Forestry AUSTRALIA

Science Policy Update

Why Science Policy and Advocacy?

2023

1. ***Advocacy***
2. Website
3. ***Position Statements & Papers***
4. National conference and symposium
5. Webinars

2022

1. ***Advocacy***
2. ***Promote forestry to the public***
3. Position papers and policy statements
4. Support and info for forest growers
5. Webinar program

2021

1. ***Advocate for forests and the profession***
2. ***Position Papers***
3. Forest Fire events, submissions & committee
4. IFA/AFG Website
5. The Forester / Future Foresters Initiative

2020

1. ***Advocate for forests and the profession***
2. Forest Fire events, submissions & committee
3. ***Position Papers***
4. IFA/AFG Website
5. The Forester

2019

1. ***Advocate for forests and the profession***
2. Branch events, field days & networking
3. Website
4. Seminars, forums & events
5. Future Foresters Initiative

Science Policy and Advocacy - *How*

Forestry
AUSTRALIA

National Forest Policy

Position Statements

- Ecologically Sustainable Forest Management
- Forest Fire Management
- Forest Fire Recovery and Restoration
- Sustainable Forest Harvesting
- Conservation of Threatened Species *NEW!*
- Forest Carbon Markets *NEW!*
- Thinning of Native Forests *NEW!*
- Forest Research, Development and Dissemination

POSITION STATEMENT

OCTOBER 2023

CONSERVATION OF THREATENED SPECIES

CONTEXT

There is ongoing biodiversity decline occurring across Australia, including in forests. The list of threatened species at risk of extinction continues to grow, as a result of multiple threatening processes including invasive species, land clearing, climate change, and changes in both fire regimes and land management practices. Protected and conserved areas are under-funded and most threatened species have complex habitat needs, which are not yet fully understood. Australia's spending on conservation programs is disproportionally low and often biased towards high profile species or politically sensitive environments, to the detriment of other species or places where recovery actions could have a higher chance of success. Australia's tenure-based land management system creates siloes which can limit the effective management of threatened species at the landscape level. Active and adaptive management, informed by research, traditional knowledge and monitoring, is needed to secure threatened species recovery and will have the best chance of success where there is multi-stakeholder involvement and a holistic view of threats and actions over the long-term.

FORESTRY AUSTRALIA ADVOCATES THE FOLLOWING:

- Australian governments need to significantly increase long-term expenditure on strategic threatened species monitoring, conservation, management and recovery programs.
- Increased investment in strategic fire management and controls for invasive species and disease will be critical to supporting threatened species conservation, especially in light of climate change.
- Cross-tenure, collaborative and long-term monitoring and research programs are required to increase our understanding of the dynamic nature of threats, and the complex needs of threatened species to support more effective active and adaptive management.
- Threatened species management and recovery actions need to be planned at the landscape scale, based on systematic survey data and unbiased spatial habitat models, and take a holistic view of the nature and impact of all threats and existing management measures.
- The experience, perspectives and knowledge of Traditional Custodians and Aboriginal and Torres Strait Islander peoples for supporting biodiversity and restoring healthy Country should inform threatened species management plans.
- Meeting agreed targets for protection of high quality or rare habitat types is an important strategy for conserving threatened species, but even in protected and conserved areas, active and adaptive management interventions are needed to protect and restore habitat.
- Scientifically-based management prescriptions and protection zones should continue to be used to assist with threatened species conservation in forests where sustainable use is permitted.
- Monitoring and proactive planning for threatened species and communities is required in national parks, on private land, in regrowth forests and plantations, to ensure holistic management that takes account of the landscape context and does not unnecessarily limit access to other priority natural resources including water, timber and firewood.

SUPPORTING NOTES

Following a long history of landscape management by Aboriginal and Torres Strait Islander peoples, Australia's biota has evolved to be unique and megadiverse. Many species are endemic, occupying very small geographic areas or with unique adaptations and specific habitat requirements that limit their range of occupancy. As a signatory to the 1992 Convention on Biological Diversity, Australia has committed to both the conservation and sustainable use of its biodiversity. Under the agreed Global Biodiversity Framework, Australia has committed to effectively conserving at least 30% of its terrestrial land. Australia also has a target of conserving a minimum of 15% of each ecosystem within the National Reserve System.

