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Q1. First name	██████████
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Q6. Postcode	██████
Q7. Country	Australia
Q8. Stakeholder type	Individual
Q9. Stakeholder type - Other	not answered
Q10. Stakeholder type - Staff	not answered
Q11. Organisation name	not answered
Q12. What is your preferred method of contact?	not answered
Q13. Would you like to receive further information and updates on IFOA and forestry matters?	Yes
Q14. Can the EPA make your submission public?	Yes, but anonymous
Q15. Have you previously engaged with the EPA on forestry issues?	Yes

Q16. What parts of the draft Coastal IFOA are most important to you? Why?

I am deeply concerned that native forest logging is considered at all sustainable, either environmentally or economically, when there is significant evidence to the contrary. As a young person, I recognise that it is crucial to protect as much of this native habitat - be it remnant or previously logged - in order to exist amongst a healthy, resilient global, national and local ecosystem well into the future. The draft Coastal IFOA favours degenerative industry, when what we require is regenerative ways of engaging with our land. Every part of the draft Coastal IFOA concerns me as a member of society and someone who recognises a fragile future thanks to the increasing impacts of climate change. We must preserve our forests and seek to interact with them rather than extract from them. There are viable alternatives, and while they may require a paradigm shift to explore genuinely, they are essential for our continued future on this planet. Hemp, bamboo, and in the interim, timber plantations are able to provide more jobs, more security, and place far less pressure on our already destabilised environment.

Q17. What parts of the draft Coastal IFOA do you think have a positive outcome on the management of environmental values or the production of sustainable timber? Why?

I understand that there will be no positive outcomes should the Coastal IFOA be implemented. It weakens already inadequate protections for sensitive ecological areas. This will never be positive. Economically, the native forest industry is not viable. With most timber used for woodchips/paper, and other low-grade products (fencing, pallets etcetera), we must acknowledge that instead of re-fitting old chip mills to cope with the increasingly-lessening log size, it would be best to use other materials and other methods to meet market demands. Bamboo and hemp are valuable for pulp (and paper), textiles, building and, where necessary, burning for fuels. Plantation timbers (ideally on already-cleared land, such as reclaimed farmlands) are a viable replacement for most high-end products, especially considering the technology available to treat the products to create the desired aesthetic. Where hardwood is necessary (for example, telephone poles), selective logging ONLY should be employed. We must recognise that there is so little value and such sparse sustainability in continuing native forest logging, let alone altering the restrictions as is proposed in the draft Coastal IFOA to allow for greater intensity of logging in sensitive areas. I am deeply concerned about my future and those of people still younger. We would value a functional, stable climate, with industries which ethically, consciously, and sustainably support our lifestyles indefinitely. The native forest logging industry is not such an industry.

Q18. What parts of the draft Coastal IFOA do you think have a negative outcome on the management of environmental values or the production of sustainable timber? Why?

The economic and environmental unsustainability of this industry, which relies considerably on grants to create the illusion of profits, will be detrimental to the trees themselves, the native inhabitants of forests, the complex ecology of the soils, waterways and microclimatic elements of forests, the humans who have to live in a world destabilised by climate change, the governments who have to try to mitigate the intensity of the consequences after more fires, floods, and other extreme weather events impact the citizens of their jurisdiction, and the countless communities who will have to renegotiate the expectations they have their futures in a denuded world. There are alternatives and they should be employed. We have threatened too many species, contributed too much carbon, and deforested too many of our national ecosystems to even think that justifying less environmental protections - as are proposed in the draft Coastal IFOA - is a viable act for our present and future. I urge you to consider the complexities of the forest before you continue to assume that it is simply a resource to be periodically accessed. These ecosystems are irreplaceable and becoming ever-rarer in a world which does not recognise its reliance on the resilient, nuanced ecologies across our planet. Our wealthy nation should recognise its responsibility to its citizens and the global community by ceasing native forest logging and genuinely protecting what remains of its native habitat.

Q19. What are your views on the effectiveness of the combination of permanent environmental protections at the regional, landscape and operational scales (multi-scale protection)?

The current and proposed environmental protections are entirely inadequate. In order to either maintain, extend or create functioning, resilient, biodiverse environments, native forest logging must cease in favour of other, genuinely sustainable industries. Funding should be contributed to regeneration efforts rather than new ways of accessing regrowing or old growth native forests.

Q20. In your opinion, would the draft Coastal IFOA be effective in managing environmental values and a sustainable timber industry? Why?

Absolutely not. Relaxing already inadequate protections for sensitive ecological communities is an unsatisfactory way in which to interact with an environment, and a dysfunctional ecosystem will not support continued fast, healthy growth which is presumably the intention of the logging industry. All sides lose with continued native forest logging, and they lose further should the proposed Coastal IFOA be implemented.

Q21. General comments

I write today to raise concerns about forests. Specifically, the forests which I wish to exist well into our mutual future. I live in a rural area on the south coast of New South Wales, and while the proceeding communication is particularly relevant to the space in which I live, I feel strongly that my sentiments are nationally (and globally) applicable. It is difficult to raise this issue in a world in which the land we live on is viewed as a resource reserved entirely for human use. Millennia of monotheistic thought has informed this notion (simply put, if the planet is god's gift to us while god assesses humanity's behaviour, then why not use what exists in this existential waiting room for our benefit alone?) and fed the neo-liberal conception of entitlement (wherein people believe that if they can extract something for their own gain, why should they not?), so it is a challenge to reacquaint even well-educated folk as to the notion that humanity exists as one element of a vast, nuanced and complex ecosystem. Our shared biosphere. We must of course seek to exist as well as we can amongst the rest of the planet's inhabitants, but we cannot claim eternal supremacy. We rely on the resilience of the land in its many incarnations – its capacity to nurture new seed, its ability to hold and channel water, its sturdiness in holding our structures safely, for example – and yet we seem hesitant to admit that seemingly small changes to any or many of the interrelated parts of our ecosystems will alter (and often diminish) the overall function of the biosphere both micro- and macro-cosmically. It is inconvenient to realise that our common practices have been irreversibly damaging the environment we require for our ongoing survival as a species. It is deeply frustrating to acknowledge that what we assumed to know was so far from accurate. It is a sign of great intelligence to respond to gained knowledge. It is honourable to reconsider, to recalibrate, to rectify the wrongs of ignorant pasts. One of the wrongs which we have long recognised is the felling of native forests. The ideal outcome is the cessation of all native forest logging and a shift toward plantation timbers or biomass (for example, hemp or bamboo plantations which can be ethically pulped, shredded or treated for use in innumerable industries from textiles to construction). I would ask that in response to this message of mine, you follow the link to both the Great Southern Forests' proposal (http://www.greatsouthernforest.org.au/media/GSF_Brief.pdf) and the National Parks Association's Forests for All plan (https://npansw.org/wp-content/uploads/2016/10/forestsforall_maindocument.pdf), which both offer slightly distinct though equally assiduously researched, widely endorsed, and comprehensive ways in which we can shift to better forest management/engagement. While the following issues are raised in the documents above to which I've linked, I shall offer some (supported) commentary which I would encourage you to consider closely. Nearby Tathra suffered significantly with recent fires, and while comprehensive reports are still to come, conversations with locals and ex-loggers indicate that the regrowing areas which were initially logged exacerbated the intensity and spread of the fire. This is not a novel nor rare notion (<https://theconversation.com/contrary-to-common-belief-some-forests-get-more-fire-resistant-with-age-95059>). The most recent logging of the forests about which I am specifically writing occurred in the mid – late nineties, so they have another hundred years before they will be fully functioning, fire-resistant ecosystems once again. We must give them this chance, and as we do so, ensure any remnant ecosystems are not rezoned under the IFOAs in order to retain what resistance they possess. With climate change a consistent and increasing threat, there is every incentive to keep our forests growing. We must be aware of how our local and national actions exacerbate global problems and take every initiative to mitigate our impact. The cost of producing woodchips is ethically, environmentally and economically

unviable, and sawmills processing native timbers recognise this themselves (<http://www.abc.net.au/news/rural/2017-01-24/timber-supply-shortage-at-australias-largest-hardwood-sawmill/8202648>; <http://www.abc.net.au/news/2018-04-23/heyfield-government-bailout-threatens-jobs-at-small-mills/9681658>). While there are demands for risking sensitive habitats to access more timber (which is a strong indicator of the unsustainability of the industry), the way to ensure consistent access is not to take from degraded or healing land. Rather, the answer is to shift to more sustainable materials (whether plantation timbers or crops of bamboo or hemp) which grow quickly and do not imperil the already-threatened native floral and faunal species we have remaining. We know that selective harvesting is rarely if ever done, and the result is degraded essential native habitats which have been destroyed for little economic benefit. We need new paradigms, new ways of engaging with our present and future, and so it is inevitable that traditional practices and industries must be lost or revolutionized. There is ample, recent, relevant evidence to counter the misinformed though common notion that replanting efforts will sufficiently account for the carbon sequestration potential of the logged forest (<https://www.nature.com/articles/nature07276>; <https://theconversation.com/big-old-trees-grow-faster-making-them-vital-carbon-absorbers-22104>; <http://www.futuredirections.org.au/publication/role-old-growth-forests-carbon-sequestration/>). While the forests about which I write are no longer classified old growth due to earlier logging operations, we must surely appreciate that old growth forests only become so when we allow for their entire and enduring regeneration. This must begin now. We are at a point where we must concede that our common practice on this land (and globally) which rests on extraction is not sustainable in any viable sense. We must shift our focus to regenerative practices, regenerative ways of engaging. It is also important to acknowledge that consistently biodiverse ecosystems are the most resilient and functional. (<https://www.sciencedirect.com/science/article/pii/S0169534715002189> - I hope you have access to the journal in which this article has been published, but if not, it is the most recent study which reinforces the commonly acknowledged fact that in order to keep ecosystems operating in support of our human existence and their own continuation, their biodiversity must be maintained). Biodiversity maintenance is almost impossible in areas with logging operations underway. So many species are bound to their initial habitats for life, and while it would be convenient if they could negotiate with neighbouring creatures effectively and move, this is not at all what has been observed (<https://theconversation.com/land-clearing-isnt-just-about-trees-its-an-animal-welfare-issue-too-80398>; http://www.nespthreatenedspecies.edu.au/151214_NMV%20Threatened%20Species%20Report_full.compressed.pdf). Habitat loss is the greatest threat to most species globally, and this uncomfortable fact is exacerbated by Australian native logging practices and lax legislation regarding other forms of land clearing. (<http://www.abc.net.au/news/science/2017-10-26/australia-biodiversity-loss-conservation/8987696>; <https://academic.oup.com/jpe/article/5/1/109/1294916>; <https://theconversation.com/lets-get-this-straight-habitat-loss-is-the-number-one-threat-to-australias-species-85674>) As mentioned above (and linked again here, just in case you did not follow them earlier) The Forests for All and GSF plans (http://www.greatsouthernforest.org.au/media/GSF_Brief.pdf, https://npsnw.org/wp-content/uploads/2016/10/forestsforall_maindocument.pdf) each support a caring transition for those whose jobs will be lost should the necessary transitions away from native forest logging be undertaken. They provide carefully, painstakingly collated research which reinforces the viability and necessity of shifting away from native forest logging. I understand that this process away from exploiting the land as has been ordinary practice since colonization is likely to be slower than we hope, but it must begin somewhere and it must begin soon. I implore you or any group in which you have influence to reconsider the way in which you engage with the world you now inhabit and which my generation and those to come will soon inherit. There are so many options available which address your economic desires and honour our environmental and social needs. Please spend the necessary time engaging with and understanding them, as this is our only planet, our only existence.

Q22. Attach your supporting documents (Document

1)

[Redacted]

Q23. Attach your supporting documents (Document

2)

[Redacted]

Q24. **Attach your supporting documents (Document 3)** not answered



GREAT SOUTHERN FOREST

a new approach to native forest management for beauty, culture, habitat, jobs, oxygen, soil, water, wildlife, climate mitigation and carbon sequestration

"This is the only sensible way forward on forests"

Dr Judith Ajani, Economist, Australian National University, Fenner School of Environment and Society.



