WWF

REPORT

AUS

2019

TOWARDS TWO BILLION TREES

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Published by WWF-Australia, Sydney. WWF-Australia acknowledges the Traditional Custodians of Country throughout Australia and their continuing connection to land, water and culture.
We pay our respects to their Elders - past, present and emerging.

WWF is one of the world's largest and most experienced independent conservation organisations, with over five million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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BUSHFIRE IN BOWRAVILLE, NSW, NOVEMBER 2019 © ADAM DEDERER

FORESTS, FIRE, KOALAS & CLIMATE

On top of rampant tree-clearing, Australia's bushfire emergency is destroying homes and habitats, killing wildlife and livestock, and releasing enormous volumes of carbon dioxide.

It's a tragedy fuelled by global heating, and comes on top of the worst drought in recorded history in New South Wales and Queensland.

Some forest communities have been largely destroyed. The mental health impacts, trauma and financial losses will be felt for many years.

At the time of writing, the bushfire emergency had burnt more than two million hectares and destroyed close to 700 homes in New South Wales and Queensland. Six people have died. Dozens have suffered burns and other injuries. Smoke haze has blanketed the east coast and become a public health risk for millions of people.

Temperatures into the high 30s and 40s, together with lack of rain, very low humidity and strong gusty winds have created extreme to catastrophic bushfire conditions in New South Wales, Queensland, South Australia, Victoria and Western Australia.

The fires have taken a terrible toll on koalas.

It's believed hundreds have died from intense bushfires which have razed primary koala habitat, including a nature reserve near Port Macquarie on the New South Wales mid-north coast. More broadly, footage and images inundate the media and online showing dead and burnt koalas, and koalas trying to flee the flames. Many stories from shocked wildlife carers also flooded in.

Koalas that survived the bushfires face dehydration and starvation due to lack of gum leaves and the water they provide.

In response, some commentators have called for more hazard reduction burns to reduce catastrophic bushfires and create larger firebreaks. Many have blamed budget cuts for state National Parks that have reduced the number of rangers available to implement cool season burns. Lack of water for firefighting due to low rainfall, plus restricted availability of large aeroplanes and helicopters for waterbombing, have been highlighted as contributing factors. Reintroduction of Aboriginal fire management has been advocated to reduce fuel loads.

These factors are all likely to have played roles in different states and fire conditions and should be seriously discussed and addressed.

However, fire ecologists caution that hazard reduction is increasingly ineffective at preventing catastrophic bushfires fuelled by global heating. Hotter dryer conditions are overwhelming the traditional precautions and preparation for managing and fighting bushfires. The window for cool season burns is shortening.

Many seasoned firefighters have publicly stated they have never seen bushfires behave so ferociously and unpredictably.

Former leaders of fire and emergency services point to climate heating as fuelling the emergency.

The climate emergency is fuelling firestorms that are almost impossible to stop.

The good news is that trees are a natural climate solution to global heating.

On top of excessive tree-clearing, particularly in Queensland and New South Wales, the bushfire emergency has taken a terrible toll on trees.

2019 BUSHFIRES © ADAM STEVENSON

FORESTS, FIRE, KOALAS & CLIMATE

WWF estimates as many as three hundred million trees have been burnt during spring, with a long hot summer still to come. Most will survive, and are adapted to – and need – bushfires. But catastrophic firestorms can kill trees by burning them to the ground or killing the buds under their bark which will prevent new leaves from sprouting.

More than ever, we need to save and grow more trees in the right places, making sure they are well managed as part of the solution to both the biodiversity extinction and climate crises.

Other short-term responses should include reinstating or increasing staffing levels for state National Parks and other agencies to expand hazard reduction burns in accordance with approved fire plans that protect sensitive ecological and cultural assets. Aboriginal fire management should be used to help manage vegetation and wildlife in protected areas and other public lands in southern Australia, guided by the cultural knowledge of Indigenous Elders where this has been retained, alongside western science and the experience of local land managers. More support is needed for volunteer firefighters – working through ever-longer fire seasons – and for community wildlife rescue services and wildlife hospitals. Australia's aerial firefighting fleet should be bolstered with additional large waterbombers.

The bushfires have generated very significant carbon emissions. Together with the devastating fires this year in the Amazon, Congo and Indonesia, these emissions will hasten global heating.

Forest carbon stored in Australia's bush is a significant asset in efforts to stabilise the climate, and needs to be managed to both avoid emissions from deforestation and bushfires, and to soak up more carbon through targeted reforestation.

We also need to save koala habitat from being bulldozed and logged as well as expand the area and landscape connectivity of this species' habitats.

Koalas are projected to become extinct in New South Wales and Queensland by as early as 2050, particularly due to excessive tree-clearing. The terrible experience over past weeks shows that bushfires amplified by global heating are hastening this slide towards extinction. Koalas now likely warrant uplisting from being a 'vulnerable' species to being protected as an 'endangered' species in eastern states.

