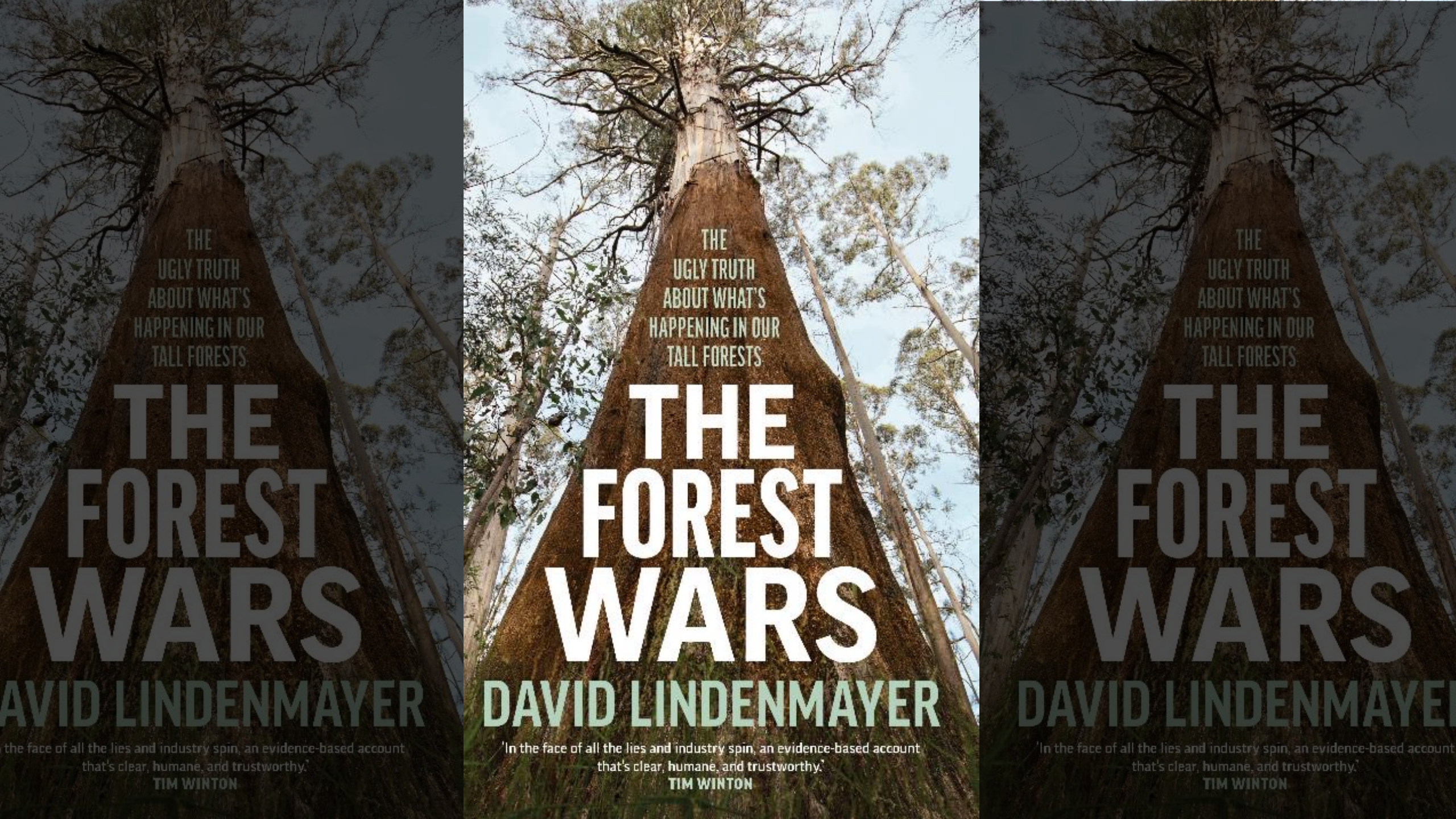
The Forest Wars

Professor David Lindenmayer, The Australian National University

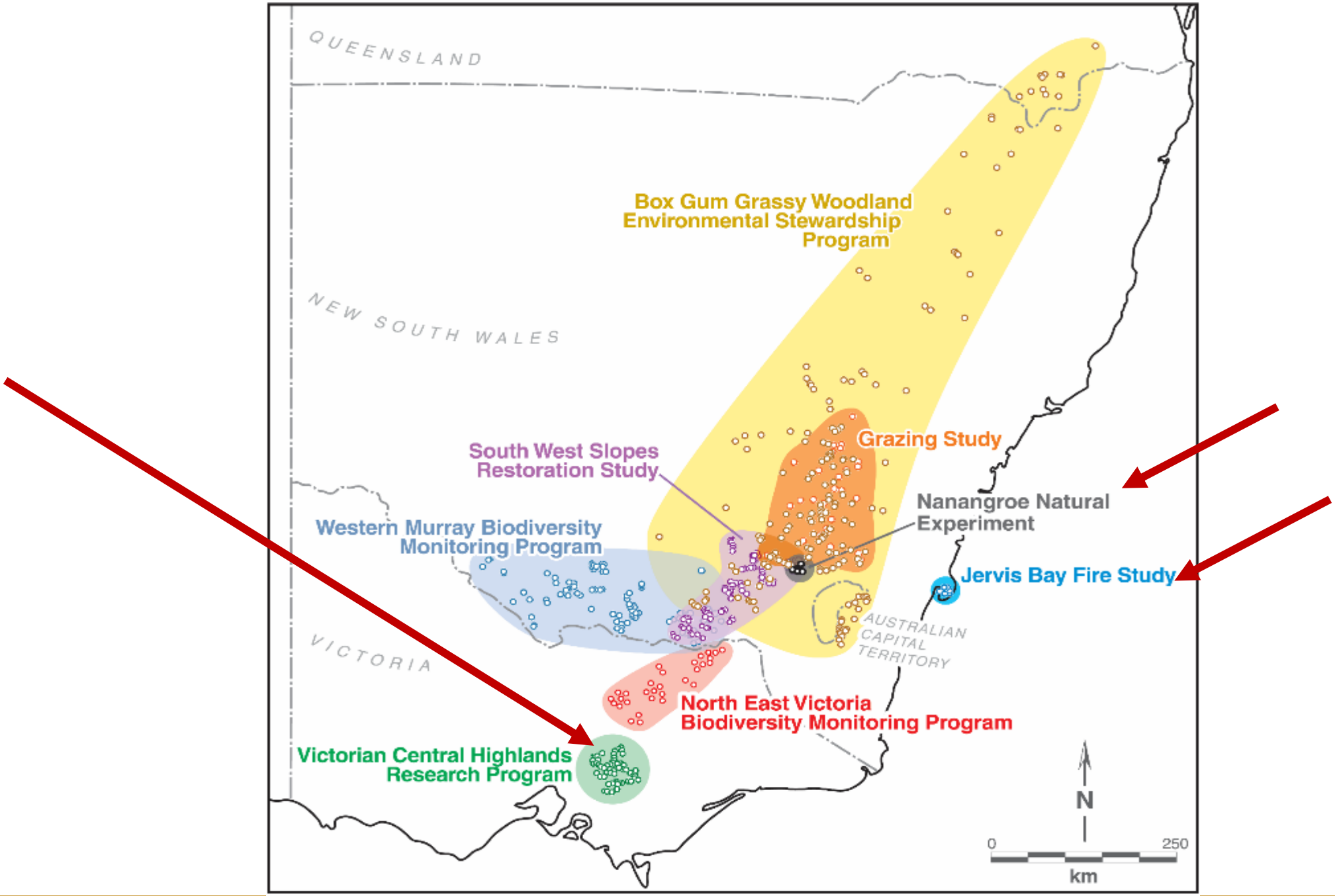
April 2025

Australian National University

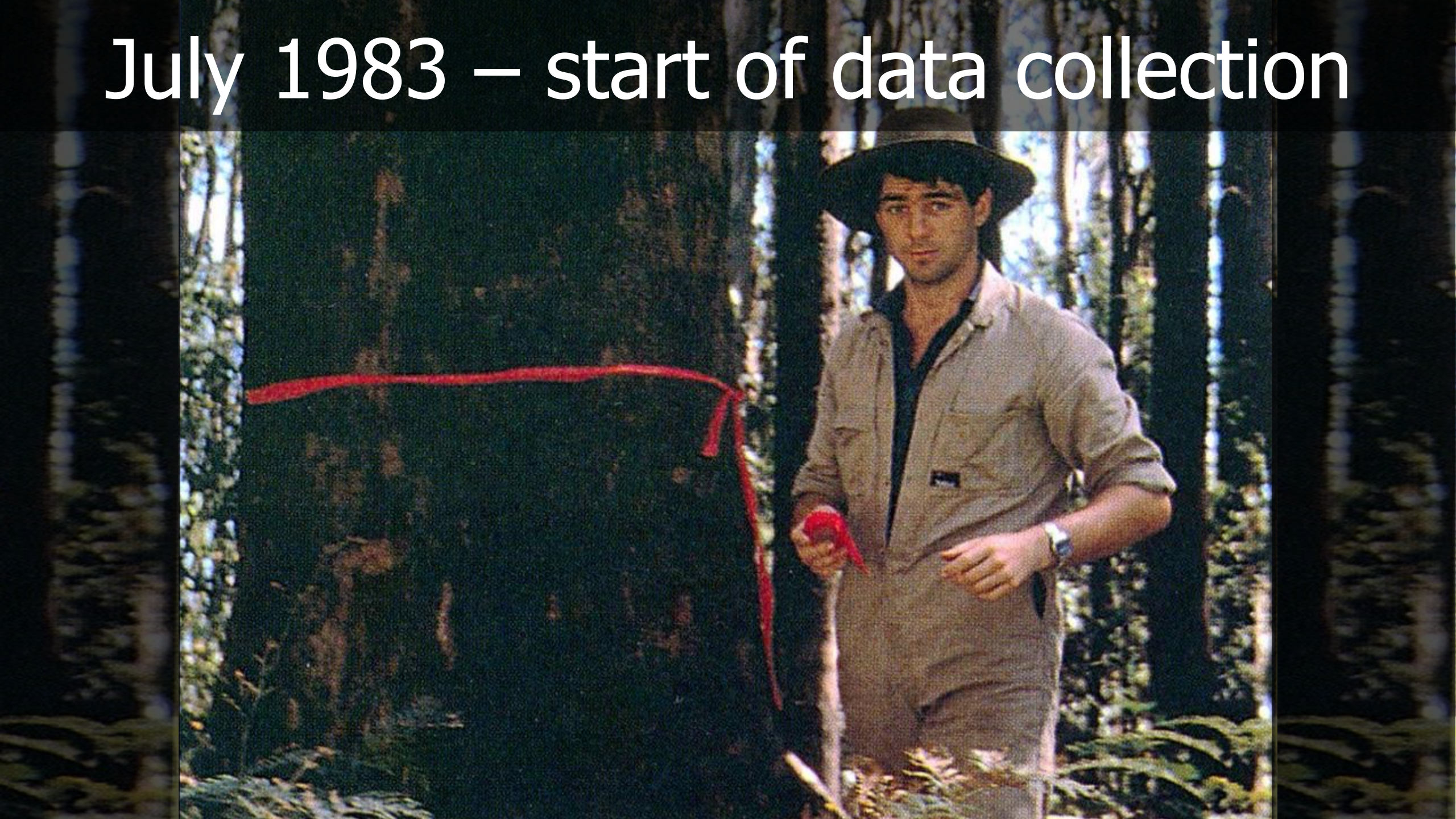

THE
UGLY TRUTH
ABOUT WHAT'S
HAPPENING IN OUR
TALL FORESTS
THE
FOREST
WARS
DAVID LINDENMAYER
'In the face of all the lies and industry spin, an evidence-based account
that's clear, humane, and trustworthy.'
TIM WINTON

This talk

- Some background to 42 years of empirical work
- Some key myths and the realities
- Logging and fire effects
- What did it used to look like?
- The future of nature forest management


QUEENSLAND
NEW SOUTH WALES
VICTORIA
AUSTRALIAN CAPITAL TERRITORY
Box Gum Grassy Woodland Environmental Stewardship Program
Grazing Study
South West Slopes Restoration Study
Western Murray Biodiversity Monitoring Program
Nanangroe Natural Experiment
Jervis Bay Fire Study
North East Victoria Biodiversity Monitoring Program
Victorian Central Highlands Research Program
N
0
250
km

July 1983 – start of data collection



1983

- No discussion of climate change
- No discussion of ecosystem collapse
- Extent of biodiversity loss not recognized
- No notion that key drivers of decline can interact
- No notion of the value of ecosystem services
- Major wildfires were always a “surprise”
- No sense of First Nation’s people work on Country

34. A more recent view of a part of the Eden project cut some time ago. The legacy of such woodchip operations is an area of even-aged and impoverished forest lacking in diversity, heavily laced with roads, in which log dumps and snig tracks persist to disfigure the landscape and create erosion and siltation. (Photo: John Turnbull)

1997

1997 – Brandolini’s Law – or Bullshit asymmetry principle

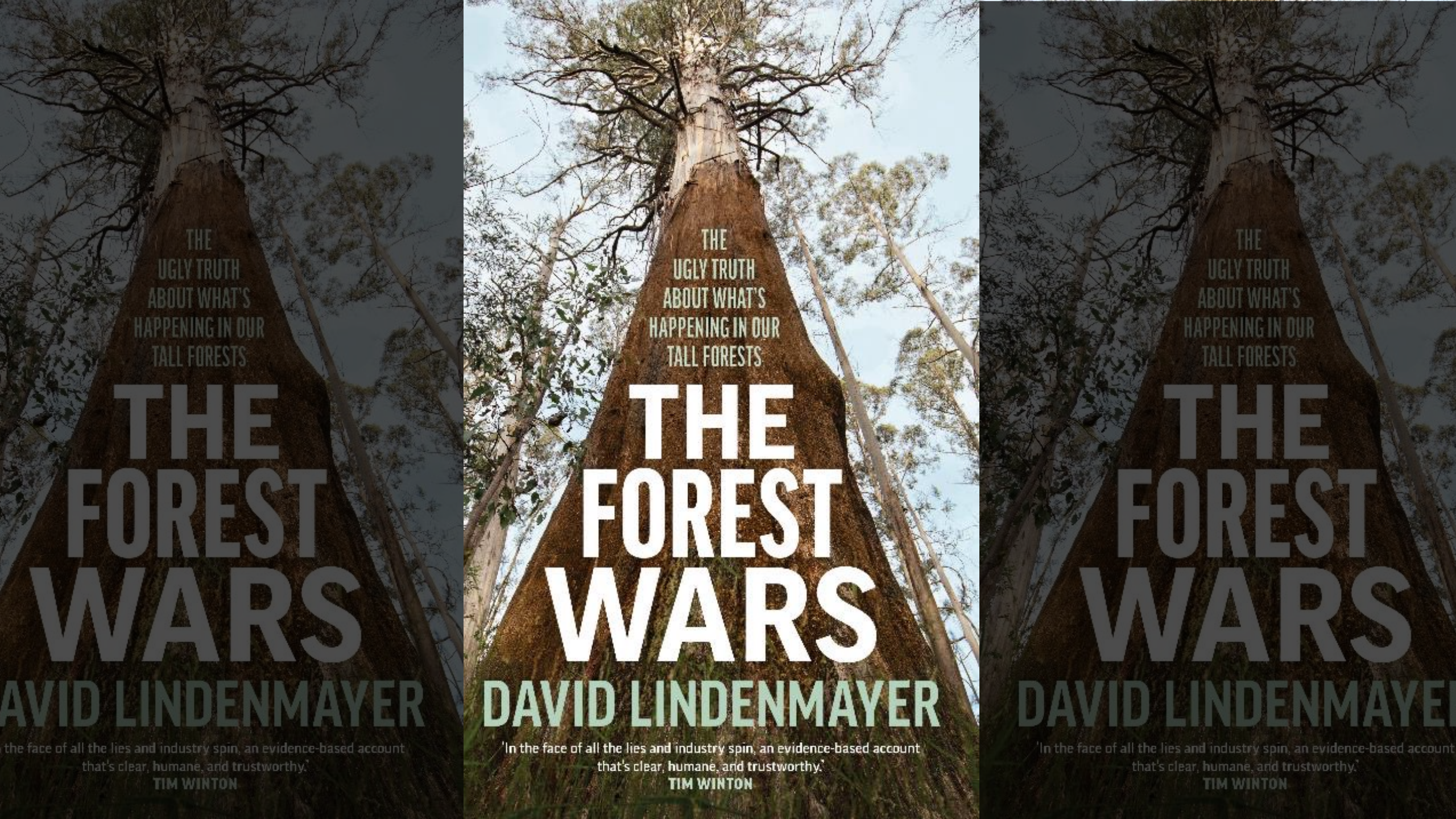
Forests & RFAs

The RFA will solve the “forest wars” – they will deliver timber certainty, economic prosperity, and conserve endangered species (the good Senator himself)

1997

2023 - Robert Hill has signed a pledge to end native forest logging!!

