

What are hazard reduction burns, are we doing enough of them, and could they have stopped Australia's catastrophic bushfires?

By Elise Kinsella and Will Jackson

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PHOTO: An unfolding emergency in Australia is fuelling debate about how to prevent future fire disasters. (ABC News: Cameron Best)

As Australia's eastern states endure the most widespread and intense bushfires we've ever seen, experts, politicians and social media pundits are again debating whether the country needs more hazard reduction burns.

Some argue that poorly managed fuel loads are the main culprit behind the increasing fire threat and we need to ramp up deliberate burns.

Others say that while hazard reduction burns are useful for risk reduction, they are not the "silver bullet" some proclaim, and their benefits are sometimes outweighed by costs and risks.

So, what exactly is hazard reduction burning?

A hazard reduction burn — also known as prescribed burn or fuel reduction burn — is a fire deliberately started to reduce the severity of future bushfires.

Burning is just one of several methods of hazard reduction, along with mechanical removal of fuel, which is less risky but more expensive.

Melbourne University Associate Professor Trent Penman, who researches bushfire behaviour and management, says hazard reduction burning shouldn't be confused with backburning, which is a technique used to suppress fires that are already active.

"Backburning is used to interact with the fire and try to reduce the fuel ahead of a fire front," Dr Penman says.

Hazard reduction burns' primary benefit is in reducing the amount of fuel on the ground of bushland, forests and grasslands.

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PHOTO: In the ACT's Tidbinbilla Nature Reserve, rangers work with the Ngunnawal community to use traditional methods to carry out planned burns. (ABC News: Greg Nelson, file photo)

This is important, says Ewan Waller, a former chief fire officer for Victoria.

"A good burn takes out the scrub layer and debris on the ground, like limbs and logs, and to a certain extent leaves some behind," he says.

Hazard reduction burns are intended to allow the local ecology to recover by leaving trees intact.

Because of that, a hazard reduction burn won't completely stop a bushfire from later going through the same area, Mr Waller says.

"A fire will still move through [afterwards] but at a lot lower intensity, allowing firefighters to control it, and also does less damage to wildlife and assets," he says.

Do hazard reduction burns actually work?

The short answer is "sometimes".

Obviously — in general terms — the less fuel, the smaller the fire and the less intensely it will burn.

However, research has shown that as weather conditions get hotter, drier and windier, fuel reduction becomes less effective.

In "catastrophic" conditions, raging fires no longer need undergrowth to spread — they simply incinerate everything in their path, often becoming dangerous "crown fires" in the treetops.

Canberra-based environmental scientist Cormac Farrell, who specialises in bushfire protection, says fuel reduction works well in milder conditions when blazes are mainly driven by the availability of fuel.

In catastrophic conditions, the wind becomes the driving factor more than anything else and the fuel load is less important.

"We've had plenty of reports in the recent emergency of the fires just racing through areas that had had hazard reduction burns. There was very little effect from having hazard reduction burns being done."

Why don't we do more hazard reduction burns?

These burns are not without risks and need to be conducted in specific conditions — sometimes described as "Goldilocks weather".

It must be hot and dry enough for the fuel to burn, but not so hot and dry that the fire is likely to get out of control.

"It's extremely complicated," Mr Farrell says.

"The main point that operational firefighters are making is that it's becoming increasingly difficult to find that balance between the risk of reducing fuel and maybe losing control of the fire."

Former Victorian environment minister John Thwaites says the 2005 Wilsons Promontory fire demonstrated the dangers of prescribed burns in unsuitable weather conditions.

The fire got out of control 10 days after being ignited and forced the evacuation of about 600 people — including then-premier Steve Bracks, who was on holiday.

It burnt out thousands of hectares.



PHOTO: Hazard reduction burning is different to backburning, which aims to control an already active fire. (Supplied: Forest Fire Management Victoria)

Mr Thwaites, who is now a professorial fellow at Monash University and chairs the Monash Sustainable Development Institute and ClimateWorks Australia, says fuel reduction burns are important but climate change is reducing their effectiveness.