Bega River mouth to Mumbulla and Gulaga mountains. photograph: the late Richard Green www.richardgreen.net.au

"This work looks really impressive and important. I admire your work in this area immensely." Professor Tim Flannery, Chief Director, Climate Council

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Supplementary materials: <http://www.greatsouthernforest.org.au/resources.html> | 19 June 2018

ACKNOWLEDGEMENT

We acknowledge the peoples of the Yuin and Wiradjuri Nations and the Ngarigo, Walgalu, Dharawal, Gundungurra, Djirringanj and Ngunnawal tribal people, who are the Traditional Owners of the Country that is the subject of this vision. We pay respect to the Elders past and present of these Nations and to other Aboriginal people who read this Brief.

RECOMMENDATIONS

The Great Southern Forest recommends that Federal and State Governments change management of the 432,575ha of public native forests in the Eden and Southern Regions of NSW from timber extraction to retaining them for carbon sequestration and climate stabilisation with jobs in forest restoration, culture and tourism.

For the State's 432,575ha of public native forests in the Eden and Southern Regions of NSW, the Great Southern Forest recommends that the State and Federal Governments:

1. Implement a timely re-orientation of management of public native forests in SE NSW from timber extraction to ecological integrity, climate stabilisation, water security and carbon sequestration;
2. Cease logging and woodchipping in SE NSW state native forests;
3. Enact the full transition to plantations for wood supply;
4. Terminate the Eden and Southern Regional Forest Agreements, reinstate full Commonwealth environmental protection and pilot this new model of forest management in SE NSW;
5. Ensure implementation of a Just Transitions program for SE NSW timber workers;
6. Extend Indigenous partnership in management and employment; and
7. Prioritise forest preservation and restoration in the 432,575ha of SE public native State forests.



Logged Glenbog State Forest, 2016: photograph, the late Carolyn Green

WHAT IS THE GREAT SOUTHERN FOREST PROPOSAL?

Our world is at a critical crossroad. Our very future and the existence of life depend upon us transcending our limitations by evolving solutions, which are at least one step above the thinking that created our problems.¹

As Australians, it is our responsibility to look after our country and its unique plants and animals. Custodial responsibility is at the heart of the post-logging vision for the Great Southern Forest (GSF) of NSW. This proposal heralds an alternative environmentally conservative and profitable future for the southeast region's forests for wildlife protection, job creation, and a changing climate.

The Great Southern Forest proposal is a widely researched, solutions-based initiative for the magnificent carbon and biodiversity dense south eastern native forests. It offers nature-based solutions to critical national and global problems at low cost and with great benefit in terms of climate stabilisation, environmental and economic success, increased resilience and biodiversity, regional employment, Indigenous participation and social coherence. It proposes a new model of forest management which is relevant and transferable nationally and internationally. The Great Southern Forest can reduce forest fragmentation thereby equipping forests as a whole with the capacity to withstand and ameliorate a disrupted climate.

Expiration of the State Forests' Regional Forest Agreements (RFAs) in the Eden (2019) and Southern (2021) sub-regions is the catalyst for re-evaluating logging-based forest management. The GSF proposal focuses on 432,757ha of State Forests from Nowra to the Victorian border and inland to the Tumut region; one third of NSW's entire public native forest estate (pp. 7-8). The GSF is not a plan for a reserves system. The vision is to unite the current mosaic of public forests, National Parks and private forests in an integrated, cohesive forest landscape with comprehensive environmental protections. The provisions of the Environmental Protection and Biodiversity Conservation Act (1999) Cth. do not now apply in State Forests.

The principles of the Great Southern Forest would protect the State's degraded forests and their remaining unique wildlife. It will reorient the Federal and State Governments to recognise our public native forests as an important land-based aid to climate stabilisation and carbon storage. Recognising the value of regenerating forests has become critical. Regrowth of forests to maturity may take up to 200 years. Native forest logging disregards the fact that "... south eastern Australia has the highest known biomass carbon density in the world".² Thus, the Australian Government has a moral obligation to support their protection.

NEW MANAGEMENT REGIME

The economy is a wholly owned subsidiary of the environment. Whether at a national or global level, the economy exists inside the environment—the ecosystem. It's a box inside a circle, if you like. All human activity—all our producing and consuming—depends directly on the natural environment. The air we breathe, the water we drink, the food we eat, the clothes we wear, the shelters we build and the energy we use all come from the ecosystem that surrounds us.³

This is the chance of a lifetime to implement new management which creates and supports sustainable jobs, creates healthy forest environments and acknowledges and observes global protocols. The GSF proposes halting native forest logging losses and directing funding into critically needed forest restoration and boosting tourism. Jobs under this model would be sustainable and free from social controversy. To reap the benefits, the Governments would terminate the RFA process and end the native forest logging sector.

The GSF proposes a new management regime akin to that outlined in the paper “*Climate Change and Forests of the Future: Managing in the Face of Uncertainty*”.⁴ The authors offer a conceptual framework for managing forested ecosystems and acknowledge that no single solution fits all future challenges. This restorative structure of adaptation and mitigation approaches could be well suited post logging to native forests in the southeast region as these forests offer unique refugia for threatened species.

Adaptation strategies take into account: *resistance* options offering protection of highly valued resources; *resilience* options to improve the capacity of ecosystems to return to desired conditions after disturbance such as logging; and, *response* options to facilitate the transition of ecosystems from current to new conditions. Mitigation strategies include options to sequester carbon and reduce CO₂ emissions.^a Management could apply new restorative technologies such as drones which plant 300 tree seeds per hectare in 18 minutes^b in degraded forest areas.

NEW JOBS IN SOUTHEAST NSW

*...citizens have right to live and flourish. Government, elected by the people, has a duty to protect the natural systems required for their survival: forests, wildlife, soil, water and air.*⁵

The Great Southern Forest proposes solutions for regional employment. Employment in native forest logging continues to decline. Only three small sawmills operate in the Southern Forest region and employ fewer than 100 people.⁶ After declaring losses for many years, the Japanese owners of the Eden chip mill, the only one still operating in NSW, sold it to Allied Natural Wood Exports in 2016. The chipmill employs fewer than 45 people and the native forest industry employs only 0.1% of the workforce state wide.⁷

The GSF advocates investment in a critically needed, job-intense forest restoration industry to:

- create tree nurseries and silviculture for multispecies regeneration
- plant millions of trees on cleared land to connect fragmented landscapes
- support critically endangered wildlife, hollow-dependent species and small isolated colonies of koalas
- install and monitor nesting boxes for hollows-dependent species whose habitats have been destroyed
- manage pests and weeds and controlling feral animals
- combat forest diseases such as *phytophthora*
- install signs and trail maps to ecological and cultural attractions
- grade and repair roads and replace culverts
- manage vegetation on roads/trails/walking tracks
- install and maintain fences and tourism infrastructure such as eco huts and facilities.

*To damage our Mountains is to physically damage us. The person is the Land and the Land is the person. Our connection with the Mountains, with this Earth, is alive and strong.*⁸

The GSF vision offers culturally responsive ways for Aboriginal people to play a vital role in land and native forest management and protection which complements Indigenous Rangers’ Skills, the Working on Country programs⁹, and the Plan of Management for the Yuin Bangguri Parks. Investment in activities such as Culture Camps involving cultural site management, bush harvest

^a See also, Professor Richard Hobbs’s extensive research into restoration of damaged landscapes. Richard Hobbs, IAS Distinguished Fellow, Ecosystem Restoration and Intervention Ecology Research Group, UWA. Hobbs, R.J. 2005. Landscapes, ecology and wildlife management in highly modified environments – an Australian perspective. *Wildlife Research* 32:389-398.

^b <http://www.biocarbonengineering.com/technologies>

for production of bush oils, language and artefact workshops, cultural burns, and development of media and communications through stories on Country would help preserve cultural histories and practices and create opportunities for Cultural enterprises in tourism.

Changing management of State Forests may also take pressure off National Parks by opening up State Forest areas to tourism development. In the southeast region, the growing tourism industry contributes far more economic benefit than forestry, fishery and agriculture combined, which comprise only 3.2% of the workforce.¹⁰ Tourism as one of the biggest employers requires the most infrastructure support. Over 60,000 international visitors travel to this region each year¹¹ and the benefits are shared across related businesses. Tourism Australia identifies 'immersion in nature' as the primary motivator for inbound and domestic travel markets. Tourists want adventure, such as Ranger led forest-based experiences, cultural, heritage and educational tourism. Seeking beauty, dark sky country and immersion in nature are primary motivators for inbound and domestic markets.

With a 'business as usual' approach to native forests, this prosperous and growing industry could be threatened by the rate of destruction of the natural beauty which forms the heart of the tourist experience. Global instances of pioneering restorative management of degraded landscapes have boosted the tourism industry.^c Tourists' lengths of stay could be extended by creating the environment for a world-class eco and cultural tourism industry capitalizing on the increase in the growing Asian tourist market. Local jobs for the rapidly expanding cruise ship market in Eden Port and outstanding nature-based experiences in Australia's Coastal Wilderness could be augmented.

CLIMATE STABILISATION AND CARBON BENEFITS

In 2013, Australia was the 13th highest carbon emitter per capital in the world. 16.3 metric tons per person, per year. Nearly double 1960's figures.¹²

Forests are living planetary organs which ensure homeostasis and so, the conditions for Life. Forests are living, breathing entities drawing down atmospheric carbon dioxide, storing it as terrestrial carbon, and breathing out oxygen. Globally, forests have been depleted to 1/8th their size from the beginning of the Industrial Revolution¹³ yet they are vital for climate stabilisation.

Climate disruption compounds and accelerates threats to habitats and biodiversity, and is the single biggest global threat to human health¹⁴ and the planet's economic future. Unlogged forests contain three times more carbon than logged forests.¹⁵ The forests of southeast NSW store more carbon than first thought so the carbon deficit from logging is underestimated as are the deficits associated with logging process.¹⁶ Whole interconnected forests have the capacity to address these multiple threats by actively sequestering carbon and maximising its storage.

The role of forests in climate dynamics and as carbon sinks was not considered when the Regional Forest Agreements were signed 20 years ago. Implementation of the RFA framework exacerbates critical current conditions. "In some respects, the RFAs must be viewed as being the antithesis of economic and environmental success".¹⁷ In contrast, the Great Southern Forest proposal integrates global climate science, and local empirical and scientific knowledge.

Ceasing public native forest logging can help Australia to cost effectively meet its carbon emission reduction targets. Carbon accounting for forests is mandatory under the Kyoto Protocol.¹⁸ As a signatory, the Commonwealth of Australia is internationally bound to meet

^c Such as in New Zealand, Gorongosa National Park Mozambique, and Brazil

emission reduction targets. This requires that all signatories implement protection and enhancement of carbon sinks and reservoirs.

Carbon sequestration policies remain at a higher level of abstraction, stating merely strategic objectives, possibly because these markets are only emerging and remain political and highly uncertain.¹⁹

The Lancet Commissions' enquiry²⁰ found that the greatest carbon mitigation benefit would be achieved by protecting native forests, afforestation and reforestation. The Paris Agreement, signed by 196 nations, allocated a separate Article²¹ to forests in recognition of the role they play as critical global carbon sinks.²² As the country with the most carbon-dense forests in the world²³, Australia can begin credible forest management by ending native forest logging.

SAFEGUARDING OUR WILDLIFE AND COMMUNITIES

Since 1788, nearly 65% of the koala forests of Australia have been cleared – over 116 million hectares. The remaining 35% (41 million hectares) remains under threat from land clearing for agriculture, urban development and unsustainable forestry.²⁴

Australia is facing an extinction crisis: the Australian Government lists more than 1,700 species of animals and plants at risk of extinction. We have the worst mammal extinction rate in the world. Over 30 native mammals have become extinct since European settlement. In the last 400 years, one in three global mammal extinctions have occurred in Australia. Around 30% of our surviving non-bat mammal species are threatened.²⁵

The unique Southern Koalas once roamed the region yet now only highly endangered small isolated colonies remain on the far south coast.²⁶ The EPBC Act does not protect them in State Forests.²⁷ Koalas prefer deep-rooted, tall specific eucalypts and logging compromises their ability to disperse and breed with other populations in the southern highlands, north-eastern Monaro and the far south coast.

The Commonwealth states that firewood harvesting of the habitat of hollows-dependent threatened species (such as the Glossy Black-Cockatoo, Swift Parrot and Superb Parrot) is a key threatening process.²⁸ Hollow-bearing trees in State Forests are not given the protection they require.²⁹ Mature and old hollow-bearing trees provide flowers, nectar, fruit and seeds and a complex substrate that supplies diverse habitats for invertebrate populations.³⁰ The southeast region hosts endangered hollow-dependent fauna such as the Yellow Bellied Glider and the Powerful Owl. When the fragile and defenceless Greater Glider loses its home tree it goes to ground and a predator takes it. Native forest logging and burning destroys the maturity of essential wildlife habitat. Logging rotation lengths are too short as hollows don't form in eucalypts younger than 100 years and some wildlife species need trees older than 150 years. Whole forests are needed for wildlife preservation; not fragmented parcels.