That's why Australia must also rapidly transition from burning fossil fuels to an economy powered by renewable energy. This requires development and deployment at scale of new technologies to export renewables to help the global economy move rapidly on from coal, oil and gas.

WWF-AUSTRALIA'S EARTH HOUR 2018 COMMUNITY TREE PLANTING EVENT AT OXLEY PARK, SYDNEY WITH GREENING AUSTRALIA. © WWF-AUS / LEONIE SII

OUR PLAN

WWF-Australia's national ten point plan to save and grow two billion trees in Australia by 2030.

1. **End deforestation and forest degradation** by phasing out major destruction of mature forests and woodlands, and high conservation value regrowth vegetation.
2. **Conserve 30% of Australia's land** within the National Reserve System to secure an additional 40 million hectares (approx) to ensure at least 15% of all types of forests and woodlands are represented in the protected areas system.
3. **End native timber harvesting** and transition the forest logging industry to plantations or Forest Stewardship Council-certified forestry.
4. **Persuade the federal government** to lead states and territories in the transition through the Council of Australian Government, and establish new institutions. Develop major adjustment programs to enable people to exit farming with dignity, support wellbeing and create new sustainable land management jobs in rural and regional Australians, including First Nations.
5. **Reforest 10 million hectares of native forests** and woodlands on cleared or degraded lands to provide wildlife habitat, store carbon, conserve threatened species, create climate refuges and restore landscape connectivity. Assisting natural regeneration from seedbanks is the best reforestation method, with tree planting required only where no viable seed banks remain.
6. **Save and grow forests and woodlands**, and support expansion of carbon farming markets and regenerative agriculture, to increase abatement and storage of land carbon by a cumulative 1,500 million tons of greenhouse gases between 2020 and 2030.
7. **Invest in research and development** to grow carbon farming opportunities, plus modelling to demonstrate the rain farming benefits of transitioning from deforestation to reforestation to stabilise weather systems, increase rainfall as natural drought assistance, and cool air and soil temperatures.
8. **Cease deforestation for beef production,** in accordance with the New York Declaration on Forests, Sustainable Development Goal 15, Banking Environmental Initiative and Consumer Goods Forum. Increase financial returns and market access for commodities for farmers who save and grow forests and store land carbon on their properties.
9. **Stabilise and reverse population declines** of threatened species dependent on forests and woodlands by reducing impacts of destruction in deforestation-front states (Qld, NSW, WA, NT).
10. **Ensure the welfare of native wildlife** is addressed in relation to deforestation.

AERIAL IMAGE OF A BULLDOZER CLEARING TREES FOR AN URBAN EXPANSION NEAR IPSWICH, SOUTHEAST QUEENSLAND, APRIL 2017.. © WWF-AUS

TOWARDS TWO BILLION TREES

WWF-Australia's national ten point plan to save and grow two billion trees in Australia by 2030.

Trees are amazing. They make the oxygen we breathe, the rain for our crops and the water we drink. They store carbon in their trunk, in their roots, and in the soil. They provide habitat for our unique wildlife. They bind the soil and provide shade, cooling our communities and animals. They improve our health and well-being and improve our neighbourhoods. And they are beautiful.

Australia is home to forests covering 132 million hectares.[1] This area increases to 300 million hectares, or 39% of the continent,[2] when Australia's vast open woodlands and savanna woodlands are included.[3] To put this area in perspective, that's equivalent to the area of Queensland and the Northern Territory combined.

ALMOST **HALF** OF AUSTRALIA'S FORESTS AND WOODLANDS HAVE BEEN CLEARED SINCE BRITISH COLONISATION

Almost half of Australia's forests and woodlands have been cleared since British colonisation, which has reduced their extent from 30% of the continent to 16% in 231 years.[4]

Today, only 67 million hectares are in protected areas including national parks and nature reserves, Indigenous Protected Areas, council reserves, conservation covenants and private conservation sanctuaries.[5] That's just 17% of these precious assets safe from destruction.

This leaves 233 million hectares of forests and woodlands outside protected areas.

WWF-Australia estimates that approximately 36 billion trees grow on these 233 million hectares.[6] That's an enormous number of trees. And, billions of these at risk of being bulldozed.

We estimated this number of trees using the average tree density per hectare.[7] The range in tree density across Australia is large. The number of large trees growing in a hectare, which is a square measuring one hundred meters by one hundred meters, generally increases with higher rainfall and better soils: sparse inland woodlands (fewer than 5), open woodlands (10-15), closed woodlands (30), tall forests on the east coast (60), sub-tropical rainforest (100-300), and higher for tropical rainforest.

