her, and lowered down little bags of her wastes. The most famous actress in France even rode a firetruck platform up to talk with her, and came back with nothing except a glowing report of the Moth Woman's idealism.

Chapter 14

And then one day Abel fell out of a tree.

Rima had always been so careful with him and made sure that his grasp was always secure. But in recent days she had begun to tremble and twitch, and act impulsively. She forgot to eat and forgot to help Abel find food. His head became light with hunger. He almost grasped the branch, but his hand slipped on the filmy bark. A last bit of spider silk rope slowed his fall. As he fell, Abel started to call out for Rima, but he realized just in time that he had to protect her secrecy. *La Lucha,* the fight, as they had begun to call it, could get along just fine without Abel, but not without Rima.

Within moments, people on the ground surrounded him, more quickly than the ants could have.

"So, the Moth Woman is actually an old man!" said one observer in Spanish. Abel's hair looked white because of the spider webs.

"You're in trouble now," said another observer. Sweat in his eyes prevented Abel from seeing anyone, until he saw the glint of an Ecuadorean soldier's machine gun.

Even when they tied him to a plank, with strong ropes of a material that Abel had almost forgotten about, plant fibers, Abel maintained silence. He knew the next few hours and days would test all his resources as a liar. He started by not saying anything that might betray the truth until he was absolutely sure of what he wanted to say.

"We have ways of making you talk," said another soldier, or maybe Abel just imagined this line from every thriller movie ever made in any language.

Abel smiled and relaxed. He knew that, maybe at the last minute, forest animals would come to his rescue. Ants with sharp mandibles would clip him free. Spiders would swarm on the soldiers and civilian observers and bite them in a single moment of pain. Monkeys would stuff shit in the soldiers' grinning mouths. Or a rhinoceros would come in and trample them. For just a moment, Abel lost his smile as he realized there were no rhinoceroses in South America. He smiled again as he went back to thinking about the monkeys. *Let them do whatever they want to me,* he thought. *I cannot tell them where Rima is, or how she does what she does, or where the animals are going to strike next. Because I really, really do not know. They can drive bamboo splints under my fingernails, but I can never tell them what I do not know.*

Then he looked straight up and saw Rima. She clung to a branch and had an anguished look on her face. She was so obvious. How could the other people not see her? Right then, a wind started blowing, which it hardly ever does in the tropics. Rima's garments started flapping. How could the groundlings not see her?

Because they didn't look up. When one of them did, he or she screamed, "There's another one!"

Quickly, Rima scrambled away, swinging on a liana to a distant tree. She was gone. But Abel knew she would be back. Everyone else knew it, too.

They left Abel where he was, tied to the plank. Curious campesinos kept walking past him, and Ecuadorean soldiers watched him. Then Abel saw what had to be an American military adviser. The adviser asked him, in a loud voice, "What is that stuff you are wearing?"

Abel decided it was safe to tell the truth. "Spiderwebs," he said.

The American spat. "What a liar! Tell us the truth!"

Abel thought of something else. "It's a top-secret fiber made out of mussel byssus-thread proteins in China," he said. He remembered learning about this strongest of proteins in one of his zoology classes.

"China?" smiled the American. "Now we are getting somewhere."

An Ecuadorean officer whispered to the American. The officer shrugged him off. "So? There have been coordinated attacks by tarantulas? That doesn't prove that he is wearing spider silk!" he shouted.

They left Abel out in the sun and rain, which washed away his wastes. He heard the sound of chainsaws all around him, but this was no different even from the time he spent at Jatún Sacha.

Each night, floodlights bathed the trees all around Abel. One of these nights, the Ecuadorean soldiers had been celebrating with local hooch, and they all fell asleep. Rima, who must have been watching from the branches overhead, let herself down on spider silk and looked at Abel. The soldiers had stripped back the spider silk, and presumably Rima could see the marks of torture they had inflicted upon him. Those were real tears he felt on his body as she hung over him. The warm salty water soothed his wounds just a little. She let herself down further. She kissed him. Or else he imagined that she did, or that she was even there. She grasped his arm, but as he was bound to a plank which was weighed down by heavy boulders, she could not lift him. When one soldier started to stir, Rima quickly lifted herself back into the canopy, past the lowest layer of leaves, which was all that the artificial lights illuminated.

One day, the American adviser said that Abel had a visitor. Annika came running up to him, crying. She did not need to ask what had happened to him. She had seen Rima just as he had at the station. Grief scrunched her beautiful face into a contorted mask. Just as the soldiers were about to lead her away, she said rapidly, "I have contacted the European Union headquarters. They are trying to negotiate with the Ecuadorean government for your extradition to Brussels. It's not going well, as the EU has no jurisdiction over you, or them. I don't mean to give you false hope, but…but that is exactly what I am doing!" She shouted these last words through her tears as she was led away. Back over her shoulder, she said, "Don't worry about the stuff you left behind."