In April 2015, the World Wildlife Fund listed Australia as “one of 11 places around the world that will account for 80% of global forest loss by 2030”.³¹ Nearly 300,000 ha of the State's native forests in the Southern Region are logged. These native forests support wildlife, store and draw down carbon, protect soil, and provide us with clean water. Logging removes canopy shade, causes emissions, compacts soil and yet also causes erosion and downstream sedimentation^{32 33}, and “is in conflict with maximised water yields from native forests”.³⁴ This jeopardises the supply of clean water from catchments to local communities, and affects fish nurseries and aquaculture such as oyster production.³⁵ Canopy removal dries forest floors so logging makes forests more fire prone.^{36 37}

Native forest logging is a key threat to our native wildlife as it causes habitat destruction, modification and fragmentation and alters the natural species composition. Australia has a dismal record of species extinctions, and the number of species being declared vulnerable or threatened continues to grow. The Great Southern Forest would create a protected and connected landscape to help reduce loss of our unique wildlife. The GSF can protect vulnerable and threatened wildlife by safeguarding habitat and restoring the connectivity wildlife needs to roam and breed.

A National Parks Association study determined, “The RFAs did not achieve intended targets to protect threatened species, and the RFAs have reduced protections for threatened species as compared to protections under the EPBC Act 1999”.³⁸

The GSF would improve the health of the region’s communities by avoiding the use of poisons and post-logging burning, and improve the emotional health of people, and wildlife carers, for whom native forest logging causes angst and stress. Communities seeking justice for our native forests is echoed in a study³⁹ arguing for ecological justice to be considered as “an important aspect of more socially orientated environmental justice for forest protection”.

FINANCIAL BENEFITS

*Much of our economic activity involves misusing, overusing and abusing the natural environment. We've done great damage to our soil, rivers and aquifers, we've destroyed much habitat and many species, and now the world's overuse of fossil fuels is playing havoc with the climate.*⁴⁰

The native forest woodchipping sector of NSW is not financially or economically viable; it is unprofitable, in decline, and has been displaced by the expanding plantation industry. Over 80% of sawn timber from NSW now comes from mature Australian softwood plantations.⁴¹ Between 2009 and 2014 the Softwood Plantations Division of Forestry Corporation (formerly ForestsNSW) cross-subsidised native forestry logging to the order of \$79 million.⁴² Average losses in other recent years have been \$11 million per year.⁴³ Thus, native forest logging makes no economic sense and is heavily subsidised by the taxpayer. Diverting native forest logging subsidies, and jobs, into softwood plantations could result in a larger overall timber industry.⁴⁴

Additionally, carbon credits, as part of an honest carbon accounting scheme, could offer a viable economic alternative to failing commercial forestry, with its declining output and employment. The Australia Institute reports that “native forestry doesn’t currently provide any economic value to the state of NSW, and that citizens of NSW would be \$40 million per year better off if native forests were left alone rather than logged”.⁴⁵

The developers of this proposal welcome engagement in State and Federal Governments’ initiatives to set right the consequences of native forest logging for woodchips generated by inappropriate past decisions which unfortunately failed to take into account either its detrimental impact on the environment and the economy, or the importance of the role played by healthy forests in a changing climate.

ENDORSERS OF THE GREAT SOUTHERN FOREST

Australian Association of Bush Regenerators	Montreal Goldfield
Australian Earth Laws Alliance	Mulong
Australian Forests and Climate Alliance	My Environment
Australian Plants Society	National Parks Association (Far South Coast branch), NPA NSW
Australian Rainforest Conservation Society	National Trust NSW
Australian Wildlife Society	Nature Conservation Council NSW
Bega Valley Greens	North Coast Environment Council
Better Planning Network Inc.	NSW Bird Atlassers Australia Inc.
Clean Energy for Eternity Inc.	NSW Wildlife Council Inc.
Conservation Council ACT Region	Potoroo Palace
Conservation Council of South Australia	SCPA South East Producers
ecospecifier global	SEE-Change, Society, Environment and Economy
Environment East Gippsland	South East Region Conservation Alliance Inc.
Environment Victoria	Stop Arms Fairs in Eurobodalla
Forest Media	The Wilderness Society
Four Winds	Threatened Species Art Competition
Friends of Leadbeater's Possum	Total Environment Centre
Friends of the Earth Australia	Trees for Life
Friends of the Koala Inc.	Western Australia Forest Alliance
Global GreenTag Pty Ltd	Wildlife Rescue South Coast
Green Music Australia	19/06/2018
Healesville Environment Watch Inc.	
Lawyers for Forests	

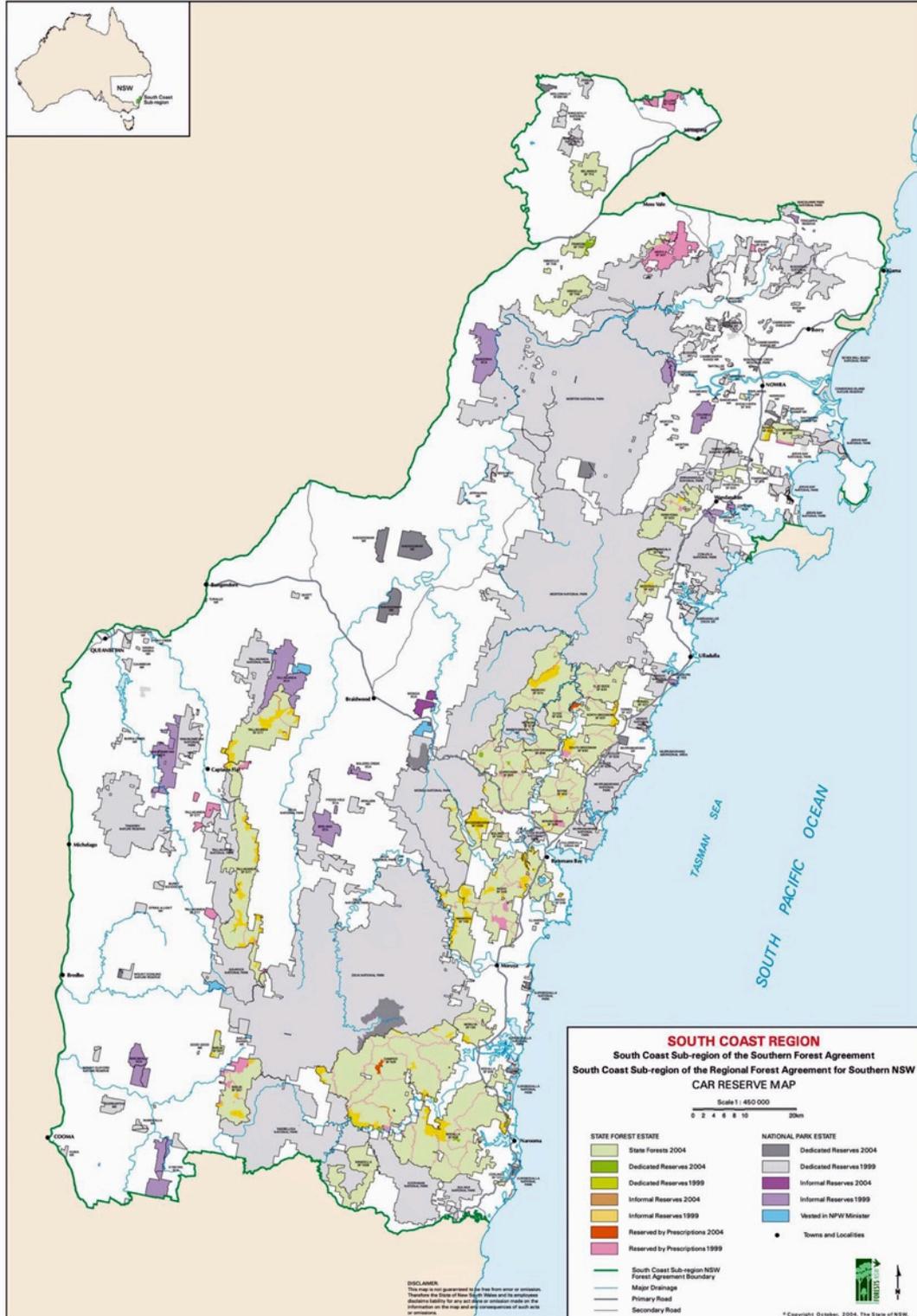
MAP OF THE SOUTHERN AND EDEN REGION'S CAR RESERVES

CAR Reserve - Comprehensive, Adequate and Representative Reserve System for Forests in Australia Requires Immediate Review

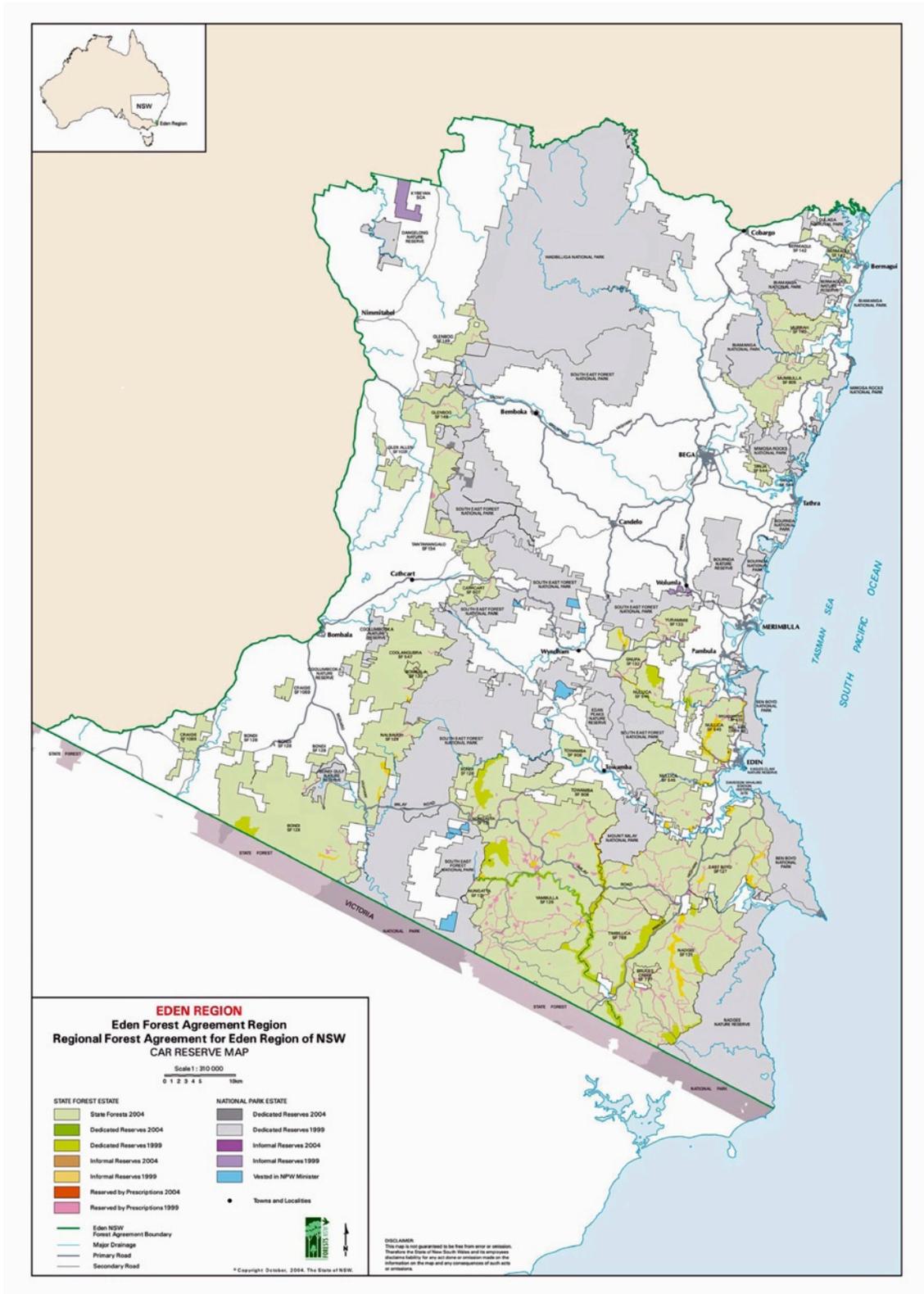
The CAR reserve system is an area of landscape representing no less than 15% of all the ecological vegetation classes in forested estates. Outside of the CAR Reserve, the landscape is open to logging. The Regional Forest Agreements are agreements across the forests that permit logging on the proviso that a CAR Reserve is in place, however, since successive Victorian bushfire's, the CAR Reserve is longer representative nor adequate and requires immediate review.

