Environmental Conservation

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Cite this article: Xie C and Jim CY (2025) Safeguarding China's irreplaceable natural legacy: combating the illicit trade of old trees. *Environmental Conservation* page 1 of 3. doi: 10.1017/S0376892925000037

Received: 17 December 2024
Revised: 10 January 2025
Accepted: 11 January 2025

Keywords:
Conservation methods; heritage trees; illicit trade

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Safeguarding China's irreplaceable natural legacy: combating the illicit trade of old trees

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Summary

The illegal theft of old trees threatens China's ecological and cultural heritage. Despite legal protections, their high-value timber has persistently fuelled illicit trade driven by economic incentives and weak enforcement in remote areas, endangering biodiversity and cultural traditions. This Comment article proposes comprehensive and alternative approaches to combat the illegal theft of old trees by advocating for a strengthened legal framework, enhanced monitoring systems and increased support for local authorities. It highlights the importance of public awareness and community engagement in conservation efforts to address the ingrained economic drivers of this illegal trade.

The importance of old trees

On 2 September 2024, the Law Online programme of CCTV-13 Channel, one of China's most authoritative TV media, aired a report titled 'Mystery of the Theft of Old and Famous Trees'. The narrative sheds light on the alarming illegal felling and theft of old trees in Tongren, Guizhou and Kaizhou districts, Chongqing. Having lived for centuries, some of these pilfered trees are vital to local ecological and cultural heritage. As a researcher involved in identifying and protecting old trees since 2010, the first author has witnessed the devastating impacts of these illegal activities. Despite recent advancements in legal enforcement, the protection of old trees in China remains insufficient, demanding urgent action to address this pressing issue.

Old trees are not just trees; they are living monuments that have witnessed centuries of history and serve as irreplaceable keystones of ecological and cultural systems (Cannon et al. 2022). These ancient organisms, often hundreds or even thousands of years old, create unique ecological niches that support a diverse assemblage of companion, commensal and symbiotic species through their provision of substrate, shelter and sustenance (Lindenmayer 2017, Gross 2024). Beyond their ecological significance for stabilizing environments, preventing soil erosion and regulating local microclimates, these outstanding doyens hold immense cultural value through their connections to historical events, local folklore, eminent personalities and religious practices (Fig. 1a–c; Blicharska & Mikusinski 2013). Given their profound importance, the recent incidents highlighted by CCTV-13 are particularly disturbing – the loss of an old tree represents not merely the removal of wood, but the destruction of a living organism that has silently shaped its region's ecological balance and cultural identity for centuries (Lindenmayer et al. 2014, Piovesan et al. 2022). The absence of coverage of this critical issue in international media and academic journals compels us to raise awareness of this matter among a broader readership.

The reported cases are not isolated incidents but reflect a broader trend fuelled by the clandestine and profitable market for old trees (Wu et al. 2020). The rarity and high quality of the timber from these old trees command exorbitant prices on the black market (Jim 2015). This substantial financial incentive has nurtured organized criminal activities targeting these trees (Fig. 1g–i). The emergence of local nouveau-riche and overseas collectors willing to pay hefty sums to possess the prized timber has sustained the intra- and trans-national trade (Fig. 1d–f; Bisschop 2012). The increasingly stringent trade prohibition can accentuate supply scarcity, triggering price hikes through positive feedback (Zhu & Zhu 2024).

Challenges in protection and law enforcement

The illegal felling of old trees is not a new phenomenon (Tang et al. 2005). Despite stringent laws and regulations protecting these living endowments, enforcement remains challenging. The remote locations of many old trees with poor accessibility and difficult terrain make them difficult to monitor. Local enforcement agencies often lack the resources and skills to combat these surreptitious crimes effectively. China's government has made significant strides in recognizing the importance of these natural treasures in recent years, and penalties for their

Figure 1. Examples of old trees in China and associated timber theft cases: (a) one of the old and famous *Ginkgo biloba* trees (over 1300 years based on the historical documents of the temple) in Yongxing Temple, Dalian; (b) villagers worshipping old trees as part of their traditional culture; (c) the sacred tree of *Dacrydium pectinatum* (over 1500 years according to the legend of local ethnic minorities) in Diaoluo Mountain, Hainan; (d–f) precious timber involved in criminal cases; and (g–i) destruction of old trees in various contexts.

illegal destruction have become more severe (An & Liu 2023). Introducing more robust laws has led to some successful prosecutions, serving as a deterrent to some extent (Liao et al. 2023).

Currently, the protection of old trees in China is primarily governed by a combination of national laws, administrative regulations and local ordinances (Zhou & Wang 2007). At the national level, key laws such as The Forest Law of the People's Republic of China and The Criminal Law of the People's Republic of China provide the legal framework. Administrative regulations such as The Measures for the Protection and Management of Old and Famous Trees in Cities and local laws such as The Interim Provisions on the Protection and Management of Ancient and Famous Trees in Jiangsu Province further strengthen these protections (Jim 2004). For instance, under Article 344 of the Criminal Law (National People's Congress 2020), old and famous trees are classified as 'precious trees or other plants under state protection'. The law stipulates penalties for destroying these trees, which serve as a deterrent and means of addressing crimes against them. This legal framework is crucial to protecting these valuable natural and cultural resources by holding offenders accountable.