Since European settlement, our biodiversity has been on a trajectory of decline, with the number of species listed as threatened in Australia continuing to grow. This decline is occurring due to direct and indirect human activities that have resulted in loss or substantial modification of natural habitats, over-exploitation and disruption of natural processes, introduction of invasive species and diseases, altered fire regimes and climate-change related impacts. The most prevalent and highest impact threats to Australia's biodiversity are:

- Invasive species, including weeds and feral animals such as cats, foxes, feral horses, deer and rabbits
- Altered and inappropriate fire regimes
- Habitat loss and degradation from agriculture, urban development, utility corridors and transportation associated with expanded human settlement
- Climate change and its compounding effects on other threats

Australia has been identified in the top 40 underfunded countries for nature conservation, with some conservationists suggesting that current budgets for threatened species recovery in Australia are just 15% of what is needed. Despite some important successes, many threatened species management programs are less effective than planned, especially those where implementation has been ad hoc in nature, not resourced well enough over longer timeframes, and with poor evaluation and monitoring of their effectiveness. The result is that species declines are occurring across all land tenures, including prominent and high-profile local extinctions within National Parks and conservation reserves.

POSITION STATEMENT
CONSERVATION OF THREATENED SPECIES

Species can be listed as threatened or endangered under State and Federal laws, according to an agreed Common Assessment Method, based upon criteria developed by the International Union for Conservation of Nature (IUCN). Anyone can nominate a species for listing, which tends to bias the approach towards higher profile and flagship species that are more likely to attract public interest, and thus funding. Once listed there is an obligation to prepare Conservation Advice, a Recovery Plan or an Action Statement, but currently these have been prepared for less than half of the listed threatened species in Australia.

For many species, proper evaluation of their threatened status and management requirements is hampered by a lack of data and knowledge about the species' distribution, habitat requirements, life history, population trajectories, and the impact of threats. Surveys, citizen science, monitoring and management interventions have sometimes been biased towards areas of political interest or expediency. Ad hoc reactive management responses based on individual species records or surveys that focus on single threats, or which are biased to particular tenures or habitats, are unlikely to achieve improved conservation outcomes. This bias creates skewed perspectives and can cause inadvertent misdirection and ineffective or inefficient use of funds. More proactive and collaborative approaches to conservation across forest land tenures would generate greater confidence that outcomes are being achieved.

Spatial modelling has proved a useful tool for estimating species occurrence across broad landscapes. These models require frequent updating as the environment changes and as new information becomes available. Species records generated from citizen science and dedicated programs are important sources of information, but they are prone to bias. Further investment in long-term, cross-tenure and multi-agency collaborative programs for monitoring and research is needed to strengthen habitat models as key decision-making tools for prioritising further investment and follow-up management actions. Species do not recognise tenure boundaries; therefore, monitoring and management actions that are siloed are at risk of being inefficient or ineffective. Approaches must be targeted towards addressing key knowledge gaps and considering the landscape and threats holistically.

By focussing attention on a single threat, interactions and other impacts that are major sources of population pressure can be missed. Adaptive approaches and contingency plans are also required, recognising that unforeseen outcomes from management interventions can occur. For example, attempts to control feral animals can have unintended negative consequences for native fauna, especially when poisons are used. Control of dingoes and feral dogs can allow foxes to increase in abundance, while control of foxes can allow feral cats to increase in abundance, with severe effects on native wildlife. There are many other complex interactions that need to be better understood and managed for threatened species recovery programs to be effective.