The legal permits of the Regional Forest Agreements are predicated on a CAR Reserve acting like an Ark or climate refugia for biodiversity. This is so that stand-altering disturbances such as logging can cut down ecosystems without the consequences of imminent extinction for at-risk

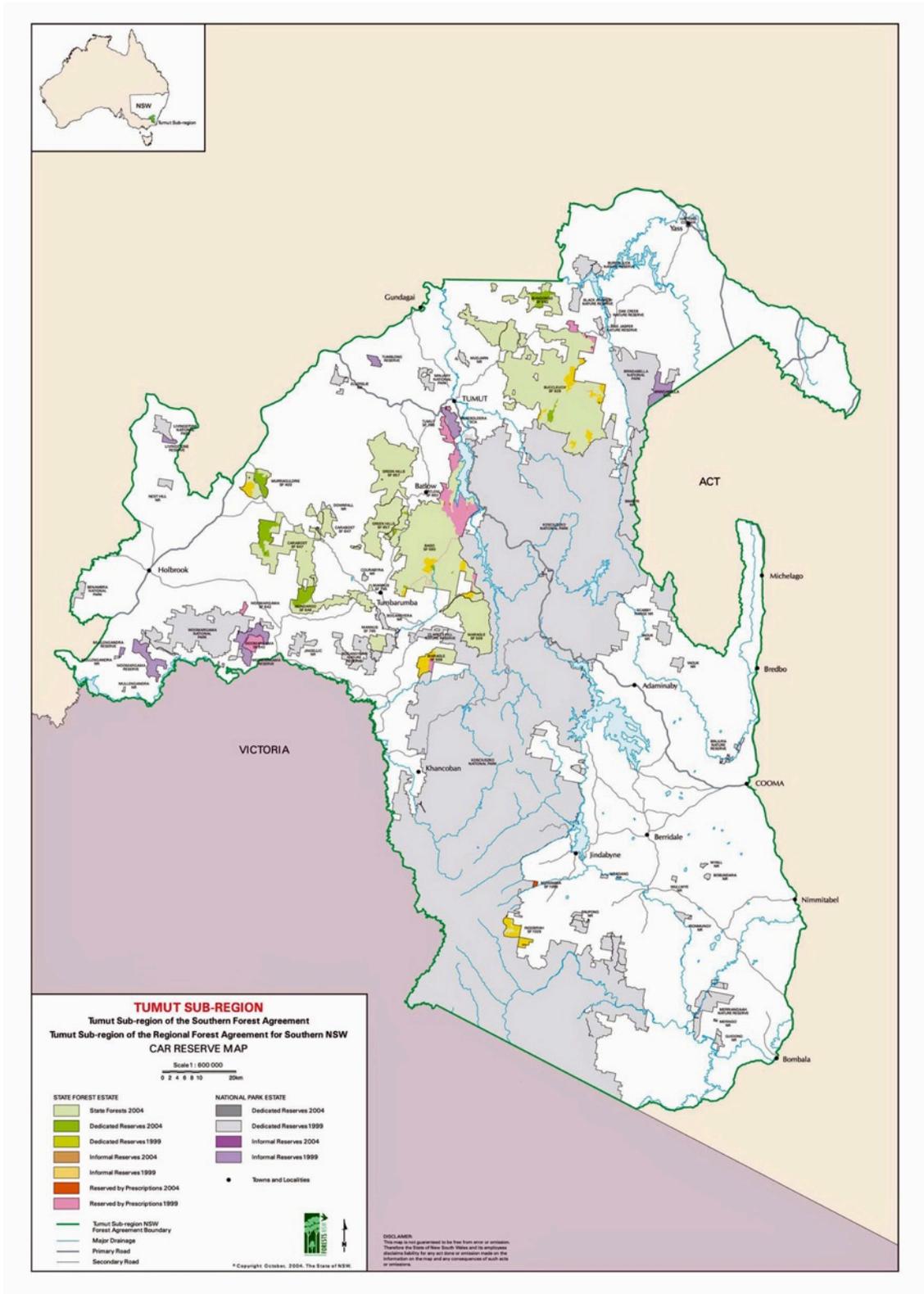
species. If the CAR reserve is no longer supporting the populations of wildlife and flora it's assumed exists, then the logging risk is raised in its likelihood to create extinction events or feedback.⁴⁶



Map 1: South Coast sub-region of the southern forest region



Map 2: Eden region of the southern forest region



Map 3: Tumut sub-region of the southern forest region

LIST OF THE SOUTHERN REGIONS NATIVE STATE FORESTS

List of Southern Region's Native State Forests

denotes management by two regions * GIS / survey area

	Forest Name	Hectares		Forest Name	Hectares	
1.	Badja	7156		40.	Moruya	4527
2.	# Bago	32190		41.	Mowamba	167
3.	Bateman	0.60		42.	Mumbulla	5971
4.	# Belanglo	2324		43.	# Mundaroo	1951
5.	Benandarah	2489		44.	# Murraguldrie	2550
6.	Bermagui	1829		45.	Murrah	4592
7.	Bodalla	23987		46.	Nadgee	20216
8.	Bolaro	1810		47.	# Nalbaugh	2761
9.	# Bombala	337		48.	North Brooman	3626
10.	# Bondi	8334		49.	Nowra	578
11.	# Bondo	14278		50.	Nullica	14281
12.	Boyne	6195		51.	Nungatta	915
13.	Broadwater	160		52.	# Penrose	442
14.	Bruces Creek	991		53.	Shallow Crossing	3948
15.	Buckenbowra	5043		54.	Shoalhaven	94
16.	Bungongo	2401		55.	South Brooman	5537
17.	Carabost	2708		56.	# Tallaganda	24796
18.	Cathcart	1614		57.	Tanja	874
19.	Clyde	3565		58.	Tantawangalo	2181
20.	Coolangubra	968		59.	Termeil	573
21.	Corunna	197		60.	Timbillica	8094
22.	Currambene	1676		61.	Tomerong	210
23.	Currowan	12035		62.	# Towamba	960
24.	Dampier	33671		63.	# Tumut	1104
25.	East Boyd	18585		64.	Wandella	5452
26.	Flat Rock	4829		65.	Wandera	5196
27.	Glen Allen	1083		66.	# Wee Jasper	1217
28.	# Glenbog	8624		67.	# Wingello	2318
29.	Gnupa	1353		68.	Woodburn	10
30.	Ingebirah	2657		69.	Woomargama	1849
31.	Jellore	1400		70.	Yadboro	10689
32.	Jerrawangala	575		71.	# Yambulla	45707
33.	Kioloa	379		72.	Yarrawa	121
34.	Mannus	888		73.	Yerriyong	5489
35.	Maragle	13846		74.	Yurammie	3061
36.	McDonald	3788				
37.	# Meryla	3821				
38.	# Micalong	2736				
39.	Mogo	14584				

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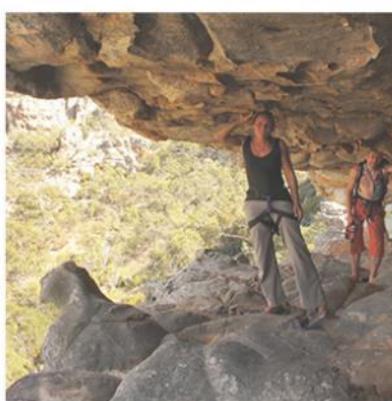
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Forests For All

Think BIG and see the benefits grow



Acknowledgement of Country

The National Parks Association of NSW acknowledges the Aboriginal people of NSW as the traditional owners of the forests of NSW.

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List of abbreviations

Abbreviation	Full term
ACT	Australian Capital Territory
BMAD	Bell Miner Associated Dieback
CAR	Comprehensive, Adequate, Representative
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Community Service Obligation
DEA	Doctors for the Environment Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERF	Emissions Reduction Fund
Forestry Corporation	The Forestry Corporation of NSW
IPA	Indigenous Protected Area
KTP	Key Threatening Process
NPA	National Parks Association of NSW Inc
NPWS	National Parks and Wildlife Service
NSW	New South Wales
R&D	Research and Development
RFA	Regional Forest Agreement

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Executive summary

The coming years offer a historic opportunity to protect public native forests, the wildlife they support and the services they provide to people. As the Regional Forest Agreements (RFAs) expire in the coastal forests of NSW, The National Parks Association of NSW (NPA) is proposing an exit from logging public native forests so that forests better deliver benefits to the entire community. We want to protect forest wildlife, safeguard the benefits of forests to people and increase public access to forests so regional communities can flourish. We can achieve this by using our public native forests—two million hectares of precious public land—in a better, more inclusive way.

What do we want?

In a nutshell, we want to see our forests better protected and used more inclusively. So we're proposing that public native forests, those currently used primarily for timber extraction, are protected in one of the reserve categories under the *National Parks and Wildlife Act* or in Indigenous Protected Areas that best considers the needs of local communities. We believe this shift in management would help NSW maximise its natural advantages of a beautiful climate, majestic landscapes and unique forests and protect the important services that forests provide to communities.

This would protect incredible wildlife like koalas, quolls, gliders and large forest owls—all currently suffering major declines. But with smart, regional-scale recreation planning, these forests could also be used alongside other protected area categories for an expansion of nature-based and adventure eco-tourism; increase opportunities for outdoor education and to provide high quality recreation options for communities.

The use of different protected area categories means recreation activities not suitable for national parks could be accommodated. So too could ecologically sensitive infrastructure such as tree-top walks, eco-hubs and outdoor education facilities. This approach would simultaneously ensure national parks and nature reserves—the jewels in the crown of protected areas—are protected from damaging development and activities.

Importantly, it could also provide increased opportunities for Indigenous people. Joint or co-management arrangements, the use of traditional practices to be employed in forest management, cultural tourism and Aboriginal use of forest products are some of the ways in which Aboriginal people could benefit economically and culturally from forest management should they choose to do so.

It would also increase the opportunities for small business creation and provide long-term, rewarding jobs for people in regional areas that are crying out for job diversification. This includes jobs in forest rehabilitation for foresters, forest-based jobs and business opportunities for Indigenous owners and jobs for the broader community in eco-tourism, recreation, service and support industries.

We see a future where outdoor education for our children is focussed on forest eco-hubs that would also serve as focal points for tourist infrastructure and recreation. We want to make sure future generations in NSW have regular opportunities to get away from screens to visit forests, learn new skills and stay fit and healthy. This would help achieve the Premier's Priority of reducing childhood obesity.

When do we want it?

The tail end of the RFAs is the time to act. The RFAs, and the timber contracts they underpin, have been in place for 20 years and have dominated the use of public forests. When they expire from 2019, we must seize the opportunity to protect nature and support regional communities in the management of this vast swathe of public land for public good.

Why do we want it?

Our forests are more than just sources of wood. They support some of the most unique species in the world, and they're the only place on earth where many of these species are found. They're sites of cultural significance for Aboriginal communities. They provide every citizen on the east coast of Australia with clean and reliable water, and remove carbon from the atmosphere that helps keep our climate benevolent for humans to thrive. This importance is explicitly recognised in the Paris Climate Agreement by forests having been afforded a separate article in

recognition of their vital role as carbon stores. And of course, forests provide places for humans to have fun and enjoy nature which is beneficial to health and wellbeing.

NPA's analysis, conducted in 2016, showed that the RFAs have failed in all of their aims. They have failed to protect forest species, drained our water supplies and reduced carbon stores. They have even failed in the aim of providing economic stability to forest industries: employment has steadily declined and logging is propped up via a range of State Government subsidies and hidden costs borne by ratepayers at a local government level.

So let's be brave enough to admit when something's not working and call time on a failed experiment. So much has changed in the 20 years since the RFAs were signed. Climate change wasn't even considered as part of the RFA process! Now climate change threatens our entire way of life, threatens our water supplies and our wildlife and logging is diminishing our best stores of land-based carbon. Continuing as if nothing has changed is reckless. We now know the value of water and carbon. We know nature is the key driver of our tourism industry and that protected areas are the foundation of regional communities. This plan outlines the next big step in the protection of NSW's unique forests.