2025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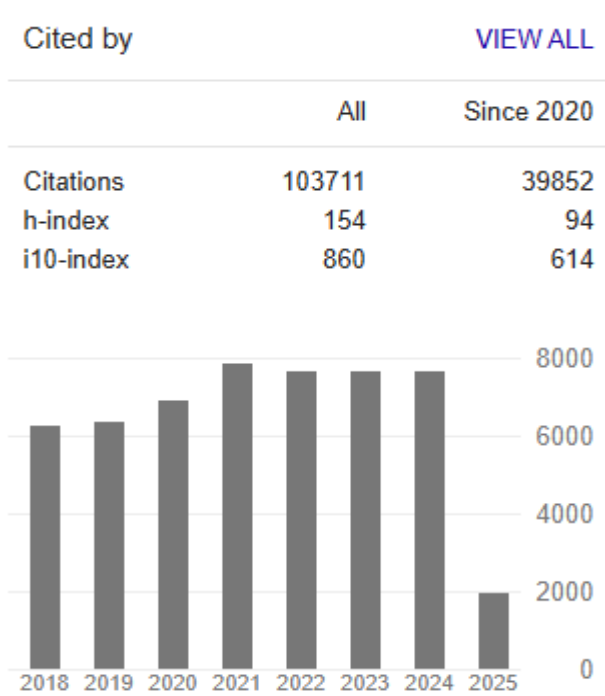
THE FOREST WARS

- Aim to expose key myths in forestry
- Use science & economics in myth busting
- Arm people with the ability to push back against misinformation
- Create a new vision for Australia’s forests


Bramhall'21
NYDN
WAR
FAMINE
PESTILENCE
DEATH
AND YOU ARE...?
MISINFORMATION

“Lindenmayer subverts the peer-review process”

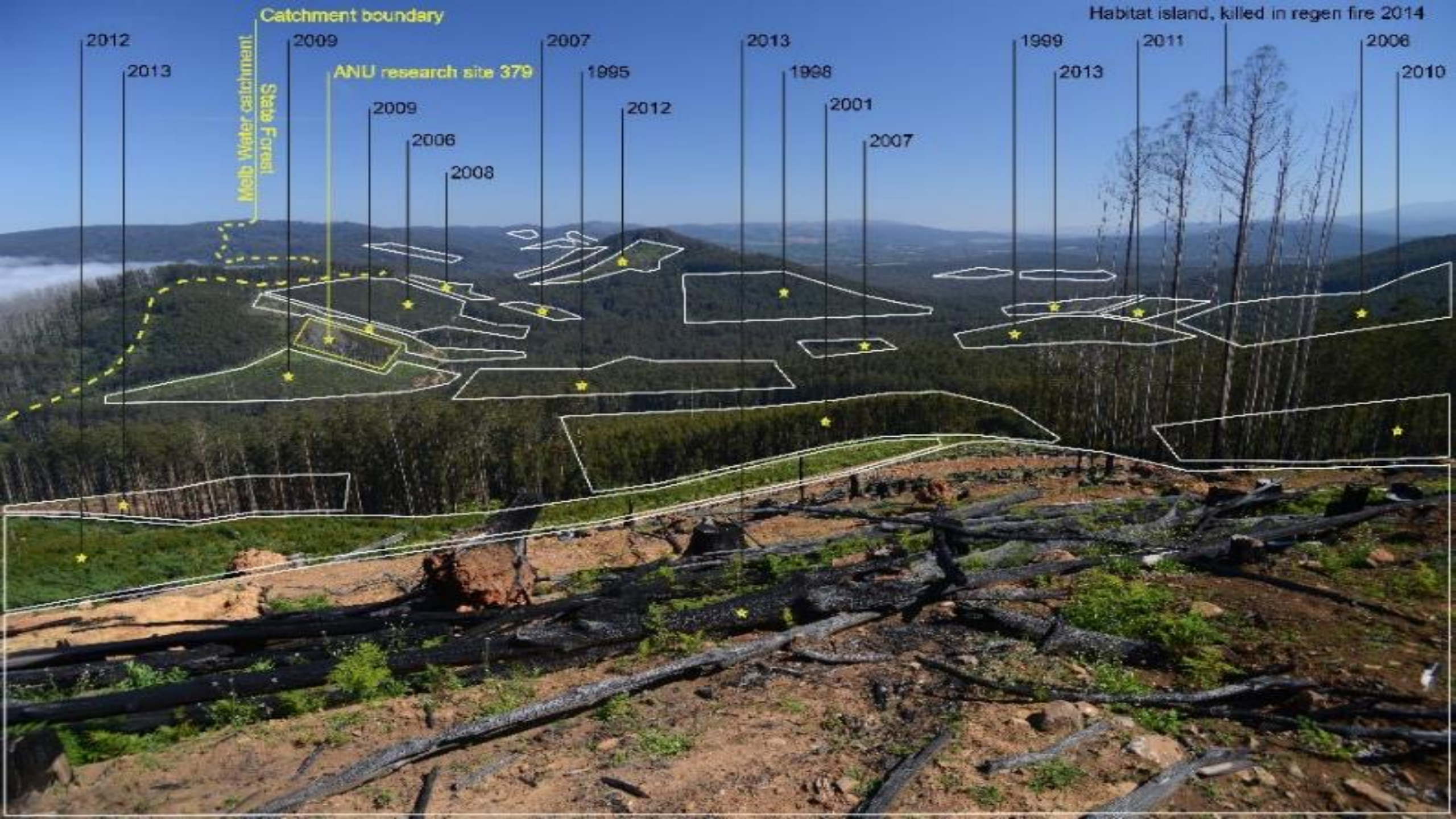
(Victorian Upper House Politician)
(so I checked Prof Google)
(Could have been Myth #1b)

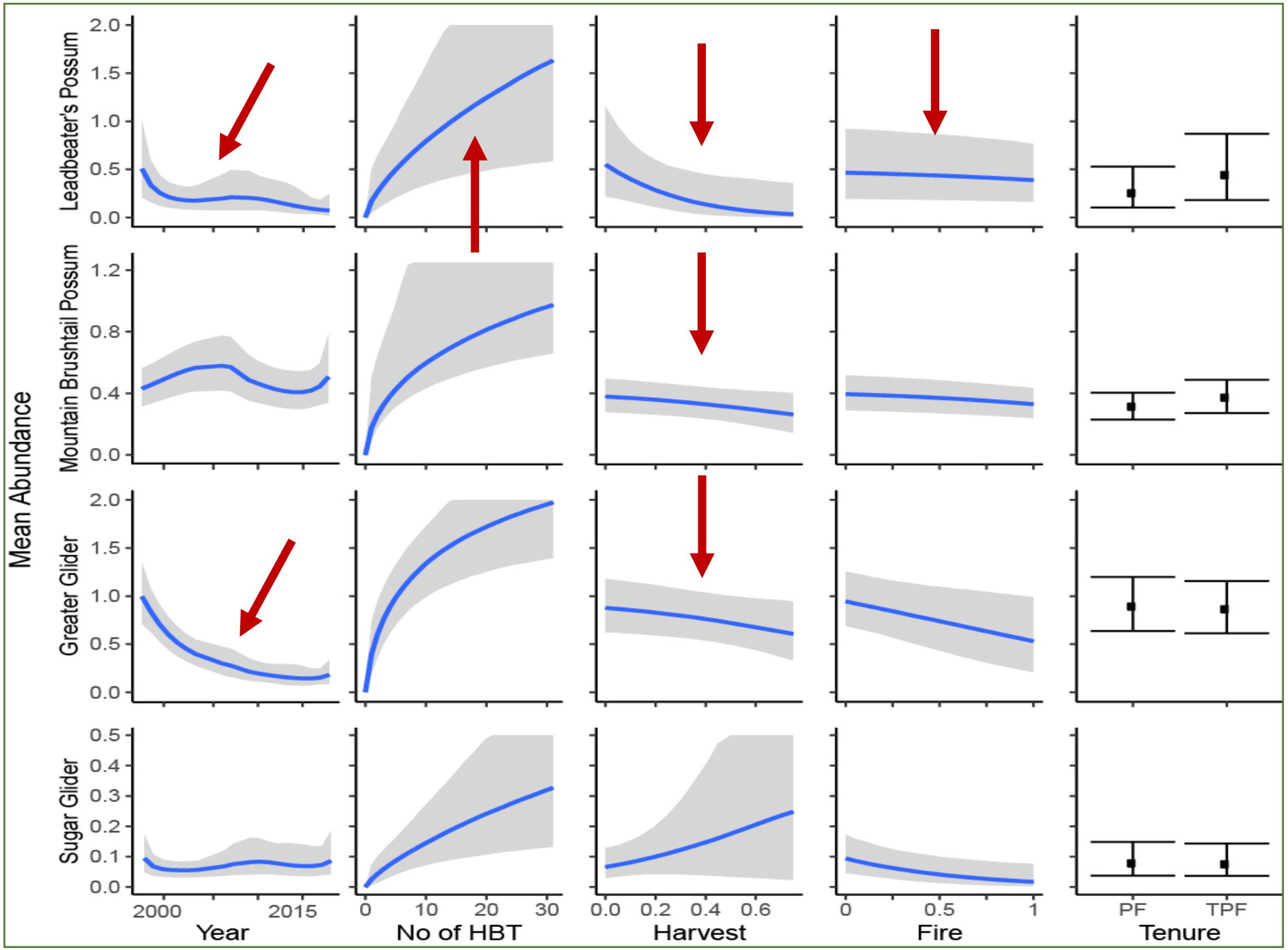


Myth #1
There are no effects of logging on biodiversity

Reality

- Effects are instant and then long lived – up to 170 years
- Many animals die on site
- Logging occurs in HCV forests critical for biodiversity
- There are cumulative impacts of adding more & more coupes into the landscape

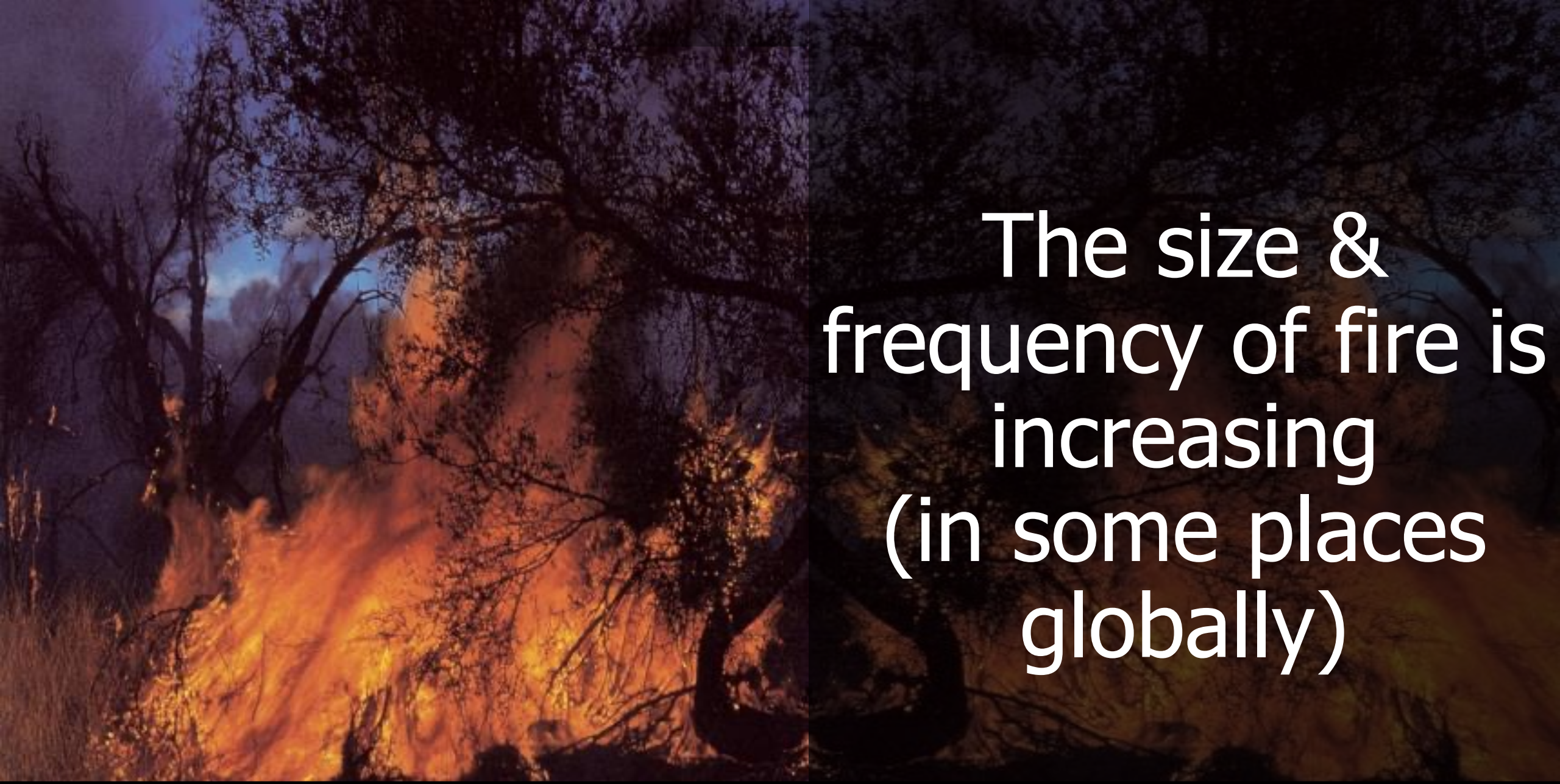

Catchment boundary
Habitat island, killed in regen fire 2014
2012
2013
Melb Water catchment
State Forest
2009
ANU research site 379
2009
2006
2008
2007
1995
2012
2013
1998
2001
2007
1999
2013
2011
2006
2010


Mean Abundance
Leadbeater's Possum
Mountain Brushtail Possum
Greater Glider
Sugar Glider
Year
No of HBT
Harvest
Fire
Tenure
PF
TPF

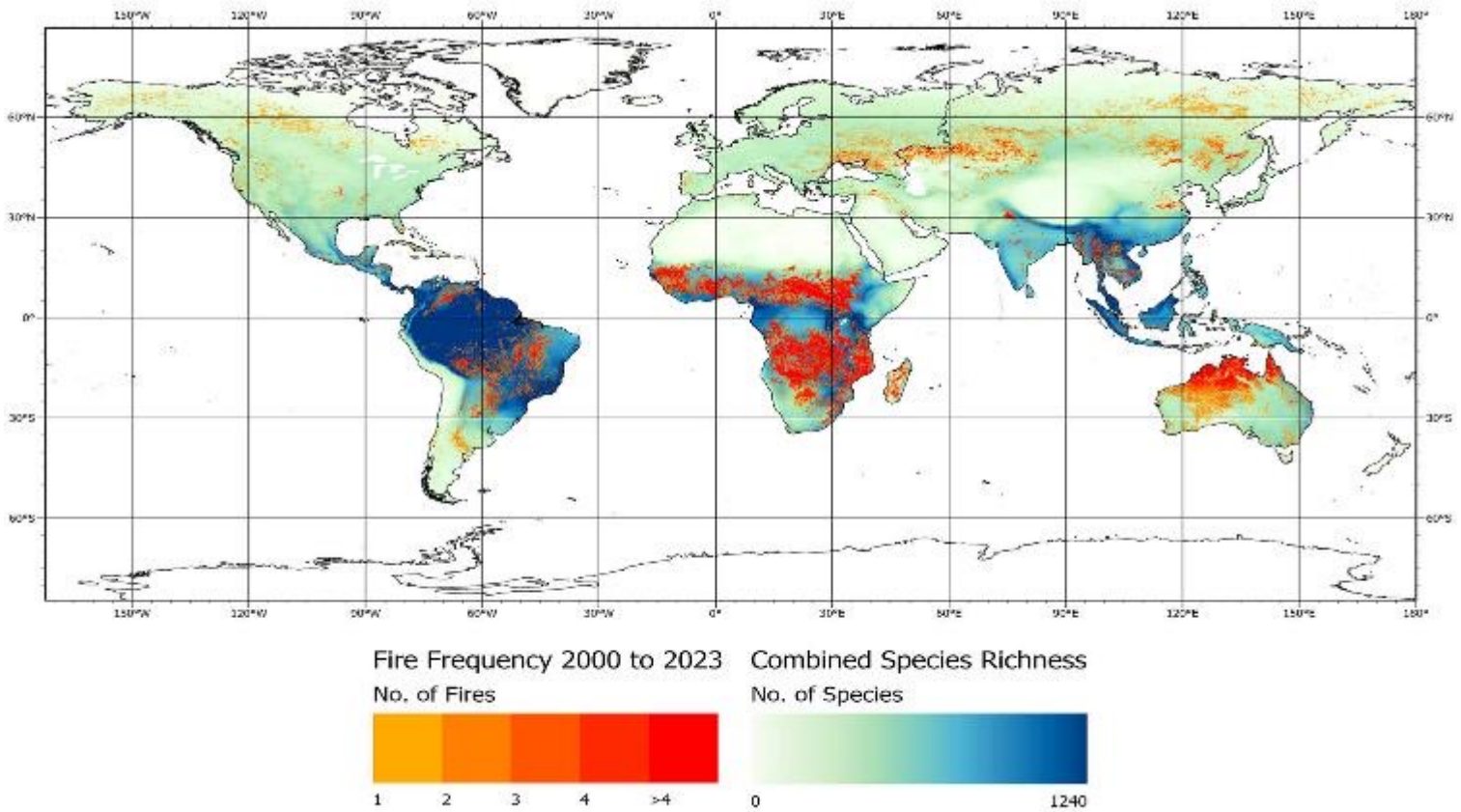
Myth #2
We have to log forests to make them safe