In many bioregions, forest dependent species have been negatively impacted by large-scale land clearing for agriculture that has accompanied European settlement, reducing the extent of forest. Additionally, forest dependent species have been impacted by changes to forest structure, age and fire regimes, as a result of the combined effects of removal of management by Traditional Custodians, some timber harvesting and multiple severe landscape-scale bushfires. Active forest management is needed to redress these impacts. Preventing and limiting the extent of severe wildfires is key to reducing direct consequences for threatened species and their habitats. In some cases, silviculture such as thinning and cutting artificial hollows in the trunks or branches of existing trees should be used to restore structural diversity and accelerate the development of old forest characteristics, such as tree hollows, in areas where these important habitat features have been depleted. Strategies to retain, protect and regrow hollow-bearing trees must be prioritised during timber harvesting, fire prevention and recovery works, and in urban development or agricultural expansion projects. Likewise, threatened species need to be given greater consideration in the preparedness, response and recovery phases of bushfire management.

The conservation value of regrowth native forest should not be underestimated as many species make substantial use of regrowth forests and rely on disturbance for renewal and food sources. Actions that remove this disturbance, whether from fire, timber harvesting or other management, can cause declines in some plant species and subsequent negative flow-on effects on a range of bird and mammal species.

Plantations are critical to Australia meeting its increasing demand for wood products, however can also provide habitat for some threatened species. In these contexts, planning and management mechanisms must appropriately balance commercial timber production and conservation goals. A significant negative and perverse consequence of reactive species management prescriptions is to further reduce Australia's capacity to conduct sustainable timber harvesting in plantations and native forest, which can positively contribute to active management for a broad range of forest values, including threatened species conservation outcomes.

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Forestry AUSTRALIA

POSITION STATEMENT

OCTOBER 2023

FOREST CARBON MARKETS

CONTEXT

Globally, it is well recognised that forests, including avoiding deforestation, play a critical role in helping to mitigate the effects of climate change through carbon capture and storage. While more carbon is stored in older forests than in younger forests, the rate of carbon capture is significantly higher in young actively growing trees. Globally, and across Australia, forests are an important carbon sink, and when appropriately protected and sustainably managed, can absorb more carbon than is emitted from a range of forest management activities. Sustainably harvested wood products are renewable and can act as a long-lived carbon store as well as replace fossil fuel usage as an environmentally friendly energy source. In Australia, the value of forests in mitigating climate change is recognised through existing and proposed carbon credit markets and emission reduction incentives. To generate Australian carbon credit units (ACCUs), projects can be developed to apply an approved methodology under the ACCU Scheme (formerly the Emissions Reduction Fund (ERF)). Integrity of carbon projects is crucial to the carbon market. Approved methods work to create real and quantifiable levels of greenhouse gas abatement that would not occur without the carbon project. There are opportunities to further develop methodologies and uptake within the forest growing and downstream wood products sectors to leverage the carbon benefits that forests bring.

FORESTRY AUSTRALIA ADVOCATES THE FOLLOWING:

- Carbon market frameworks in Australia should incentivise best practice tree growing and forest management through both crediting genuine additional emissions abatement and adapting to new information or approaches that are identified.
- The application and development of credible methods must be supported by research and monitoring, considering net accounting factors such as leakage, additionality, product substitution and sequestration.
- The design of carbon accounting systems, carbon trading schemes and other policy incentives should consider the needs and opportunities for small-scale forest growers, the carbon storage and product substitution benefits of wood compared to higher emission construction materials, and the opportunities for substituting biochar and bioenergy for fossil fuel.
- Ongoing reforms to carbon market frameworks must:
  - protect and enhance the integrity of the carbon market;
  - broaden the range of sustainable forest establishment and management activities that are eligible for recognition;
  - broaden the scope of methods for ecologically sustainable management of native forests; and
  - work to increase the commercial viability of forest carbon projects and address barriers to participation for small-scale forest growers.
- Maintaining the integrity of carbon markets and individual carbon projects is crucial and can be supported through systematic integration of advice and expertise from Registered Forestry Professionals and researchers in the design and implementation of reduction activities, incentives and trading schemes, and throughout carbon project lifecycles.
- The co-benefits associated with forest carbon projects need to be recognised, understood and promoted to improve the overall value proposition for carbon project uptake. Similarly, ongoing research and monitoring is required to ensure dis-benefits are understood and avoided.
- Targeted strategies to remove barriers to expanding the forest estate, particularly for farmers and primary producers, is required if the Australian Government's policy objectives to meet 2050 net-zero carbon goals are to be achieved.

