

## **Keep Sydney Beautiful**



17 April 2020

Thank you for the opportunity to make a submission to the bushfire inquiry.

[Keep Sydney Beautiful](#) was founded in 2015 to advocate for the protection of the great natural beauty of Sydney and its surrounds.

We work closely with a range of well-established environmental and grassroots community organisations to promote awareness of important environmental and liveability issues in Sydney and beyond. We support sensitively managed growth that respects and enhances Sydney's wondrous natural environment and rich cultural heritage.

### **Introduction**

With respect to the Bushfire Inquiry's Terms of Reference, we would like to address the issues of land clearing and climate change and their collective impact on bushfire risk.

Despite claims by politicians and media reports to the contrary, this submission will highlight evidence that shows that the alarming increased rate of land clearing in NSW in Queensland is exacerbating the effects of climate change and, in fact, increasing the risk of bushfires by making the climate hotter and drier.

## **Land clearing rates in NSW have soared**

Australia has the unfortunate distinction of having one of the highest rates of deforestation in the developed world. This is due to an accelerated rate of land clearing in recent years on private land in NSW and Queensland.

A [report](#) by the National Resources Commission, for example, showed that land-clearing approvals in NSW have increased nearly 13-fold since the Government relaxed laws in 2016.

The huge jump in approvals is also the result of a self-assessment regime that was introduced as part of a suite of regulations tied to the introduction of *The Biodiversity and Conservation Act 2016*. At the time, critics were alarmed, arguing that the use of self-assessment was premature because the native vegetation maps that the rural landholders relied on were not yet complete. According to Chris Gambian, CEO of The Nature Conservation Council of NSW [regulatory maps were still not available](#), two years after promised.

To understand the current scale of land-clearing in NSW, up until 2014-15 [the loss of woody vegetation to agriculture](#) was around 8,000 to 9,000 hectares a year. By 2017-18 it had more than tripled to 27,100 hectares - the equivalent of an area about 100 times the size of Sydney's central business district each year.

Critics point out that the economics of cleared land for cropping makes land-clearing very compelling to agricultural interests. A [recent investigative report](#) by the Guardian accessed real estate records that showed that cropped land west of Moree, for example, sells for \$2,500 a hectare whereas grazing land only sells for between \$700 and \$1000 a hectare. Prime land east of Moree that has already been converted to crops sells for \$6,800 a hectare, three times the value of grazing land.

## **Too little land clearing has been blamed by some politicians as increasing bushfire risk**

On Boxing Day, Natural Disaster and Emergency Management Minister David Littleproud called for a new inquiry into land-clearing and controlled burn-offs. [The inquiry is looking into issues](#) including vegetation and land management laws.

Much like the last one, this inquiry is partly in response to the Queensland Government's strengthening of native vegetation land-clearing rules in 2018. These new laws were designed to curb huge spikes in land clearing rates that occurred when the previous Liberal National Party Government relaxed tighter rules introduced in 2009 by the former Labor Government.

The Prime Minister also made his own position on Queensland's tougher stance on land-clearing clear. "The Queensland state government is negligent when it comes to how they are handling these native vegetation laws," he told Macquarie Radio on 6 December 2019.

Speaking to the [media](#) in Sydney on 2 January 2020, the Prime Minister said there was "a need to address issues around hazard reduction for national parks, dealing with land clearing laws, zoning laws and planning laws around people's properties and where they can be built in countries like Australia, up and down the coast."

On 22 January. Mr Morrison [told Sky News](#) that "Hazard reduction is as important as emissions reduction...Many would argue even more so, because it has a direct practical impact on the safety of a person going into a bushfire season."

Mr Morrison [flagged new national standards](#) for meeting hazard reduction targets, along with a review of land-clearing laws, native vegetation rules and allowing grazing in national parks.

## **Too little land clearing is not the issue**

Former fire chief Greg Mullins, speaking on behalf of the Climate Council, [told the Associated Press](#) that hotter temperatures and drier conditions driven by global warming are the root cause of the bushfires. It is a dangerous distraction to suggest otherwise," he said.

The former boss of the NSW Rural Fire Service, Shane Fitzgibbon, also agreed that hazard reduction burns, while important, were not a panacea for bushfire risk. He said that they had "very little effect at all" on the spread of fire in severe weather.

## **Evidence suggests that land clearing is, in fact, increasing bushfire risk**

The National Resources Commission's report was critical of the extent of the land clearing in NSW, arguing that it put the state's biodiversity at risk. It also acknowledged that the Government had failed to maintain a promise to protect between two and four times as much land as it cleared.

According to [University of Queensland research](#), land clearing on the scale that has taken place in NSW and Queensland over the past five years is likely to be making parts of Australia warmer and drier, exacerbating the effects of climate change.

In addition, land clearing can result in erosion and poorer soil quality for farming, drive species loss, and cause a significant increase in Australia's carbon emissions.