Our forests are more flammable

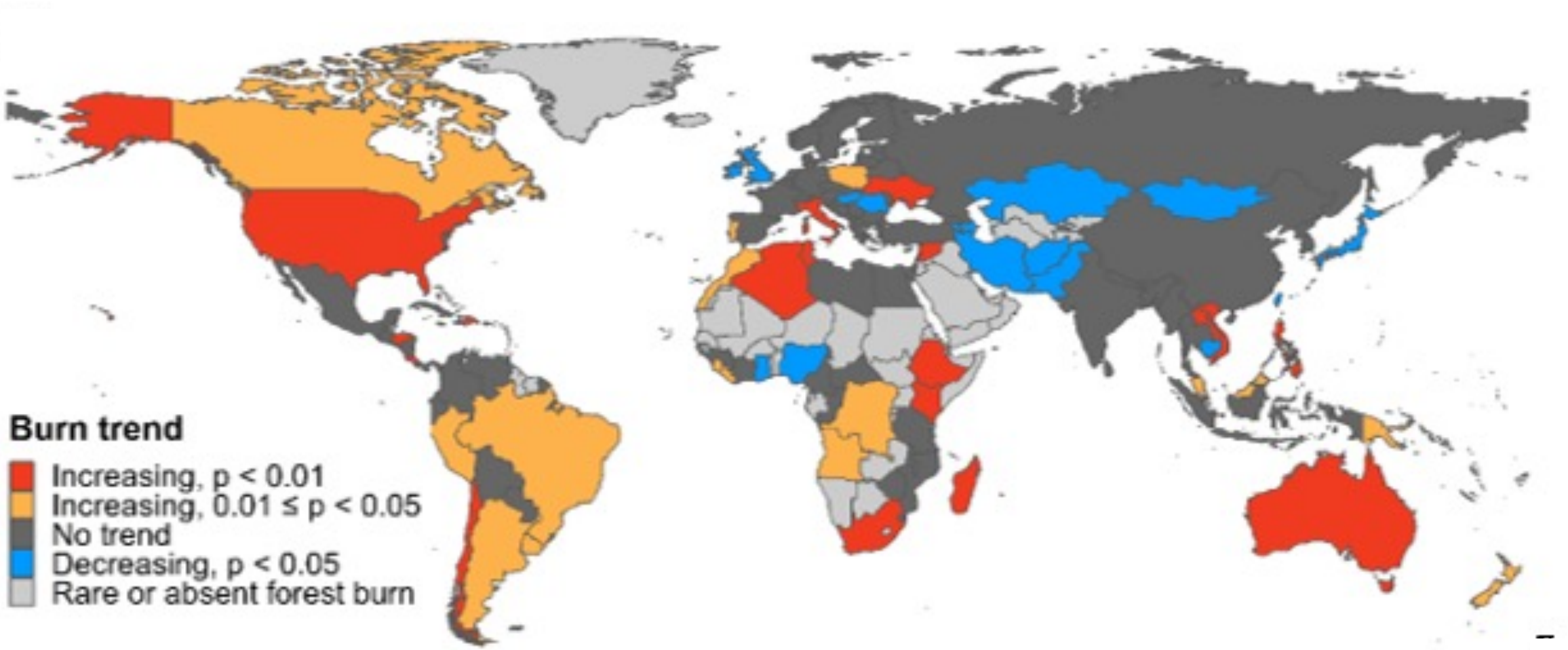
- Due to a changing climate – climate is THE KEY DRIVER OF fire conditions
- Due to logging
- Possibly due to Hazard Reduction Burning

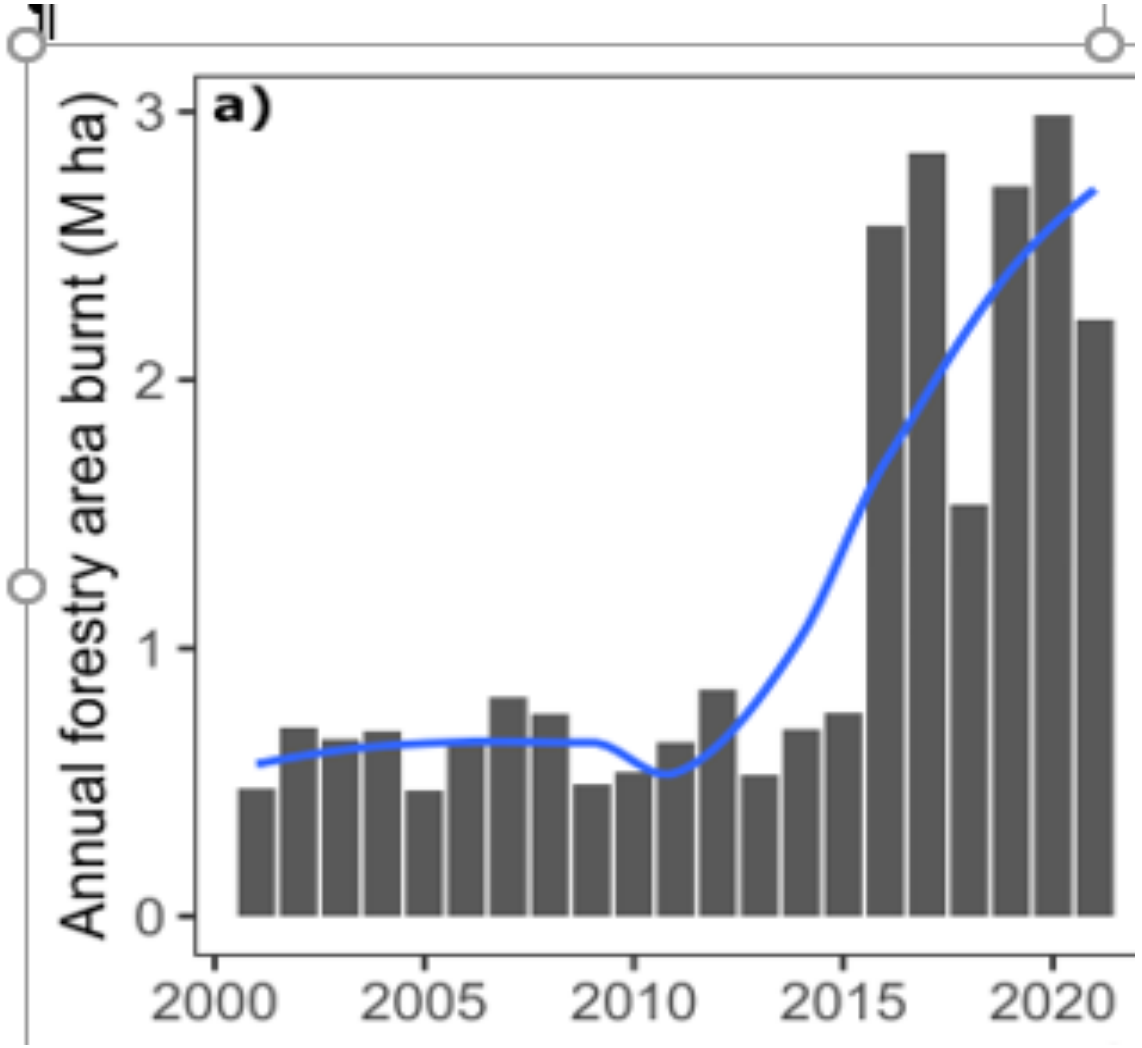


The size & frequency of fire is increasing (in some places globally)



Lindenmayer et al. 2025 (in re-review) *Nature*


Burn trend
Increasing, p < 0.01
Increasing, 0.01 ≤ p < 0.05
No trend
Decreasing, p < 0.05
Rare or absent forest burn



Bousfield, Lindenmayer and Edwards 2023 *Nature GeoSciences*

nature geoscience

Article

https://doi.org/10.1038/s41561-023-01323-y

Substantial and increasing global losses of timber-producing forest due to wildfires

Received: 17 March 2023

Accepted: 10 October 2023

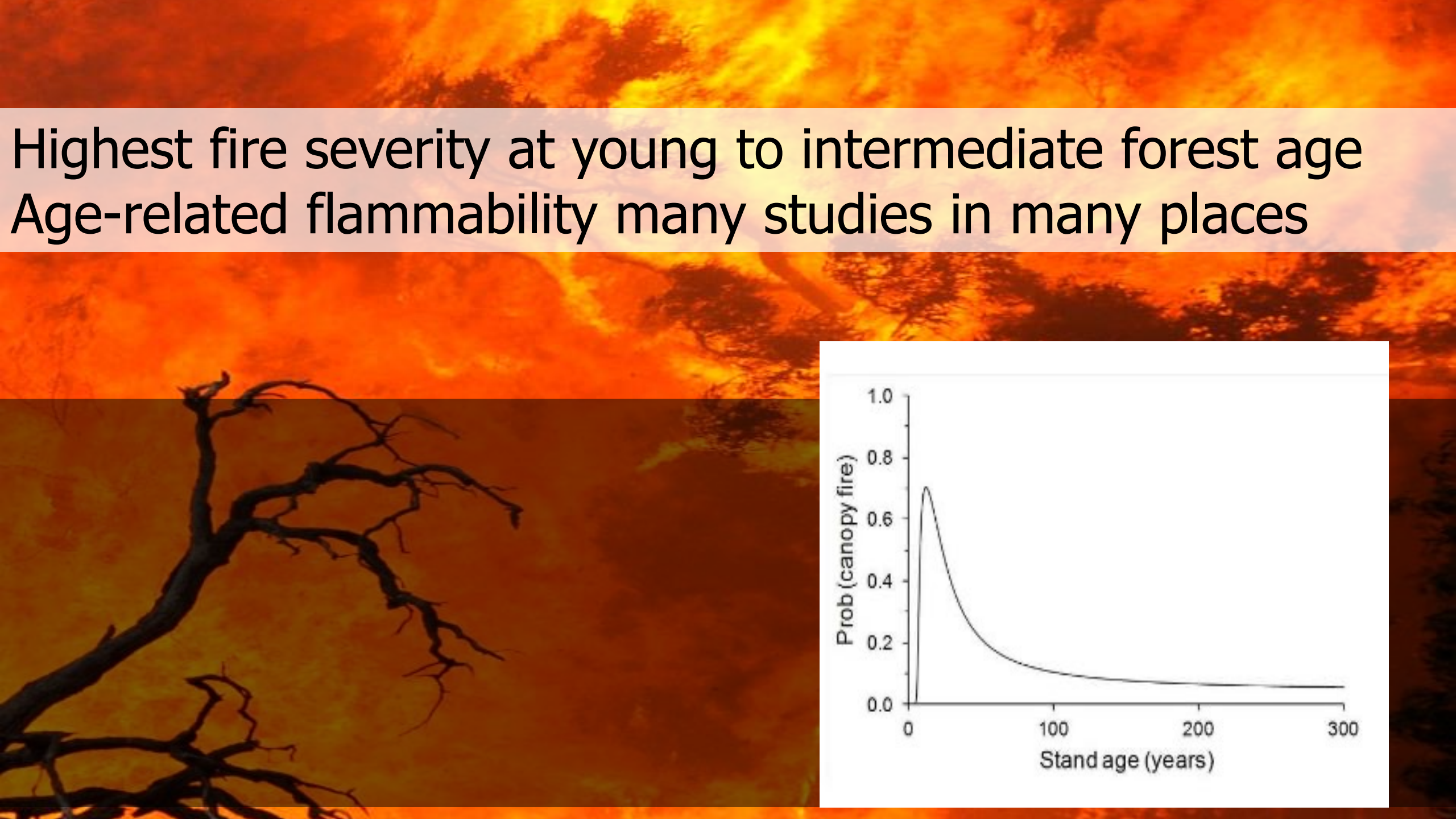
Published online: 13 November 2023

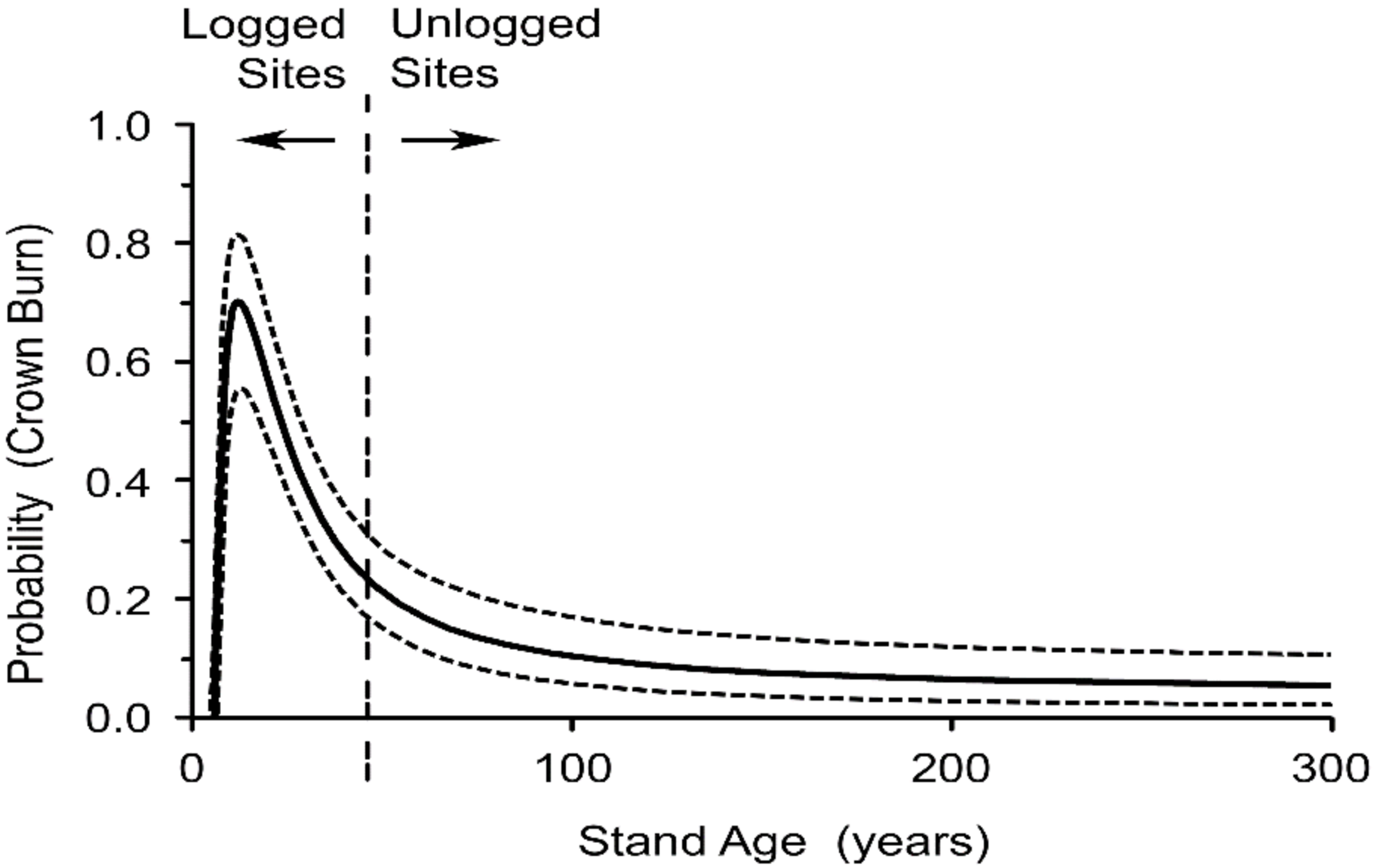
Check for updates

Christopher G. Bousfield[1,2] ✉, David. B. Lindenmayer[3] & David P. Edwards[2] ✉

One-third of global forest is harvested for timber, generating ~US$1.5 trillion annually. High-severity wildfires threaten this timber production. Here we combine global maps of logging activity and stand-replacing wildfires to assess how much timber-producing forest has been lost to wildfire this century, and quantify spatio-temporal changes in annual area lost. Between 2001 and 2021, 18.5–24.7 million hectares of timber-producing forest—an area the size of Great Britain—experienced stand-replacing wildfires, with extensive burning in the western USA and Canada, Siberian Russia, Brazil and Australia. Annual burned area increased significantly throughout the twenty-first century, pointing to substantial wildfire-driven timber losses under increasingly severe climate change. To meet future timber demand, producers must adopt new management strategies and emerging technologies to combat the increasing threat of wildfires.