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[1] Department of Agriculture and Water, Australian Government, Australia's State of the Forests Report 2018. Available for viewing at http://www.agriculture.gov.au/abares/forestsaustralia/sofr

[2] WWF-Australia estimate based on National Vegetation Information System Major Vegetation Groups version 5.1 including all categories that include forest or woodland. Excluding the following MVGs: Acacia Shrublands; Other Shrublands; Heathlands; Tussock Grasslands; Hummock Grasslands; Other Grasslands, Herblands, Sedgelands and Rushlands; Chenopod Shrublands, Samphire Shrublands and Forblands; Inland Aquatic - freshwater, salt lakes, lagoons; Unclassified Native Vegetation; Naturally Bare - sand, rock, claypan, mudflat; Sea and Estuaries; Unknown/No Data. From this they excluded areas mapped as cleared or developed according to NVIS and the National Catchment Scale land use layer 2018.

[3] WWF-Australia's conservation scientists prepared this report by analysing diverse data sources including the federal government's native vegetation information system, protected areas database, and land use mapping, as well as information in reports regarding forests, forest carbon and carbon farming opportunities.

[4] Australia State of the Environment Report 2016, Commonwealth of Australia 2017-18. *Vegetation* (Land 2016). Available for viewing at https://soe.environment.gov.au/theme/land/topic/2016/vegetation-0

[5] According to the Collaborative Protected Areas Database (CAPAD 2016).

[6] WWF-Australia estimates the number of trees growing in Australia's natural forests and woodlands by extrapolating the average number of trees growing on an 'average' hectare' of forest or woodland (156 trees per hectare) to the 233 million hectares of forests and woodlands that are not conserved within protected areas (hence 233 million hectares x 156 = 36.4 billion trees). Note that the Crowther Lab model was not developed specifically or validated for Australia, and excludes shrubs and small trees, so the results are rough estimates and likely conservative.

[7] WWF-Australia used data from the Crowther Lab's tree density model (Crowther, TW, *et al.,* 2015. Mapping tree density at a global scale. *Nature,* volume 525, pages 201–205) to estimate the average number of trees per hectare across Australian forests and woodlands (156 trees/hectare, including both large and small trees). This figure was then compared to other data for tree densities for different vegetation types to check its accuracy. We relied on a report by Kerle (1995) for the NSW Department of Environment and Conservation, and a paper by Johnson and Redpath (1997) for the Royal Botanic Gardens Sydney.

The average number of trees is 156 trees per hectare. This includes both large trees as well as smaller trees with diameters more than 10cm at breast height, from Hobart to Darwin and from Rockhampton to Fremantle.

In eastern Australia, and other deforestation hotspots around the world, forests and woodlands are being lost at alarming rates. Forest loss has been accelerated by fires in the Amazon rainforests, conversion of jungle to palm oil plantations in Borneo, illegal logging in the Congo Basin, and destruction of the Cerrado savannas in Brazil for soy. Add to these the bulldozing of forests in Australia mainly for beef cattle, and the world is losing too many precious trees, as well as all the unique animals and plants they harbour.

WHAT ARE THE IMPACTS OF DEFORESTATION DURING ONE YEAR?

WWF-Australia estimates the area of forests and woodlands bulldozed each year in Australia is approximately 500,000 hectares. This figure is based on multiple data sources and trends.[8]

AT LEAST
50 MILLION
TREES ARE KILLED OR DAMAGED IN AUSTRALIA EACH YEAR

The types of trees destroyed or damaged varies widely, from 500-year-old gum trees that are home to gliders and owls, to sparse inland woodlands which are habitat for koalas and cockatoos, to saplings as high as your waist which have regrown after a forest was flattened.

At least 50 million trees are killed or damaged each year, as well as tens of millions of smaller saplings and shrubs.[9] Some trees survive and regrow as suckers from roots after being bulldozed, such as Mulga in southwest Queensland.

This estimate is based on a national average tree density of 156 trees per-hectare and other assumptions.

The impact on trees is massive, and so are the impacts on wildlife and carbon emissions.

WWF-Australia estimates that 75 million animals[10] are killed each year from deforestation across Australia at the current rates of destruction. That is an enormous loss of Australia's unique and amazing fauna. This estimate is based on research[11] by ecologists over the past two decades regarding the number of animals killed in Queensland and New South Wales, which is comprised mainly of small reptiles, as well as birds and mammals.

The federal government's national greenhouse gas inventory estimates that deforestation and forest degradation released 47 million tonnes of greenhouse

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[8] WWF estimates approximately 500,000 hectares of forests and woodlands are being bulldozed annually in recent years. This figure is based upon an estimate for Queensland (where most land clearing occurs, even following a welcome tightening of the Vegetation Management Act (Qld) in May 2018, but subsequent annual monitoring data is not yet publicly available), the federal government's National Carbon Accounting System tracking of greenhouse gas emissions from the land sector (but which are widely held to underestimate the area of clearing), increasing rates of clearing in NSW, and rough estimates for clearing in other states which do not release accurate annual reports of clearing (particularly the other two deforestation front states of Western Australia and the Northern Territory).