"The Wilsons Promontory fire focused attention on the dangers of hazard reduction burns, given the changes in weather and more hot and windy days in autumn," Mr Thwaites says.

How much burning is happening in the states?

Fuel reduction burns are primarily a state government responsibility and they conduct burns over hundreds of thousands of hectares each year.

In Victoria, 130,044 hectares of public land was burned across 251 burns in 2018–19.

A further 12,000 hectares had fuel reduced using other methods, such as machines clearing undergrowth, while 31,750 hectares of private land had planned burns that were run in conjunction with the Country Fire Authority (CFA).

The NSW Rural Fire Service (RFS) says it and partner agencies protected 113,130 properties through hazard reduction works during the same period.

Almost 200,000 hectares were burnt in hazard reduction operations, which was 106 per cent of its target.

According to a Queensland Fire and Emergency Services (QFES) spokesperson, the Queensland Government conducted 117 of 168 planned hazard reduction burns.

QFES did not provide a figure on the total area burned.

"In 2019, not all hazard reduction burns could be completed. In some areas it rapidly became too dry to burn safely," the spokesperson said.

"In other areas it was too wet too early on and dried out rapidly, leaving a short window of opportunity to safely conduct mitigation activities."



PHOTO: Recent bushfires have damaged or destroyed more than 2,500 homes in New South Wales. (Supplied: Adam Meredith)

Ultimately, figures on total number of hectares burnt don't tell the whole story.

Where the burns are happening is more important than how much is being burned.

Despite the difficulties in finding appropriate conditions for burning, Dr Penman says the state governments are not necessarily doing less fuel reduction burns and, in fact, some are doing more.

"The key thing is that the burning is using a risk-based approach, so they're targeting key areas that will reduce the risk to people and property," he says.

"They're often burning close to properties but perhaps burning smaller areas than they would have in the past."

Victorian Environment Minister Lily D'Ambrosio says the State Government targets burns to particular areas, rather than chasing an overall number of hectares for the entire state.

"Our fuel management program focuses on strategic areas that have the greatest impact on community safety," she says.

Could more burns have reduced the severity of our recent catastrophic bushfires?

On this key question, the experts are divided.

Victoria's former fire chief believes more hazard reduction burns would have made a difference.

"There would have still been fires," Mr Waller says.

"The burns would not have stopped them, but just maybe, and I believe probably, they would have reduced the intensity, so therefore it is worthwhile.

"As soon as the real rush of the fire slows then you have a real chance with fuel reduction to have an impact."



But Dr Penman says he is not so sure.

"Really, given the extent of these fires that are going on at the moment, hazard reduction burning is unlikely to have had a major impact," he says.

"We have seen so many ignitions, so many fires merging, and fires burning over fuels that are as young as a few months old right up to old fuels and burning in similar ways. So it's unlikely that more hazard reduction burns would have reduced the extent or the impact of these fires."

Mr Farrell agrees.

"Under catastrophic conditions I don't think hazard reduction burns would have made a huge difference, to be honest," he says.

"And that's why the focus has been very much on the two-pronged approach — we have to adapt to the new reality of the changed climate we're in, and we also have to do what we can to try and stop changing the climate."

So, do we need to burn more or not?

Mr Waller says yes.

He says Australia needs to take a national approach to fuel reduction and massively ramp up the resources allocated to burn at least 5 per cent of the burnable area each year.

"Western Australia burns around 8 per cent and they have had no real large-area bushfires since the early '60s, so the proof's there," he says.

However, Mr Farrell says that while prescribed burns can be effective in milder conditions, a big increase is not the answer.

"People are saying that if we had just burned it everything would be fine but that's simply not true and we know that's not true because of the experiences we're having right now," he says.

Are burns being reduced to protect the environment?

According to those responsible, hazard reduction is driven by safety, not environmental, concerns.

NSW RFS Commissioner Shane Fitzsimmons says claims by some politicians that "Greenies" have disrupted prescribed burning are not true.

