ACROSS THE COUNTRY

In California, Where Trees Are King, One Hardy Pine Has Survived for 4,800 Years

In a harsh alpine desert, the Great Basin bristlecone pines abide amid climate change. Among them is the oldest tree on Earth (if you can find it).

Great Basin bristlecone pine trees endure in harsh conditions that other vegetation cannot withstand.

WHY WE'RE HERE

We're exploring how America defines itself one place at a time. Californians love their trees. And in this central part of the state, a set of stark, twisting pines has been standing for eons.

By Soumya Karlamangla Photographs by Adam Perez

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BISHOP, Calif. — Before the Egyptians built the Pyramids, before Jesus was born, before the Roman Empire formed or collapsed, the trees were here.

Ten thousand feet up in the White Mountains of central California, in a harsh alpine desert where little else survives, groves of gnarled, majestic Great Basin bristlecone pines endure, some for nearly 5,000 years. Their multicolor trunks bend at gravity-defying angles, and their bare branches jut toward the sky, as if plucked from the imaginations of Tim Burton or J.K. Rowling.

These ancient organisms, generally considered the oldest trees on Earth, seem to have escaped the stringent laws of nature.

"Bristlecones are kind of magical that way," said Constance Millar, an ecologist who for more than three decades has been studying the pines, which grow only in California, Nevada and Utah. Wandering the Ancient Bristlecone Pine Forest in Inyo County, where these conifers have eked out an existence for millenniums, she said, "gives you that sense of infinity."

Deep in the Inyo National Forest, along a desolate path accessible only to hikers, the twisted trees cling to a rocky slope.

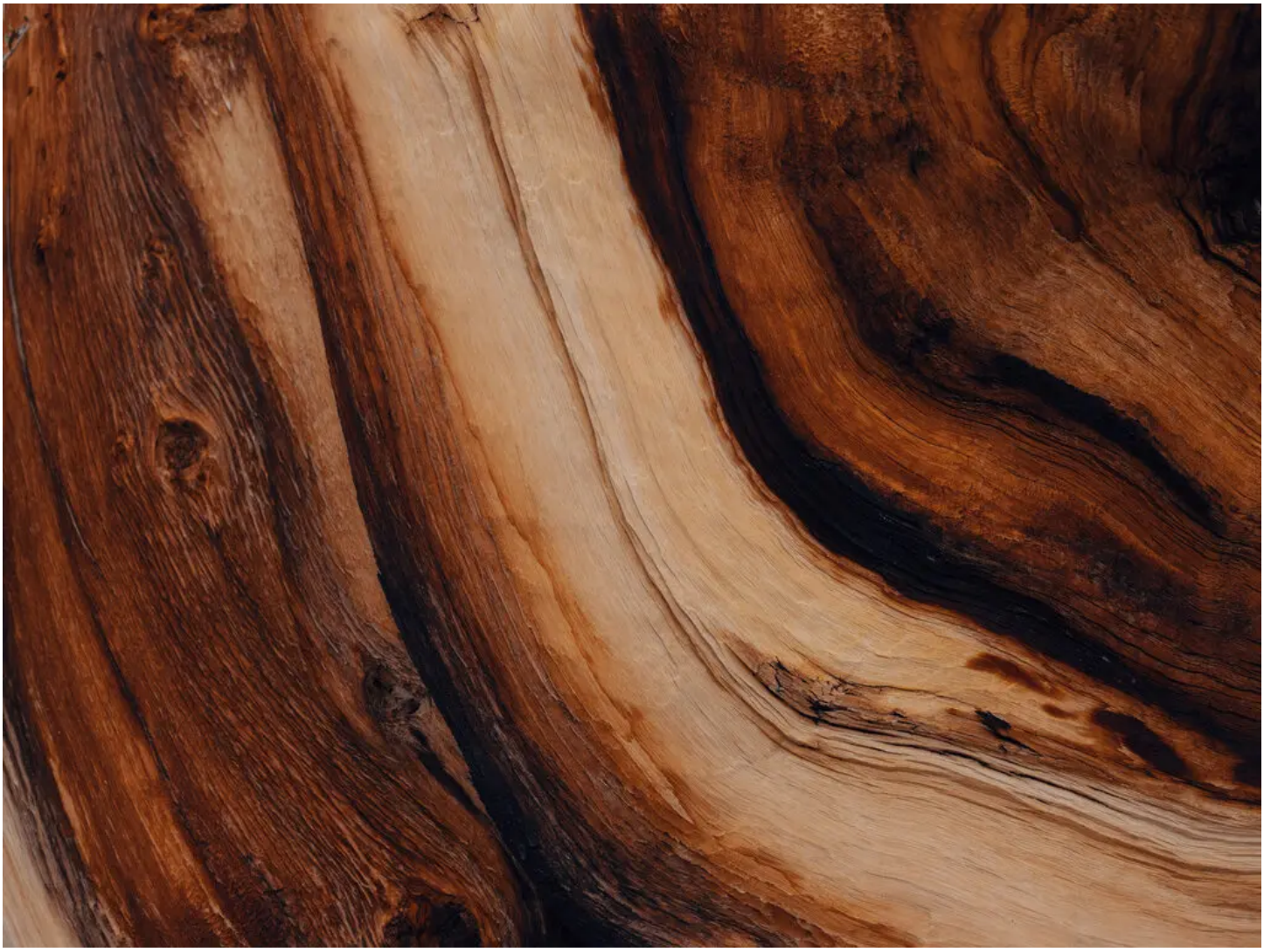
In 1953, Edmund Schulman, a climate researcher at the University of Arizona, traveled to the Inyo National Forest after hearing that ancient trees might be there.