Highest fire severity at young to intermediate forest age
Age-related flammability many studies in many places





Lindenmayer et al. 2022 – in Runge et al. 2022 [CSIRO Publishing]

Young logged forests highly flammable and reburn at high severity

Lindenmayer et al. 2022 *Plant Ecology*

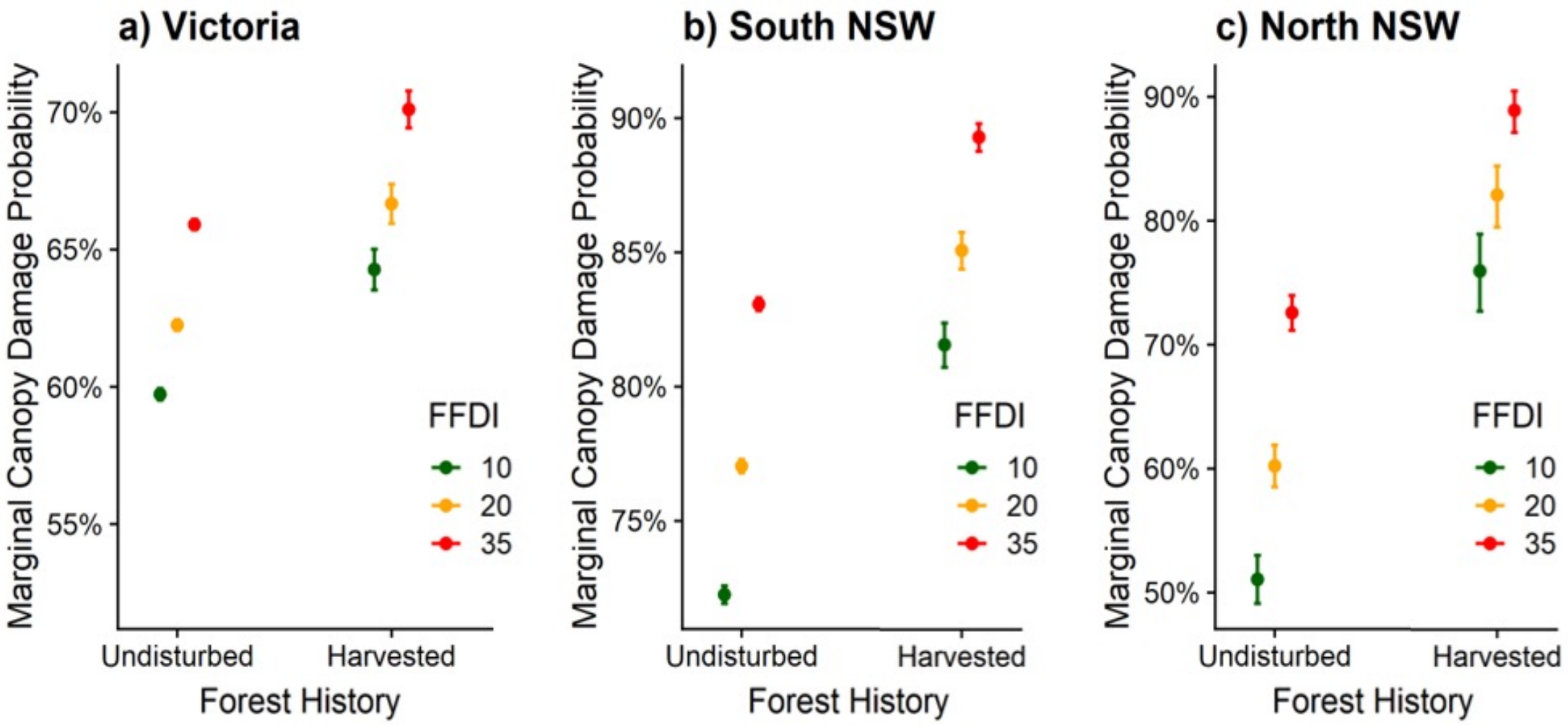
Others finding fire risks are long lasting

*…..fuel was available to burn **1.4 times more often in recently logged sites** (zero years since logging) **compared to sites that had not been logged for 71 years**.*

Wilson et al. 2022

Ecosystem type	Location	Reference
Tall, wet forests	Victoria	Taylor et al. 2014; Lindenmayer et al. 2022a
Tall, wet forests	SW Western Australia	Zylstra et al 2022, 2023
Tall, wet forests	Tasmania	Furland et al. 2021
Wet+dry forests	NSW	Wilson et al. 2022
Various forest types Black Summer fire footprint	Victoria and NSW	Bowman et al. 2021 Lindenmayer et al. 2022b
Mixed vegetation types	Patagonia, South America	Tiribelli et al. 2018
Boreal and semi-boreal	Eastern Canada	Mackey et al. 2023, 2024
Wet forests	Western North America	Bradley et al. 2016; Zald and Dunn 2018, Levine et al. 2022
Western Woodlands	Inland Western Australia	Gosper et al. 2018
Tropical savannas	Northern Australia	Bowman et al. 2024
Exotic plantations	Chile	McWethy et al. 2018
Exotic plantations	Global	Bousfield et al. 2024

Lindenmayer and Zylstra 2024 Biological Reviews



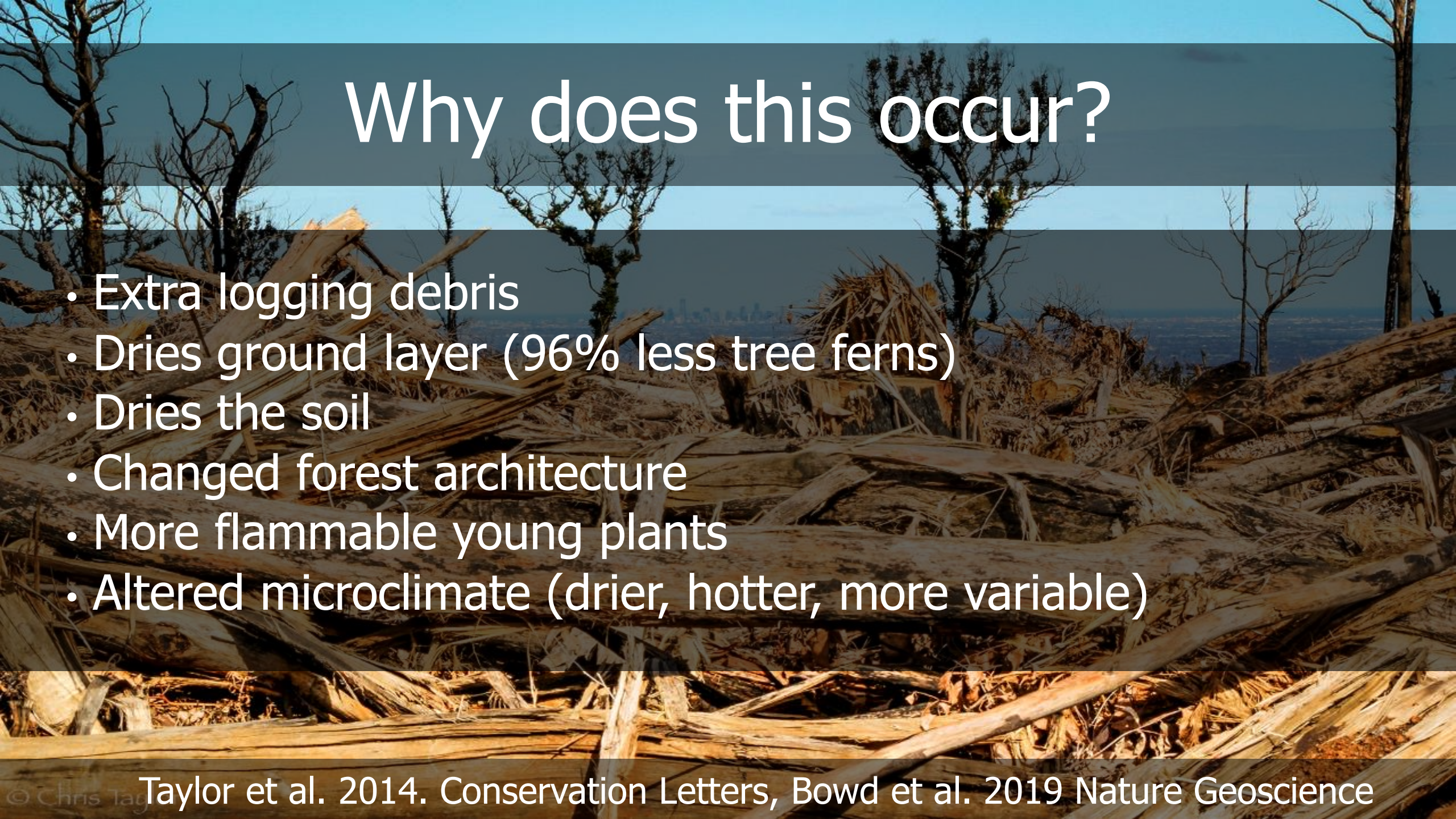
Lindenmayer et al., 2022 – Nature Ecology & Evolution

Reality

- Logged forests ALWAYS burn at higher severity

- Logged forests burning under moderate fire weather burn at higher severity than intact forests burning under extreme conditions

Lindenmayer et al., 2022, NEE



Why does this occur?

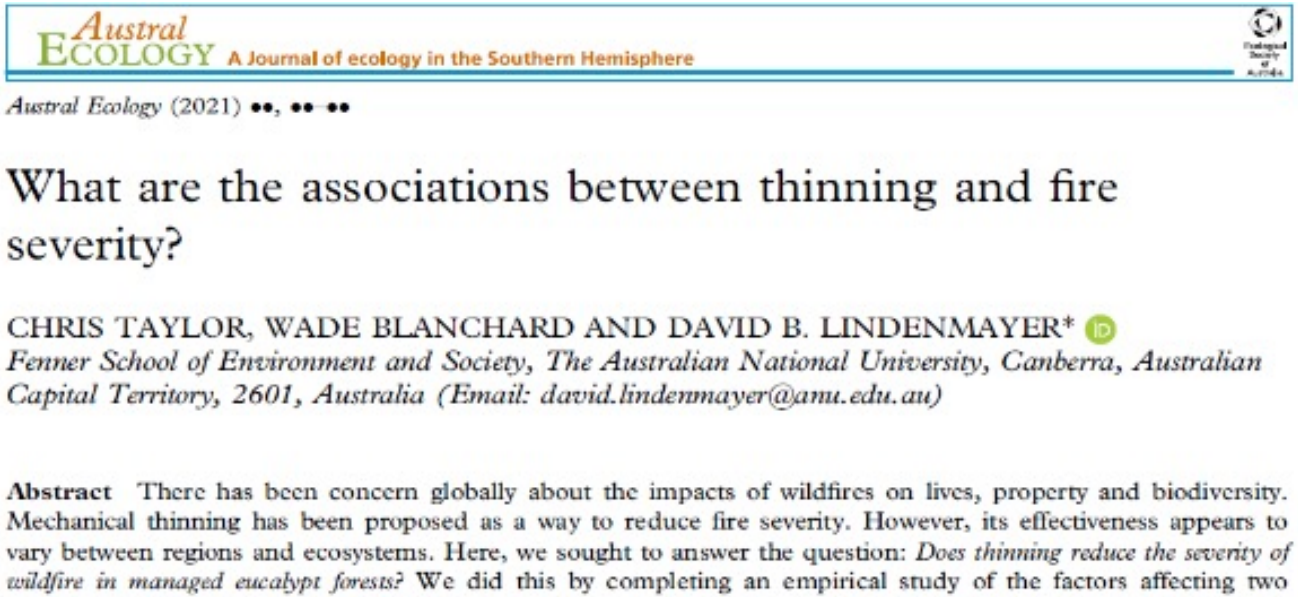
- Extra logging debris
- Dries ground layer (96% less tree ferns)
- Dries the soil
- Changed forest architecture
- More flammable young plants
- Altered microclimate (drier, hotter, more variable)

Taylor et al. 2014. Conservation Letters, Bowd et al. 2019 Nature Geoscience

Myth 2a – Thinning will make forests less flammable

Will thinning help reduce fire severity?

- Analysis after 2009 fire
- Analysis after 2019-20 fire



Austral ECOLOGY A Journal of ecology in the Southern Hemisphere

Austral Ecology (2021) ••, •• ••

What are the associations between thinning and fire severity?

CHRIS TAYLOR, WADE BLANCHARD AND DAVID B. LINDENMAYER*

Fenner School of Environment and Society, The Australian National University, Canberra, Australian Capital Territory, 2601, Australia (Email: david.lindenmayer@anu.edu.au)

Abstract There has been concern globally about the impacts of wildfires on lives, property and biodiversity. Mechanical thinning has been proposed as a way to reduce fire severity. However, its effectiveness appears to vary between regions and ecosystems. Here, we sought to answer the question: *Does thinning reduce the severity of wildfire in managed eucalypt forests?* We did this by completing an empirical study of the factors affecting two

ANSWER

- Generally no
- Some cases thinning = greater high severity fire

Taylor et al. 2020 (Cons. Letters); Taylor et al. 2021 (Austral Ecol)


A
B
C

Myth 2b
Prescribed burning will make us safe?

ENVIRONMENTAL RESEARCH
LETTERS

LETTER

Self-thinning forest understoreys reduce wildfire risk, even in a warming climate

Philip J Zylstra[1,3,*], **S Don Bradshaw**[3] **and David B Lindenmayer**[4]

[1] School of Molecular and Life Sciences, Curtin University, Perth, Australia
[2] Evolution and Ecology Research Centre, University of New South Wales, Kensington, Australia
[3] School of Biological Sciences, The University of Western Australia, Perth, Australia
[4] Fenner School of Environment and Society, Australian National University, Canberra, Australia
[*] Author to whom any correspondence should be addressed.

E-mail: philip.zylstra@curtin.edu.au

Keywords: ecological controls, climate change, wildfire, flammability, positive-feedback switches, alternate stable states, self-thinning

Supplementary material for this article is available online

OPEN ACCESS

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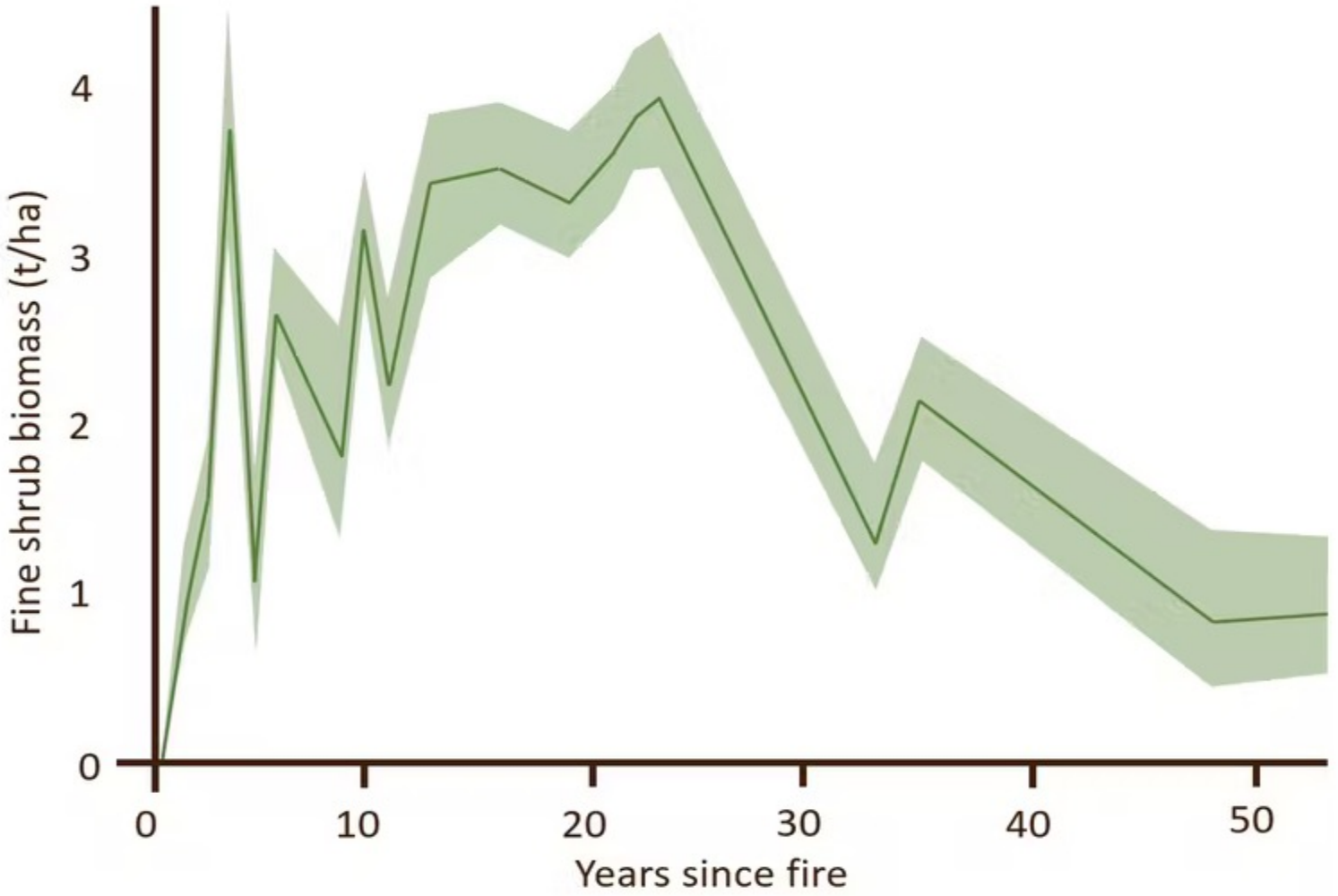
Abstract

As climatic changes continue to drive increases in the frequency and severity of forest fires, it is critical to understand all of the factors influencing the risk of forest fire. Using a spatial dataset of areas burnt over a 65 year period in a 528 343 ha study area, we examined three possible drivers of flammability dynamics. These were: that forests became more flammable as fine biomass (fuel) returned following disturbance (H1), that disturbance increased flammability by initiating dense understorey growth that later self-thinned (H2), and that climatic effects were more important than either of these internal dynamics (H3). We found that forests were unlikely to burn for a short 'young' period (5–7 years) following fire, very likely to burn as the regrowing understorey became taller and denser (regrowth period), then after a total post-disturbance period of 43–56 years (young + regrowth periods), fire became unlikely and continued to decrease in likelihood (mature period). This trend did not change as the climate warmed, although increases in synoptic variability (mean changes in synoptic systems per season) had a pronounced effect on wildfire likelihood overall. Young forest and regrowth forest became increasingly likely to burn in years of greater synoptic variability and the time taken for forests to mature increased, but in years with the most severe synoptic variability, mature forests were the least likely to burn. Our findings offer an explanation for fire behaviour in numerous long-term studies in diverse forest types globally and indicate that, even in the face of a warming climate, 'ecologically-cooperative' approaches may be employed that reinforce rather than disrupt natural ecological controls on forest fire. These range from traditional indigenous fire knowledge, to modern targeting of suppression resources to capitalise on the benefits of self-thinning, and minimise the extent of dense regrowth in the landscape.

