

KID'S KORNERS

Costa Rica Expedition Faces Frogs, Fog And Knee-Deep Mud

WASHINGTON — An international scientific team has just reported on a waterlogged month of slogging along a machete-cut trail in a Costa Rican jungle, often knee-deep in mud, searching for new facts about rare plants and animals.

The 45 American, British, and Costa Rican scientists were exploring the only swath of protected tropical forest in Central America that stretches from near sea level to 9,500 feet — from steamy rain forest to cool, mossy cloud forest on the upper slopes of a dormant volcano.

From bottom to top, they conducted the first full-scale scientific exploration of the narrow, 21-mile-long stretch of land, called an "altitudinal transect," last spring. Within it live at least 30 previously unknown species of plants and animals, and more varieties of trees than grow in the United States and Canada combined.

"I saw things I'd never seen before. I climbed every tree I could," says David Good, assistant curator of the Museum of Vertebrate Zoology at the University of California, Berkeley.

Numerous Frogs, Snakes

Good and his fellow herpetologists found 93 species of reptiles and amphibians, including 42 kinds of frogs and 27 kinds of frog-eating snakes.

At 5,940 feet, Good saw a rare giant flying frog, with big webs between its fingers and toes that enable it to glide like a parachute. Only a couple had ever been found before. "We saw two more, about doubling the number of specimens," he says.

Good also found six tiny salamanders with the Latin name of *Nototriton richardi*. Only 15 or 20 of them had been seen previously. "It's not much to look at," he says,

"but it's extremely interesting in evolutionary terms."

The scientists had set out to document the natural progression of wildlife from lower to higher elevations, noting particularly at what altitude some species disappear and others arise, how they divide up resources, and how they survive.

Biologist David P. Janos of the University of Miami collected fungi at seven different elevations. "No one has ever catalogued species of fungi over an elevational transect in the tropics," he reports. He came back with 300 vials of spores. "It was more extensive collecting than I dreamed possible," he says.

The expedition, supported by the National Geographic Society, was sponsored by the Organization for Tropical Studies, a consortium of 39 universities and research institutions based at Duke University.

Permanent Protection

While the scientists were in the field, the president of Costa Rica signed a decree permanently protecting the last piece of this tropical-forest swath. It extends mountaintop Braulio Carrillo National Park down to the consortium's La Selva Biological Station.

Costa Rica has both one of the world's worst records for tropical-forest destruction — about 75 percent is gone — and one of the best records for forest protection, exceeding the international standard of 10 percent of a nation's territory.

"This exploratory mission was extremely successful in introducing scientists to this whole new altitudinal transect," says expedition leader Gary Hartshorn of the Tropical Science Center in Costa Rica. The major disap-

pointment, he says, was not sighting any large mammals such as jaguars or pumas.

The scientists identified a "life zone" between about 3,900 and 4,900 feet as the richest in numbers and mixtures of species, says the consortium's executive director, Donald E. Stone, a botanist at Duke. Future field research will concentrate on this transition zone, where the most striking changes occur among plants and animals.

The expedition into the spectacular forest of waterfalls and gorges was as strenuous as it was scientifically successful. Torrential downpours nearly every day brought twice as much rain as was normal for April. The freshly cut trail was so steep and slippery in places that the scientists had to crawl on their bellies in the mud under large trees fallen across the path.

"I don't think I've ever been dirtier," says Gary Braasch, who photographed the newly preserved section for the Nature Conservancy, one of several international organizations that helped finance the purchase of the land.

At one point, Hartshorn reports, his assistant got both feet stuck in the deep mud and had to be pulled out. At the 6,600-foot camp, the fog was so thick that one scientist couldn't find his tent one night.

David Good says he started out having to cross a river by balancing on a narrow board, carrying a heavy backpack. At the 4,950-foot camp, he slept on a platform suspended from poles, pulling moss several inches thick off the trees to make a soft bed. Before retiring, he picked salamanders out of the moss.

Despite mud and rain, "there was a tremendous sense of ex-

citement and discovery," says ecologist Beth Braker of Colorado College. She found 28 species of grasshoppers, including an iridescent green and yellow one that may represent a new genus.

