

Preserving the pillars of nature: The ecological and cultural significance of ancient trees and old forests

Minh-Phuong Thi Duong

Faculty of Social Sciences and Humanities, Ton Duc Thang University, Ho Chi Minh City,
Vietnam

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“A century-old myrtle tree stands tall and proud in an alley that appears almost deserted. At the end of the alley nestles a small lovely house, besides which tucks a mulberry tree.”

–In “Dream”; [The Kingfisher Story Collection](#) (2022)

[SCIENCE COMMUNICATION]

The multifaceted importance of old forests and large ancient trees is evident in both their ecological and cultural significance [1]. A recent article underscores the urgency of preserving ancient and rare trees due to their crucial role in forest ecosystems [2]. By providing a global perspective on tree biodiversity and analyzing the age distribution and biodiversity of tree species worldwide, the article highlights the critical need to protect these trees to prevent species extinction and foster biodiversity. Furthermore, studies emphasize the importance of rare trees, some of which remain undiscovered, in maintaining the overall health and resilience of forest ecosystems [2].



Illustration: Pando, a colony of quaking aspen, is one of the oldest-known clonal trees (around 14,000 years old) in Utah, United States (Source: [J Zapell](#)).

Ancient trees play a fundamental role in the health and diversity of forest ecosystems. Their towering stature and longevity provide essential habitats and sustenance for a wide variety of plant and animal species, enriching forest biodiversity [2]. Additionally, their expansive canopies create specialized microhabitats, fostering various organisms such as epiphytes, birds, insects, and mammals [3]. Old forests offer irreplaceable habitats for endangered species, supporting biodiversity and providing refuge for species that might not survive elsewhere. Tree hollows, formed naturally within the trunks of ancient trees, are essential nesting and roosting sites for birds, bats, and possums, crucial for the survival of many species [4].

Moreover, old forests regulate local climates, helping to slow global warming by creating unique microclimates that manage temperatures and moisture levels. Ancient trees act as significant carbon sinks, absorbing and storing substantial amounts of carbon dioxide from the atmosphere. Their extensive root systems stabilize the soil, preventing erosion and nutrient loss while also creating favorable conditions for the growth of understory vegetation, thereby enhancing ecosystem resilience and vitality [5].

Beyond their ecological contributions, ancient trees carry deep cultural and historical

significance for communities worldwide. Regarded as symbols of wisdom, resilience, and connection to nature, these trees inspire a sense of respect and admiration among people. Large old trees hold significant cultural value, often serving as symbols with aesthetic, religious, and historical importance for many communities. They can be landmarks and carry stories and traditions passed down through generations [6,7].

Understanding the significance of ancient trees is crucial for driving conservation efforts aimed at protecting them, which in turn protects the entire forest ecosystem [2]. Prioritizing the preservation of ancient and rare trees is essential for ensuring the continued evolution and survival of various species within forests. This advocacy calls for intensified conservation initiatives, emphasizing the need to adopt a global perspective on tree biodiversity. It also highlights the importance of maintaining a diversity of tree ages and species to enhance ecosystem resilience and foster stability.

Additionally, maintaining diversity in both tree age and species within forests is emphasized as vital. Forests need to include a varied mix of tree species and ages to thrive. This diversity not only enhances resilience against environmental stressors but also promotes ecosystem stability, enabling forests to sustain a wide range of plant and animal life. Regions with the highest diversity, such as South and Central America, Africa, Asia, and Oceania, should be prioritized for conservation efforts [2].

To achieve these objectives, raising awareness about the ecological significance of ancient and rare trees is important. Advocating for intensified conservation efforts is crucial to protect these invaluable components of forest ecosystems.

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