Key findings

- Prescribed burns are somewhat effective for 5-7 years, as previously thought
- Then *increased* fire risk for 4-5 decades
- Affected forests are 7 times more likely to burn than older forests
- In the worst climatic conditions, older forests were 3 times less likely to burn than *recent* prescribed burns

In other words, burning made forests on average seven times more flammable for 43 to 56 years.



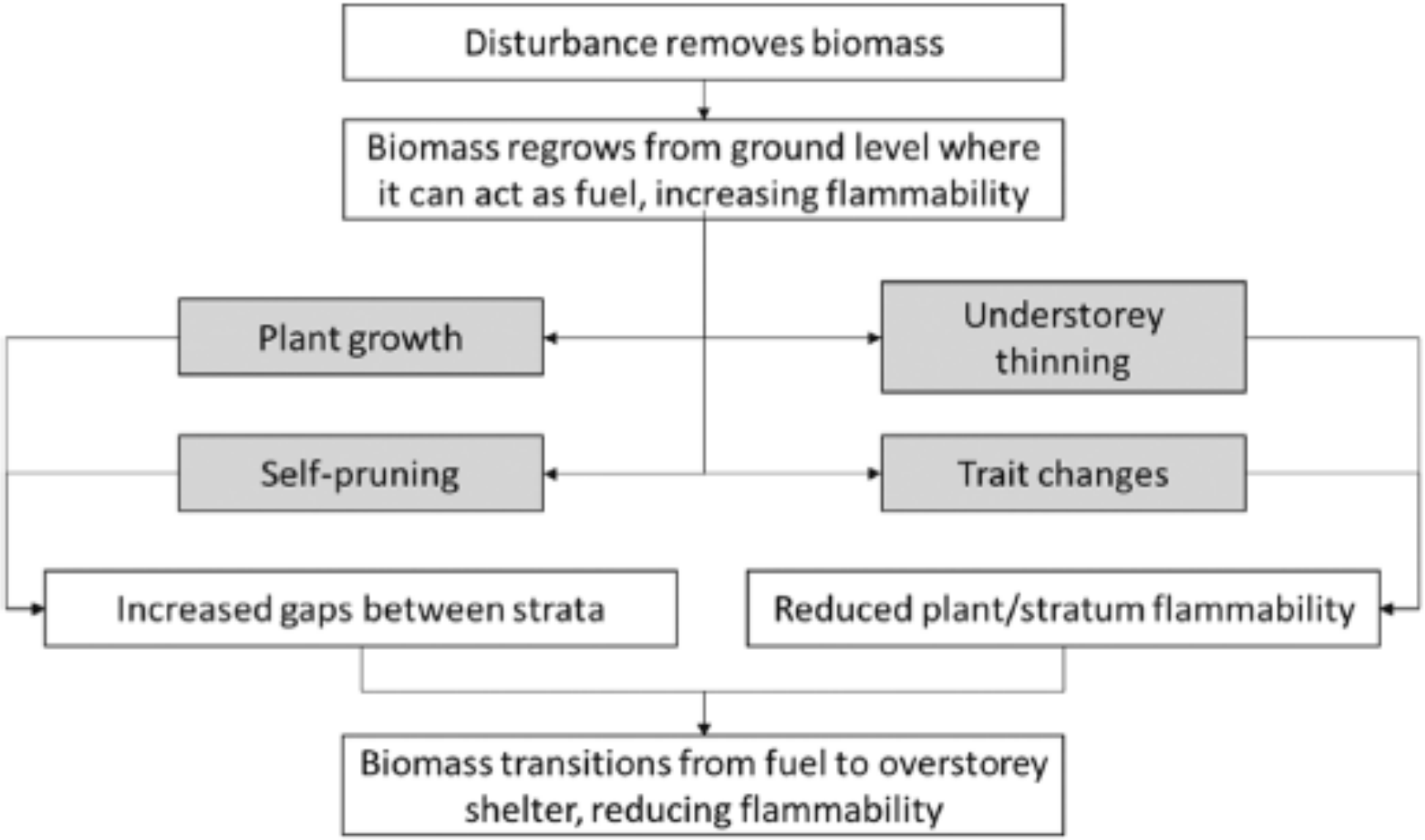
Zylstra et al. 2022 Env. Res. Letters

Reality

- Quality not quantity
- < 1 km from infrastructure
- Done every few years
- Distant burning to hit targets = limited effectiveness
- Does not always work – Marysville in Victoria
- Wrong to say "if only we had done more HRB" – wrt risk reduction (especially under extreme conditions)

(Gibbons et al. 2012 – PLOS One)

The concept of disturbance-stimulated flammability



Lindenmayer and Zylstra 2024 Biological Reviews

BIOLOGICAL REVIEWS

Cambridge Philosophical Society

Biol. Rev. (2023), pp. 000–000.
doi: 10.1111/brv.13041

Identifying and managing disturbance-stimulated flammability in woody ecosystems

David Lindenmayer[1,*] and Phil Zylstra[2]

[1] *Fenner School of Environment and Society, Building 141, Linnaeus Way, The Australian National University, Canberra, Australian Capital Territory 2601, Australia*
[2] *School of Molecular and Life Sciences, Curtin University, Kent Street, Bentley, Western Australia 6102, Australia*

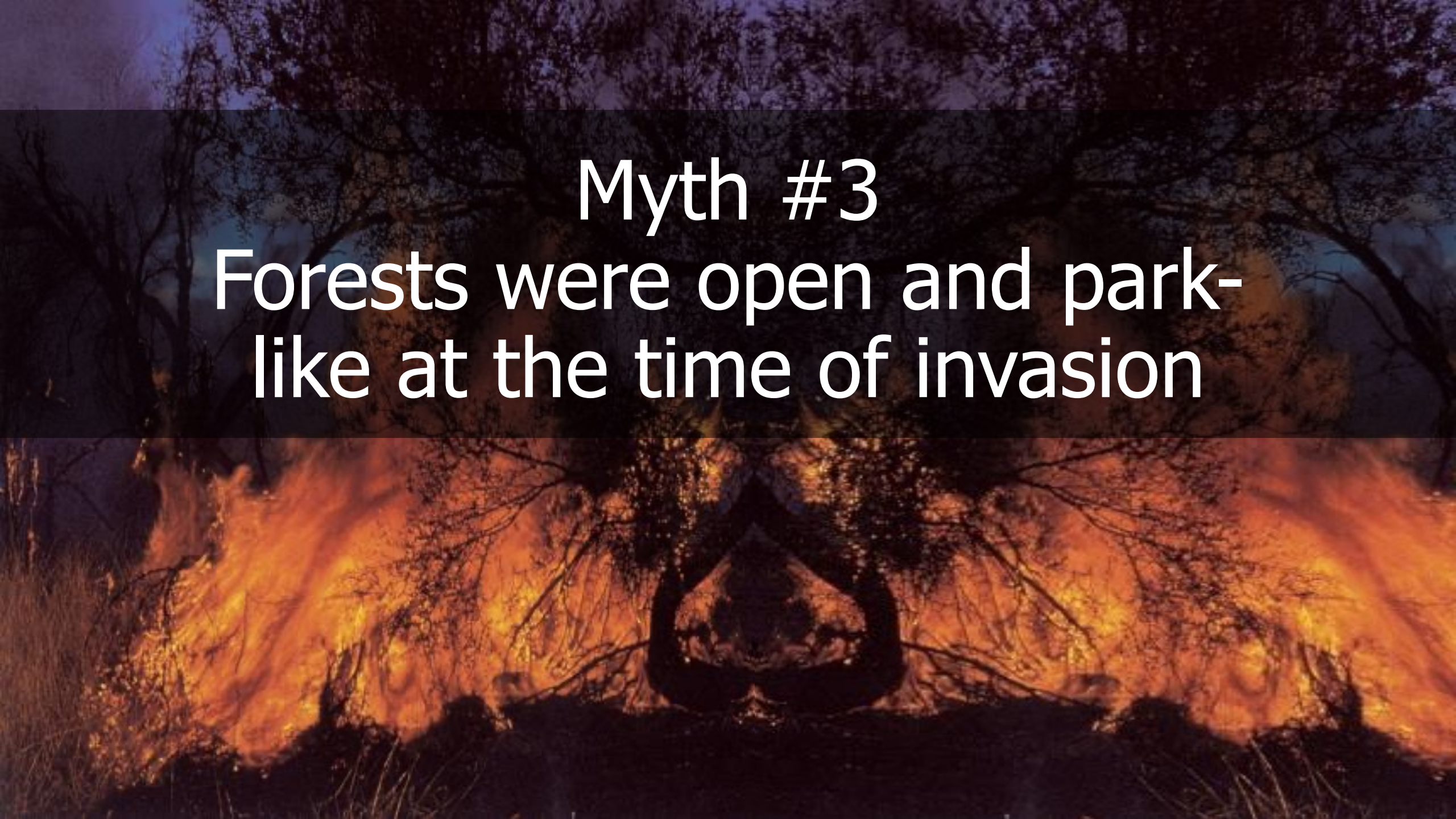
ABSTRACT

Many forest types globally have been subject to an increase in the frequency of, and area burnt by, high-severity wildfire. Here we explore the role that previous disturbance has played in increasing the extent and severity of subsequent forest fires. We summarise evidence documenting and explaining the mechanisms underpinning a pulse of flammability that may follow disturbances such as fire, logging, clearing or windthrow (a process we term disturbance-stimulated flammability). Disturbance sometimes initiates a short initial period of low flammability, but then drives an extended period of increased flammability as vegetation regrows. Our analysis initially focuses on well-documented cases in Australia, but we also discuss where these pattens may apply elsewhere, including in the Northern Hemisphere. We outline the mechanisms by which disturbance drives flammability through disrupting the ecological controls that limit it in undisturbed forests. We then develop and test a conceptual model to aid prediction of woody vegetation communities where such patterns of disturbance-stimulated flammability may occur. We discuss the interaction of ecological controls with climate change, which is driving larger and more severe fires. We also explore the current state of knowledge around the point where disturbed, fire-prone stands are sufficiently widespread in landscapes that they may promote spatial contagion of high-severity wildfire that overwhelms any reduction in fire spread offered by less-flammable stands.

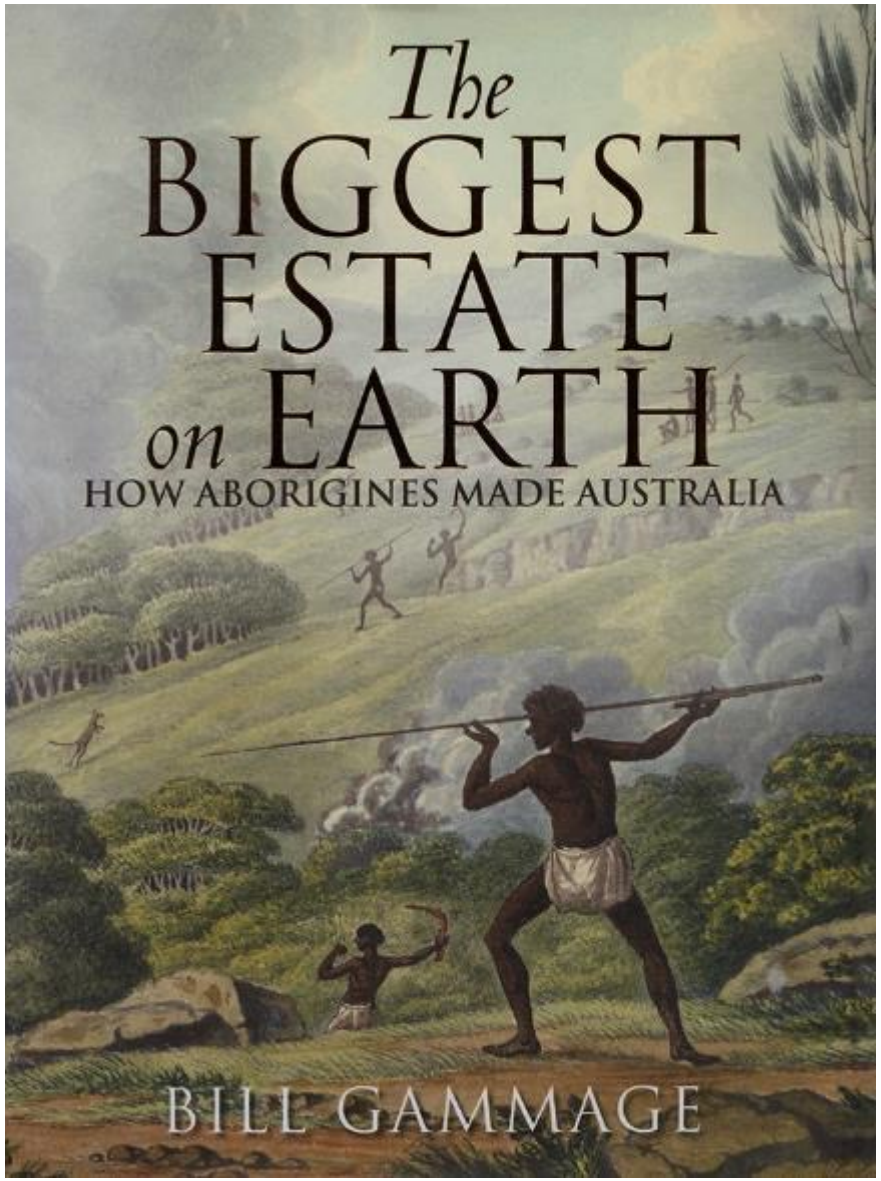
We discuss how land managers might deal with the major challenges that changes in landscape cover and altered fire regimes may have created. This is especially pertinent in landscapes now dominated by extensive areas of young forest regenerating after logging, regrowing following broadscale fire including prescribed burning, or regenerating following agricultural land abandonment.