[9] WWF estimated the number of trees killed or damaged by multiplying the estimated number of hectares impacted by deforestation and forest degradation (500,000 hectares) by 156 trees per hectare (which equals 78 million trees), then discounting this by one-third to account for the estimated proportion of young trees and sparse saplings, particularly in regrowth (78 x 0.667, which equals 52 million trees).

[10] Reptiles, birds and mammals only. This figure excludes impacts upon insects.

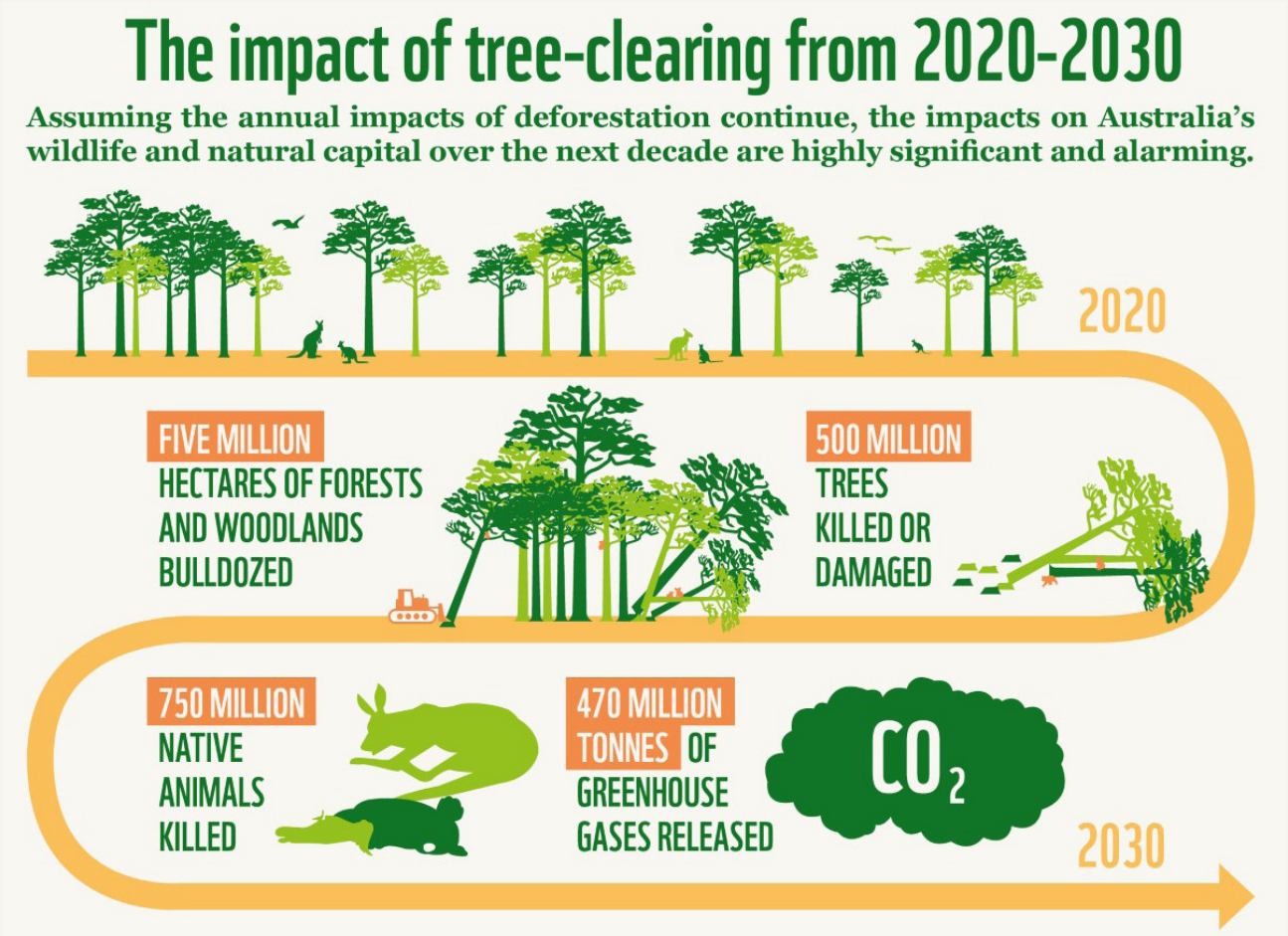
[11] WWF conservatively estimated the number of vertebrate animals killed by deforestation and forest degradation by assuming two-thirds of the estimated 500,000 hectares bulldozed annually involved destruction of mature forests and regrowing forests and woodlands more than 15 years old (or 333,333 hectares). Based on an estimated 225 vertebrate animals living on an 'average' hectare of forest or woodland in Queensland, this equates to 75 million animals (333,333 hectares multiplied by 225 animals per hectare). The vast majority of these native animals killed would be small lizards and other reptiles, plus birds and mammals.

gases in 2018, and projects these levels of emissions will remain at about this level until 2030.[12] This assumes no action by the federal government to reduce rates of deforestation. Scientists have good reason to believe this figure is also a serious un- derestimate because the models have been shown to fail to detect much of the actual clearing, as noted in the facts & figures section (page 17).

