

The Field Trip

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While it was among the last to repatriate its collection to the wild, the San Francisco Zoo's conversion to total virtuality went quite smoothly. The zoos of the twentieth century, with their caged collections of animals deprived of their range and natural environment, were outlawed through a rider to the International Biodiversity Treaty of 2006. Many zoos had already made the move toward virtual collections long before, since electronic access to multimedia exhibits of animals in their natural habitats provided a better informational environment than most zoos could provide with live animals. Pioneering work in multimedia exhibits by the Indianapolis and National Zoos in the 1990's set the stage for the transition to come.

The conversions started poorly as many of the animals had a hard time adapting to the wild. "Halfway houses" were established around the world to assist in animal repatriation, and by the second decade of the century, strategies had been developed to help nearly all animals readapt to their natural surroundings.

The zoologists remained, of course, even as the San Francisco Zoo became a presence on the Net: <http://www.SFZoo.edu>. Scholarship involved more field work. The presence of zoos on the Net meant that visitors could examine any virtual zoo with equal ease. Competition for visitors was based on the variety and accuracy of each collection.

Claudia stood among her classmates, her palms sweating, as she described the proposal for her senior project. She explained that her love of animals drew her to suggest a field trip into the jungles of Costa Rica. The last accurate count of the endangered mono tití squirrel monkey had been made thirty years before, in the 1990's. The virtual exhibit at www.SFZoo.edu was outdated, and she wanted to gather the data to bring it up to date.

Her classmates asked a few questions about the project, volunteered some ideas, and, along with her mentors, gave overwhelming support to her project.

The memory of this support was jarred loose as the shuttlecraft from San José set down on the gravel landing strip in Quepos. While most parts of Costa Rica were served by more comfortable transportation devices, this area had locked into the past to preserve its pristine beauty. The Electrobus ride into town, past the area's remaining banana plantation, gave Claudia a chance to check out her field gear. Her Newton's color screen flashed on as the internal system software went through its checkout. The global positioning subsystem worked perfectly. Every note she took, every image or sound she recorded, would be stamped with the date, time, relative humidity, temperature, and latitude and longitude measured to an accuracy of 1 meter. More accurate instruments were available, of course, but her budget of \$150 limited her to this modest device.

The completion of the Global Information Infrastructure along the Pacific coast of Central America insured that her digital cellular link would keep her in contact with her classmates, teachers, and zoologists all over the world. As she checked her fanny pack, she was relieved to find several gigabyte memory cards — enough to provide local backup for her data gathering in the unlikely event that the Net went down during the rains.

The next morning, Claudia started exploring the Manuel Antonio National Park. By the time she waded across the river to the park's entrance, her boots were caked with mud. How different this was from jacking into the virtual zoos! No one got muddy moving a mouse, she thought.

She climbed up a coastal hill, past iguanas and coatimundis oblivious to her presence, until she was level with the canopy of mangroves and other dense trees so essential to the habitat of the mono tití. As the sun came up, the morning concert began. Birds of all kinds filled the air with their distinctive calls. Claudia captured a few bird calls on her Newton. Ever since the discovery that bird calls were recursive fractals, bird recognition software had become much more accurate. She had downloaded the database for the 850 birds common to Costa Rica, and smiled with satisfaction as the names and color pictures of the birds she was hearing appeared on her screen.

In a few moments, the jungle became quieter, and then she heard it — a sound somewhat like a bird call, but clearly generated by another animal. In the distance she could see tree branches bouncing up and down as something was moving from tree to tree across the canopy. Within a minute, the sounds became much louder and she could see the black tufted tails of her red-furred quarry. The area was soon filled with chattering squirrel monkeys — hundreds of them. Immediately she started recording the sounds and images of these lovely creatures. How beautiful they looked! Their faces were so delicate — much like a human baby's!

As she captured pictures of individual animals, she launched the pattern recognition scanner, dropped in one of her close-up monkey images, and left it running in the background to provide an accurate monkey count.

She could scarcely believe what she saw. In the 1990's there were only ten troops of mono titis left, with about 70 monkeys in each troop. Yet, in front of her were over 200 active animals in one troop working their way northward through the trees!

Later in the day, she talked with long-time residents of the area who explained that, many years ago, land development and roads had severely restricted the habitat of this animal. Because these animals need treetops to jump between, the creation of a single road could isolate a troop. If the isolated area was too small, the troop would die out. Once this was understood, "monkey bridges" were planted everywhere in the area, expanding the range of these animals immensely, saving them from certain extinction, and increasing the jungle for all to enjoy.

The day before she went home, Claudia sat in a seafood restaurant in the sleepy coastal town of Quepos. She uploaded her data to the SFZoo website and started working on her report for school as a steady tropical rain splattered the restaurant's tin roof. A green parrot perched near her table, waiting for the rain to clear. Suddenly, she became aware of an old Gringo looking at her from across the room. His shoulder-length hair and long beard were silver gray. His weathered face held eyes still full of life. Spindly legs emerged from his shorts, and he sported a faded T-shirt she could almost read — something about Woodstock '94, whatever that was.

"Hi," the stranger said as he came by her table. He was enchanted by the equipment she was using. "My name's Steve. What's yours?"

"Claudia," she said with hesitation.

"That's a nice rig you've got, can I see it?"

"Sure," said Claudia as she demonstrated it to the stranger. As she explained her project, a smile expanded across Steve's face and the tanned wrinkles around his eyes almost obscured his vision.

"This is what I always dreamed about," he sighed. "Placing power in the hands of kids, using computers as tools for thinking — truly liberating the minds of all learners to achieve anything they can dream!"

He grasped her arm. “Tell me, have you ever heard the phrase ‘bicycle for the mind?’ I used it once, many years ago, to describe the idea that humans are pretty slow, compared with other mammals. Yet, once they invented the bicycle, humans could outpace any animal on the planet. I saw computers acting as magnifiers for thinking for students everywhere...”

“What’s a bicycle?” Claudia interrupted, pulling her arm away.

“Never mind, you’re too young to know. Just like I was once.”

Steve’s gaze shifted into the distance as he thought back to his childhood in Cupertino, California and his dream of personal computing. How could he expect today’s youngsters to appreciate what it was like to have lived in those days — an era where computers were bound to a desktop by the twin cords of power and telecommunications lines. Now everything was wireless. Solar charged fuel cells extended battery life indefinitely, and produced pure water as a waste product. Technology was transparent. All Claudia had to do was concentrate on her research project. She probably never formatted a disk in her life.

No, Steve thought, she wouldn’t understand.

The sky cleared and Steve walked along the waterfront, pausing just long enough to watch a small lizard emerge to sun itself. He smiled again, realizing that his dreams had all come true, and suddenly he felt very old. Very old indeed.