Fortunately, the soldiers did not understand English and the adviser had left. Abel understood that anything that might have identified him as either Abel Sigüenza or Oswaldo Águilar was still hidden at the Station.

*

Some of the soldiers had built a fire near Abel. They had a little piece of tin roof to keep the rain out of it, supported on wooden struts. Abel watched the golden firelight shimmer against the metal.

As he watched, a white moth landed on the metal surface, directly over the fire. The moth began to twitch. As it flew away, it fell like a meteor into the fire with a brief sizzling sound.

*

Another couple of days went by. Abel had begun to relax a little, knowing that Rima must have left the tree overhead. Even when he saw that all the trees around the cecropia tree had been chopped down, he did not worry. The cecropia tree now stood by itself out in the sun, a ring of dried vegetation around it.

The soldiers then released Abel from his ropes and the plank, but only long enough to make him walk to the edge of the ring of dead branches. There they reattached him to his plank, and the plank to the stones, facing him toward the cecropia tree.

Abel did not worry even as he saw the soldiers setting fire to the dried branches. Clearly, anything in that tree was going to get burned up. But Rima could not possibly be there. No way would she let herself be cut off from the larger forest. She probably even told all the snakes and tarantulas and monkeys to leave.

And then he saw her. She was still in the cecropia tree, her limbs hanging from a branch in what appeared to be utter despondency. The warm air started to awaken her. She jumped up in what Abel thought was terror. She ran around from one branch to another, checking in every direction, only to find that the nearest trees were further than she could jump. Abel felt brief terror, then assured himself that she could probably jump however far she needed to.

The fire mounted up from one branch of the cecropia tree to another, like a monster climbing a ladder. Finally Rima jumped, further than Abel had ever seen her jump, fluttering like a kite. He thought he heard her say “Abel!” He felt a pang of utter despair as he saw her fall, not into living green canopy, but into the fire. Her wings were scorched, then ablaze, before she reached the ground. Just like the white moth he had seen fall from the metal roof.

For the next several days, as the fire died down, Abel decided to tell the American adviser everything he knew. He was in a serious depression and hardly knew what he was doing. The adviser’s hostility grew into hatred. Tarantulas? Snakes? Monkeys? Tapirs? The adviser finally picked up a still-smoking branch and struck Abel with it. It cracked. Abel had been released from his ropes, and bent under the blow as he sat near the American.

“We want answers, and we will get them!” he screamed as he walked away, tossing aside the branch stub.

*

The animal attacks had stopped almost immediately. No oil company employee, from the highest supervisor in an air-conditioned Humvee, to the lowest local laborer, had anything to fear. No cows wandered away. No buildings were vandalized. The army decided that Oswaldo Águilar was not a threat to anyone, and let him go. Wearing a dirty T-shirt and cargo pants, standing in what remained of the forest, he had no idea where to go or what to do. He wandered amidst the blackened branches, looking for Rima's bones and ashes. That night, he watched the open sky and saw a meteor. The next day, he hitched a ride back to Jatún Sacha. Annika had returned to Denmark, with no definite plans to come back to Ecuador, and don Ameche put Abel on the canoe to Puerto Misahuallí.

Chapter 15

"Can you see the bones?" repeated Águilar, holding the candle above the urn.

I looked inside and saw nothing except darkness where bones would be, or where I thought they would be. I looked up into Águilar's eyes. He was on the point of weeping.

"Yes," I said. "I see them."

Author's Notes on *Rima*

Rima is a retelling of W. H. Hudson's *Green Mansions* which, if you have not read it, I would recommend that you do, in order to fully understand *Rima*. Better yet, see the 1959 movie starring Audrey Hepburn and Anthony Perkins. Nobody except Lee J. Cobb could have done justice to the role of old Nuflo. Anthony Perkins was the movie heart-throb of 1959; when he starred as Norman Bates in *Psycho* the following year, he got unfairly type-cast as a creep for the rest of his life.

Green Mansions needed retelling, or at least updating, for two reasons.

First, in the tradition of H. Rider Haggard's *She*, Hudson's novel took the viewpoint that the natives (for Hudson, of South America, and for Haggard, of Africa) could not have had their own advanced civilizations. Both novels center on hidden remnants of once great white civilizations awash in a dark sea of savagery. I wanted both Rima and Abel to be proud representatives of their Andean Native ancestry.

Second, when *Green Mansions* first appeared, the rainforest was in little danger of destruction. Today, rainforests all over the world are being destroyed, along with the prosperity of the people who live there. As a scientist who has visited the Amazon, and studied the issues of rainforest destruction, this retelling was the perfect opportunity to share my experiences. Rima and Abel are scientists who, nevertheless, recognize or learn the limitations of scientific thinking.