How can we achieve this?

NPA proposes to ensure forests are well managed under the new framework, and commits to working with stakeholders to ensure this is the case. Assessments and categorisation of forests post-logging should include a means to make sure recreational activities and visitor infrastructure are put in the right places in the landscape to protect natural and cultural values while providing high quality visitor experiences. A monitoring framework would also be built in so that impacts can be predicted and assessed, and management to reduce impacts targeted at the right place. Assessments should be in consultation with user groups, experts in protected area management, non-governmental organisations and local communities. An adequately resourced National Parks and Wildlife Service is the appropriate public agency to manage all native forests reserved under this plan.

Initial government investment would be needed to upgrade public infrastructure and provide the certainty for the private sector to take advantage of the fresh opportunities. It's important that small businesses are encouraged, because this would kickstart employment in regional areas and drive the visitor economy. One way to help this to happen would be for government to provide low-cost loans to those that want to create new businesses based on nature based tourism or recreation in forests. This model of private sector delivery on public land using publicly owned infrastructure has been used successfully in New Zealand and Europe.

NPA proposes that the NSW and Commonwealth governments work together to incentivise both the plantation industry and farm forestry to provide a sustainable, alternative source of hardwood firewood to local regional markets in the long term. Opportunities also exist in research and development into alternative fibres, hardwood plantations to supply timber and engineered timbers. For example, acetylation can render fast-growing softwood as durable as hardwood. An expanded Indigenous Ranger program would create further jobs in forest management for Aboriginal people.

We are confident that our plan will see a net increase in jobs in regional areas—many of which urgently need alternative angles of employment. Importantly, we also want to see an increase in the number of small businesses involved in forest tourism and recreation and we want to increase opportunities for Indigenous owners to develop and run businesses and take advantage of employment opportunities.

It's possible if we work together!

We have a golden opportunity to make this bright new future a reality as the RFAs draw to their conclusion. NPA is working to build a broad alliance of conservation, recreation, tourism, health and community groups that will support this future. We see local government as a key ally because local communities currently bear many of the hidden costs of logging. We are asking supporters to use our plan to advocate a change of use for forests to the State Government and opposition, to make their members aware of the proposal and to share updates and to provide a logo and a short paragraph about why they see this as important.

The expiry of the Regional Forest Agreements offers a golden opportunity

Regional Forest Agreements (RFAs) are 20-year agreements between the State and Commonwealth Governments that permit logging of public native forests in New South Wales (NSW), Victoria, Tasmania and Western Australia. RFAs were intended to provide for multiple use of forests including timber harvesting, recreation and conservation and to ensure certainty for the timber industry. In NSW there are four RFAs applying to the coastal and near-coastal forests of NSW: Upper and Lower North-East, Eden and Southern (Figure 1). Eden is the first RFA to expire in NSW in 2019, followed by Upper and Lower North-East in 2020 and Southern in 2021.

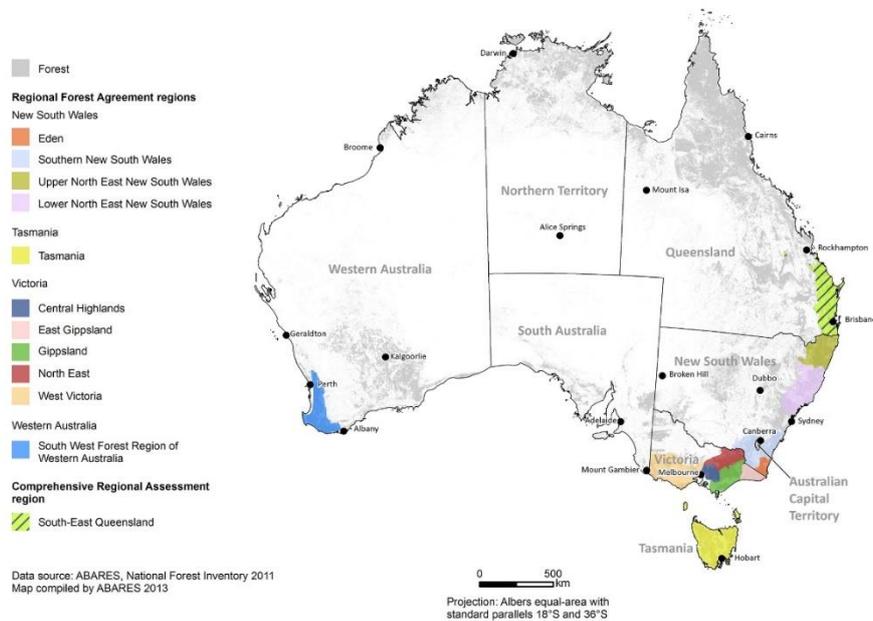


Figure 1: Regional Forest Agreement regions across Australia. Grey shading denotes forests. Map courtesy of the Australian Government's Department of Agriculture and Water Resources.

In 2016, NPA conducted an analysis of the extent to which the RFAs have met their stated aims¹. Our report showed that the RFAs have failed in all of their aims to a greater or lesser extent—particularly those pertaining to Ecologically Sustainable Forest Management, but including failing to deliver economic stability for the logging industry.

NPA proposes that the expiry of the RFAs in NSW be the point at which the State exits native forest logging on public land, transitions to 100% plantation timber and alternative fibres for wood and fibre needs and protects public forests for the benefit of the entire community. Our plan would see all public forests in the RFA regions protected and access to forests promoted for Indigenous uses, recreation and nature-based tourism to benefit regional communities.

This plan focusses on those forests to which an RFA applies. NPA does not condone logging in the red gum or cypress forests and supports an exit from logging in these areas also. This plan, although focussed on RFA regions, could be readily applied to forests that are logged outside an RFA.

We see this as occurring via a number of key steps that are discussed in more detail throughout the document.

1. Forests are protected in one of the reserve categories under the *National Parks and Wildlife Act* or as Indigenous Protected Areas, considering the needs of local communities and other important elements.
2. The NSW Government makes initial investment (in the order of \$500 million) to upgrade tourism and recreation infrastructure, provide low-cost loans to individuals or businesses who wish to take advantage of the new forest paradigm and fund forest restoration.
3. Assessments and reserve categorisation of public forests ensures that:
 - i) Recreation activities are located in the correct place to ensure both protection of environmental and cultural values and support recreational and tourist user satisfaction and;

- ii) A monitoring programme is developed so that recreation and tourism impacts are managed to ensure the enhancement of environmental and cultural values over time.
- 4. Plans of Management are developed for public forests in order to guide both appropriate use and restoration.
- 5. Workers in the timber industry are transitioned to the National Parks and Wildlife Service to undertake forest management and restoration roles.
- 6. The NSW government incentivises plantations and alternative fibres to produce wood and wood substitutes, as well as small-scale agro-forestry to provide local firewood markets.

NPA's vision for public native forests

Our forests provide safe, well-connected habitats for native wildlife, the benefits forests provide to the people of NSW are maximised, and forests help NSW to become a world leader in nature-based tourism, recreation and outdoor education.

Nature: Australia's prime asset being compromised by logging

The protection of forests and forest wildlife is the key driver behind NPA's plan. This is because the RFAs have proved ineffective at protecting forests and forest wildlife. Key areas of failure of the RFAs include:

Loss of tree hollows

Native forest logging drives declines in large old trees and the hollows they possess²⁻⁶, and therefore hollow-dependant species are known to be most sensitive to logging^{2,7,8}. The loss of hollow-bearing trees is a Key Threatening Process in NSW⁹. Many forest mammals that utilise hollows are iconic and found nowhere else on earth including the brush-tailed phascogale; yellow-bellied glider; greater glider and squirrel glider. The loss of hollows via logging has been identified as a threat to all of these species¹⁰. Arboreal mammals such as these may become prey to large forest owls that are also threatened by the loss of tree hollows for nest sites¹¹.

A minimum of 120 years is required for hollow formation in most eucalypt species and much longer for many¹². Logging shifts the age-class distribution of trees from old, hollow-bearing trees to younger trees with fewer hollows¹³. Industrial native forest logging is therefore incompatible with the retention of tree hollows, because it is not possible to have rotation durations of adequate length to allow the replacement of lost hollows.

Bell Miner Associated Dieback

Also termed 'logging dieback', Bell Miner Associated Dieback (BMAD) is a complex cascade of ecological interactions that ultimately causes canopy dieback and sometimes death in canopy eucalypts. BMAD is identified as a Key Threatening Process (KTP) in NSW¹⁴. It is an excellent example of how logging has unforeseen consequences in forests that go beyond just the removal of trees. Moist forests, such as those in the North East RFA region are most susceptible¹⁵ and 2.5 million hectares of forests are thought to be at risk in eastern NSW¹⁶.

A simplified explanation of the mechanism behind BMAD is:

1. Logging removes the canopy allowing increased light penetration;
2. This in turn facilitates invasion by the invasive species *Lantana camera* (note that *Lantana* invasion is in itself a KTP¹⁷) which provides preferred dense habitat for aggressive bell miners (insect-eating birds);
3. The bell miners drive away other bird species in order to hoard insect food resources;
4. These insects feed on the leaves of eucalypts and, because there are fewer bird predators, increase in numbers;
5. The increased insect load on the trees causes canopy dieback and, in extreme cases, tree death.

Fire

In the 2009 Black Saturday fires in Victoria, recent logging increased the probability of a crown fire in a range of forest types^{18,19}. Logging can increase the susceptibility of moist forests—such as those found in all of the RFA regions—to fire via several methods²⁰:

1. Altering the microclimate by removing the canopy;
2. Altering stand structure and composition;
3. Altering fuel characteristics (e.g. via adding fine fuel for ignition);
4. Increasing or altering ignition points (e.g. via road creation providing access to forests) and;
5. Altering the spatial pattern of stands which can influence fire spread.

Ending logging would therefore offer an opportunity to look at ways to decrease fire risk in public native forests. In a time where climate change is accelerating it is a prudent step to ensure that the natural defences that forests have against fire (intact canopies, shady diverse understories, moist soils and healthy waterways) are maximised. There are also opportunities to reduce roading in state forests to reduce ignition points. This would help minimise the risk to life and property in the region without compromising the best-practice use of fire as an ecological management tool.

Impacts on native species

At the time of the last *State of Australia's Forests* report (2013) there were a total of 1,413 forest-dwelling species of flora and fauna on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Between 2006 and 2011, 89 species were added to the list of threatened species while 21 were removed²¹. In 2004, 40 of 81 extant forest mammals in NSW were listed as threatened, and of the 41 not listed, 34 had declined¹³.

Australia has recently seen substantial population declines in many common and rare species (such as greater gliders, koalas, Leadbeater's possum and the swift parrot), including local extinctions^{10,22-25}. The rapid decline of greater gliders has largely been attributed to industrial and clearfell logging resulting in habitat fragmentation and loss of hollows²⁶. The recent decline of the greater glider is particularly concerning because the species was until recently considered common and secure. This highlights that there is no room for complacency in the protection of forest species²³, and how a precautionary approach is necessary to avoid unforeseen species declines.

Direct mortality

Underlying declines in species are deaths of individual animals. In the 1980s a series of studies in the Eden area of NSW used counts of dead arboreal mammals by logging crews to answer various questions as to species distributions²⁷⁻²⁹. The studies identified 930 dead mammals of seven species (greater glider, yellow-bellied glider, feathertail glider, sugar glider, brush-tail possum, ring-tail possum and pygmy possum) over 5000 hectares. Ending industrial logging in public forests would reduce direct mortality of forest animals, thus reducing pressure on populations.

Accreditation under Commonwealth law

The RFAs provide for a mechanism by which logging in the States is accredited under the Commonwealth's EPBC Act, so Commonwealth oversight is removed from the day to day management of native forests. This has weakened protection for threatened species compared to that afforded under the EPBC Act³⁰. This is primarily because:

1. The States have lower regulatory requirements than those imposed by the EPBC Act. For example, in NSW and Tasmania the RFAs have exempted forestry operations from State laws pertaining to threatened species;
2. The States have failed to take into account new information on threatened species and biodiversity, therefore locking in poor environmental outcomes;
3. RFA reviews have not been sufficiently timely or thorough, with the result that it has not been possible to ensure compliance with RFAs and therefore to justify the accreditation of logging via the RFAs under the EPBC Act;
4. Monitoring, compliance and enforcement has not been adequate, and;
5. There are limited third party participation rights (i.e. the public cannot readily challenge breaches of logging licenses). This has also resulted in ongoing conflict in all RFA States.

