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Managing our native forests requires a multifunctional, landscape perspective – for forest health, resilience and carbon benefits

Much of Australia's native forest is in poor condition after decades of inappropriate fire, clearing, intensive timber harvesting, impacts of weeds and feral animals and ineffective management of some protected areas. New investment is needed to restore health and conservation values, increase carbon stocks, and improve the resilience of native forests.

However, there is a prominent view in current media coverage that the only approach to forest management is to set aside native forests in protected areas and leave them in a 'natural' state that existed before European invasion. But we know this state was one largely created by people. Rather than separating people and nature, we need to recognise that people and Country are intimately linked.

Unfortunately, simple solutions do not address the increasing threats to forests from catastrophic wildfires, weeds and feral animals and other factors exacerbated by climate change.

In Australia and other countries where forest management is becoming more complex¹ 'multifunctional' forest management and more holistic 'landscape approaches' are being used increasingly to guide the management of forests and other land uses.

Multifunctionality means conserving biodiversity whilst providing a broad range of ecosystem services², such as watershed management, carbon sequestration and recreation, and fibre to meet societal needs. Individual forest stands may not provide all these services simultaneously, but multifunctionality can be managed across broader landscapes and regions.

As a basis for more investment in sustainable forest management and restoration, the professional body Forestry Australia has presented an innovative proposal³ for a new method to generating eligible carbon abatement for Australia's carbon credit scheme.

The proposal encompasses restorative forestry practices, improved utilisation of harvested wood products, and active forest management focused on improving habitat values, carbon stocks and resilience to droughts and wildfires.

Forest restoration practices, such as assisted regeneration in degraded areas, cultural and prescribed fire, thinning for ecological and cultural values, protecting old and big trees, weed and feral animal control can be used to restore forests⁴ across all tenures, including State forests, private forests, areas managed by Traditional Owners and, potentially, protected areas.

The proposed suite of forest management practices is consistent with the stated position of the Intergovernmental Panel on Climate Change (IPCC), in their latest report⁵:

“Sustainable forest management can help to manage some of these vulnerabilities [to climate change], while in some cases it can increase and maintain forest sinks through harvest, transfer of carbon to wood products and their use to store carbon and substitute emissions-intensive construction materials”.

In Canada⁶, a Federal GHG Offset Protocol for Improved Forest Management on Private Lands similarly provides for silvicultural treatments such as reducing competition and thinning, minimising site degradation, rehabilitating harvesting access areas, increasing rotation age and reducing harvesting.

Internationally, the not-for-profit voluntary carbon market program Verra has worked with the American Forest Foundation and The Nature Conservancy to introduce an Improved Forest Management methodology⁷, which includes the ‘release of natural regeneration via management of competing vegetation’ (thinning or brush cutting), reducing timber harvest levels, and altering fire severity via fuel load treatments.

So, what types of projects could the method support?

An example is the need to restore extensive areas of Alpine ash (*Eucalyptus delegatensis*) forests in National Parks and State forests in Victoria and NSW burnt three or more times in major wildfires over the past 20 years. Repeated fires have impacted natural regeneration⁸ of this iconic species as regrowing forests do not produce seed for 15-20 years, meaning this species has not successfully regenerated in many areas. The proposed method could support investment in assisted regeneration⁹ of ash forests, without which significant areas of these important forest ecosystems may be lost forever.

Elsewhere, large areas of native cypress pine forests (*Callitris sp.*) in western NSW are heavily stocked due to altered fire regimes and tree growth has stagnated because they do not self-thin. Mechanical thinning¹⁰ could increase long term carbon stocks and enhance biodiversity¹¹.

Thinning has been shown to be effective in lowering fire risk across a range of forest types¹² and is a widely used strategy to improve forest health and resilience¹³. A recent article¹⁴ has shown thinned forests in North America and Europe are often more resilient to warmer, drier climate conditions and have improved ecological condition. In Australia, studies have shown thinning can increase water availability¹⁵ in drought-impacted forests and improve habitat outcomes¹⁶.

Some continue to characterise the situation regarding forests in Australia as a war. We need to move on from this historical mode of engagement and develop new approaches to address complex challenges facing forest managers.