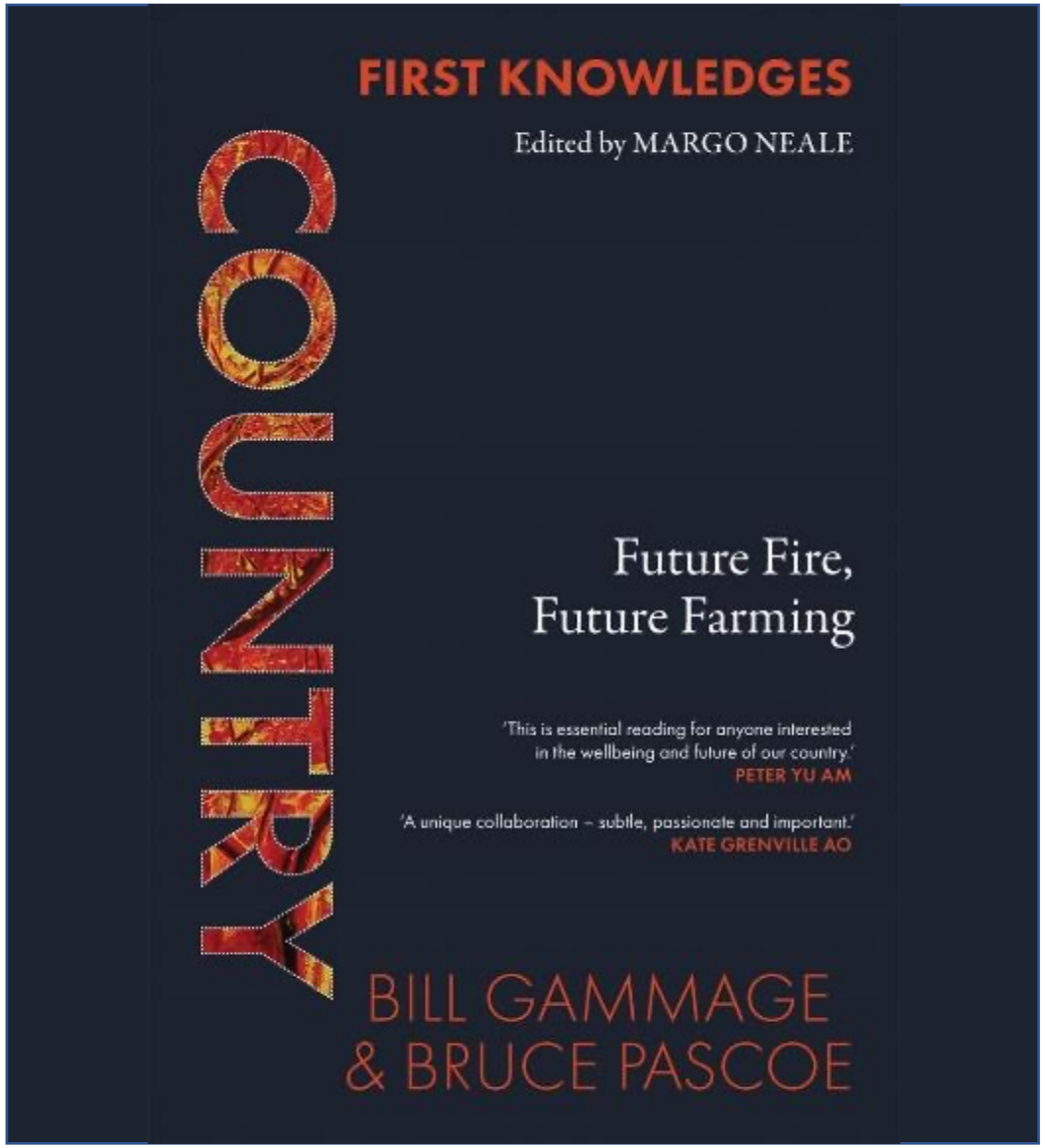
Where disturbance is found to stimulate flammability, then key management actions should consider the long-term benefits of: (*i*) limiting disturbance-based management like logging or burning that creates young forests and triggers understorey development; (*ii*) protecting young forests from disturbances and assisting them to transition to an older, less-flammable state; and (*iii*) reinforcing the fire-inhibitory properties of older, less-flammable stands through methods for rapid fire detection and suppression.

Key words: young disturbed forest, logging, prescribed burning, post-disturbance regrowth, ecological controls, spatial contagion, forest landscape management.



Myth #3
Forests were open and park-like at the time of invasion


The
BIGGEST
ESTATE
on EARTH
HOW ABORIGINES MADE AUSTRALIA
BILL GAMMAGE


FIRST KNOWLEDGES
Edited by MARGO NEALE
COUNTRY
Future Fire,
Future Farming
'This is essential reading for anyone interested in the wellbeing and future of our country.'
PETER YU AM
'A unique collaboration – subtle, passionate and important.'
KATE GRENVILLE AO
BILL GAMMAGE
& BRUCE PASCOE

What did it used to look like?

- Tall, wet forests were:

- Open and park-like
- Farmed
- Deliberately burned – recurrent fire AND deliberate wildfire

- Implications = managed by regular burning, widespread thinning

Lindenmayer et al. 2024 *Austral Ecology*

Let’s examine some evidence

- Early explorers testimonies
- Early paintings
- Early photos
- Carbon dating
- Dendrochronology
- Basic ecology
- Lidar analysis

Testimonies – First Peoples

"…*significant remnants of old growth forest are characteristic of a period when only Gunaikurnai were present on the land,….[a] reminder to us of what our Country was like in the time of our ancestors*." (GLAWAC 2015 p. 33)

Lindenmayer et al. 2024 Austral Ecology

Testimonies – Early expeditioners

"steep hills and gullies, covered with almost impenetrable scrub" (Strzlecki)

"*Here, they find themselves completely at a stand,……; the brush wood so thick [sic] that it was impossible to see before them in any direction ten yards*." (Hume and Hovell)

"an extremely dense forest, huge fallen logs and the sheer impossibility of riding a horse in such places" (Broadribb in Hately 2014)

And some historical ecology

"…deliberate burning of wet sclerophyll forests was highly unlikely" and that this was "…not surprising in view of the fact that these mountain forests provided little in the way of food plants for the Aborigines" (Gott 2005)

Conclusion

Tall, wet forests:……..

- Are naturally dense, wet environments
- Were NOT regularly burnt
- Were “no fire country”
- Were NOT farmed
- Were NOT open and park-like

Management implications

- Extensive thinning and widespread burning are not appropriate management actions for tall, wet forests
- Prescribed burning is not appropriate for tall, wet forests
- **Disturbance makes them MORE FLAMMABLE NOT less**
- Better to manage them by letting them grow to less flammable old growth stage
- Embrace new technologies for rapid detection & suppression

Lindenmayer et al. 2024 Austral Ecology

Myth #4
If we don’t log our forests we will kill orangutans

Reality

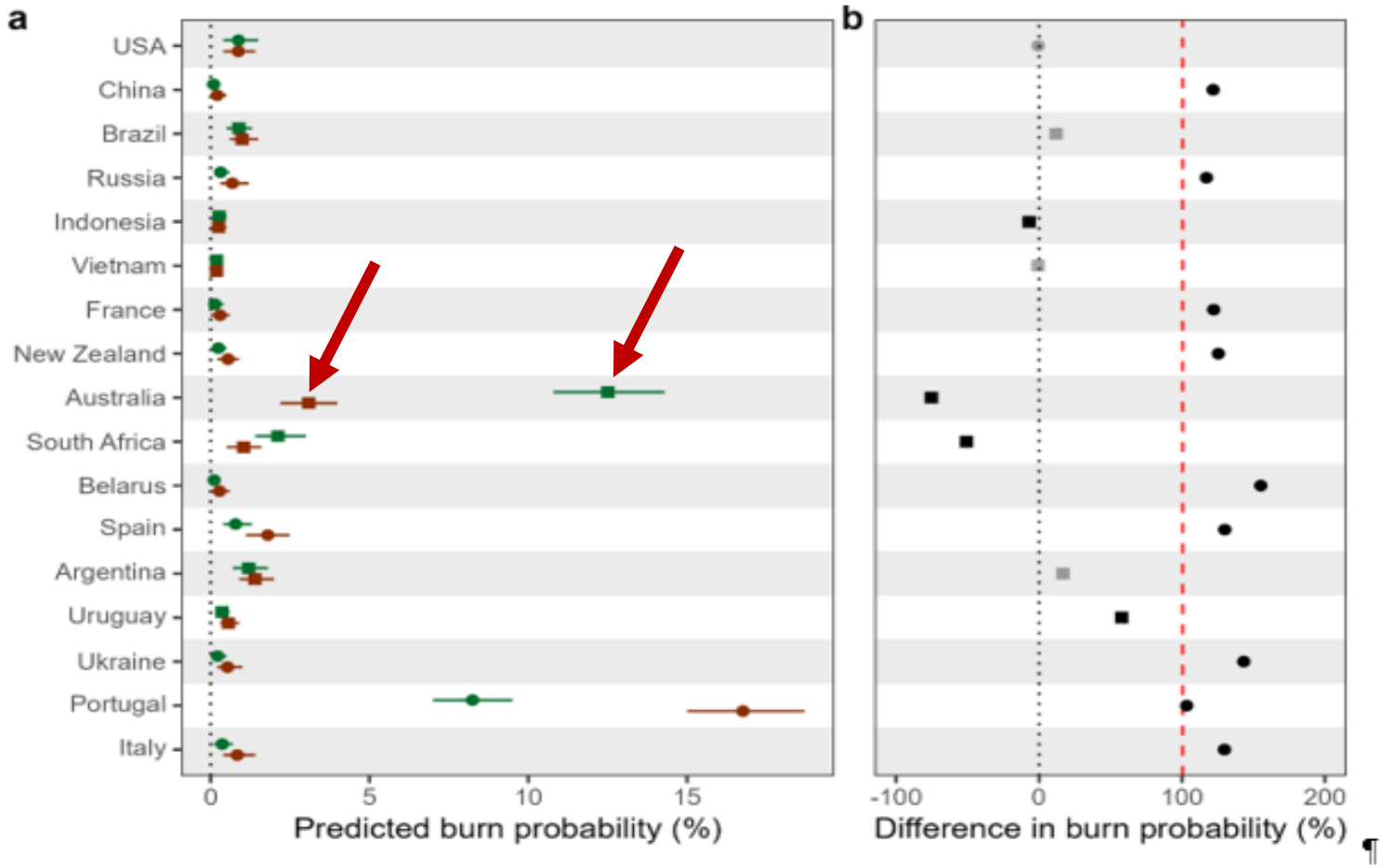
- ~ 90% of all sawn timber in Australia is from plantations
- ~ 90% of timber cut from native forests goes into the woodchip, pulpwood and boxliner production streams
- Up to 93% of plantation eucalypt pulplogs are being exported
- Victorian Mountain Ash woodchips were used to smoke pork bellies to go on pizzas
- We will **not** be importing woodchips from Orangutan habitat
- Timber imports come from places such as NZ and Europe

Plantations

90% of all sawn timber comes from plantations

Fire in plantations

Plantations 4X less likely to burn cf logged and regenerated forests



Forest Ecology and Management 528 (2023) 120641

Contents lists available at ScienceDirect

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journal homepage: www.elsevier.com/locate/foreco

Better managing fire in flammable tree plantations

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ARTICLE INFO

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Asset fragmentation
Fire risk mitigation
Plantation design
Plantation management
Landscape ecology
Wildfires

ABSTRACT

Plantations of trees are key sources of wood products globally and are increasing in extent in many jurisdictions around the world. Plantations also can be flammable and fire prone with extensive areas of the existing plantation estate being burnt every year. This has consequences not only for forest industries reliant on plantations but also for the safety of human communities living close to plantations. We argue greater consideration of the fire risks in plantations is needed in planning where plantations are located at regional, landscape and compartment scales. These considerations extend to what tree species are planted in what places, particularly in relation to climatic conditions and environmental factors like topography. These considerations can influence fire regimes and, in turn, the risks posed by fire to plantations and areas adjacent to potentially flammable plantations. Other factors associated with fire risks in plantations include the juxtaposition of different land uses in landscapes and the opportunities they present to limit spatial contagion in fire behaviour. There is also potential for new technologies to better detect and more quickly extinguish fires that ignite within plantations and fires that start outside plantations but then burn into them. Better planning for, and management of, wildfires in plantations is needed because of their importance for wood supply and the danger they can pose to the safety of people living in increasingly plantation-dominated landscapes.

CSIRO PUBLISHING

International Journal of Wildland Fire **2021**, *30*, 322–328
https://doi.org/10.1071/WF20129

Research Note

Effects of altered fire intervals on critical timber production and conservation values

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Abstract. Forests exhibit thresholds in disturbance intervals that influence sustainability of production and natural values including sawlog production, species existence and habitat attributes. Fire is a key disturbance agent in temperate forests and frequency of fire is increasing, threatening sustainability of these forest values. We used mechanistically diverse, theoretical fire interval distributions for mountain ash forest in Victoria, Australia, in the recent past and future to estimate the probability of realising: (i) minimum sawlog harvesting rotation time; (ii) canopy species maturation; and (iii) adequate habitat hollows for fauna. The likelihood of realising fire intervals exceeding these key stand age thresholds

Fire regimes & rotation times

- Natural fire freq. = 75-150 years (McCarthy et al., 1999)
- Optimal sawlog rotation =~ 80-100 years (Burgman et al., 1989)

- Relate fire frequency to timber rotation (chance trees get to harvest age)
- P = 0.21 at 80 years; P = 0.14 at 100 years

Few stands reach harvestable age

(High uncertainty of resource, poor financial investment, need alternative feedstock)


Myth #5
We have the best regulated forest management
© Chris Taylor

Breaches of logging laws are widespread

- Victoria – steep slopes should not be logged - > 30 degrees (according to Codes of Practice)
- 74% of logging coupes in Central Victoria exceed 30 degrees in slope
- 72% of logging coupes have harvest exclusion areas that were logged
- Many court cases reveal logging has breached key harvest prescriptions (wildlife protection zones, high conservation value areas)
- Poor stakeholder engagement
- YET ALL OF THESE AREAS WERE CERTIFIED UNDER RESPONSIBLE WOOD CERTIFICATION SCHEME!

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Stakeholder engagement in a Forest Stewardship Council Controlled Wood assessment

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ARTICLE INFO

Keywords:
Forest certification
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Logging on steep slopes
South-eastern Australia
Spatial analysis

ABSTRACT

Forest certification has become an important element in the trade of forest and wood products in many countries worldwide. We reviewed the Controlled Wood audit process under the Forest Stewardship Council (FSC), which is one of the world's largest forest certification schemes. We analysed an FSC Controlled Wood audit of logging operations conducted by VicForests (a government owned logging business operating in the Australian state of Victoria) within the Upper Goulburn Water Supply Protection Area. Areas >30° in slope within the catchment

PLOS ONE

RESEARCH ARTICLE

The use of spatial data and satellite information in legal compliance and planning in forest management

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OPEN ACCESS

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Abstract

A key part of native forest management in designated wood production areas is identifying locations which must be exempt from logging. Forest laws, government regulations, and codes of practice specify where logging is and is not permitted. Assessing compliance with these regulations is critical but can be expensive and time consuming, especially if it entails field measurements. In some cases, spatial data products may help reduce the costs and increase the transparency of assessing compliance. However, different spatial products can vary in their accuracy and resolution, leading to uncertainty in forest management. We present the results of a detailed case study investigating the compliance of logging operations with laws preventing cutting on slopes exceeding 30˚. We focused on two designated water catchments in the Australian State of Victoria which supply water to the city of Melbourne. We compared slopes that had been logged on steep terrain using spatial data based on a Digital Elevation Model (DEM) derived from LiDAR, a 1 arc second DEM derived from the Shuttle Radar Topography Mission, and a Digital Terrain Model (DTM) with a resolution of 10m. While our analyses revealed differences in slope measurements among the different spatial products, all three datasets (and the on-site slope measurements) estimated the

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Logging on steep slopes in Victoria, Australia: the need for strengthened regulation

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ABSTRACT

Legislation and codes of practice exist to manage forests for wood production, but effectiveness depends on compliance with regulations. We report on terrain analyses by the Office of the Conservation Regulator (OCR) to assess compliance with logging prescriptions in Victoria. The OCR concluded that logging was banned in water catchments on terrain greater than 30° in slope under prescriptions in force up to 2021. We compared assessments by the OCR of logging on slopes across the Upper Goulburn water supply protection area between 2007 and 2021, to our own analyses. Using Digital Elevation Models, we estimated that 57 to 99 per cent of logging coupes contained slopes greater than 30°. The OCR found that 93 per cent of coupes it assessed in the Upper Goulburn water supply protection area were likely to contain slopes greater than 30°, with 11 coupes featuring greater than 10 per cent of their net area exceeding 30° in slope. Our comparative analysis showed a significant correlation between our assessment and the assessment by the OCR. However, the OCR claimed that logging on slopes greater than 30° could not be substantiated despite its own assessment showing the contrary. The Victorian Auditor-General's Office concluded the OCR was not equipped to assess breaches of prescriptions and enforce regulations. Reforms are needed to improve Victorian forest management.