SUPPORTING NOTES

Globally, anthropogenic carbon dioxide emissions are about 12 times higher than the drawdowns from the atmosphere. However, forests overall act as a carbon sink, by removing carbon dioxide from the atmosphere and storing it in the form of wood. The world's forests sequestered about twice as much carbon dioxide as they emitted between 2001 and 2019. Ultimately, whether individual forest areas are carbon sources or sinks depends on the timeframe and scale considered, as well as changes to forest types, age or structures caused by weather and climatic events, the natural aging process, forest management decisions and deforestation. Carbon markets therefore have an important role to play in encouraging sustainable forest management.

Increasing carbon sequestration through reforestation and halting deforestation are essential components of responding to greenhouse gas emissions and climate change. Carbon capture and storage in forested landscapes can be maximised through ecologically sustainable management of native forests, maintaining and growing plantation and farm forestry estates, supporting new forest plantings and forest restoration, the sustainable use of wood products, and partnering with the agriculture sector to derive and realise the numerous co-benefits associated with the integration of trees in rural landscapes.

Internationally, the Intergovernmental Panel on Climate Change (IPCC) has consistently recognised that ecologically sustainable forest management, aimed at maintaining or increasing forest carbon stocks and facilitating sustained yields of timber, fibre and energy from forests, will deliver the greatest climate change mitigation benefits. Expanding Australia's national plantation estate, encompassing farm forestry, represents a significant opportunity for Australia to reduce its greenhouse gas emissions profile. Plantation forests are grown to provide wood products for society - products that are natural, renewable and recyclable, making them an excellent substitute for more carbon-intensive materials in an increasingly waste-conscious society. Developing methods for improving yields and carbon sequestration from natural forests through ecologically sustainable forest management and use of wood products is another important opportunity. However, currently in Australia there are no approved methods relating to the management of native forests, which is a major gap, given the scope for improved forest management across a range of forest types.

The Commonwealth Government's *Carbon Credits (Carbon Farming Initiative) Act 2011* (CFI Act) provides the framework for registering and undertaking carbon projects in Australia, including issuing of 'Australian carbon credit units' (ACCUs). For projects to participate in the carbon market, there must be an applicable approved 'methodology' that addresses the activity for which carbon credits are sought.

Carbon projects can be:

- sequestration projects – creating enhanced draw-down or storage of carbon in live biomass, dead organic matter, soils and wood products; or
- emissions avoidance projects – reducing greenhouse emissions that would otherwise have happened without the project.

In early 2023, there were 37 methodologies, including nine forest-related sequestration methods. Although increasing carbon sequestration and storage is a key component of attempts to halt climate change through offsetting emissions, real climate benefit will only be achieved through reducing emissions in the first place.

Integrity of the carbon market is foundational to its success. To demonstrate integrity, carbon methodologies and projects must abide by the following key principles:

- Additionality – the activity would not occur in the absence of the carbon project.
- Permanence – the carbon credited will not be fully or partially lost due to future events.
- Measurement – the project includes a clear baseline and approaches that ensure emissions and removals are appropriately accounted for.
- Acknowledgement of leakage – the project recognises and addresses the potential for increased emissions or reduced sequestration outside the project boundaries.

A key environmental integrity control in the 2022 Plantation Forestry method is the requirement for a Registered Forestry Professional (RFP) to sign off on the Forest Management Plan under all Schedules in the method. Involving professional foresters, forest growers and forest scientists in the design of carbon market initiatives can help ensure that incentives will work as intended. The role of RFPs in the 2022 Plantation Forestry method will enhance the integrity of projects registered under it, and such an approach should be considered as part of other methodologies.