However, the CCTV-13 report underscores that these measures are necessary but insufficient. The enticing economic incentives driving the illicit trade in ancient wood are so substantial that the threat of harsh penalties is eclipsed. Besides further strengthening the statutory means, more resources could be allocated to protecting and monitoring old trees. Escalating punishments via legal channel must be accompanied by conservation and management improvements. The fundamental solution lies in augmenting support for local communities and law enforcement agencies tasked with protecting these trees.

Alternative and innovative solutions to prevent tree theft

To stamp out these arboreal thefts methodically and systematically, it is necessary to devise effective measures for large-scale conservation policing. The authorities should know what and where the valuable old trees are. With the help of villagers, a scientific survey of the resource base is essential for spatially targeted protection. Precious individual trees and the forest stands that accommodate them must be mapped. Locations with more vulnerable trees deserve more attention. It is critical to investigate how and where the felled logs are tapped and transported from the source sites to transient points en route to the national and overseas markets. The lack of roads in the remote source areas means that vehicular traffic can be closely monitored at strategic locations by law enforcement agents. Conveyance via rivers can similarly be scrutinized. The limited number of access roads suitable for lorries and navigable rivers do not require many resources to establish cordons and conduct inspections.

Modern artificial intelligence technologies can be enlisted to boost preventative conservation capacity (Ullah et al. 2024). Drones can be more liberally employed for aerial surveillance of important source areas. Various sensors, such as infrared thermal imaging, can be applied to detect the location and movement of illicit logging gangs. Microphones that can identify the audio signatures of the noises generated by chainsaws and lorry engines could be attached to drones. In particular, valuable old trees can be equipped with infrared, vibration or audio sensors that can send real-time radio signals to alert the protectors. Realizing these measures calls for resources and training that may necessitate support and intervention by the central government. Collaboration with universities and research institutions could transfer science into practice, thereby boosting conservation efforts.

The pillage of valuable natural products often involves syndicates operating within complex supply chains. These crimes against nature begin at the victim trees and end at the customers, with a series of intervening steps and various personnel. Law enforcement can aim expressly at the people who maintain such elaborate covert channels. Deep detective work can decipher the linkages and apprehend the perpetrators at different chain nodes. Breaking the connectivity at critical junctures may dismantle and disintegrate criminal organizations. As the collectors of the prized timber constitute the crucial pull factors that nurture and sustain this looting enterprise, they can be targeted in investigations.

https://doi.org/10.1017/S0376892925000037 Published online by Cambridge University Press

The legal instruments could be extended in their scope from the suppliers to the customers.

The role of local communities and public awareness

While legal enforcement is crucial, it tackles only one dimension of the integrated solution. Protecting old trees also requires concerted community-wide efforts to raise public awareness about their importance (Blicharska & Mikusiński 2014). Many people, particularly those in rural areas where these trees are often found, may not fully appreciate old trees' immense ecological functions and cultural value. Public education campaigns could play a vital role in boosting this societal mentality (Nolan et al. 2020).

Moreover, local communities must be engaged in these protection efforts. A heightened sense of ownership and pride in stewarding these ancient trees should be earnestly cultivated. In many cases, the illegal trade of old trees occurs with the tacit or overt approval of local residents, who may benefit economically from selling their precious bequest (Basnyat et al. 2023). By providing alternative sources of income and involving communities in conservation efforts (Mukul et al. 2014), it is possible to counteract the economic incentives that drive illegal activities.

Integrating old tree protection with traditional Chinese culture, particularly through the concept of Feng Shui forests, exemplifies a time-honoured, ingrained and harmonious relationship between nature and cultural practices (Huang et al. 2020, Xie et al. 2024). This synergy has yielded positive outcomes in conservation efforts across various regions in China. In places such as Chengkou County in Chongqing (Tan & Deng 2024), protecting old trees is not merely an ecological concern but also a cultural imperative. Local residents view old trees as sacred entities deserving high-order care and respect. This communal approach to tree protection, accompanied by peer consensus and pressure, has been effective. Local laws support these efforts by imposing penalties for any acts of destruction against these trees.

Conclusion

The theft and destruction of these invaluable trees are tantamount to grave decimations of natural-cum-cultural heritage that demands urgent and sustained attention. Their protection must be prioritized in order to preserve China's environmental and human well-being for future generations. Urgent action is needed resolutely and methodically to safeguard these living monuments, which are deeply intertwined with the nation's identity and legacy.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S0376892925000037.

Acknowledgements. None.

Data availability. Not applicable.

Author contributions. CX conceived and wrote the original draft; CYJ reviewed and edited the manuscript.

Financial support. Research for this Comment article was funded by Hainan Provincial Natural Science Foundation of China (423MS061), the National Natural Science Foundation of China (32360417) and the Research Matching Grant of the Research Grants Council of Hong Kong (CB301).

Competing interests. The authors declare none.

Ethical standards. Not applicable.

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