A DECADE OF DESTRUCTION

The figures on the previous page are annual. These were then extrapolated for period 2020 to 2030, assuming annual impacts continue. The impacts on Australia's wildlife and natural capital over the next decade are highly significant and alarming: five million hectares of forests and woodlands bulldozed, 500 million trees killed or damaged, 750 million native animals killed, and 470 million tonnes of greenhouse gases released. WWF-Australia adopted conservative assumptions in estimating these impacts, hence the impacts are likely higher.

WWF-Australia cannot let this happen as Australia, and the world, grapples with both the biodiversity extinction and climate crises.



[12] *Australia's emissions projections 2018*, Commonwealth of Australia 2018. Available for download at http://www.environment.gov.au/system/files/resources/128ae060-ac07-4874-857e-dced2ca22347/files/australias-emissions-projections-2018.pdf. See pages 32 and 33.

A FUTURE OF HOPE

Through a transition from deforestation to reforestation

There is hope, and proven solutions, to our deforestation challenge.

Stronger tree-clearing controls significantly reduced the rate of destruction in Queensland between 2006 and 2013, and in New South Wales between 2003 and 2013. The Queensland Government strengthened laws again in May 2018, which should reduce the rates of loss of mature forests and advanced regrowth. Strong laws are needed at state and federal levels to protect forests and woodlands from destruction. This is the highest priority action.

The destruction of forests and woodland wildlife habitats is overwhelmingly for the purpose of making pasture for beef cattle. The Wilderness Society forensically analysed data for Queensland that 73% of clearing in that state was to grow more grass to feed cattle to produce beef.[13] This rose to an alarming 94% of clearing in catchment areas flowing onto the Great Barrier Reef. Other drivers, such as urban development, mining, roads, forestry, and even cropping, have a minor contribution, although still very damaging for the wildlife that is in their way.

73%

OF TREE-CLEARING IN QLD WAS TO GROW MORE GRASS TO FEED BEEF CATTLE

Big retailers have made various commitments to remove deforestation from their supply chains.

But progress is too slow across supply chains, banks and superannuation funds that finance forest destruction. Hopefully, you will soon be able to buy beef from your supermarket or from a restaurant that is truly 'forest-friendly' without risk of green-washing. For example, McDonald's has publicly committed to removing deforestation from its supply chains from 2020.[14] Beef is food that is produced largely from intact uncleared forests and woodlands, without more forest destruction required. Forest friendly beef could be on supermarket shelves and in restaurants tomorrow. When retailers demand deforestation-free beef, producers and abattoirs will need to develop processes to ensure beef can be reliably identified as forest friendly from paddock-to-plate.

Across Australia, many millions of hectares of previously cleared lands are also being allowed to regrow. Indigenous rangers and graziers are reducing stocking rates and managing fire to assist vast areas of hectares of forests and woodlands to regenerate naturally. Carbon farming on degraded lands where cropping and livestock grazing are increasingly unviable due to climate heating and drought is an important landuse to maintain rural communities. Tens of millions of trees are also being planted, which can be the only option on land that has been cleared for many years and for which viable seeds or tubers no longer exist in the soil.

This important work is being done by land carers, governments, graziers, Indigenous land managers, carbon farmers, conservation organisations, school groups and corporations.

But without a halt to deforestation and forest degradation, these benefits will be cancelled out. [15]

That's why WWF-Australia is advocating a major new national plan to save and grow an additional two billion trees in Australia by 2030. This is part of WWF's work globally, with partners, to save and grow a trillion trees by 2050 as a response to both the biodiversity extinction and climate crises.

75 MILLION
ANIMALS ARE KILLED EACH YEAR FROM DEFORESTATION ACROSS AUSTRALIA

WWF-Australia urges governments, landholders and corporations to end deforestation and forest degradation, and transition to being a world leader in ecological restoration of forests and woodlands.

Over the coming decade, ending deforestation in Australia would save an estimated five million hectares of forests and woodlands from destruction and damage, save 500 million trees from being killed or damaged, conserve 750 million native animals, and cut our country's greenhouse gas emissions by around 9%. In addition, restoration of forests and woodlands across 10 million hectares of cleared lands could grow an additional one-and-a-half billion trees.[16] This goal is based upon ecological restoration of forests and woodlands to date under a range of programs, including decades of landcare efforts by farmers and local communities, efforts by diverse conservation organisations and environment agencies, the federal government's Emissions Reduction Fund,[17] the Queensland Government's Land Restoration Fund,[18] and modelling by CSIRO that investigated carbon farming opportunities.[19]

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[13] Wilderness Society, 2019. *Drivers of Deforestation and land clearing in Queensland*. Available for download at https://www.wilderness.org.au//images/resources/The_Drivers_of_Deforestation_Land-clearing_Qld_Report.pdf.