Forestry Australia’s proposed carbon method has been developed by a body of forest scientists based on extensive academic and applied research, and strongly aligns with approaches identified as carbon positive by the IPCC and used in other countries. Carbon investment has driven a significant improvement in the way forests and fire are managed in northern Australia. If implemented, this carbon method can provide opportunities for people to actively engage with forests across the country to improve carbon stocks and the long-term health of forests and communities.



Endnotes

- ¹ Riggs, R.A. et al. (2023) Transdisciplinary science for strengthening forest systems in British Columbia: Quesnel as a learning landscape. *Canadian Journal of Forest Research*, 53(12), pp.1006-1016, <https://doi.org/10.1139/cjfr-2023-0057>
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- ³ Forestry Australia (2024) *Forestry Australia Proposal: Expanding carbon credits to native forests*. Media release, 30 July 2024. Online: [MEDIA RELEASE: Forestry Australia Proposal | Expanding carbon credits to native forests – Forestry Australia](https://www.forestryaustralia.gov.au/media-releases/2024/07/30/forestry-australia-proposal-expanding-carbon-credits-to-native-forests)
- ⁴ McCormack, P.C., Akhtar-Khavari, A. and Richardson, B.J. (2024), Transformation in the forest: the role for restoration in the transition away from native forestry in Australia. *Restor Ecol* e14240. <https://doi.org/10.1111/rec.14240>
- ⁵ Intergovernmental Panel on Climate Change (2021) *IPCC Sixth Assessment Report: Working Group 1: The Physical Science Basis. Chapter 5: Global Carbon and other Biogeochemical Cycles and Feedbacks*. Online: <https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-5/>
- ⁶ Government of Canada (2024) *Federal offset protocol: Improved forest management on private land*. Online: <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/federal-greenhouse-gas-offset-system/protocols/improved-forest-management-private-land.html>
- ⁷ Verra (2022) Verra Releases Methodology for Improved Forest Management Projects. Online: <https://verra.org/verra-releases-methodology-for-improved-forest-management-projects/>
- ⁸ Bowman, D., Murphy, B., Neyland, D.L.J., Williamson, G.J., Prior, L.D. (2013) Abrupt fire regime change may cause landscape-wide loss of mature obligate seeder forests. *Global Change Biology*. <https://doi.org/10.1111/gcb.12433>
- ⁹ Greening Australia (2021) *Finding ‘super seeds’ to help prevent widespread loss of Australia’s Alpine Ash forests due to climate change*. Article online: <https://www.greeningaustralia.org.au/finding-super-seeds-to-help-prevent-widespread-loss-of-australias-alpine-ash-forests-due-to-climate-change>
- ¹⁰ McHenry, M.T., Wilson, B.R., Lemon, J.M. et al. Soil and vegetation response to thinning White Cypress Pine (*Callitris glaucophylla*) on the North Western Slopes of New South Wales, Australia. *Plant Soil* 285, 245–255 (2006). <https://doi.org/10.1007/s11104-006-9011-9>
- ¹¹ NSW Government (2024) *Does thinning cypress regrowth benefit biodiversity?* Online: <https://www.dpi.nsw.gov.au/forestry/science/forest-ecology/thinning-cypress-regrowth>
- ¹² Keenan, RJ (2020) Forest thinning is controversial, but it shouldn’t be ruled out for managing bushfires. *The Conversation*, published January 2020. Online: <https://theconversation.com/forest-thinning-is-controversial-but-it-shouldnt-be-ruled-out-for-managing-bushfires-130124>
- ¹³ Keenan, RJ., Weston, C.J, Volkova, L. (2021) Potential for forest thinning to reduce risk and increase resilience to wildfire in Australian temperate Eucalyptus forests, *Current Opinion in Environmental Science & Health*, Volume 23, 2021, 100280, ISSN 2468-5844, <https://doi.org/10.1016/j.coesh.2021.100280>
- ¹⁴ Pascoe et al (2024) Restoring logged forests doesn’t mean locking them up as ‘wilderness’ – it means actively managing them. Published in *The Conversation*, August 2024. Online: <https://theconversation.com/restoring-logged-forests-doesnt-mean-locking-them-up-as-wilderness-it-means-actively-managing-them-232140>
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Images for inclusion in the article:



Burnt Alpine ash forest in Victoria. Image by Thomas Fairman.



Active forest management Nowa Nowa, Victoria. Image by Tony Bartlett.