Koalas

Koalas were not listed under the EPBC Act during the signing of the RFAs. In 2012, koala populations in NSW, Queensland and ACT were listed under the EPBC Act after having been assessed as having undergone a population decline of 33% between 1990 and 2010¹⁰. Despite knowing that many koala populations have been declining for decades³¹, and awareness of policy issues preventing effective action³², recent research shows continued declines in most koala populations in NSW³³.

Koalas prefer larger trees, more mature forest age-classes and low disturbance^{34,35}. Industrial logging techniques that remove a large proportion of the basal area are not compatible with koala conservation³⁶. Implicitly recognising this, the NSW Government declared 12,000ha of flora reserves between the Bega and Bermagui Rivers in March 2016 to protect the remaining koalas on the far south coast of NSW. Land clearing, climate change and intense woodchipping have reduced this population from one large enough to support a pelt industry in the late 19th century to the currently estimated 80-100 animals³⁷.

Climate change

A key aim of the RFAs is the maintenance of ecological processes in forests—including the carbon cycle. In south-eastern Australia, logged forests have carbon stores of between 40 and 60% of undisturbed forests³⁸⁻⁴⁰. Nationwide, approximately 44% of carbon stocks have been lost from Australia's temperate forests due to deforestation⁴¹. Despite this knowledge, carbon transfer from native forests into wood products is increasing^{21,42}. In the Victorian Central Highlands—the only RFA region for which detailed data exist—the majority of wood that leaves the forest is pulped and the products (like office paper, toilet roll, coffee cups and pallets) end up in landfill quickly, with hardly any (4%) having a lifespan of >90 years⁴⁰. In addition, a large volume of short-lived woody material is generated through logging that never leaves the forest and which is also short-lived^{40,43,44}. This results in forest carbon quickly entering the atmosphere and contributing to climate change.

In contrast, undisturbed forests are huge stores of carbon. This is explicitly recognised in the Paris Agreement, signed by 192 countries, that accorded forests a separate article in recognition of their globally significant role as carbon stores. Temperate eucalypt forests are the most carbon-dense in the world^{38,45,46} and in the Southern Forestry Region of NSW (which incorporates the Eden and Southern RFA regions), managing forests for conservation rather than timber production could result in 1.2-1.5 million tonnes of avoided emissions per year⁴³. Comparable data are not available for northern NSW.

The restoration of public native forests would therefore effectively contribute to our international obligations for mitigation of carbon emissions, and the protection of existing areas not already logged would also enhance opportunities for climate adaptation for species affected by localised impacts associated with global climate change⁴⁷.

Human health and wellbeing

Climate change also poses enormous threats to human health. Doctors for the Environment Australia (DEA) state that “climate change is widely regarded as the biggest threat to health in the 21st century”. In a review, DEA highlight health impacts of climate change via a range of factors including extreme heat, bushfires, floods, nutrition, disease and pollution. These threats will be particularly relevant to the most vulnerable groups in society including children, the elderly, pregnant women and Indigenous communities⁴⁸.

It is well established that exercise is good for us, so promoting public access to forests for a diverse range of activities will help ensure that our growing population has opportunities to get outdoors in natural areas and stay physically fit. For example, one of the NSW Premier's Priorities is reducing childhood obesity. This plan could help achieve that reduction by providing a pathway by which children can play and exercise in a natural setting, thus spending more time outdoors and active.

But besides physical fitness there is also an ever-increasing body of evidence that contact with nature is vital for our mental wellbeing^{49,50} and can help increase productivity and creativity. A recent study in Australia showed that the magnitude of this benefit was linked to dose—how often people engaged with nature—and that such benefits could reduce the medical costs of depression alone by \$800 million per year⁵¹. For children, outdoor learning and contact with nature can benefit a range of skills, such as reasoning, but can also improve concentration⁵², calmness, empathy and self-esteem⁵³.

Parks Victoria estimates that avoided healthcare costs in Victoria from physical activity being undertaken in National Parks is up to \$200 million per year⁵⁴. The cost of infrastructure, like trails, to provide access to natural areas is outweighed by the savings in health costs⁵⁵. Our plan will increase the opportunities for adults and children to get out and play, improving both physical and mental well-being, and benefiting society more broadly via a healthier, happier workforce. It will also help reduce climate-related risks to health by reducing emission from logging and increasing carbon stores.

Jobs and the economy

NPA wants to see the protection of forests lead to sustainable and diverse employment opportunities for regional communities. One of the main aims of the RFAs was to create certainty for the logging industry—both in terms of access to wood to make money and in the provision of jobs. Unfortunately the RFAs have not succeeded in achieving either. The main arguments used to perpetuate logging are those around jobs. So it is important to have a look at some of the facts and figures on the economics of logging.

Money

Between 2009 and 2012 the Forestry Corporation of NSW (Forestry Corporation) lost \$85 million in native forest logging operations⁵⁶ and the NSW Auditor General identified Forestry Corporation as having lost \$14.4 million in 2007-8 alone⁵⁷. A 2015 report showed that between 2005 and 2014 Forestry Corporation made, on average, \$20 million per year. However, this was combined native and plantation sectors: the native forest sector lost on average \$13 million per year or \$78 million between 2009 and 2014 and was subsidised by the profits associated with plantation forests. This cross-subsidisation by the plantation sector results in lower dividend payments and therefore a loss to the citizens of NSW⁵⁸. In 2014, as a result of over-estimated wood supply the citizens of NSW, via the NSW Government, ‘bought back’ 50,000m³ of contracted, but non-existent, timber from Boral for nine years (450,000 m³) at a cost of \$8.55 million⁵⁹.

Since 2005, Forestry Corporation of NSW has received \$137 million from NSW Treasury in the form of a Community Service Obligation (CSO)—\$9 million more than it paid in dividends. This means, in effect, that the NSW Government paid \$9 million to Forestry Corporation to provide services⁵⁸.

The CSO is used for the provision of recreation facilities, education, government liaison, fire management and the management of non-productive land. The proportion of CSO funding spent on recreation has fallen from approximately 25% in 2012-13 to 12% in 2015-16 (Figure 2). Forestry Corporation provides a range of facilities with this funding, but this is restricted to those facilities required for overnight stays or picnic visits, rather than recreational infrastructure such as hiking tracks or mountain bike trails (Table 1). Unlike with national parks there are no data available on the visitation rates to state forests, nor the activities being undertaken by those visitors.

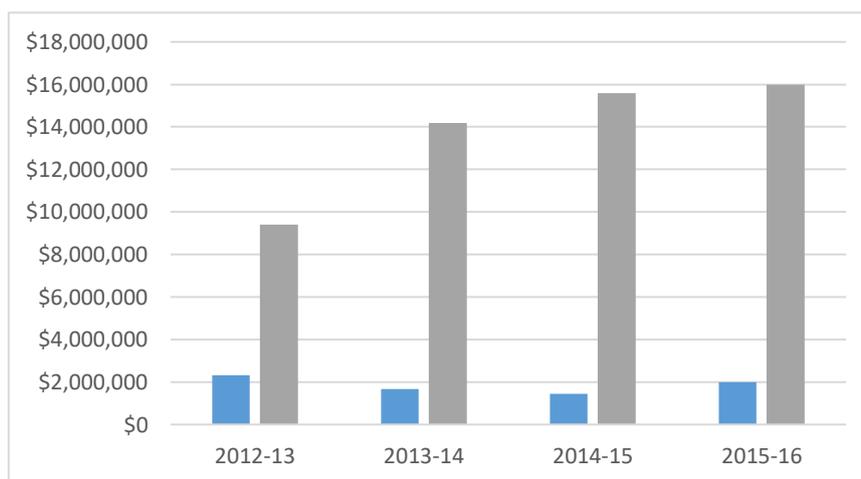


Figure 2: Community Service Obligation funding (grey bars) and the portion spent on provision of recreation services (blue bars) between 2012 and 2016 (millions of dollars). Source: relevant Forestry Corporation annual reports and Government Information Public Access (GIPA) requests.

Table 1: Type and number of recreation facilities provided by Forestry Corporation at 130 sites across all NSW state forests. Source: Page 3, Forestry Corporation Sustainability Supplement 2014-15.

http://www.forestrycorporation.com.au/data/assets/pdf_file/0003/590340/FCNSW0281-SustainabilitySupp_FY15010216.pdf

	2012-13	2013-14	2014-15
Camping area	48	48	48

Caravan site	19	19	19
Fireplace / BBQ	61	56	57
Picnic area	69	64	65
Rubbish collection	30	26	26
Toilets	61	57	58
Water	40	40	41
Wheelchair accessible toilets	7	6	6

Although all publicly-owned entities are exempted an obligation to pay rates, Forestry Corporation differs from other public bodies such as the NPWS by being a for-profit entity. A 2013 analysis of local government rates exemptions in NSW by Deloitte Access Economics concluded that this rates exemption for Forestry Corporation, unlike that of NPWS, is likely to be ‘unwarranted on equity grounds’ due to this goal of profit⁶⁰. In Bega Valley Shire lost rates revenue to council from state forest is estimated at \$6.4 million per year. Local government also picks up the tab for infrastructure damage: log trucks are heavy and cause damage to roads. Were Forestry Corporation required to pay its way on rates and infrastructure, the \$20 million average annual profit would likely turn into a loss⁵⁸.

A PricewaterhouseCoopers report⁶¹ on logging in Victoria found that \$5 million of investment on roads, machinery and equipment was required for the creation of every native timber job—approximately 12 times more investment than for other industries and almost 10 times greater than the plantation sector. For every \$1 invested, just 14 cents in both direct and indirect benefits were delivered to the economy. The Victorian Central Highlands RFA region, upon which the report was based, is one of the most profitable in Australia due to the size and growth rate of the mountain ash trees. Figures are therefore likely to be even worse in NSW.

This report led a ‘senior Liberal’ to describe the level of government support to the industry as ‘totally irrational’ and to observe that ‘the private sector wouldn’t touch this with a 10-foot pole’^a.

Jobs

The 2011 census figures show that forestry and logging and associated services (excluding log processing and product manufacture) directly employ 2,131 people in NSW⁶². This was a fall from the 2,522 recorded in the previous census⁶³. This 2,131 accounts for 0.02% of all primary industries employment in NSW. In regional NSW (NSW less Sydney, Newcastle, Wollongong and the Central Coast) primary industries provide 11.3% of total employment which means forestry and logging and associated services provide 0.2% of regional employment. Note that these figures aggregate native forest logging and plantation forestry: native forest logging is now estimated to employ approximately 600 people throughout NSW⁵⁸, or 0.006% of all primary industries employment. Forestry Corporation has seen a steady decline in staff numbers from 803 in 2011¹ to 463 in 2016^b.

What are the implications of NPA’s plan on jobs and economy?

Ending native forest logging would result in the loss of jobs (i.e. the approximately 600 throughout the State that are directly employed in native forest logging, plus some native timber processing jobs). We recognise that every job is important, and the need for a just transition of workers to other opportunities is critical to the success of our proposal. We are also confident that the direct jobs that would be lost following the end of native forest logging would be offset by a net gain in jobs in several other areas. NPA does not believe that there would be major flow-on of job losses as associated industries (such as hauliers and wood product manufacturers) are already largely supported by the plantation industry that supplies the majority of NSW (and Australia’s) wood needs⁴². With government support to help a transition, there are several areas in which jobs could be created under our plan:

1. **Small businesses:** tourism is a huge industry in Australia, and a recent report by Tourism Australia showed that nature is Australia’s single biggest strength⁶⁴. NPA supports the establishment of regional small businesses to take advantage of public forests for tourism and recreation. This would both protect nature

^a<http://www.smh.com.au/victoria/is-victorias-native-forestry-industry-worth-it-at-5-million-a-job-20160623-gpqcui.html>

^bSee response to question 77 in: <https://www.parliament.nsw.gov.au/committees/DBAssets/InquiryOther/Transcript/10303/GPSC%20-%20-%20ASQ%20-%20Primary%20Industries%2c%20Land%20and%20Water.pdf>

while helping to increase employment and revenue in regional communities. The NSW Government could provide low-cost start up loans to promote business creation.

