

A Highland in Peru

The sheer joy and adventure of scientific discovery pervade this first-person account of Dr. Thomas Mione's botanical field work in a lush, green environment known as the Lomas.

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The west coast of South America from Ecuador through Peru and into Chile is desert, but there is the occasional mountain high enough to be bathed in fog. On the mountains that poke into the fog, there are widely separated oases of green surrounded by extremely arid desert below. This special habitat atop the mountains is called the Lomas.

I did not fully grasp the idea of these green oases, or Lomas formations, until I saw one. The fog comes off the ocean. The plants intercept the fog, and water drips down sufficiently to water the plants. At a conference a few years ago, I saw a presentation about the Lomas habitat, given by one of my colleagues. He is trying to identify every single species of the Lomas habitat throughout South America, and he studies the biogeography of the species of this habitat. So I had a special interest in going to the Lomas habitat to see whether a species of the genus I study really grows there, and if so, which one?

In 1938, botanists H.E. Stork, O.B. Horton and C. Vargas C. made pressed museum specimens of a plant that grew on the side of a small mountain named Cerro Las Lomas, or Mongon Mountain, which is located in Peru near the ocean in the department of Ancash, province of Casma. Their pressed specimens were deposited at a museum in Geneva, Switzerland, and in other museums. I was going through the Geneva specimens, which had been loaned to me, when I noticed one specimen that appeared to represent a species different from all the others with which I had worked. This specimen, I said to myself, could have erroneous locality data on it, because that single specimen looked like no other species that grew in that habitat. On the other hand, I knew that it is very rare for a botanical museum specimen to be labeled incorrectly.

I knew I had to go to the high, green Lomas habitat of Peru.

Picture this: dry, open, sandy desert everywhere all around, and from this vast flatland rises Mongon Mountain, flaunting its lush, green Lomas vegetation, the only green in an otherwise brown landscape. The mountain seemed on the map to be 4 kilometers away, so, in imperfect Spanish, I said to my Peruvian colleague, Professor Segundo Leiva G., "Let's go by foot from here and then climb."

Segundo smiled. He filled small bottles with alcohol and pocketed them. Obviously, he was confident we not only would reach the Lomas vegetation atop the mountain but would also find my plant. We filled up large water bottles at lunch at an isolated highway rest stop, and then my friend Leon Yacher, a professor of Geography at Southern Connecticut State University, dropped off Segundo and me along an uninhabited stretch of the Pan-American Highway.

We were in high spirits. I wore my sweatshirt with the

hood up as protection from the blow-torch sun. As we hiked across the desert toward the mountain, the little red pick-up truck in which we had arrived got smaller and smaller in the distance behind us. We were surrounded by beautiful crescent dunes. The sun was an inferno. A gringo had to be very careful in taking a drink, for to drop the water bottle would mean just one thing: Turn around now.

To Segundo the hike was nothing, but I was in a dream. Down a dune, over a dune, up to a dune, I was perspiring away all of the water I was drinking.

As we got closer to Mongon Mountain, we could feel the air changing, with the smell of the Pacific Ocean. The huge, curving sand dunes shimmered. Reaching the base of the 1,144-meter-high mountain, we had to pick a pass. Segundo chose a steep passage that allowed us to go right up the slope. We encountered red flowering cacti and the beginning of the Lomas vegetation. Here if one were a klutz, it would have been all over, as the mountain was steep. Below me, I could see no sign of civilization, but I now could see the Pacific.

Reaching the green zone of Lomas vegetation was like entering a primeval garden. There were no human trails and no livestock, so the vegetation was pristine. The green zone was a kind of Alpine garden because there were flowers everywhere among the rocks. Tens of thousands of blue and yellow flowers. I have never seen so

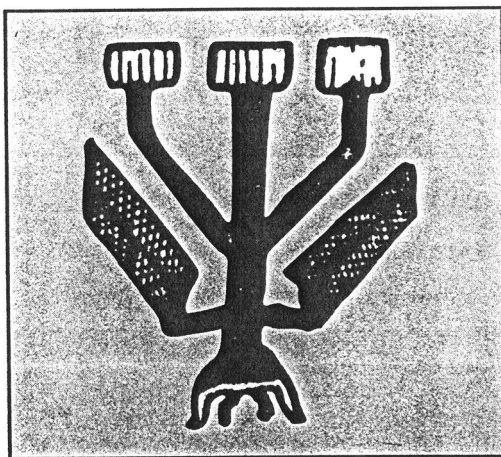
many flowers in natural conditions.

Segundo made it up the mountain ahead of me and found our quarry growing in the protection of a few rocks, growing with *Puya ferruginea*, *Crassula connata* and *Nolana*. The label data on the specimen species collected in 1938 were not wrong! I found another shrub of the same species. These were the only plants we found, even though we searched for about an hour. Perhaps there are more plants of this species on another side of the mountain.

When I first saw the *Jaltomata* shrub, I sat down and laughed a hearty laugh of joy. It indeed was a new-to-science species, unlike any other. Eventually, Segundo, Leon and I collected four unnamed species of *Jaltomata* in 10 days. We collected material for making museum specimens and extracting DNA, took photos, and placed flowers in alcohol for morphological studies.

On that first day of discovery, Segundo and I walked back across the desert, with shoes full of sand no matter how often we emptied them. When we looked back, the green zone was enshrouded in fog.

At last, as the sun dipped low in the sky, we made it back to our trustworthy companion Leon at the truck. This was a day I will never forget. I cannot thank the National Geographic Society enough for its complete support of my studies in Peru.



A traditional design of the Peruvian coast.

Dr. Thomas Mione, an associate professor of Biological Sciences, recently returned from Peru.
