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Old trees have much to teach us

An expansive global history explores humanity's vexed relationship with venerable plants.

[Josie Glausiusz](#)



Baobabs are the longest-lived trees in Africa. Credit: Bernard Castelein/Nature Picture Library

Elderflora: A Modern History of Ancient Trees *Jared Farmer* Basic (2022)

region. In 1960, palaeobotanists identified the megafossils as members of *Metasequoia occidentalis*, an extinct redwood species. They had been buried in silt, then frozen, their wood preserved.

The lead palaeontologist “celebrated his eureka by kindling a fire with 45-million-year-old twigs and boiling water for tea time,” writes historian Jared Farmer in *Elderflora*, his expansive global history of grand and venerable trees. Granted, these plants had been dead since the Eocene epoch. Nevertheless, as the author describes, the incident is part of a troubling pattern in which scientists rejoice at their discovery of the ‘oldest’ tree of their time – and then destroy it.

In 1957, for example, Edmund Schulman at the University of Arizona in Tucson spent the summer seeking ancient bristlecone pines in California’s White Mountains. He found three more than 4,000 years old, and named them Alpha, Beta and Gamma. Then, in the interests of tree-ring science, he chose to “sacrifice” Alpha, taking snapshots as his nephew and a colleague sawed it down. When the University of Arizona issued a press release titled ‘UA Finds Oldest Living Thing’, Farmer writes, “they say nothing about the thing being dead”.

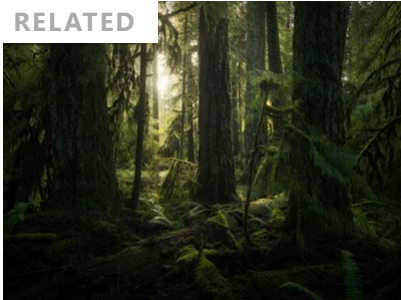
Schulman’s aim was dendroclimatology – the reconstruction of climates using tree-ring data. That lofty motive cannot be ascribed to those who, in 1881, bored a tunnel into the 2,000-year-old Wawona tree in Yosemite National Park, allowing tourists to drive their cars through the 71.3-metre-high giant sequoia (*Sequoiadendron giganteum*), since toppled.

Arboreal legends

As *Elderflora* shows, big, old trees are objects of veneration and vandalism, appearing “in the oldest surviving mythologies and the earliest extant texts”. They were associated with gods and heroes, prophets and gurus: they had pivotal roles in the Mesopotamian

created forests with abandon. Research shows that, for 8,000 years after the glaciers of the last ice age retreated, forests in the Midwestern United States doubled in biomass ([A. M. Raiho et al. *Science* 376, 1491–1495; 2022](#)). Just 150 years of industrial logging and agriculture erased this carbon accumulation.

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“Imperial conquests and industrial revolutions relied on timber,” Farmer writes. “Wood-stock long guns for capturing lands and peoples; naval vessels with mighty masts for transporting the enslaved and the harvests of their labor.” In New Zealand, European settlers decimated the majestic kauri trees, which can live for up to 2,000 years and that once covered 1.2 million hectares of land.

The trees’ 50-metre-trunks became ships’ masts; their resin was made into varnish and linoleum.

Like pines, firs, spruces, cedars, cypresses and redwoods, kauri (*Agathis australis*) is a gymnosperm. These flowerless plants with naked seeds tend to grow slower and live longer than angiosperms, flowering plants that bear fruit. About 25 plant species – most of them conifers – can live for more than a millennium without human assistance, surviving in restricted, vulnerable habitats.

Farmer also offers a global survey of ancient trees that have been protected and exalted. They include olive trees of the Levant (*Olea europaea*); research published this year shows that these were domesticated about 7,000 years ago for their fruit and oil ([D. Langgut and Y. Garfinkel *Sci. Rep.* 12, 7463; 2022](#)). In Africa, the baobab (*Adansonia* sp.) is both the longest-lived tree and the largest, offering shade and shelter, foods, medicines and textiles. Enslaved Africans planted baobabs in the Caribbean; some survive still. *Ginkgo biloba*, a species that dates back 390,000 years, survived only in China, whence it was spread around the world in the past millennium. A grove of ginkgo trees survived

The planet's current tree cover, Farmer writes, includes 3 trillion large plants covering about 30% of all land. It is, in fact, expanding. But the new cover consists mostly of shelter belts (trees planted to protect crops or animals), temperate-zone timber crops and tropical plantations of eucalyptus and palm oil. A shrinking proportion of tree cover is made up of species-rich old-growth communities.

Epic loss

“What would humans and nonhumans stand to lose if these survivors all died prematurely? A world of things,” Farmer writes. “Old trees sustain forest communities” with their seeds and litter. Other plants grow on them, and animals live in them. Their roots share nutrients with other organisms via underground fungi. Groups of “Old Ones” are carbon sinks. Large-scale monocultures are shorter-lived and take less greenhouse gas out of circulation.

But even bygone trees of the once-tropical Arctic might offer lessons for a warming world. Palaeobotanist Hope Jahren, in her 2016 memoir *Lab Girl*, describes how she spent three summers on Axel Heiberg Island, digging “through a hundred vertical feet of time”. Fir, cypress, larch, redwood, spruce, pine and hemlock trees populated this lush conifer forest, with an understory of angiosperms: maple, alder, birch, hickory, chestnut, beech, ash, holly, walnut, sweetgum, sycamore, oak, willow and elm. These plants thrived even through three months of winter darkness and three of constant summer light.

“Here stood one of the great forests of all time,” Farmer writes. Today, as the Arctic warms nearly four times as fast as any other place on Earth, the genomes of species related to the trees of this mummified forest might be adaptable enough for the trees to flourish in a rewarmed planet, he says. Old trees have much to teach us: we would be wise to listen.