2. **An incentivised plantation industry:** plantations already account for the majority (85%) of the wood produced in NSW, and 83% of wood produced is pine. Therefore completing this transition to 100% plantation timber is achievable, but government leadership and a long-term policy commitment is required to reverse the decline in plantation establishment⁴². Particularly important is incentivising the hardwood plantation industry as the rotation time is longer. NPA's position is that plantations should be well managed, appropriately located (i.e. not replacing native forests) and certified under the international Forest Stewardship Council scheme.
3. **Enhanced research and development (R&D) capacity:** capacity has fallen in forestry and forest products R&D. In 2008 there were 635 researchers and technicians undertaking R&D, whereas in 2011 there were 396²¹. There is significant room for enhanced R&D into the growth and processing of alternative fibres, such as bamboo and hemp, hardwood plantations and engineered timbers.
4. **Farm forestry:** many areas in regional NSW rely on firewood that is currently sourced from public native forests. These volumes of wood could likely be supplied by local landholders in future. The government could consider incentivising on-farm hardwood plantations in order to help supply this firewood.
5. **Forest restoration and the National Parks and Wildlife Service (NPWS):** state forests will require many years, probably decades, of ongoing management to restore ecologically diverse systems. Therefore there are many opportunities for on-ground employment in forests to undertake this work. Preference for roles could be given to forest field staff and foresters transitioning away from logging.
6. **Indigenous rangers and park management:** The *Indigenous Ranger Working on Country Program* has been very successful and employs about 700 people across Australia. Yet there are only five Indigenous Ranger groups currently funded through Working on Country in NSW^c. Expanding the Indigenous Ranger program would increase job opportunities and help ensure Indigenous ecological knowledge could be used to manage forests. Incorporating Indigenous needs and expertise into Plans of Management would provide a mechanism for traditional owners to benefit directly from forests.
7. **Indigenous Protected Areas (IPAs):** there are a number of areas where local Indigenous communities have a strong and binding association with traditional lands including native forests. Where opportunities exist, these forests should form the basis for establishing and managing IPAs by these communities.

^c<http://www.environment.gov.au/indigenous/workingoncountry/projects/images/woc-projects-map-large.jpg>

Protecting forests is the first step to harnessing community benefits

NPA is proposing that native forests currently classified as state forests are used for conservation, recreation, tourism and education opportunities while maintaining ecosystem services. These uses could provide ongoing economic benefits to regional communities close to these forests. But if this model is to be successful in stimulating long-term opportunities in regional areas, it is vital that the increased use does not come at a cost to the natural values like native species and ecological communities or cultural values important to Aboriginal people. Failing to ensure that the use of forests is ecologically and socially sustainable will, in the long term, undermine any businesses that are built around them. Public native forests therefore require formal protection to ensure that there is a framework to protect the values indefinitely. Many of these forests will also require a long-term effort, including management intervention, to rehabilitate to a more natural state following decades of intense logging that has altered the ecological balance of forests.

NPA is not advocating for all public forest to become nature reserves, national parks and wilderness areas. These reserves are not appropriate locations for higher impact recreation and tourism activities. These areas can be viewed as the jewels in the crown of protected areas. Large numbers of visitors, potentially engaging in higher impact activities, and the necessary infrastructure associated with these visitors may risk the outstanding natural values of such areas. Lower visitor numbers, low impact activities such as bushwalking and camping and sparse, inconspicuous infrastructure is therefore more appropriate for these areas. In some cases, flora reserves, reserved under the *Forestry Act* should be reclassified as nature reserves or national parks. Likewise some areas which have had little logging activity can be added to national parks estate and/or wilderness areas.

Yet demand exists for access to natural areas for recreation, and this demand will continue to grow as populations grow. It is therefore important that access is managed so that increased use of natural areas does not lead to land degradation. Forests that are in close proximity to regional communities, not as significant ecologically for threatened species and ecosystems or which have been heavily modified by intense logging (but are still valuable forests for nature conservation) could accommodate more formalised and intense visitation and higher impact activities^d. Regional parks are a more suitable reserve category for this type of use.

Regional parks

There are 20 regional parks covering 20,000 hectares of land in NSW. Regional parks are reserves that protect areas in either natural or modified natural landscapes, and provide for activities and infrastructure that are not suitable for protected areas like national parks, wilderness or nature reserves. Examples of regional parks include the Murray Valley, Murrumbidgee, Bomaderry Creek and the Coffs Coast Regional Parks. A feature of these areas is that they permit a range of uses that should not occur in national parks, such as dog walking and horse riding. Blue Gum Hills Regional Park near Newcastle hosts a TreeTop Adventure Park, a certified eco-tourism business where people tackle obstacle courses in the forest^e. Regional parks are typically close to human habitation and managed to provide for the needs of local communities. NPA proposes that public forests appropriate for reservation as regional parks be identified and managed accordingly.

Indigenous Protected Areas

Forests that are culturally significant places to Aboriginal people could become Indigenous Protected Areas (IPAs) to ensure that traditional owners determine management and access. There are currently 12 IPAs in NSW covering 18,000 hectares. Some national parks in NSW (such as Gulaga-Biamanga in southern NSW and Arakwal in northern NSW) are joint-managed places but are not classed as IPAs. NPA believes that the decision as to whether a forest should become an IPA or a joint-managed national park should be made in conjunction with the local Aboriginal communities.

Besides protecting and restoring culturally significant areas and totem species, IPAs in NSW are also used as a source of traditional foods and products and to educate young people on country in land management. In some cases

^dNPA is proposing the development of a tool to predict and manage impacts associated with increased visitation and higher impact activities.

^e<http://www.treetops.com.au/locations/newcastle>

recreation, ecotourism and forest-based businesses are being established by the traditional owners for economic gain⁶⁵.

Implications for Aboriginal people of protecting forests

NPA's plan would increase the social, economic and cultural benefits arising from protected areas, as well as accommodating traditional management practices. Opportunities for Aboriginal people would therefore be broadened when compared to current forest management that provides limited socio-economic and cultural activities. Any decision as to participation and to what form that participation should take should be made by Aboriginal communities in consultation with government and other stakeholders. Particular opportunities could include (but are likely not limited to):

1. Economic, cultural and spiritual gain through caring for country: decades of intensive logging has meant that forests will need years of management to be restored to a state where the balance of tree species is more typical of unlogged forests, where weed issues are overcome and animal populations recovered. In some areas this may mean the removal of abundant, pioneer species favoured by the logging industry (such as silvertop ash) to promote regrowth of species that are struggling to establish. This forest restoration could be carried out by Aboriginal people using traditional ecological knowledge;
2. Economic and cultural gain through the sustainable use of forest products such as bark for boat making and crafts, fibres for weaving, traditional food and medicines, pigments, animal products and timber. Arakwal National Park, a jointly managed place near Byron Bay in northern NSW, is an example of how a protected area can be utilised by Aboriginal owners (the Arakwal people) to provide traditional foods and fibres under a Plan of Management⁶⁶;
3. Economic and spiritual gain from cultural tourism: currently cultural tourism is underdeveloped on the NSW coast. There are huge opportunities for Aboriginal people to design and run cultural tourist experiences based around forests such as storytelling, cultural site visits and interpretation and traditional uses of forest products for foods, medicine and everyday items;
4. Social and economic gain through ownership and/or management of tourist infrastructure such as eco-hubs where forest activities could be focussed;
5. Social and economic gain in employment through small business establishment and/or service industries based around the new uses of forests;
6. Social and cultural gain through development and participation in educational programs for young people based around forests;
7. Social and economic gain through the expansion of the Indigenous Ranger program to provide opportunities for Aboriginal owners to manage country.

Determining the categories of protected areas

Under NPA's model, forests currently classified as state forests and used for timber production would become either protected areas under the *National Parks and Wildlife Act* or IPAs. Reserve categories would be used in a complementary fashion via careful planning and used to protect nature while increasing recreation, eco-tourism, education and Indigenous use opportunities.

NPA does not speak for the Indigenous community and does not presume to know in detail which forests are culturally, spiritually or economically significant to Aboriginal people. Therefore identification of potential IPAs should occur via consultation with the appropriate Aboriginal owners.

Several variables could be considered when deciding the reservation status of a public native forest, though it is important to note that a significant amount of work is required to develop the categorisation further and to develop a definitive map of these areas. Consultation in this regard should occur with regional communities (including Indigenous communities), recreation groups and conservation organisations. Therefore NPA's suggestions should be considered a starting point for the work necessary to determine the suitable reserve categories, and NPA will continue to work on forest categorisation in 2017. Elements that will be important to consider are:

1. The Comprehensive, Adequate and Representative (CAR) national park network
2. Recreational and tourist opportunities and their proximity to urban and regional centres
3. Aboriginal use and expectations
4. Conservation values (both natural and cultural)
5. Connectivity
6. Wilderness
7. Flora reserves
8. Presence of threatened species
9. Existing recreational uses
10. Climate change mitigation and adaptation opportunities
11. Significant features including landscapes and areas of scientific interest.

The national park network

The national park network is not created randomly, but is underpinned by the concept of CAR⁶⁷. Comprehensive means that each element of biodiversity should be conserved in protected areas; adequate means that a protected area should have the capacity to protect the species within it over the long term and representative means the reserve system should have replicates of biodiversity protected in several areas in case of chance events like fires. Building a CAR national park network that protects nature from human impacts is essential to effective conservation. It's also the best chance to ensure that the reserve system is as robust as possible in the face of climate change⁶⁸. The creation of a CAR reserve network of Forest Ecosystems was a key promise of the RFAs. Yet close to 18 years after the RFAs were signed in NSW, there is significant work to do to finish the CAR reserve system of forest ecosystems (Figure 3).

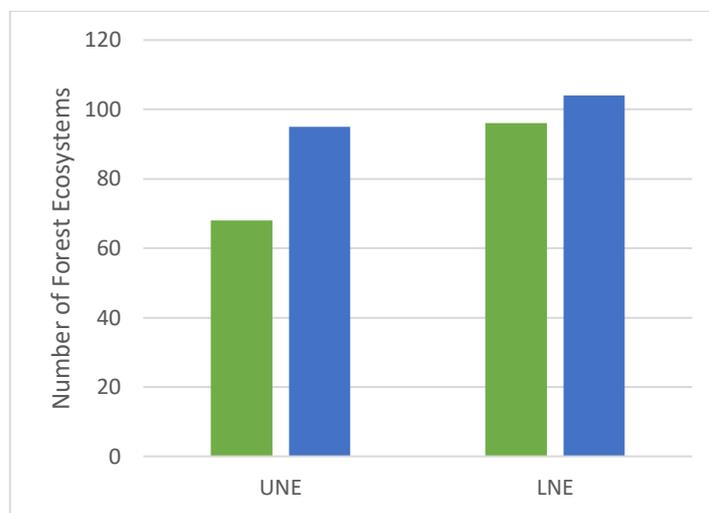


Figure 3: The number of Forest Ecosystems that have (green bars) and have not (blue bars) met reservation targets in the upper north east (UNE) and lower north east (LNE) RFA regions of NSW. Comparable data are not available for the Eden and Southern RFA regions.

Proximity to urban and regional centres

This is a particularly important consideration, because to ensure a thriving tourist industry can be built around forests small businesses will need to keep transport costs low and to be located close to population and transport centres. In addition, local communities may desire to undertake activities—like mountain biking, dog walking and horse riding—that are not suitable for national parks but which already occur in regional parks in NSW.

Opportunities for a variety of recreational activities can be identified and managed in the landscape by considering accessibility to local and regional communities. Some activities (e.g. mountain biking) require better access than others (e.g. wilderness bushwalking). Assessing recreational and tourist opportunities is therefore a critical step tool in deciding forest categorisation.

A key aim of NPA’s plan is to facilitate recreational use of public forests by local and non-local visitors. Therefore, forests that are easily accessible to people (or that can be made easily accessible via infrastructure) by foot, bicycle, public transport or a short car journey—mainly those close to urban areas—should be considered as regional parks unless there is a compelling reason as to why they should be another reserve category. This would maximise the chances of local people using forests for a wide range of activities, therefore helping them to stay healthy and enjoy nature.

Aboriginal use

Aboriginal people may choose the opportunity to utilise some forests for traditional uses or to undertake forest management for social, education and cultural reasons. This would help deliver tangible economic outcomes for Indigenous communities. This is possible in any of the proposed reserve categories under adopted Plans of Management. Broad consultation with local Aboriginal communities will be necessary to determine the best way forward to meet Aboriginal expectations on native forest uses.