[14] McDonald's, 2019. *We care about Conserving Forests*. Available for viewing at https://corporate.mcdonalds.com/corpmcd/scale-for-good/our-planet/conserving-forests.html

[15] Adam Morton and Anne Davies, 17 October 2019. *Australia spends billions planting trees – then wipes out carbon gains by bulldozing them*. The Guradian. Available for viewing at https://www.theguardian.com/environment/2019/oct/17/australia-spends-billions-planting-trees-then-wipes-out-carbon-gains-by-bulldozing-them

[16] Regrowing forests and woodlands on 10 million hectares of cleared lands, be removing stock and ceasing bulldozing to allow natural regeneration from seedbanks, could produce an additional 1.5 billion trees, assuming this area would grow an average of 156 trees per hectare.

[17] Clean Energy Regulator, Australian Government. *Emissions Reduction Fund*. Available for viewing at http://www.cleanenergyregulator.gov.au/ERF/Pages/default.aspx

[18] Department of Environment and Science, Queensland Government. Land Restoration Fund. Available for viewing at https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund

[19] The *Australian National Outlook 2019* (CSIRO and NAB) projected that under the high-ambition Outlook Vision scenario between 11 and 20 million hectares of environmental plantings could occur by 2060 under a cooperative global climate context. Available for download from https://www.csiro.au/en/Showcase/ANO, see Executive Summary, p9.

A FUTURE OF HOPE

TOWARDS TWO BILLION TREES IS PART OF THE SOLUTION TO DROUGHT AND WORSENING CLIMATE CHANGE IMPACTS ON RURAL AUSTRALIA

By using the federal government's national carbon accounting system, WWF-Australia estimates this could store an additional one billion tonnes of greenhouse gases, based on an estimate of approximately 100 tonnes of carbon dioxide stored in each hectare of forest or woodland. Current government incentive schemes are insufficient to catalyse this scale of ecological restoration, either because the supply of carbon farming credits is too low for the growing demand of verifiable carbon offsets, the metrics are still being developed to allow carbon and other environmental or social co-benefits to be 'stacked' to maximise benefits to landholders, or there is insufficient public or private sector financing.

Alongside state and federal governments passing strong laws to stop trees from being bulldozed, expanding the protected areas estate would secure forests and woodlands. WWF-Australia's conservation scientists estimated that adding 40 million hectares of forests and woodlands would ensure that at least 15% of these habitats are included within protected areas. To put that in perspective, the national reserve system currently protects 151 million hectares. This would represent a 26% expansion of the protected areas estate.

The climate crisis requires strong measures to rapidly reduce carbon pollution in Australia. The transition from destroying to regrowing forests presents a solution that requires major funding for the land sector, perhaps as much as $10 billion by 2030. This should increase financial support for landholders for environmental stewardship and carbon farming.