"We are not environmental bastards, we actually work through a sensible, environmental regime," the Commissioner says.

He says hazard reduction burns are being disrupted by changing weather conditions and longer fire seasons.

Similarly, Queensland's Fire and Emergency Services Commissioner, Greg Leach, says the window for safe hazard reduction has been narrowing.

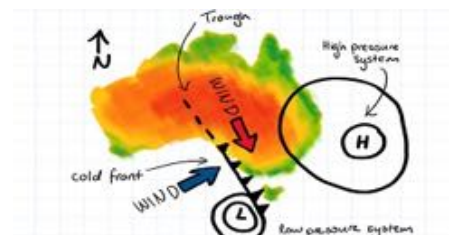
"I reject any criticism of QFES in terms of our targets because those targets can be difficult to achieve because in fact these are some of the most difficult areas that we are trying to protect."

Victorian CFA chief officer Steve Warrington says emotive suggestions that hazard reduction burning will solve the fire problem are not supported by the evidence.

"Some of the hysteria that this will be the solution to all our problems is really just quite an emotional load of rubbish, to be honest," Mr Warrington says.

PHOTO: Ewan Waller, a former Victorian chief fire officer, thinks more planned burns would have probably reduced the intensity of this year's fires. (ABC News: Sean Warren)

What makes a horror fire danger day?



Australia is experiencing horrendous fire weather. Find out why and what to watch out for.



PHOTO: In Queensland, not all planned hazard reduction burns were completed in the last financial year. (Supplied: Queensland Fire and Emergency Service)

Mr Waller says the issue has more to do with emergency services being punished when controlled burns cause accidental damage, making services more risk-averse.

Meanwhile Mr Farrell says that in his work he has cleared bush that includes threatened species to protect human life and environmental concerns have never hindered his work.

"I'm a fire manager. It's my job and I do it day in and day out and I've never had any significant constraints put on me when I've needed to do something to improve human safety, even when there was an impact on the environment," he says.

"I work quite commonly in national parks, and in that interface between suburbs and the bush where sometimes there are threatened species, and when I've had to make difficult decisions, no-one has stopped me."

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What are our political leaders doing about this?

When questioned about hazard reduction burns this week, Victorian Premier Daniel Andrews said the Inspector General would take a closer look at fuel management in his state.

However, he said the longer periods of drought, increased temperatures and more frequent bushfires were making the strategy more difficult to carry out.

"The number of days we can safely backburn is getting less and less every year. Surely no-one is advocating we put fire into the landscape in an unsafe way," Mr Andrews said.

Nationals Federal MP for Gippsland, Darren Chester, said there was going to be an expectation of more hazard reduction burning after this fire season.

"No question it's difficult to get the balance right between having the right conditions and having the resources in place to do hazard reduction burns at the right time so we need to make sure that our agencies have the capability and resources on board to do those hazard reduction burns," he said.

"So if that's a mixture of the departments working more closely with the Country Fire Authority volunteers or even supporting them to do it themselves, that's what we need to be looking at."

NSW Premier Gladys Berejiklian has dismissed suggestions NSW has not conducted enough hazard reduction burns.

"Our focus at the moment in NSW is on the recovery effort," the Premier told ABC Radio Sydney this week.

"I think everybody that has their own agenda to push should actually think about the people who we have to support at this time."

However, Ms Berejiklian promised her Government would review the state's fire management strategies once the immediate crisis was over.

In Queensland, the Acting Minister for Fire and Emergency Services, Leeanne Enoch, said her Government had been "working with First Nations peoples for a number of years to deliver a program of cool burning across park and protected areas to properly manage fire risk".

"Clearly, in the wake of the recent Australian fire season, there should be broader employment of these techniques," she said.

What to do if bushfire threatens



ABC Emergency has sourced advice from official agencies on how to plan for a bushfire, including preparing a survival kit.

More on hazard reduction burns



RMIT ABC Fact Check analyses the research into planned burns and the risk of dangerous bushfires.

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