ARTICLE HISTORY
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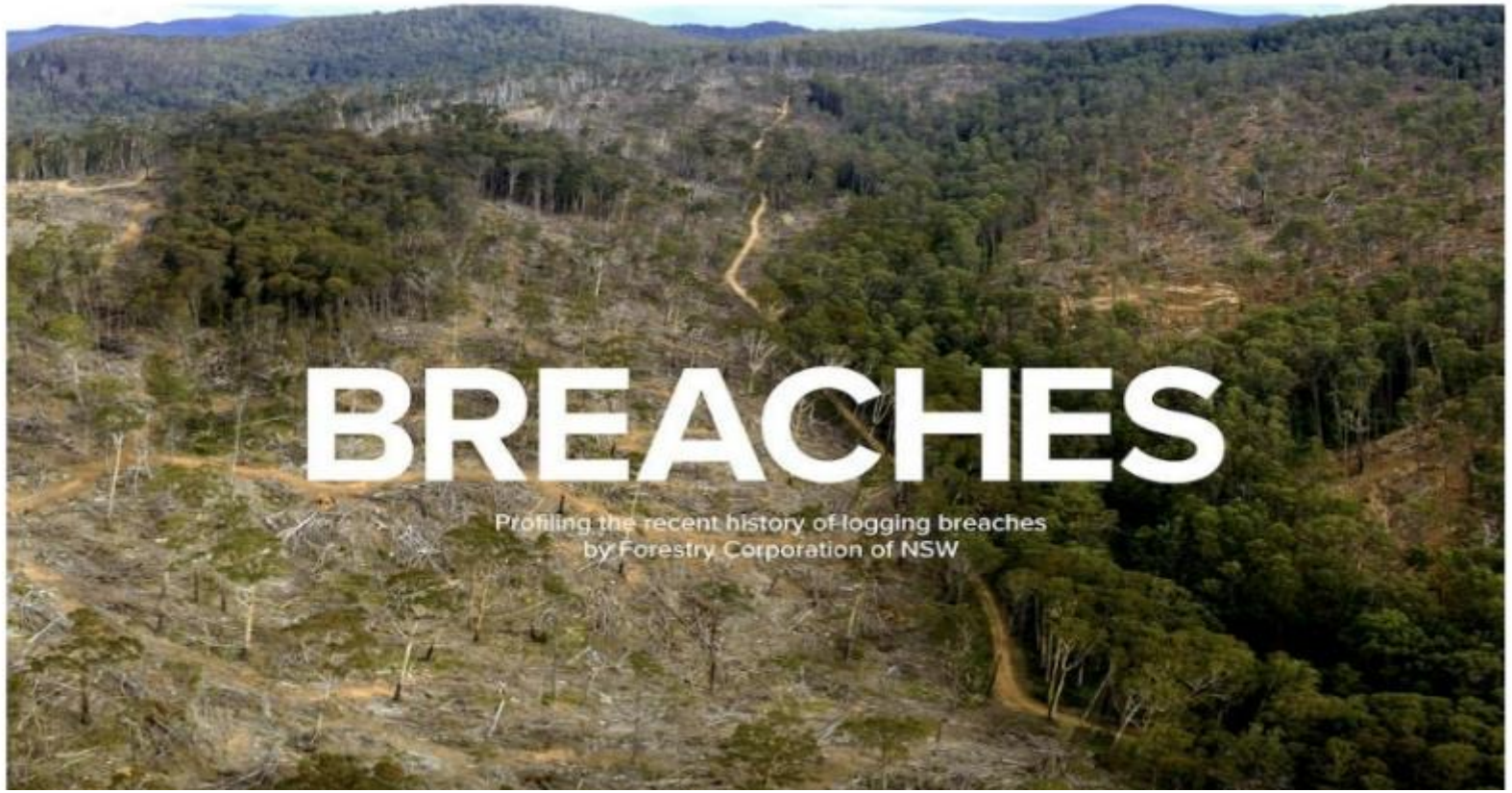
KEYWORDS
Logging; Regulation; Code of Practice; South Eastern Australia

Breaches: Profiling the recent history of logging breaches by Forestry Corporation of NSW

by Miriam Pepper | Sep 24, 2024



Myth #6
Logging is a big contribtor to the economy

INSIGHT

Public native forest logging: a large and growing taxpayer burden


Australian National University
frontier economics
Comparing the value of alternative uses of native forests in Southern NSW
Frontier Economics and Prof. Andrew Macintosh, ANU | 14 October 2021
Comparing the value of alternative uses of native forests in Southern NSW
Final

Corporate and Business Plans

2013-14 to 2015-16

VicForests

Initiative 7: Determine the future of East Gippsland mixed species operations

Forecast initiative cost: internal costs only

Timber harvesting operations in the East Gippsland Forest Management Area (FMA) have not been profitable for VicForests for many years. Operations currently lose up to $5.5 million per annum, after the distribution of corporate overheads.

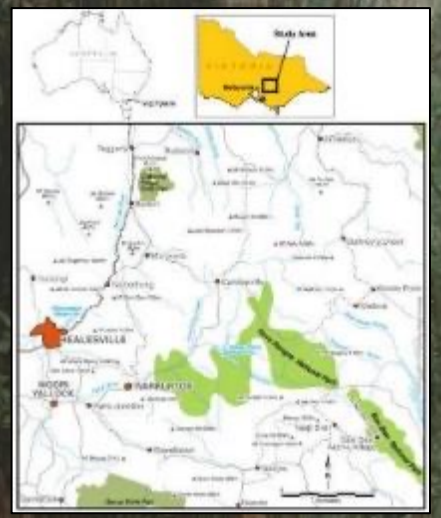
The reason for this loss is primarily related to the quantity and quality of the available timber resources. Ongoing harvesting since the 1960s, and the addition of large areas of forest to the conservation reserve system since the 1980s has led to a situation where few productive stands, that are suitable for harvesting, remain. For the foreseeable future, harvesting in East Gippsland FMA will, in general, be in coupes that are poorer quality, yield only low volumes of sawlog, are smaller in area and in locations that

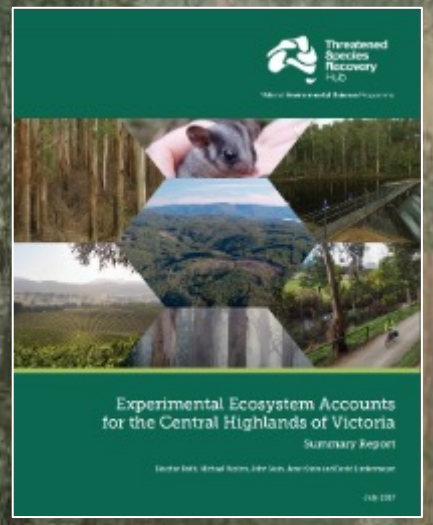
Given the precarious nature of residual log sales to SEFE, VicForests will no longer be entering into any longer-term sawlog sales agreements following the Timber Sales Process 2013 unless proposals to purchase sawlogs include a complementary proposal that has the effect of removing the commercial risk to VicForests following the loss of sales of residual logs to SEFE.

VicForests' Order in Council requires VicForests, amongst other things, to operate on a commercial basis. In the current form, timber harvesting operations in East Gippsland FMA are not commercial. To address this situation in 2013-14, VicForests intends to:

- work on a number of options during 2013-14 regarding future operations in East Gippsland

Ecosystem accounting in the Central Highlands of Victoria





Data on ecosystem services and values for:

- water
- carbon*
- timber*
- tourism
- agriculture
- biodiversity*

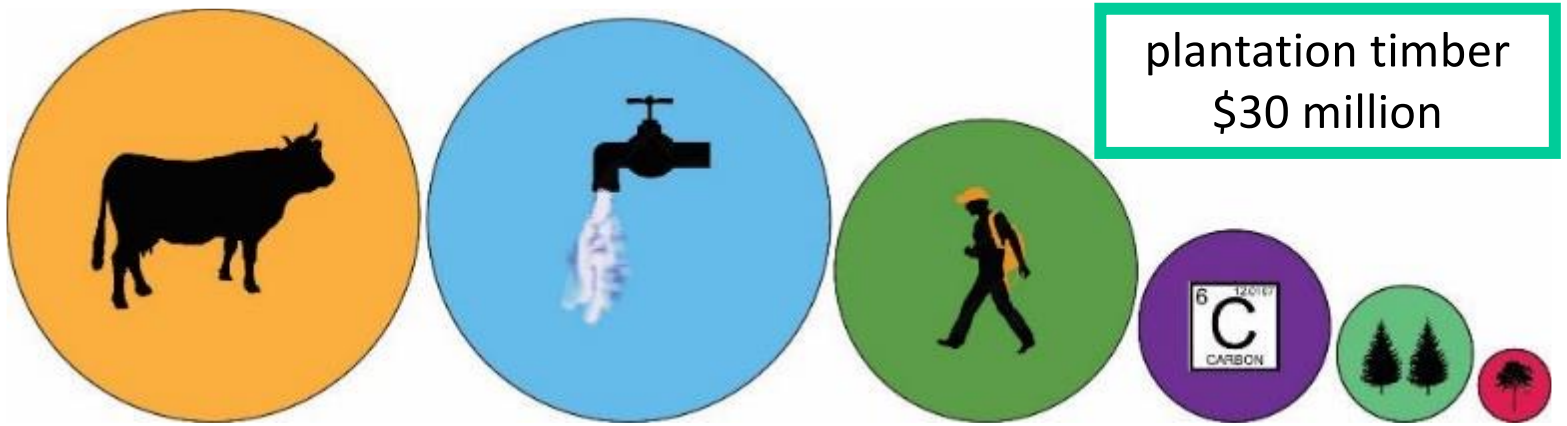
*From LTER sites (1983-present)

agriculture
$312 million

water supply
$310 million

tourism
$260 million

carbon
$49 million



plantation timber
$30 million

native timber
$12 million

Reality

- Native forest logging is a major drain on the public purse
- Handouts to industry have been commonplace throughout the sector for several decades
- Many independent reports have demonstrated this for a long time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AQ
AUSTRALIAN QUARTERLY
Subsidising Destruction:
The Wasteful Logging of Native Forests in Australia
INCLUDING: A/PROF NIUSHA SHAFIABADY | PROF DAVID LINDENMAYER AO | MARGIE STEFFANS OAM | DR JOSHUA PATE AND MORE...
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WE CAN SEE YOU: AI FACIAL RECOGNITION
KIDS AND THE NEUROSCIENCE OF PAIN
TALL POPPY AWARDS SPECIAL FEATURE

An important strategy

Think about where you have the best & highest value

NATIVE FORESTS

Water, carbon storage, tourism

PLANTATIONS

Wood products

(Carbon research shows best to source wood from plantations – Keith et al., 2014)

Keith et al. (2014). *Ecosphere*, 5(6), Art. 75

land

MDPI

Article

Diversifying Forest Landscape Management—A Case Study of a Shift from Native Forest Logging to Plantations in Australian Wet Forests

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Abstract: Natural forests have many ecological, economic and other values, and sustaining them is a challenge for policy makers and forest managers. Conventional approaches to forest management such as those based on maximum sustained yield principles disregard fundamental tenets of ecological sustainability and often fail. Here we describe the failure of a highly regulated approach to forest management focused on intensive wood production in the mountain ash forests of Victoria, Australia. Poor past management led to overcutting with timber yields too high to be sustainable and failing to account for uncertainties. Ongoing logging will have negative impacts on biodiversity

Lindenmayer and Taylor 2022

The future of forestry

- Exit native forest logging – better to manage for biodiversity, fire, carbon, water
- Plantation-based industry for wood products – reduces GHG emissions, best and highest return on natural asset
- Increase focus on plantation design, urban forests, farm forestry

New and emerging fibre industries

NSW DPI
primefacts
PROFITABLE & SUSTAINABLE PRIMARY INDUSTRIES www.dpi.nsw.gov.au
JULY 2008 | PRIMEFACT 801

Industrial hemp – a new crop for NSW

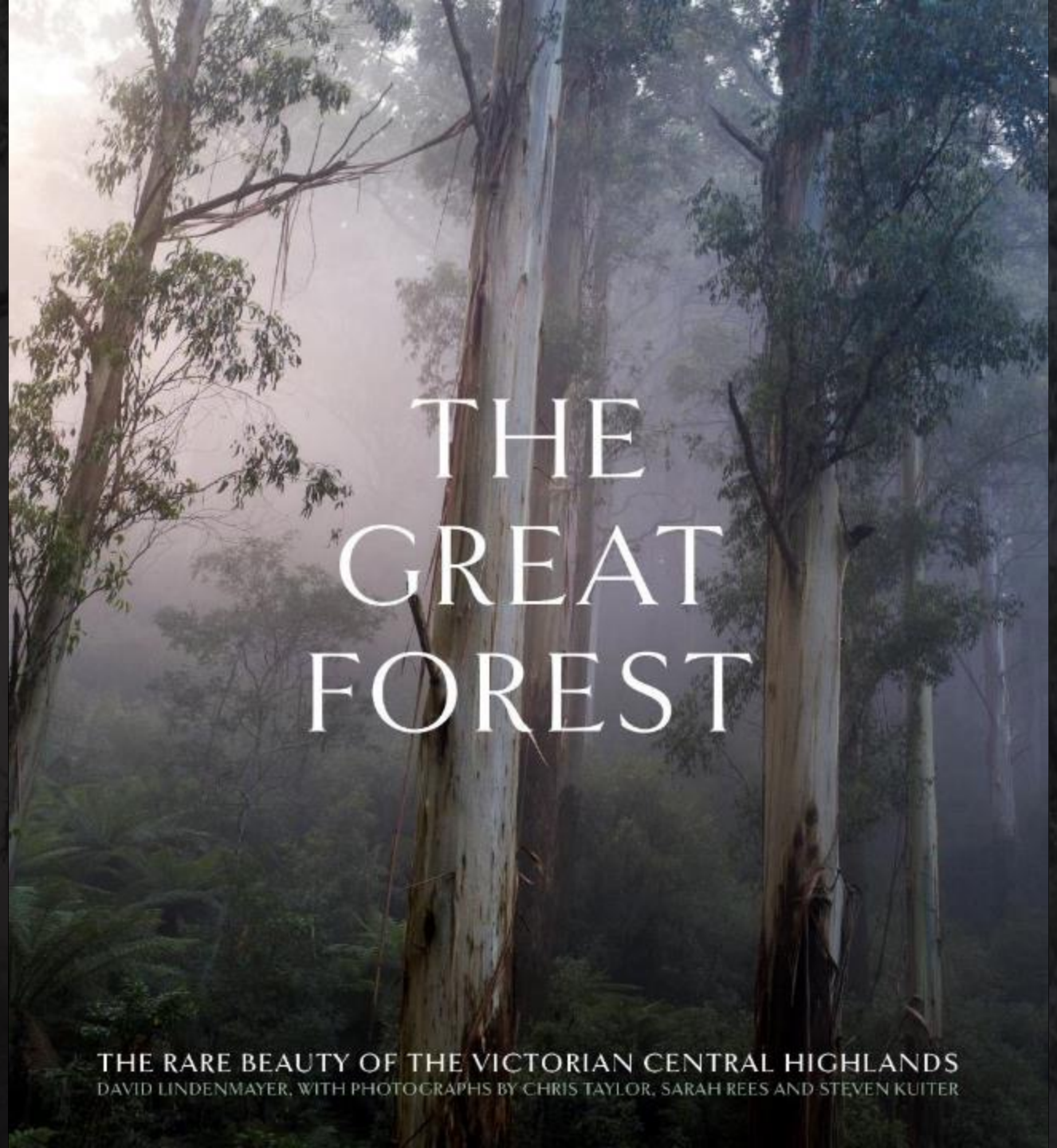
Chris Cole
Manager, Industry Development
(Broadacre Cropping)
NSW DPI Wagga Wagga
Bev Zurbo
Leader, Quality Management
NSW DPI Wagga Wagga

Introduction

Industrial hemp (*Cannabis sativa* L), also known as 'Indian hemp', is one of the oldest crops known to man. It has been cultivated since ancient times for its bast (phloem) fibre in the stem, multi-purpose oil in the seeds (achenes) and an intoxicating resin

Figure 1. Early February planted industrial hemp foreground and early December planted industrial hemp background.

Formal protection as a fundamental strategy

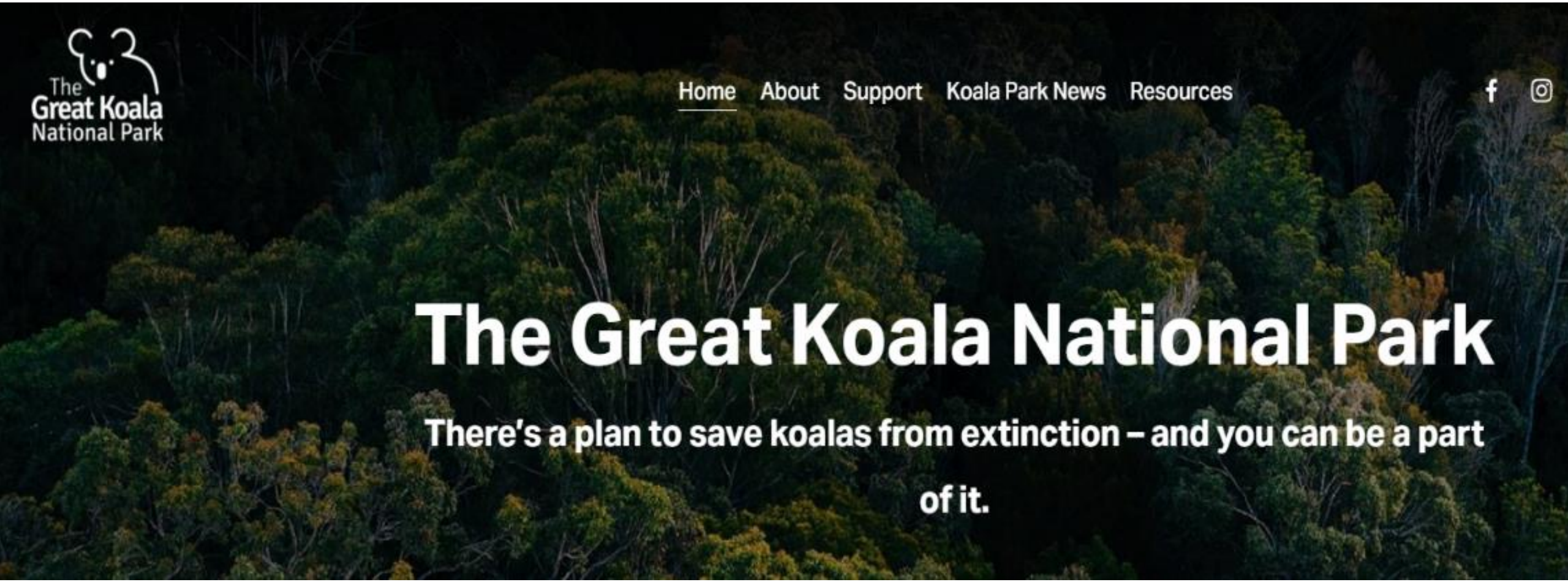

THE
GREAT
FOREST
THE RARE BEAUTY OF THE VICTORIAN CENTRAL HIGHLANDS
DAVID LINDENMAYER, WITH PHOTOGRAPHS BY CHRIS TAYLOR, SARAH REES AND STEVEN KUITER

2024 Great Forest National Park

Treasury Corporation Victoria sustainability bond business case

- April 2024

Prepared by Right Lane Consulting


The Great Koala National Park
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The Great Koala National Park
There's a plan to save koalas from extinction – and you can be a part of it.