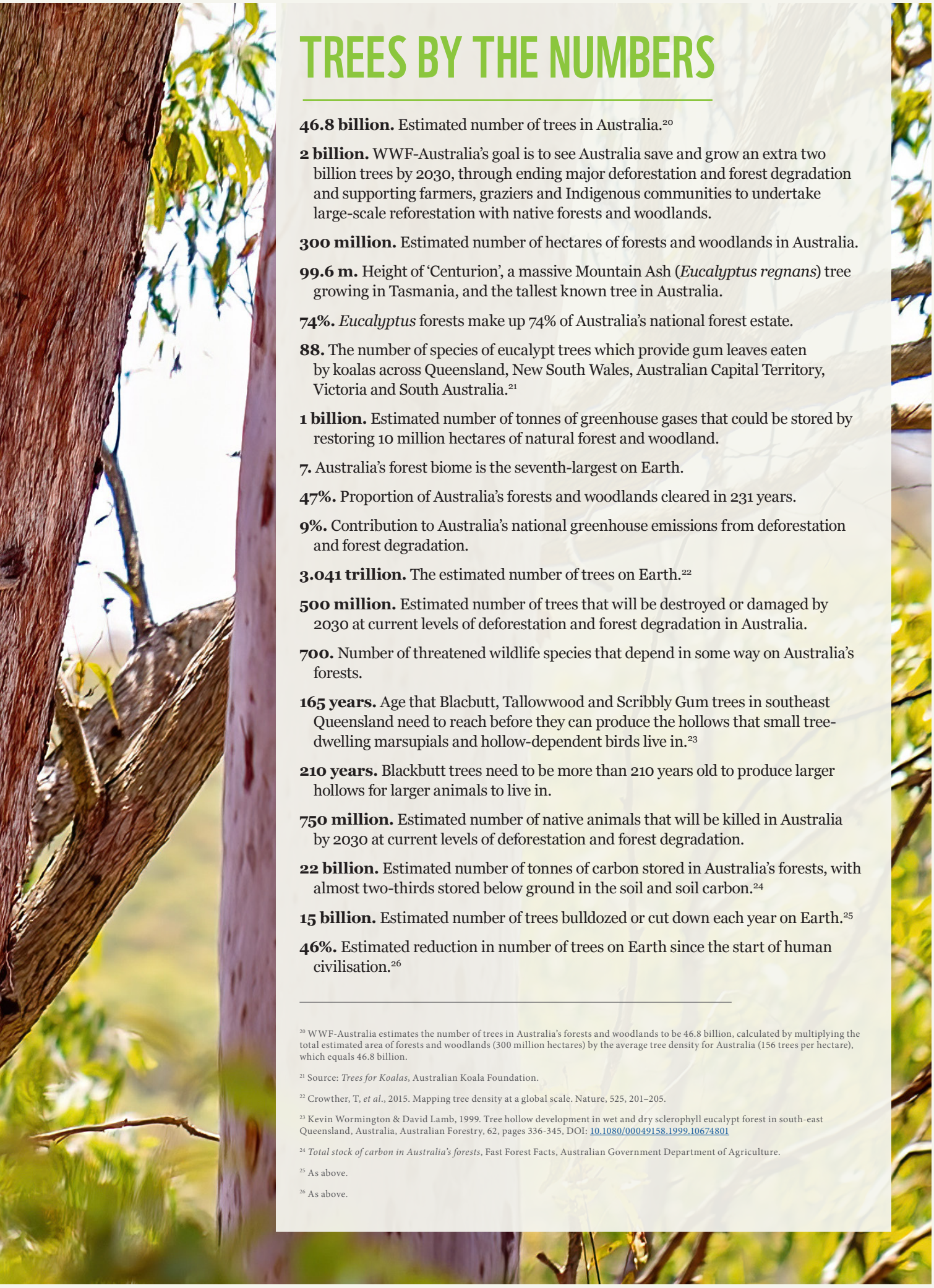
When efforts to transition from deforestation to reforestation are considered together, over the next decade these natural climate solutions would save and grow an additional two billion trees across 15 million hectares, save an estimated 500 million trees and 750 million vertebrate animals, play a major role in cutting Australia's emissions to help create a safe climate, and store an additional one billion tonnes of forest carbon. Towards Two Billion Trees is part of the solution to drought and worsening climate change impacts on rural Australia. It will help create sustainable jobs for farmers and Indigenous communities, and grow carbon farming businesses.


WWF-AUSTRALIA'S PLAN TO SAVE AND GROW 2 BILLION TREES BY 2030
SAVE 780 MILLION TREES
500,000 HA OF FORESTS AND WOODLANDS EACH YEAR = CUMULATIVE 780 MILLION TREES SAVED FROM 2020 TO 2030
+
GROW 1.56 BILLION NEW TREES
REFORESTING 10 MILLION HA OF CLEARED LANDS BY ALLOWING REGROWTH AND PLANTING NEW TREES. = 1.56 BILLION NEW TREES
=
2.42 BILLION TREES IN 10 YEARS
2020
2030

HOW REFORESTING HELPS US

- PROVIDES WILDLIFE HABITAT
- PREVENTS MILLIONS OF WILDLIFE DEATHS
- LOCKS AWAY CARBON
- CREATES SUSTAINABLE JOBS FOR INDIGENOUS COMMUNITIES
- POTENTIAL INCOME STREAM FOR DROUGHT-STRICKEN FARMERS
- A NATURAL CLIMATE SOLUTION

NSW FOREST © UNSPLASH / FEZBOT



KOALA, HUGGING A GUM TREE © JACKSON PHOTOGRAPHY - STOCK.ADOBE.COM

TREES BY THE NUMBERS

46.8 billion. Estimated number of trees in Australia.[20]

2 billion. WWF-Australia's goal is to see Australia save and grow an extra two billion trees by 2030, through ending major deforestation and forest degradation and supporting farmers, graziers and Indigenous communities to undertake large-scale reforestation with native forests and woodlands.

300 million. Estimated number of hectares of forests and woodlands in Australia.

99.6 m. Height of 'Centurion', a massive Mountain Ash (*Eucalyptus regnans*) tree growing in Tasmania, and the tallest known tree in Australia.

74%. *Eucalyptus* forests make up 74% of Australia's national forest estate.

88. The number of species of eucalypt trees which provide gum leaves eaten by koalas across Queensland, New South Wales, Australian Capital Territory, Victoria and South Australia.[21]

1 billion. Estimated number of tonnes of greenhouse gases that could be stored by restoring 10 million hectares of natural forest and woodland.