I recently drove to Bishop, an outpost in the arid Owens Valley that once served as a backdrop for Westerns (and still could), to visit the hallowed forest nestled in the nearby mountains. My trek felt like something of a pilgrimage, as we Californians revere our trees above almost all else.

The Golden State is home to the tallest, largest and oldest trees in the world, what one botany enthusiast called the "tree-fecta." Hyperion, a 379-foot coastal redwood, stands taller than the Statue of Liberty. General Sherman, the biggest tree on the planet by volume, wows visitors to Sequoia National Park. And here, Methuselah, the king of the hardy bristlecone pines, is believed to have sprouted 4,855 years ago.

These trees, however, face a number of challenges that stem primarily from a changing climate. Severe drought in the West is fueling megafires that have destroyed giant sequoias and redwoods, once thought to be largely fire-resistant. And Dr. Millar recently published research revealing that bark beetles, exploding in population amid warmer temperatures, are, for the first time, killing Great Basin bristlecones.

Great Basin bristlecone pines are known for their extraordinarily slow growth, expanding as little as one inch every 100 years.



The pines' multicolor trunks bend at gravity-defying angles.

Still, Dr. Millar said she was hopeful about the bristlecones' survival chances. Bark beetles don't appear to be harming the bristlecones in the Inyo National Forest, and the insects are native predators, so less threatening than imported pests the trees have not evolved to withstand, she said. Plus, studying the trees' resilience through eons seems to have granted her some serenity about what the future may hold.

"I don't have that despair," she said. "I see this dream of life through time."

Deep in the Inyo National Forest, along a desolate path accessible only to hikers, twisted trees cling to a rocky slope. This is the Methuselah Grove, where several bristlecones have been confirmed to be over 4,000 years old. Which among them is actually Methuselah is kept secret by the U.S. Forest Service to protect the ancient specimen from vandalism, though visitors try their best to guess.

A father and son recently stopped to admire one of the larger bristlecones, with especially long and tangled roots. "This has to be it," the father declared, scanning the grove for other obvious contenders.

Dr. Millar is among the anointed few, mostly researchers and Forest Service employees, who have been entrusted with Methuselah's exact location. The tree "is not particularly remarkable looking," she said. Others in the know confirmed it is neither the biggest nor the most beautiful. They all pointed out that only select trees have been dated, so it is possible there are even older ones throughout the forest.

Reaching this lonely, tree-studded mountainside involves a half-day drive north from Los Angeles and a final hour snaking through canyons and climbing thousands of feet.

Great Basin bristlecone pines live only in California, Nevada and Utah.

Jamie Seguerra, a forest ranger, said visitors ask her a few dozen times a day to disclose Methuselah's location. (Her lips remain sealed.) But most appreciate the effort to keep the tree healthy and safe, she said. Reaching this lonely, tree-studded mountainside involves a half-day drive north from Los Angeles, and a final hour snaking through canyons and climbing thousands of feet until the air becomes noticeably thin.

"The people who come here don't usually stumble upon it," Ms. Seguerra said, her voice amplified in the quiet of the remote forest. "The majority of people are like, 'I've always wanted to come here and this has been my dream.'"

For decades, giant sequoias were believed to be the world's oldest trees, their size evidence of how long they had been growing. But in 1953, Edmund Schulman, a climate researcher at the University of Arizona, traveled to the Inyo National Forest after hearing that perhaps even more ancient trees were hiding there in plain sight.

"Often such rumors had turned out to be unfounded. But not this one!" he wrote in National Geographic in 1958.

Dr. Schulman, who had been searching for old trees to understand past droughts, became the first person to find specimens older than 4,000 years, including Methuselah. Scientists determine a tree's age by extracting a cylindrical sample from its trunk so its rings can be counted. The thickness of those rings, each of which represents a year of the tree's life, can also reveal information about a region's annual precipitation levels, temperatures and even volcanic eruptions.

In the grove, the exact location of Methuselah, the oldest tree, is known only by a limited group of mostly forestry researchers and employees.

A single-leaf pinyon pine in the Inyo National Forest.

It’s not entirely clear why bristlecones live so long, but one key seems to be that the trees’ sluggish growth, expanding as little as one inch every 100 years, makes their wood especially dense and confers extra protection against bugs and rot. Also, the air in the Inyo National Forest is so dry, the climate so cold and the rocky dolomite soil — the color of which lends its name to the White Mountains — so unfriendly that the pines have little competition from other plants, creatures or pests. (Researchers in Chile recently revealed that they may have discovered an even older tree, though its age has yet to be officially verified.)

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The bristlecones have persisted through and witnessed so much that they are essentially living fossils. Studying these ancient trees' rings has allowed scientists to improve the accuracy of radiocarbon dating and to create records of the Earth's climate going back 11,000 years, essential for understanding the impacts of global warming.

The trees have persisted through and witnessed so much that they are essentially living fossils.

The trees, according to the ecologist Constance Millar, give you a “sense of infinity.”

Mary Matlick, another forest ranger, wearing a baseball cap over her white ponytail, pointed to a steep slope near the visitor center on which was perched a 2,800-year-old bristlecone, with smooth, spire-like branches shooting out of its green top.

The tree let some of its limbs die to conserve energy, another one of the species’ survival strategies. It can continue to live and reproduce with just one strip of bark and one branch of needles, she explained. And because of the dry weather, the dead branches don’t rot but instead can stay attached for thousands more years, giving the trees their classic ghostly appearance.

“When people ask ‘Is it alive or dead?,’ sometimes I say ‘yes,’” Ms. Matlick said.

A correction was made on Oct. 11, 2022*: An earlier version of a picture caption with this article misidentified the species of tree shown. It was a single-leaf pinyon pine, not a bristlecone pine.*

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