This novel contains many elements of reality, including the interconnectedness of nature, as indicated in the following notes.

Chapter 2

Winnemac is an imaginary American state, approximately downstate Illinois, invented by Sinclair Lewis. Wangari Maathai was a real person but was not actually alive at the time this novel is set. She died in 2011. I was the one who wrote the article about God revealing Himself in the natural world in 1989. I am considerably less confident in its theology now than I was at the time. Some of the best native Andean music was performed by Los Calchakis. Their music is available from Arion Records. Ecuador has had many coups, but the coup that drove Abel into the rainforest is fictitious. Jatún Sacha is a real place.

Chapter 4

The cancellation of legal student visas actually happened in the first year of Trump's second term. The story of sexually-frustrated male fruit flies was reported in *Science* in 2012: Shohat-Ophir, G., et al. "Sexual deprivation increases ethanol intake in *Drosophila*." *Science* 335 (2012): 1,351-1,355. ABC News. "What Donald Trump has said about Mexico and vice versa." ABC News, August 21, 2016. https://abcnews.go.com/Politics/donald-trump-mexico-vice-versa/story?id=41767704. Accessed May 5, 2025.

Chapter 6

Scientists really do study tropical orchids by plucking them from trees felled by loggers, as I observed in 1989. I got the explanation about how pigs are naturally clean animals from José Lutzenberger, a former Brazilian environmental minister in the first Lula da Silva administration. The tapir bathing in the cool stream: see *The Tapir's Morning Bath* (2002) by Elizabeth Royte.

Chapter 9

There are many examples of ant-acacia mutualism. See Janzen, Dan. “Coevolution of mutualism between ants and acacias in Central America.” *Evolution*, 20 (1966): 249-275. Actually, the ant-acacia mutualism is more common in the dry tropics than in the rainforest. For rainforest research up in the canopy, see Meg Lowman’s book *Life in the Treetops: Adventures of a Woman in Field Biology* (Yale, 2000). For a story about rainforest gold mines, see the John Updike novel *Brazil*.

Chapter 10

I knew a woman who told me she could approach a wildcat and touch it. She could tell when the wildcat welcomed her and when it did not. I have no reason to doubt the woman’s truthfulness.

Chapter 11

The toxic skin secretions from salamanders: This actually happens. One example of toxic skin secretions from Pacific Northwest salamanders is “The effectiveness of antipredator secretions and behavior of selected salamanders against shrews” by Edmund D. Brodie, Jr., Robert T. Nowak and William R. Harvey. *Copeia* 2 (1979): 270-274. The reference to Joshua’s trumpet is from the sixth chapter of Joshua. There are many examples of biological networks in forests. See Suzanne Simard, *Finding the Mother Tree*. I have found extensive bacterial and fungal associations in riverside alder forests in Oklahoma. I do not know if the trees actually communicate with one another, but the elements that would allow communication are there. In deserts, some shrubs can lift water from deep into the soil for their own use near the surface. But once the water is near the surface, the shrubs cannot control where it goes, and some of the water diffuses into the shallow soil where other plants can use it. This is an example of plants doing something that benefits them directly but indirectly benefits other plants. This is a kind of living network. Plant communication through the air: E. E. Farmer and C. A. Ryan. “Interplant communication: airborne methyl jasmonate induces synthesis of proteinase inhibitors in plant leaves.” *Proceedings of the National Academy of Sciences USA* 87 (1990): 7713-7716. Permian Extinction: Benton, Michael. *When Life Nearly Died: The Greatest Mass Extinction of All Time.* Thames and Hudson, 2005. Beaming as communication: See Petru Popescu, *Amazon Beaming*.

Chapter 12

A man actually cut down municipal trees in Los Angeles in 2025. See https://www.latimes.com/california/story/2025-04-20/vandals-chainsaw-trees-downtown-l-a.

Chapter 13

French ecological activist Thomas Brail got a visit from Juliette Binoche when he was hanging from a plane tree in Paris. See his 2022 book *L’Homme qui Sauvait les Arbres.*

About the Author

Stan Rice is the internationally celebrated author of six books of popular science. He got his Ph.D. in plant ecology at the University of Illinois in 1987, and held several academic positions until he retired from Southeastern Oklahoma State University as Professor Emeritus of Biological Science. His writings are acclaimed for their insight and humor, especially the Creationist Funhouse series in the magazine Skeptical Inquirer. His science and religion blogs and his YouTube channel (StanEvolve, in which he is Charles Darwin) have collectively had two million views. You can connect to his publications, including novels and stories, at his author website https://stanleyrice.org/.



No part of this book has been produced by or with the assistance of Artificial Intelligence. Everything is based on the author's direct knowledge, insights, and experiences.