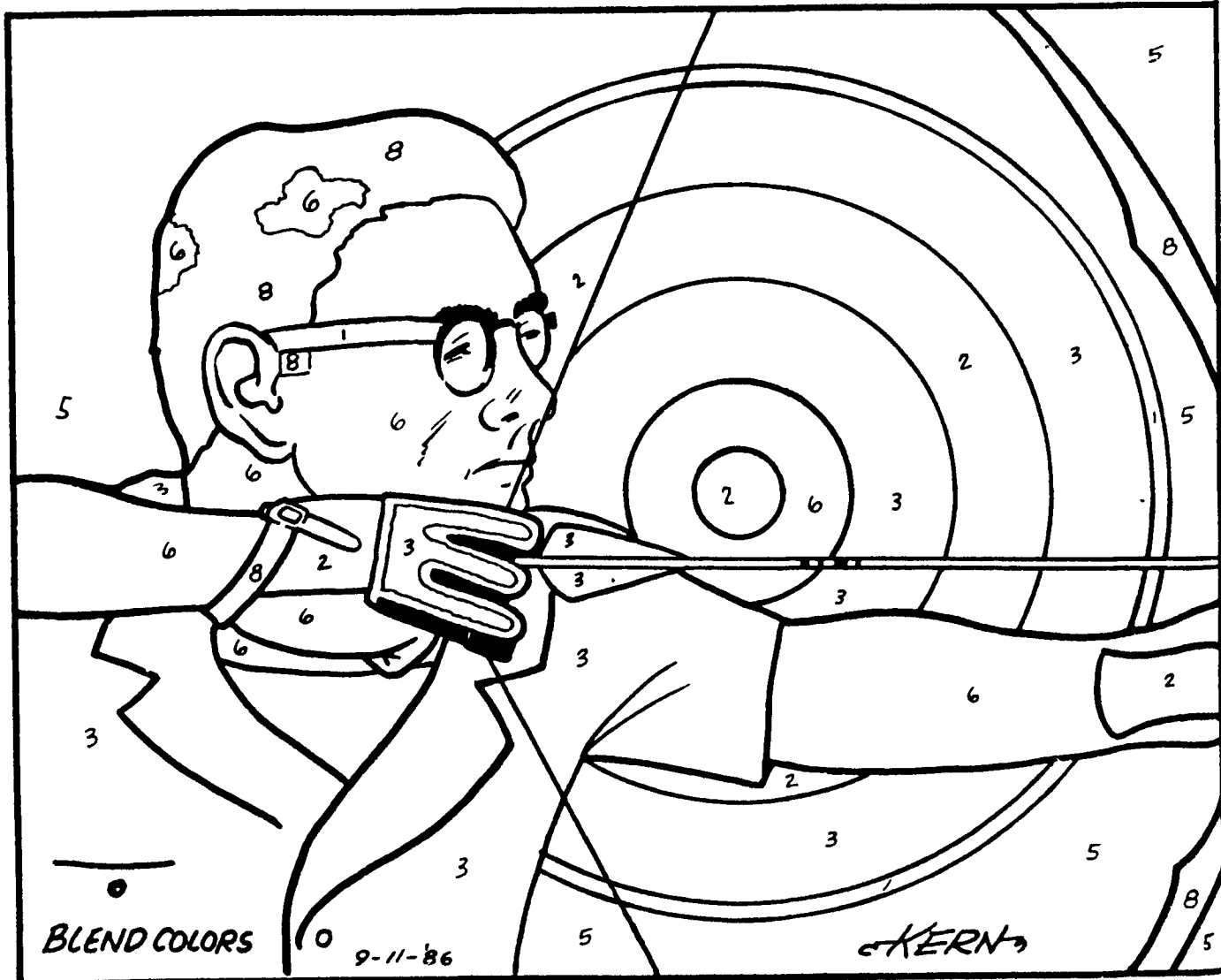


All eyes, this tree frog lives at an elevation of 2,300 feet in a newly-protected tropical forest in Costa Rica. It is among 42 species of frogs found during a scientific expedition into the region, the only permanently preserved forest in Central America that stretches from near sea level to 9,500 feet.

COLOR THIS!

- | | |
|-------------|---------------|
| 1. BLACK | 6. PEACH |
| 2. RED | 7. GREEN |
| 3. YELLOW | 8. LT. BROWN |
| 4. BLUE | 9. LT. BLUE |
| 5. LT. GREY | 10. LT. GREEN |

ARCHERY: THIS IS A SPORT OF SHOOTING WITH A BOW AND ARROW. IT IS ONE OF MAN'S OLDEST WEAPONS. PREHISTORIC MEN HUNTED WITH BOWS AND ARROWS MORE THAN 8000 YEARS AGO. TODAY THE BOW SERVES CHIEFLY AS A SPORTING WEAPON FOR TARGET SHOOTING AND HUNTING.



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