In addition to earning ACCUs, projects can provide a range of other direct benefits, called co-benefits. Improving water quality, farm resilience, increasing biodiversity and supporting indigenous livelihoods are just some potential co-benefits. These can act as a key driver to attract well-designed carbon projects, incentivise sustainable management practices, and deliver on many priorities that might otherwise go unrealised. Some carbon projects may not be viable on their own, especially when the carbon price does not cover the project costs. However, quantifying and pricing co-benefits associated with the carbon project can improve project feasibility. Nevertheless, there are also potential dis-benefits of carbon projects, that require consideration during project design. In relation to forestry projects, these may include, for example, reducing water yields and conflict with other land uses.

High cost of assurance on smaller projects, failure to recognise all carbon in plantations, and limited species and management options, are all factors that act as barriers to landholders who may otherwise participate in the carbon market. Furthermore, additional research is needed to identify new tree species that will grow well under future climatic conditions. The forest industry has commenced this work, but carbon market rules and regulations must be able to adapt to changing management practices and ensure these changes are reflected in the rules applying to projects.

A significantly higher price for ACCUs is required to attract new activity. The price of ACCUs has not been sufficiently high to attract significant investment in revegetation, while the reverse auction process has failed to facilitate a price sufficient to attract new plantation supply. The key principle of the ERF was least cost abatement (priority given to the cheapest carbon credits) which, combined with the reverse auction process, has put downward pressure on prices and does not allow price transparency, as occurs in all other market-based agricultural commodities. This can lead to perverse outcomes, including favouring abatement from projects with lower integrity.

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POSITION STATEMENT

FOREST CARBON MARKETS

POSITION STATEMENT

OCTOBER 2023

THINNING OF NATIVE FOREST

CONTEXT

The health and resilience of many native forests are being compromised by factors such as climate change, pests and diseases, altered or inappropriate land management practices and some land use decisions. Australian forest ecosystems have evolved with periodic droughts and bushfires, but the frequency and intensity of these events is increasing. In many forests, tree density has increased due to removal of active management by Aboriginal and Torres Strait Islander peoples, prolific regeneration following intense bushfires, or sustainable timber harvesting practices in selected areas of State forests. High tree densities can make forests more prone to stress and therefore more vulnerable to negative impacts from drought, insect pests, disease and bushfire. In some forest types, over-crowded stand structures can cause the forest to stop growing; which limits further carbon uptake and storage. Forest thinning is a silvicultural practice whereby a selective portion of trees are removed across a site to reduce competition for water and nutrients. This allows the retained trees to grow bigger, more quickly, thereby increasing the size of tree trunks and crowns. While thinning has traditionally been undertaken to improve timber yields, there are many other ecological and cultural objectives that can be achieved through thinning. These include enhancing wildlife habitat, increasing water yields in catchments, and restoring open forest structures to facilitate re-introduction of cultural burning practices.

FORESTRY AUSTRALIA ADVOCATES THE FOLLOWING:

- In many native forests across Australia, forest thinning is required to support the restoration of Country and to increase forest health and resilience, through creating diverse and more open forest structures.
- Thinning of native forests can achieve cultural, ecological and economic objectives, including through reducing negative impacts from bushfires, droughts, pests and diseases, and enhancing water yield, carbon stocks, timber and biodiversity values.
- Traditional Custodians should be supported by Governments and communities when they choose to implement forest thinning to heal Country, restore culturally recognisable forest structures, facilitate the re-introduction of cultural burning, or to generate wood products for community needs.
- Thinning programs should be strategically planned and guided by clearly defined management objectives. In public native forests, this should include appropriate community consultation and consideration of aesthetic values.
- Maintaining or developing markets for wood products extracted from thinning operations should be given high priority, to prevent waste of valuable wood products, reduce bushfire risks, offset costs involved with undertaking thinning operations to enable further ecological works, and support regionally based, innovative climate-friendly industries.
- Ongoing monitoring and research are required to continually improve the collective knowledge of the benefits, impacts and effectiveness of thinning for cultural and ecological objectives.

