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# FIAT LUX

THE MAGAZINE OF THE UNIVERSITY OF CALIFORNIA, RIVERSIDE



UCR  
Reaching  
Out



UNIVERSITY OF CALIFORNIA  
RIVERSIDE

# FIAT LUX

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A Garden in Eden (pg. 14)

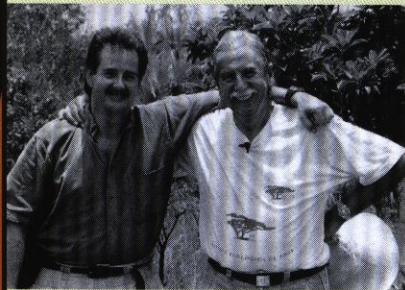
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# El Eden, a lush, secluded reserve located north of



**By JANA K. SHAKER ('91)**

I have been to Eden, and seen where the sky is born.

It's an adventure that grew from a proposal to Arturo Gómez-Pompa, founder of Reserva Ecologica El Eden and UCR Distinguished Professor of Botany, to visit, write and photograph the activities at this active research station in Mexico.

El Eden, directed by Mexican biologist Marco Lazcano-Barrero, is a haven for collaborating scientists from Mexico, the United States and elsewhere, who conduct research in

this archaeologically and ecologically rich habitat representative of the Yucatán Peninsula.

The plans grew to include radio and film producer Nancy Pearlman, who wanted to interview Gómez-Pompa for her Environmental Directions radio series. Gómez-Pompa is a catalyst for collaboration and extra work for those who have the good fortune to experience the flurry of productivity that follows him.

Pearlman and I resolved to collaborate in producing a pair of environmental documentaries—one on ecotourism and another about El Eden.

Nancy used her experience to gain support for our expedition from the Mexican Ministry of Tourism.

With the recruitment of Maryland-based camerawoman Yokasta Suero, we formed a semi-intrepid film crew of three.

The plans also included a second week on my own devoted to merging into life at El Eden.

The first week's hurried schedule, and a problem with the camera, allowed our team only one very long, hot, humid day in the field to capture El Eden on tape. Two days before our arrival the station gener-

Cancun, is a research paradise.

# Roughing it in Eden



ator failed. Since we lacked the means to recharge the camera's batteries, our film project was in danger. Fortunately, two UCR researchers at the reserve carried car batteries and inverters as part of their standard field gear.

That first week continued frantic, full and rich with tours of three Mayan ruins, Tulum, Cobá and Chichén Itzá, and stays at a luxury nature resort and a coastal retreat near Tulum. There, late one night, we watched a hawksbill turtle digging her nest on the beach.

A highlight of these excursions was

a visit to "Sian Ka'an," which translates to "the place where the sky is born." It is also the name for a 1.3-million-acre biosphere reserve, the northernmost portion of which we toured by boat, cruising narrow channels within the mangrove forests. We emerged into wide-open salt and freshwater lagoons, home to more than 250 species of birds and animals such as crocodiles and manatees.

The "Eden" I came to know better

**This chachalaca chick is the station mascot at El Eden.**

upon my return—Reserva Ecologica El Eden—is not an unspoiled garden paradise. Human influences, such as "slash and burn" agriculture, numerous archaeological sites and the effects of natural fires or events such as the 1988 Hurricane Gilberto, provide El Eden's researchers with diverse phenomena to investigate in this largely unstudied region.

Gómez-Pompa created the reserve with his own resources and additional funding from Lazcano-Barrero, family and friends, and non-governmental agencies. He also donated a large portion of the \$75,000 he received in sharing the 1994 Tyler Prize, the world's premier award for conservation. The money helped to build the reserve's comfortable but often insufficient structures: a station building, two bungalows and some minimal staff housing. A dilapidated "tent-city" fills the gap when El Eden's beds and cots are full. World Wildlife Fund donated a modest laboratory.

Lazcano-Barrero directs the operations of the reserve without a salary. He pays his bills, and many of the reserve's, through work as a consultant. He also makes an occasional Discovery Channel appearance, a result of his expertise on crocodiles.

Lazcano-Barrero's varied tasks

include hosting visitors and chauffeuring them to and from the reserve, a jostling ride not for the faint of heart.