7. Australia's forest biome is the seventh-largest on Earth.

47%. Proportion of Australia's forests and woodlands cleared in 231 years.

9%. Contribution to Australia's national greenhouse emissions from deforestation and forest degradation.

3.041 trillion. The estimated number of trees on Earth.[22]

500 million. Estimated number of trees that will be destroyed or damaged by 2030 at current levels of deforestation and forest degradation in Australia.

700. Number of threatened wildlife species that depend in some way on Australia's forests.

165 years. Age that Blacbutt, Tallowwood and Scribbly Gum trees in southeast Queensland need to reach before they can produce the hollows that small tree-dwelling marsupials and hollow-dependent birds live in.[23]

210 years. Blackbutt trees need to be more than 210 years old to produce larger hollows for larger animals to live in.

750 million. Estimated number of native animals that will be killed in Australia by 2030 at current levels of deforestation and forest degradation.

22 billion. Estimated number of tonnes of carbon stored in Australia's forests, with almost two-thirds stored below ground in the soil and soil carbon.[24]

15 billion. Estimated number of trees bulldozed or cut down each year on Earth.[25]

46%. Estimated reduction in number of trees on Earth since the start of human civilisation.[26]

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[20] WWF-Australia estimates the number of trees in Australia's forests and woodlands to be 46.8 billion, calculated by multiplying the total estimated area of forests and woodlands (300 million hectares) by the average tree density for Australia (156 trees per hectare), which equals 46.8 billion.

[21] Source: *Trees for Koalas*, Australian Koala Foundation.

[22] Crowther, T, *et al*., 2015. Mapping tree density at a global scale. Nature, 525, 201–205.

[23] Kevin Wormington & David Lamb, 1999. Tree hollow development in wet and dry sclerophyll eucalypt forest in south-east Queensland, Australia, Australian Forestry, 62, pages 336-345, DOI: 10.1080/00049158.1999.10674801

[24] *Total stock of carbon in Australia's forests*, Fast Forest Facts, Australian Government Department of Agriculture.

[25] As above.

[26] As above.

IS AUSTRALIA GROWING MORE FORESTS THAN ARE BEING BULLDOZED?

The federal environment department claims that Australia has already achieved net-zero deforestation because the area of land with re-sprouting trees – mainly young saplings – is greater than the area of mature forests destroyed. This is misleading and incorrect. The federal government's approach underestimates the area of forest destruction, and considers the quality of mature forests being destroyed as being the same as the quality of young regrowing forests. The examples below illustrate these points:

1. The federal government's forest monitoriong methodology vastly underestimates forest loss. In the five years from 2012 to 2017, the Queensland Government used its accurate methodology[27] to identify 482,000 hectares of mature forest that was cleared, excluding clearing of regrowth. But the federal government's monitoring found only 189,000 hectares of clearing for the same period. This is largely because their approach doesn't count part-clearing of a forest as deforestation, even if up to 80% of its crown cover is lost. This leads to a major underestimation of forest loss.
2. What is mapped as 'forest' by the satellite image interpretation model used by the federal government could be saplings re-sprouting from previous deforestation, or it could be old growth or mature forest 40 metres tall. Their model does not distinguish based on forest quality. It's all just 'forest'. Mature forests provide much better habitat for wildlife than young regrowth. They store much more carbon and produce more rain. Young saplings will need to grow for decades or centuries to replace the values lost from bulldozing mature forests.

All methods used for modelling forest destruction have errors and can be improved, and the federal environment department's models are improving. WWF advocates for the federal government to increase funding for the environment department to allow their experts to develop more accurate satellite monitoring tools for the entire continent, by improving upon the satellite monitoring approach used by the Queensland government, and to more accurately calculate deforestation rates including part-clearing of forests down to 20% crown cover.

[27] *Statewide Landcover and Tree Study* (or SLATS), Queensland Government Department of Environment and Science, Brisbane. Available for viewing at https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/slats

STATIONARY BULLDOZER IN FRONT OF TREES NEAR INVERELL, NSW © WWF-AUS / ADAM KROWITZ

Towards Two Billion Trees Plan Highlights

STOP

End deforestation and forest degradation by phasing out major destruction of mature forests and woodlands, and high conservation value regrowth vegetation.

PROTECT

Conserve 30% of Australia's land within the National Reserve System.

TRANSITION

End native timber harvesting and transition the forest logging industry to plantations or Forest Stewardship Council-certified forestry.

GROW

Save and grow forests and woodlands, and support expansion of carbon farming markets and regenerative agriculture, to increase abatement and storage of land carbon by a cumulative 1,500 million tons of greenhouse gases between 2020 and 2030.

RESTORE

Reforest 10 million hectares of native forests and woodlands on cleared or degraded lands to provide wildlife habitat, store carbon, conserve threatened species, create climate refuges and restore landscape connectivity.

WWF

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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