SUPPORTING NOTES

Prior to European settlement Australia's forests had a much more open structure than they do today. Due to the interruption of cultural land management as practiced by Traditional Custodians, changed fire regimes, and some forest management practices that have occurred since colonisation, the density of trees in many Australian forests has increased. Densely stocked forests face increased vulnerability to ecosystem changes and threats including drought, repeated high severity fires, windstorms, insect pest and disease outbreaks. Canopy dieback and reduced forest health and vigour can result. Dense forests can also have reduced value as habitat for wildlife, particularly species that depend on trees with large crowns or hollows and ground-dwelling species that require areas of open sunlight.

Within the next 20 years, forests in many regions of Australia are projected to experience increases in average temperature, decreases in annual rainfall, and an increased frequency of droughts and intense wildfires. Simultaneously, invasive species, pests and diseases are on the rise and some forest management practices and land use decisions are acting to exacerbate these threats. Active and adaptive management practices are required to arrest this trajectory.

Although it has predominantly been applied in Australia for commercial wood production purposes, the potential for thinning to achieve ecological and cultural objectives is being increasingly recognised. In recent years, ecological thinning has emerged as a term used to describe an active forest management tool implemented to enhance forest health, resilience and biodiversity. Although it needs to be carefully planned and implemented to avoid any undesirable effects on soil, water or sensitive habitats, ecological thinning has significant potential to reduce stress in overcrowded forests.

While there is relatively limited published research on the benefits of ecological thinning per se in Australia, there is a relatively large body of evidence from monitoring, research and trials in the context of thinning for timber production. A substantial amount of research on thinning has also been done in other countries. This research has shown that for some forest types, thinning of dense regrowth when the forest is young improves long-term forest structure, habitat quality and carbon storage rates. It has also demonstrated that thinning, particularly heavy thinning, reduces the incidence of tree deaths during periods of severe drought and makes forests less susceptible to extensive outbreaks of pest insects and pathogens. Targeted removal of susceptible and infected trees through thinning can also slow the spread of pest and disease outbreaks.

Evidence from Australian and international research also shows that thinning of forests, when combined with prescribed burning to reduce fuel hazards, can significantly reduce wildfire risks and impacts in dry forests, when compared with no treatment or thinning alone. Reducing the density of trees in forests can reduce wildfire rate of spread, flame height and the probability of crown fires developing. Thinning of forests and the utilisation of woody biomass to reduce wildfire risk has been increasingly practiced by professional foresters in the United States, since the passage of the *Healthy Forests Act 2003* in response to the catastrophic wildfires of 2002.

Many of Australia's major cities and towns obtain a large part of their water supply from forested catchments. Following severe bushfires, the quantity and quality of water from forested catchments is generally reduced. In addition, stream flows from forested catchments are reduced during periods of drought when trees can only access water from the water table. Australian research has shown that thinning of forests can increase streamflow, water quality and the raise the level of the groundwater table.

Aboriginal and Torres Strait Islander peoples managed and modified forest landscapes over many generations, thereby creating cultural landscapes that provided benefits to all human and non-human inhabitants of Country. The ability of Traditional Custodians to implement cultural management practices has become limited in areas where forests are too densely stocked, because cultural fire cannot readily be introduced to them without significant safety and environmental risks. Densely stocked forests can also limit hunting and foraging potential and are difficult to traverse through. There are now several examples across Australia where Traditional Custodians are considering or implementing thinning as part of contemporary cultural land management practices aimed at restoring culturally recognisable forest structures, facilitating safer implementation of cultural burning and creating livelihoods from the utilisation of wood products.

Thinning operations in forests typically produce large quantities of small diameter woody material, which can increase bushfire risk if left on the forest floor. To reduce these risks and prevent waste of usable, valuable and environmentally friendly wood products, it is essential to have viable markets for the small-diameter timber that is produced. Demand for bioenergy, bioplastics, reconstituted wood composites and innovative sawmilling technologies all present a range of opportunities to enable the utilisation of these small diameter wood products. Recovering and selling the wood biproducts of thinning can also act to offset management costs or be used to provide a revenue stream to fund other important active and adaptive forest management activities, as well as for monitoring and research.

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POSITION STATEMENT

THINNING OF NATIVE FOREST

Forestry AUSTRALIA

Forestry AUSTRALIA

Science Policy Update