BIODIVERSITY

Unique, All-Taxa Survey in Costa Rica "Self-Destructs"

President Bill Clinton's visit this past week to Costa Rica has thrown a spotlight on this small, species-rich Central American country, which has been hailed as a model for how poorer nations can develop sustainably. Under President José Maria Figueres and his predecessor, Oscar Arias, Costa Rica has set aside almost one-fourth of its land for protected areas, and, 6 years ago, it signed a much-ballyhooed deal with the pharmaceutical giant Merck to search the country's rain forests for plants and insects containing disease-fighting chemicals.

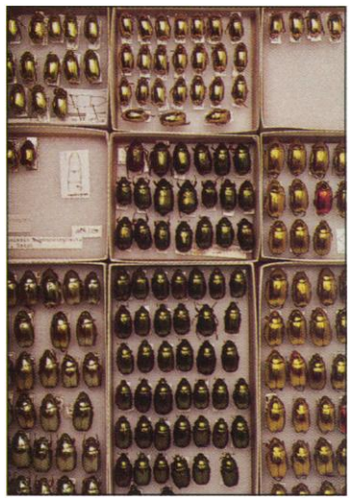
But off the front pages, many scientists are lamenting the demise of a unique, 7-year project, envisioned by University of Pennsylvania tropical ecologist Daniel Janzen and run by Costa Rica's National Institute for Biodiversity (INBio), that would have cataloged every single species in a Costa Rican conservation area. This spring, a team of taxonomists was scheduled to descend on the country's Guanacaste Conservation Area (ACG) on the northwest Pacific coast to begin the first stage of the inventory. Instead, project scientists are spending the season getting over their shock over learning that the world's first All-Taxa Biological Inventory, or ATBI, has, as one researcher puts it, "self-destructed."

According to INBio officials, the $90 million ATBI was canceled in November because it seemed to benefit science more than the Costa Rican people. "The ATBI was a beautiful scientific project," says INBio's director, Rodrigo Gamez, "but there are social and economic considerations that are more relevant than scientific ones." Other scientists close to the project say that additional factors also may have helped kill the inventory, including a grab by some INBio officials for the first $22 million raised for ATBI for INBio's overall budget.

"It was a very exciting project scientifically ... it's very disappointing," says Amy Rossman, director of the U.S. Department of Agriculture's U.S. National Fungus Collections in Beltsville, Maryland, who chaired an ATBI taxonomic working group. The project's cancellation is also a great blow to Janzen. He's "not complaining," says a taxonomist involved with ATBI, but "he must be pretty embittered that he put all that time and effort into [the ATBI only to have it] collapse around him."

Janzen, who has conducted fieldwork in the ACG since 1963, has played a key role in shaping that country's green policies. In 1989, he and plant virologist Gamez set up INBio with the mission of inventorying the country's vast wealth of species—some 5% of the world's total—and preserving it in sustainable ways. INBio has promoted eco-tourism, employed small legions of nonscientists as "parataxonomists," and acted as the Costa Rican partner in the deal with Merck, which Janzen helped broker.

Janzen first began talking about an ATBI in the early 1980s. He argued that identifying every type of organism in a landscape, whether viruses, orchids, or monkeys, would shed light on a host of scientific questions, such as how species interact in an ecosystem. It also would further efforts to "bioprospect" for new medicines in natural areas. After holding an ATBI workshop in the spring of 1993 (*Science*, 30 April 1993, p. 620), Janzen and his wife and collaborator, University of Pennsylvania ecologist Winnie Hallwachs, suggested that the first inventory be carried out in the area they had been studying—the ACG.



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Beetlemania. A few of the some 300,000 species the now-defunct survey was to catalog.

Some biologists questioned whether the flood of taxonomic data would yield as much scientific knowledge as Janzen claimed, but most endorsed the project. In 1994, the Costa Rican government signed on, too. With start-up funds from the National Science Foundation and Norway, a group of taxonomists from around the world began developing detailed protocols for the survey. Last September, at a workshop in Beltsville, the project seemed set to go: ATBI organizers announced that INBio was close to securing a total of $22 million for the project's first phase from the World Bank's Global Environmental Fund, the Netherlands, and Norway.

But on 8 November, Janzen, Gamez, and Guanacaste officials sent a curt e-mail message to ATBI working groups stating that they had decided to "permanently discontinue" the project. In the end, INBio and the ATBI didn't have "compatible agendas," says Janzen, who declines to discuss what happened in detail. Gamez says the project was focused too narrowly on amassing scientific information. Instead, he says, the country needed a program that would directly contribute to economic development by turning out "products" such as field guides, bioprospecting, and interpretive nature trails. These would bring in income for INBio and the conservation areas and provide jobs for Costa Ricans, Gamez says.

Janzen maintains that the ATBI would have yielded solid economic benefits, including jobs for curators and parataxonomists. "I will defend [that] to the death. It was planned and designed to be highly sustainable," he says. But while ACG officials strongly supported the project, he says, "enthusiasm for it in [other] Costa Rican circles was highly varied," and this mixed message impeded negotiations with donor organizations for grants.

Other scientists involved in the project suggest that some INBio officials may have let the project founder in the hope of salvaging the funds for INBio's overall budget. "Any project with a lot of money like that, people start scrabbling," says one U.S. scientist.

INBio officials emphasize that they haven't abandoned the idea of a species inventory. In fact, INBio is close to completing agreements to spend the $22 million raised for ATBI on another biodiversity program. Instead of counting all species in one area, it would inventory species in five different parks, focusing on taxa that are most relevant to practical goals such as bioprospecting, educational programs, nature tours, and biological pest control, Gamez says. Janzen, however, is not an organizer of the revised project, although he continues to contribute to INBio's national inventory from the ACG.

Nor has Janzen given up on the idea of a full-fledged ATBI. Indeed, in recent months his colleague John Pickering, an ecologist at the University of Georgia, Athens, and the U.S. National Park Service have been exploring the possibility of conducting an ATBI closer to home—in the Great Smoky Mountains National Park. And Rossman notes that the planning process of the past 2 years has yielded many tools for carrying out an ATBI, including an entire book on isolating and identifying fungi. "I hope we can do an ATBI somewhere," Rossman says. "[Maybe] right outside my window."

–Jocelyn Kaiser