El Eden's team of anthropologists, archaeologists, botanists and ecologists are pursuing research to improve the state of the environment and the lives of the residents of the Yucatán and beyond.

Dr. Ana Luisa Anaya, of the National Autonomous University of Mexico, is at El Eden to search for new biocides and pharmaceuticals. Her research, funded by the U.S. Department of Agriculture, is based on the knowledge and practices of the Maya who prospered for centuries throughout the Yucatán. These people relied on and manipulated the native flora to attract animals and to provide fuel, food and medicines.

Dr. Anaya's research has already revealed an extremely active fungicide produced by the che-chém tree, which is common in the region. This natural plant biocide appears to be at least as potent as synthetic fungicides in use today.

Gómez-Pompa and UCR plant ecologist Edith Allen and her husband, Dr. Michael Allen, from San Diego State University, are working to determine how to best reforest following fires. Fires are increasingly frequent in

the Yucatán as populations expand. Although lightning causes some of those, most are human-caused escapee fires from shifting agriculture. These fires occur more frequently than the

time it takes for the Peninsula's dry tropical forests to grow to a stage at which they might survive. Native vegetation has not adapted to endure such frequent fires.

The project, supported by the National Science Foundation's Conservation and Restoration Biology program, seeks to determine what treatments and species hasten the natural processes of reforestation. The study focuses on beneficial soil microflora—minute soil plants—many of which are reduced or lost after fire or severe disturbance.

The experiments include inoculation with mycorrhizal fungi. These fungi exist in partnership with the roots or other structures of a plant and can greatly enhance tropical tree growth. Local "campesinos" or farmers helped researchers determine the best methods to achieve restoration. Yucatán soil is rich but limited, interspersed in pockets amidst the rocky limestone terrain. Plants will survive only if placed between the rocks where the roots can seek the groundwater. The campesinos, who possess an innate ability for finding these "fosetas" or planting holes, assisted the restoration team in locating and digging.

Gómez-Pompa has links to a vast scientific network. His knack for



**Mexican biologist Marco Lazcano-Barrero (left) directs the operations of Reserva Ecologica El Eden, founded by UCR Distinguished Professor of Botany Arturo Gómez-Pompa**



formulating questions that illuminate connections and encourage appropriate scientists to pursue the answers has enabled him to quickly assemble this team. He hopes to do more for conservation by seeking partners who can help El Eden acquire and protect additional land, improve facilities and communication systems, and support student fellowships. The acquisition of solar energy at the reserve is a fundamental step toward Gómez-Pompa and Lazcano-Barrero's auspicious goal of enhancing El Eden's promise as a haven for researchers.

Bethany A. Morrison, a UCR archaeology Ph.D. student stationed at El Eden, has high praise for the reserve. Not only does it possess a rich archaeological record, she said, it has also given her access to a covey of scientists whose work

enlightens hers at every turn.

"Most archaeologists have to work in a vacuum," said Morrison. "They (visit their site), do their thing and then they go home...We're in a really neat situation here in that I'm not just learning about the archaeology. Every day somebody walks in with a new plant or a new animal or something, some new piece of information about the environment."

The work of Gómez-Pompa's students is also crucial to illuminating the information being assembled by the reserve's team. Gillian Schultz, a UCR Ph.D. student, is assessing the dominant vegetation at the reserve. He correlates the data with aerial photos and satellite images to compare and make extrapolations about the vegeta-

tion in the Yucatán and how it has changed over time. NSF-funded UCR botany major Jeff Ross is looking at what is in the ground and how the seed bank correlates to what is growing above.

These and other El Eden researchers have helped Morrison learn a lot about how the Maya may have lived. It gives her a greatly increased sense of what their universe was probably like.

The scientists and students working at El Eden, like researchers around the world, enjoy the delight of pursuing scientific questions. What makes El Eden special is that the team's work reflects the scientific goals and mission of the reserve—conservation and sustainable resource management.

The leadership of Lazcano-Barrero and Gómez-Pompa heightens this shared sense of high standards. The place — the demands of working in the heat and humidity of the Yucatán — is itself a strong force in making a community of these enthusiastic researchers as they uncover the discoveries of eden. ■