If you don’t have formal protection……

- Tasmania – change of government
- Prior “peace deal” arrangements torn up
- Back to the Forest Wars….

But there is a lot of work to do

Appropriate forest infrastructure

Establish forest infrastructure

- Infrastructure to bring people to the forest – walkways, tracks, ziplines, cultural centres
- Grey Nomads etc (Park ticking!)
- Major increase in First peoples on Country – park co-management
- Create a new nature-based economy – guides etc

Chris Fithall

Tahune Airwalk, Tasmania

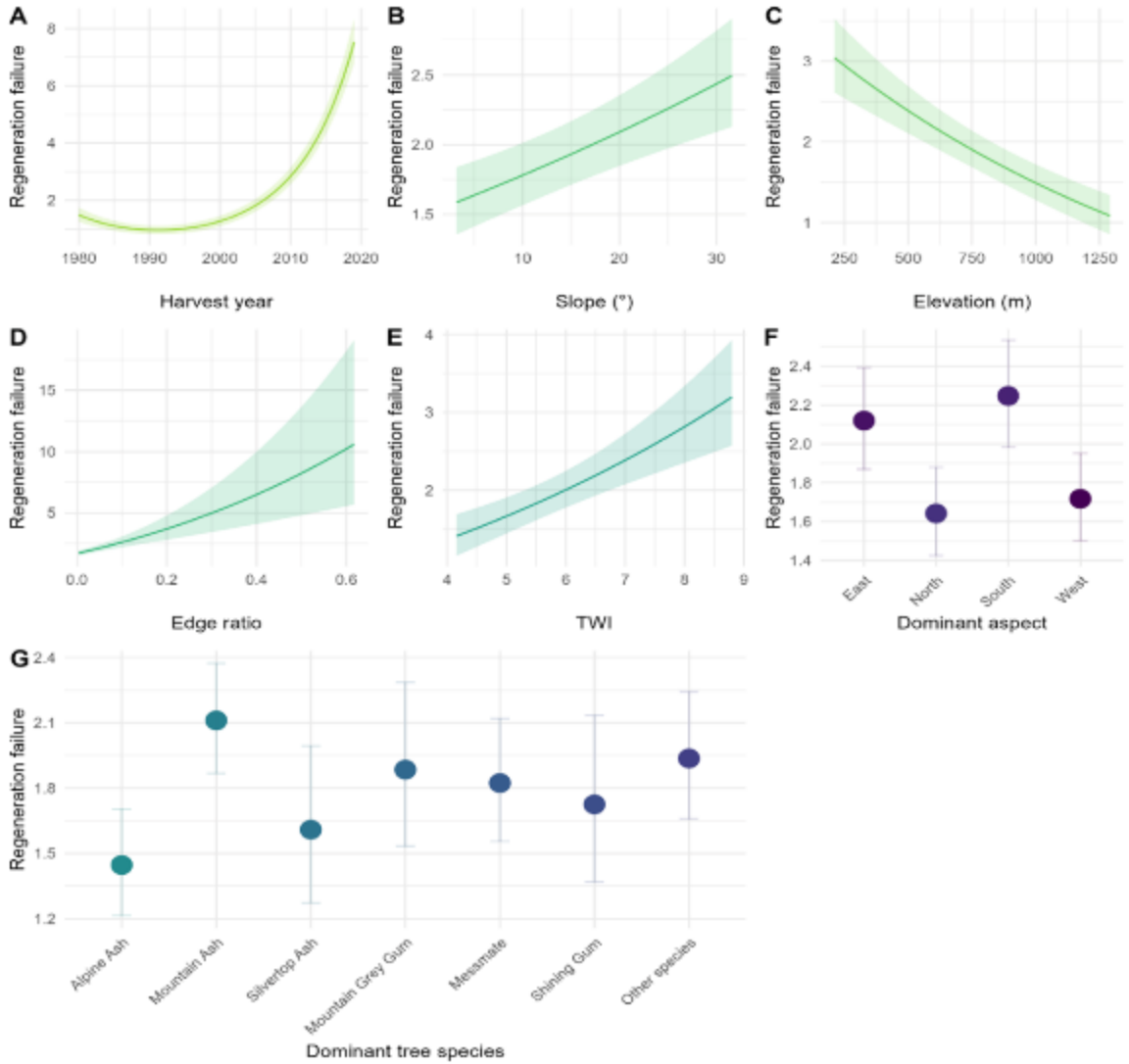
74,000 visitors p.a. (2014-15)

Simon Lleschke

But there is a lot of work to do

Forest restoration

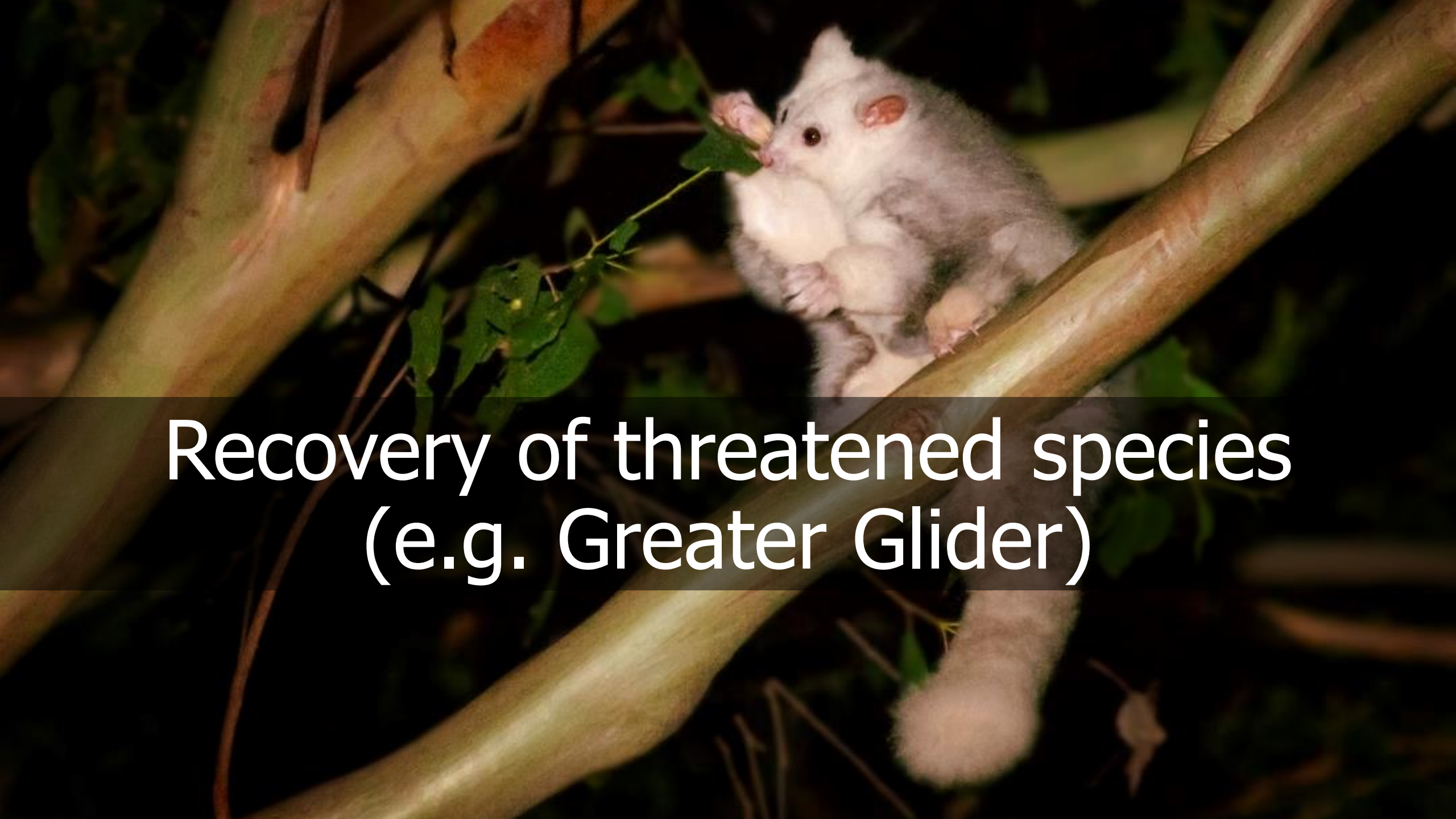

Tackling failed regeneration



Taylor et al. 2025 JEMA (in press)

But there is a lot of work to do

Biodiversity recovery



Recovery of threatened species (e.g. Greater Glider)

New generation nest boxes and artificial hollows


4mm marine ply
Air gap
Insulation
18mm marine ply
Side attatched to tree uses the thermal mass of the tree for insulation
3 coats fireproof sealer
Small entrance hole to discourage nest box use by larger, non-target species
3 coats of white paint that reflects over 80% of radiant heat

But there is a lot of work to do

NOT FOREST GARDENING!!!!!!!


CAT

Biological Conservation 305 (2025) 111071

Contents lists available at ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon

When Active Management of high conservation value forests may erode biodiversity and damage ecosystems☆

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ARTICLE INFO

Keywords:
Forest biodiversity
Old growth forest
Ecosystem damages
Wildfire
Insect attack

ABSTRACT

The increase in extent and severity of disturbances such as wildfires and insect outbreaks in forests globally has led to calls for greater levels of "Active Management" (AM), including in High Conservation Value Forests (HCVF) such as old growth stands. AM includes such activities as thinning, selective logging of large trees (that are sometimes fire resistant), post-disturbance (salvage) logging, recurrent prescribed burning, and road building; singularly or in combinations. We urge caution when implementing these aspects of AM, especially in HCVF such as old growth stands, intact areas, and complex early seral forests. This is because AM may have substantial

Lindenmayer et al. 2025 Biol Cons.

But there is a lot of work to do

New generation fire detection and suppression

New Forests (2019) 50:169–181
https://doi.org/10.1007/s11056-018-9633-9

Integrating forest biodiversity conservation and restoration ecology principles to recover natural forest ecosystems

David B. Lindenmayer[1,2]

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© Springer Science+Business Media B.V., part of Springer Nature 2018

Abstract Effective conservation of forest biodiversity and effective forest restoration are two of the biggest challenges facing forest managers globally. I present four general principles to guide strategies aimed at meeting these challenges: (1) protect and restore populations of key species and their habitats, (2) conserve and restore key attributes of stand

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Section

Research articles

Forest restoration in a time of fire: perspectives from tall, wet eucalypt forests subject to stand-replacing wildfires

David B. Lindenmayer, Elle J. Bowd and Philip Gibbons

Published: 14 November 2022 https://doi.org/10.1098/rstb.2021.0082

Abstract

Wildfires have the potential to add considerably to the already significant challenge of achieving effective forest restoration in the UN Decade on Ecosystem Restoration. While fire can sometimes promote forest restoration (e.g. by creating otherwise rare, early successional habitats), it can thwart it in others (e.g. by depleting key patch types and stand structures). Here we outline key considerations in facilitating restoration of some tall wet temperate forest ecosystems and some boreal forest ecosystems where the typical fire regime is rare high-severity stand-replacing fire. Some of these ecosystems are experiencing altered fire regimes such as increased fire extent, severity and/or frequency. Achieving good restoration outcomes in such ecosystems demands understanding fire regimes and their impacts on vegetation and other elements of biodiversity and then selecting ecosystem-appropriate management interventions.

An integrated system to protect Australia from catastrophic bushfires

Associate Professor Marta Yebra
Professor Nick Barnes
Dr Colleen Bryant
Associate Professor Geoffrey J. Cary
Associate Professor Salman Durrani
Dr Jia-Urnn Lee
Professor David Lindenmayer
Professor Robert Mahony

Australia has experienced catastrophic bushfire conditions that exceed known firefighting technologies, leading to significant ecological, economic, health and social costs. We need a novel approach that harnesses modern technologies and that is successful in reducing the risk of large-scale bushfires under extreme conditions.

During the 2019–20 bushfire season, extensive areas were burnt largely because of an inability to detect and extinguish ignitions in remote areas before the fires spread and became uncontrollable. A large proportion of these fires were ignited by

which are common to independent national and state inquiries while complementing national and international missions dedicated to rapid fire detection. This is the first step towards a coordinated effort to monitor eucalypt fuel

Yebra et al. Australian J. Emergency Management 2022

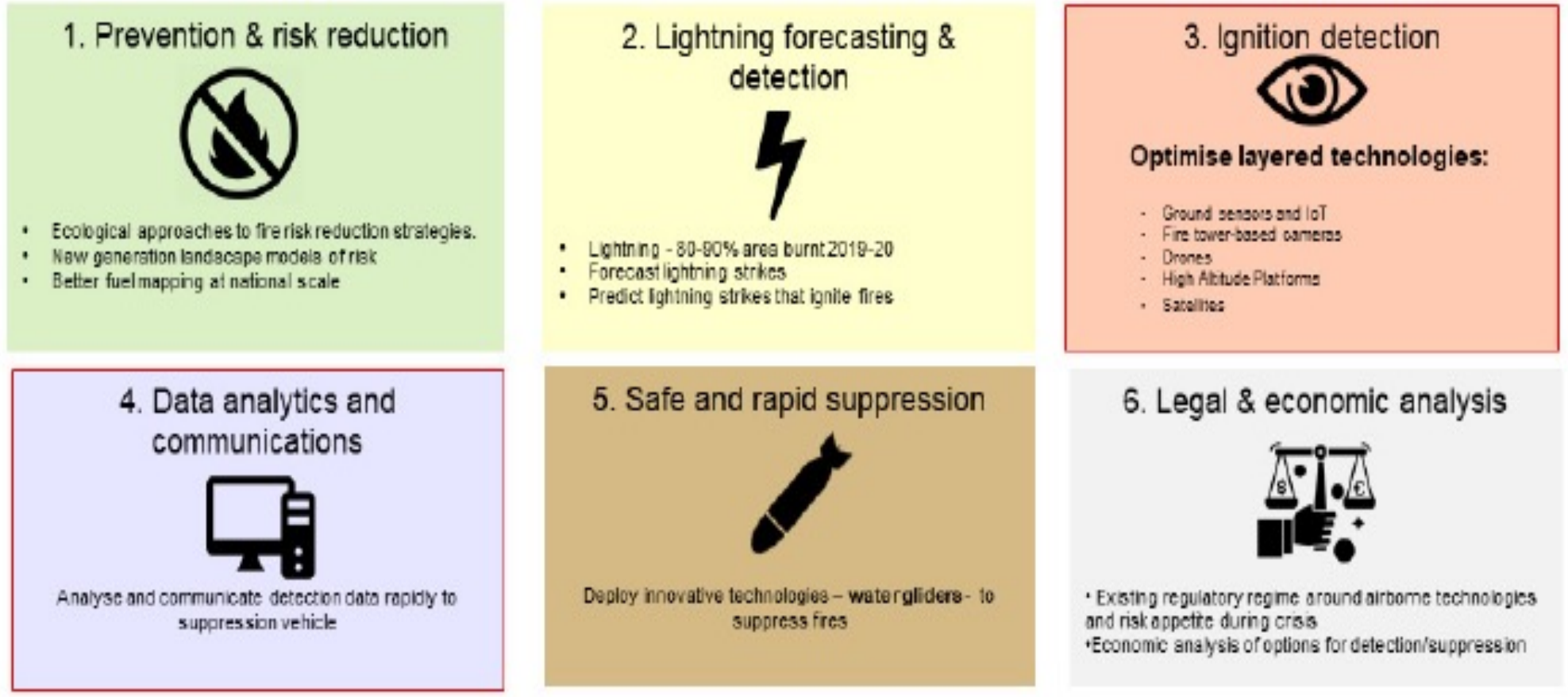

Figure 1: Key themes of the ANU Bushfire Research Initiative.

Yebra et al., 2022

A better forest future

- Formal forest protection and then tourism
- Build sensible and appropriate infrastructure
- Protect carbon stocks
- Use science to help manage feral animals
- Develop new technologies to tackle fires faster and more effectively
- Invest more and smarter in plantations


Thank you