Bill Hare, the chief executive and senior scientist with Berlin-based Climate Analytics, [told the Guardian](#) that too much land clearing "undermines the basis for food production, is causing species loss and ecological decline, destroys climate resilience, degrades water resources and reverses carbon storage on the land."

Federal government projections show that [pollution from land clearing](#) is about 46m tonnes of carbon dioxide a year to 2030, roughly equivalent to emissions from three large coal-fired power plants. Critics also argue that the rate at which

Australia is clearing land is wiping out any gains being made from tax-payer funded schemes to address climate change.

In Moree, the Guardian reports, record land-clearing and the drought created dust storms in 2019 on a scale not seen before.

### **Land clearing has a regional impact on climate**

[University of Queensland research](#) has highlighted that not only does land clearing release harmful greenhouse gases into the atmosphere, but it also causes warming locally, regionally and even globally, and it changes rainfall by altering the circulation of heat and moisture.

It points to research it has conducted along the “bunny fence” in southwest Western Australia, where there is a moister atmosphere and more clouds over native vegetation compared with nearby farming areas during summer.

### **Trees create more moisture in the lower atmosphere**

Trees evaporate more water than any other vegetation type – up to 10 times more than crops and pastures - because their deep root systems can access moisture much deeper within the soil.

The combination of increased evaporation and the naturally rough surface of trees create moist and turbulent layers in the lower atmosphere. The flow-on effect from these conditions is reduced temperatures, increased cloud formation and higher rainfall. The increased rainfall, in turn, provides more moisture to soils and vegetation.

By contrast, the clearing of deep-rooted native vegetation for shallow-rooted crops and pastures diminishes this process, resulting in a warmer and drier climate.

## **Restoring tree cover would lower temperatures**

[University of Queensland modelling](#) found that restoring trees to parts of Australia would reduce surface temperatures by up to 1.6°C, especially in western Queensland and NSW.

They also found that more trees reduced the overall climate-induced warming from 4.1°C to 3.2°C between 2050 and 2100, and that replanting trees could increase summer rainfall by 10% overall and by up to 15.2% in the southwest of Queensland. According to their scenario, areas restored in western Queensland and NSW would need a tree density of around 40%. That would allow some production to continue such as cattle grazing at lower numbers or carbon farming.

The researchers believe that balancing farming with managing climate change would give landowners on marginal land new options for income generation, while still allowing the most efficient agricultural land to remain in production.

## **Climate change is increasing bushfire risk**

Increased bushfire risk in NSW and other parts of Australia has been blamed on the drought and longer periods of sustained high temperatures.

The Guardian [reported that Australia experienced its hottest year on record in 2019, with average temperatures 1.52C above the 1961-1990 average](#). In NSW, which was hit hard by the bushfires, temperatures were 1.95C above average, beating the previous record year, 2018, by 0.27C.

Australia also had its driest ever year in 2019, with rainfall 40% lower than average, based on records going back to 1900. NSW also had its driest year.

The Guardian [pointed to research that indicates natural weather patterns are being impacted by climate change](#) in ways that increase bushfire risk.

For example, around the time of last year's major bushfire outbreak, the Indian Ocean dipole was in a "positive phase", meaning the Indian Ocean off Australia's north-west was cooler than normal and the west of the ocean was warmer.

Positive dipole events draw moisture away from Australia and tend to deliver less rainfall. A 2009 study found that positive dipole events “precondition” the south of the country for dangerous bushfire seasons and that these events were becoming more common. A 2018 study found the number of extreme positive dipole events goes up as climate heating continues. At 1.5C of global warming, the frequency of extreme positive dipole events doubles compared with the pre-industrial period.

This effect is compounded by a climatic condition called the southern annular mode, which was in a “negative phase” as the bushfires took hold in November and December. This phase was generated by a sudden warming event in the stratosphere above Antarctica, probably caused by climate change, and caused westerly winds to track further north, blowing hot air across the continent into fire-prone areas, further fanning flames.

Further, a [study of Queensland’s historic 2018 bushfire season](#) found the extreme temperatures that coincided with the fires were four times more likely because of human-caused climate change.

Advice issued in November 2019 by Australia’s National Environmental Science Program said that “human-caused climate change has resulted in more dangerous weather conditions for bushfires in recent decades for many regions of Australia. It noted that “these trends are very likely to increase into the future, with climate models showing more dangerous weather conditions for bushfires throughout Australia due to increasing greenhouse gas emissions.”

## **Conclusion**

We hope that this bushfire inquiry will examine the evidence presented here and elsewhere about the effects of land clearing and climate change on last season’s catastrophic bushfire season and reach the following conclusions:

- Land-clearing in NSW and Queensland must cease or be severely curtailed to minimise bushfire risk.
- Aggressive action must commence in order to mitigate the effects of climate change and minimise bushfire risk.

Thank you again for the opportunity to comment.