Conservation value

Decades of native forest logging has degraded many state forests in various, often interacting, ways. For example, the mix of tree species in some areas has been significantly altered because the timber industry favours some over others. Vigorous weeds, such as *Lantana camara*, can invade as logging opens the canopy. This in turn can encourage Bell Miner Associated Dieback¹⁶ which results in serious degradation of forests and can suppress regrowth. Some state forests also have large cleared areas which serve as log dumps (Figure 4) and extensive road networks to access timber.

However, many state forests are located in a global Biodiversity Hotspot, (*the Forests of East Australia*⁶⁹) and biological values do still remain throughout public native forests. Those forests that have been less modified and retain high conservation value should be added to the national park network. Ultimately, some of these forests could even contribute to future World Heritage nominations^{70,71}. However, some more heavily modified or degraded areas

may mean that national park designation is not possible, but the protection and restoration of these forests could still occur under other reserve categories (e.g. regional parks).

It is highly likely that, given time and adequate management resources, many of the values of degraded forests can be substantially or wholly recovered and this should be the ultimate management goal. However, some of the more degraded (in many cases cleared) areas could be used to host higher impact activities and / or eco-tourism infrastructure because they are already modified natural areas.



Figure 4: A large cleared area, likely used as a log dump, in Nadgee State Forest

Connectivity

Making sure current national parks are well connected so that plants and animals can move through the landscape is really important to help species cope with climate change. In coastal NSW the degree of connectivity varies: south of Sydney, north-south connectivity is very good along the Great Dividing Range and Great Eastern Escarpment while it is not as good north of Sydney. Throughout coastal NSW, east-west connectivity could be much improved. In fact, east-west connectivity is likely to become more and more important as climate change progresses because it allows species to move between lower elevations on the coast to higher, cooler, elevations inland in response to extreme weather events or gradual climate change. Current logging practices hinder connectivity for forest species. This is because logging removes habitat features like large tree hollows that animals need for denning, and clearfell logging results in large gaps which some species, like greater gliders²⁶, have difficulty in crossing.

Wilderness

Globally, humans are reducing the area of wilderness rapidly⁷². This is a problem because wilderness areas provide a number of benefits to people such as carbon storage, clean water, recreation and tourism, and are also extremely important in the conservation of species and genetic diversity⁷³. Therefore, any state forests that could contribute either immediately or in the future to the extension of declared wilderness in NSW would be of real value in this context. For example, in the south of the state, a continuous forested link exists between the Nadgee and Genoa wilderness areas, though many of the state forests are significantly degraded by intense logging for woodchips. A wilderness assessment would require analysis of the extent of roading in the current state forests and closure of some roads to meet wilderness criteria. It may be the case that forests require many years of recovery before they achieve wilderness values.

Flora Reserves

There are 70 flora reserves covering approximately 40,000 hectares (0.02%) of state forests. Flora reserves provide reference habitats for many native forests. Due to the biological importance of flora reserves NPA supports the ongoing protection of flora reserves as nature reserves.

Presence of threatened species

The number of threatened forest species is rising²¹ and more are moving into advanced threat categories⁷⁴. We urgently need to protect forest species. Therefore it may be the case that certain state forests that are particularly important for or have an unusually high concentration of threatened species should be categorised as national parks. Note that this does not preclude the use of such forests for many types of low-impact recreation, but would preclude higher impact recreation and pet access.

Existing recreational use

Some state forests already host recreation activities although the infrastructure is usually in very poor condition. This is because recreation is a secondary function of state forests after timber provision. Any existing infrastructure in state forests, such as mountain bike trails for example, should be evaluated as to quality and location. If it is found that the infrastructure can be upgraded to become a high quality recreation and tourism site, or re-routed to avoid impacts on sensitive environments, then use of that forest for recreation should be considered in the context of holistic forest planning.

Climate change mitigation and adaptation

The native forests of NSW are amongst the most carbon-dense forests in the world and ceasing logging is a viable way of meeting part of Australia's renewed commitments to reducing carbon emissions under international global climate change agreements. For this to be effective however, areas used for accounting purposes under these agreements will need to be protected under a permanent reserve system—available under the *National Parks and Wildlife Act*. Carbon accounting for forests is mandatory under both the Kyoto and Paris Protocols which require all signatories (including Australia) to protect and enhance carbon sinks and reservoirs, including public native forests.

Investigations into various regions of NSW by the CSIRO, Office of Environment and Heritage, University of Griffith and Macquarie University under the National Climate Change Adaptation Facility have identified a number of key areas required for future climate change adaptation. Many of these areas form part of the current RFAs. For example, east-west linkages from the Australian Alps to the coast have been fragmented by current and past logging and restoration of these climate refugia and corridors are essential for future climate adaptation strategies.

Significant features including landscapes and areas of scientific interest

As well as the principles of CAR, the reserve network also seeks to protect significant visual and cultural landscapes as well as areas of scientific interest, such as karst areas or other geological areas of interest. Where areas exhibit special interest values, these should be assessed in conjunction with recreational and tourist opportunities to ensure their protection and appreciation by local, regional and international visitors.

Recreation, tourism and land management

Key to making sure NPA's plan works is making sure the natural assets of forests are preserved indefinitely to ensure economic, social and environmental benefits to regional communities are maximised. To achieve this, activities need to be located in the correct place and impacts of these activities must be predicted and managed adaptively. These elements would then be incorporated into Plans of Management to ensure that forests are not degraded. There are several management approaches used successfully around the world that could be adapted for use in Australia to manage visitor impacts to avoid damaging impacts on natural and cultural heritage values.

Locating visitor activities

The satisfaction of a recreation user or tourist is influenced by how well his or her expectations were met. For example, if you are a bushwalker expecting to experience nothing but bushland and birds, noise from a road will ruin your experience—even if you can't see it. Similarly, if you're a mountain biker seeking an adrenaline-filled downhill run, slowing down constantly for walkers will ruin yours. Thus some activities are not compatible with others because they ruin the experience of another user group. This can lead to dissatisfaction and, ultimately, conflict between user groups. In a scenario where visitor satisfaction is key to economic success it is vital that activities are located so as to minimise conflict and maximise satisfaction.

The presence of roads and areas of population density can be used to produce a plan of the landscape that describes the degree of accessibility (or isolation) of a given location. This degree of accessibility can then be used to define different landscape classes⁷⁵. This enables managers to determine what form of recreation or visitation is appropriate to a given class in order to ensure user satisfaction. Roads are used because some forms of recreation require access (e.g. to go mountain biking you may need to drive to a start point), while others require isolation (e.g. wilderness walking seeks to avoid contact with built infrastructure and large groups of people).

Limitations and other considerations

The identification of recreational and tourist opportunities only provides a starting point for locating activities and infrastructure. It does not try to identify locations for other possible uses of forests, including cultural uses. Similarly, it will be necessary to overlay other elements that may affect the decision as to where to locate an activity. Some examples would include Aboriginal cultural and heritage sites that require protection, areas subject to Aboriginal land claims and threatened species and ecological communities. Consideration of the gradient of terrain will also be important when planning recreational activities like downhill mountain biking or designing walking trails.

Predicting and managing impacts

Different recreation activities have different levels of impacts⁷⁶⁻⁷⁸, and impacts degrade the natural environment. If not addressed, this degradation may result in decreased visitor satisfaction, lower visitor use and decreased economic gain. Not to mention ecological damage.

Therefore, it is necessary to plan for these impacts by understanding where the impacts will occur, how severe they may be and when and how to intervene should impacts become too great. This in turn requires managers to know two things: the desired state of the area and what should be measured to determine impact levels.

There are a number of different, yet broadly similar, adaptive management approaches that could be used, and there are a number of steps involved when considering adaptive management principles. Here the 'Limits of Acceptable Change'⁷⁵ are used as an example:

- i. Identify issues of concern in the area (e.g. threatened species and ecological communities);
- ii. Define the recreation opportunity zones;
- iii. Identify indicators of resource (land) and social (people) condition (what will be measured?);
- iv. Inventory the current resource and social conditions relevant to the indicators (what's the condition now and do we want to maintain or improve condition?);
- v. Specify the standards for the resource and social indicators (what's an acceptable range of conditions? These define the limits of acceptable change);

- vi. Identify alternatives (are there several options for locating activities and protecting values, are there differences of opinion between stakeholders?);
- vii. Identify management requirements for each alternative (what management would be required to achieve the desired condition and what would this cost?);
- viii. Select the best option (with all the evidence gathered via a transparent process, managers can select a defensible option);
- ix. Implement, monitor and act if needed.

Where to next?

Sound planning is key to ensuring that visitors are satisfied with their experience and therefore that local communities benefit economically from visitors. In turn, good management is key to ensuring that an increase in visitor use does not degrade the natural environment and compromise future economic gain. Plans of Management should identify and guide the management actions and benchmarks that will be necessary to restore the forests after decades of industrial logging. This is important because resource or recreation use must be in the context of Plans of Management to ensure the natural values of the reserve are maintained or enhanced. Plans of Management that are systematically developed should ensure that forests experiencing higher use (i.e. regional parks) do not experience degradation as a result.

NPA is committed to working with stakeholders and engaging in the necessary consultation to develop a sound mechanism for locating and managing recreation impacts on forests to ensure that the needs of people and the environment are met.

Future management of public native forests

Logging of public forests incurs significant hidden costs

Public native forests outside the reserve system, including productive and non-productive forests, are currently managed by Forestry Corporation while protected areas are managed by NPWS. Forestry Corporation receives approximately \$15 million in Community Service Obligation funding annually from NSW Treasury. This money is used for a variety of functions including government relations, community engagement, maintenance of recreation facilities, road maintenance and ecological management of non-productive forests. Under NPA's plan, the NPWS would become the management authority for public native forests (other than Indigenous Protected Areas that are a Commonwealth responsibility).

Native forest logging has obvious negative environmental impacts. These include driving Key Threatening Processes such as the loss of tree hollows and Bell Miner Associated Dieback^{9,14}. But native forest logging also undermines conservation investment on both the State and Commonwealth level. For example, the *2015 State of the Environment Report*⁷⁹ puts the number of threatened species in NSW at 999, of which 572 are forest species. Assuming the \$100 million Saving Our Species funding is distributed evenly, over \$57 million would go towards recovering forest species. Continuing to log their habitat while funding recovery efforts is illogical and contradictory policy.

Since 2015, the Commonwealth Government has spent \$1.34 billion through the Emissions Reduction Fund (ERF) to purchase carbon abatement on private land (basically by planting trees and stopping them being cut down)⁸⁰. Logging carbon-dense public forests⁴⁵ results in much greater emissions and lower carbon stores than not logging⁴⁴ and logging therefore undermines the ERF investment. The cost of reduced carbon stores and reduced carbon sequestration via logging is greater than the revenue gained from timber sales in the Victorian Central Highlands—the only RFA region for which a detailed set of 'ecosystem accounts' has been produced⁷⁴.

Logging also has negative impacts on water yields. Following clearfell logging, stream flow increases as the trees are removed which can result in erosion⁸¹ and sedimentation of waterways⁸². However, within eight years water yields fall dramatically and can take two centuries to recover. The value of this lost water has been calculated to be many times greater than the value of the timber harvested^{74,83}. Given increasing climatic uncertainty, taking a precautionary approach to catchment protection is prudent to secure water supplies.

The true costs of logging to the NSW (and Australian) public are therefore likely to greatly outweigh the income from timber in all RFA regions. Current accounting methods in regards to logging do not consider the full suite of impacts, and therefore policy decisions are not currently being made on the best available evidence. Consideration of these wider costs of logging would allow a better assessment of the benefits of funding the protection of forests under NPA's plan, and we are urging all governments to develop comprehensive 'ecosystem accounts'⁷⁴ for the RFA regions in order to undertake these analyses.

Forest management post-logging

NPA's proposal would see increased use of public forests for nature-based tourism, recreation and outdoor education. To allow NSW to compete with other nations, such as New Zealand, world-class tourism and recreation offerings must be developed. This will require initial investment in infrastructure from the government. NPA proposes that the NSW Government inject initial funding into upgrading forest infrastructure, providing low-cost loans for business start-ups to take advantage of the new paradigm and beginning the process of restoring forests after decades of degradation.

However, equally important to the development of tourism and recreation attractions is managing the impacts that these activities will bring. This is because any loss of natural values will, in the long run, undermine the businesses that depend on them. There are several different potential funding mechanisms—including funding from treasury, attracting revenue for carbon credits and levies for private businesses that profit from the use of public forests that

could provide funds for management. The area of funding will require broad consultation with government and forest users.

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